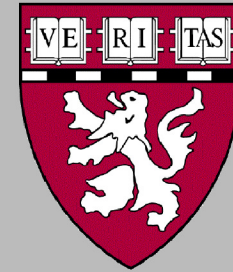


HARVARD MEDICAL SCHOOL



10th
MEDICAL EDUCATION DAY
BOOK OF ABSTRACTS

TUESDAY OCTOBER 25, 2011

12:00 PM TO 5:30 PM

TOSTESON MEDICAL EDUCATION CENTER



HMS ACADEMY
TENTH ANNUAL
Medical Education Day
HMS PROGRAM IN MEDICAL EDUCATION



October 25, 2011 Tosteson Medical Education Center Harvard Medical School

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

Welcome & Introductory Remarks – *Dean Jeffrey Flier, MD & Richard Schwartzstein, MD*

Keynote: Shifting the Medical Education Paradigm from Knowledge to Critical Thinking - *Mark Quirk, Ed.D., Professor and Assistant Dean, University of Massachusetts Medical School*

INTERACTIVE TEACHING DEMONSTRATION SESSION 1 • 1:30 PM TO 2:30 PM

The Need to Try & the Utility of Failure – TMEC 324
Keith Baker, MD, PhD

Mechanisms via Concept Mapping: Visualizing Cognitive Links – TMEC 126
Richard Schwartzstein, MD & David Roberts, MD

Assessment Strategies to Enhance Critical Thinking – TMEC 250
Edward Krupat, PhD

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

Teaching Critical Thinking at the Bedside – TMEC 109
Sylvia McKean, MD & Lidia Schapira, MD

Teaching Critical Thinking in the Lecture Hall – TMEC 333
Jeremy Richards, MD, MA & Melanie Hoenig, MD

Teaching Critical Thinking in Small Groups – TMEC 209
Barbara Cockrill, MD & Pieter Cohen, MD

CLOSING PLENARY AND ABSTRACT AWARD CEREMONY • 3:40 TO 4:25 PM • TMEC AMPHITHEATER

Presentation of HMS Medical Education Day Abstract Award 2011

Plenary: Reflection, Next Step and Discussion – *Keith Baker, MD, PhD & David Roberts, MD*

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 25, 2011

Dear Colleagues:

Welcome to Harvard Medical School's tenth 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 to enable 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 insure 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 "Critical Thinking." We hope to stimulate you to consider the cognitive science underlying our understanding of how doctors approach problems and the interaction between the subconscious and conscious brain; most importantly, we wish to provide you with a look at strategies you may wish to employ in your own teaching to enhance and assess critical thinking in students, residents, and fellows. We are very excited to welcome Dr. Mark Quirk, a nationally recognized expert on how doctors apply reasoning skills and the process by which students and residents are taught to analyze problems, as the introductory keynote speaker. Dr. Quirk, who is a professor at the University of Massachusetts Medical School, has been involved in the teaching and assessment of thinking and reasoning skills in relation to medical students for many years. He has written a very influential book on the topic, titled: *Intuition and Metacognition in Medical Education: Keys to developing expertise*. Dr. Quirk will provide us with key insights into a new paradigm for organizing medical education.

Following his talk, we will offer a series of concurrent workshops, which will focus on aspects of teaching thinking skills in small and large group sessions and in different clinical venues; we believe the discussions will be relevant for faculty teaching medical students, residents, and fellows. 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 at HMS 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. For those of you who would like to pursue some of the issues raised today in greater detail, please visit the Academy website where you will find information under the Critical Thinking Interest Group as well as a schedule of events for this year; we have invited a number of speakers throughout the year for medical education grand rounds who will provide additional perspectives on critical thinking and the development of expertise.

Consistent with a program we started last year, one of the Academy interest groups assumes significant responsibility for the planning and implementation of the Medical Education Day events. I thank Drs. Keith Baker and David Roberts, 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 and for their contributions to this event, for it is the sharing of this work that makes this day truly special.

Sincerely yours,



Richard Schwartzstein, MD
Director, Academy at Harvard Medical School

Faculty Chairs of Medical Education Day

Keith Baker, MD, PhD

David Roberts, MD

Medical Education Day Planning Committee: Members of the Academy Interest Group on Critical Thinking

Co-Chairs: Ed Krupat, PhD & Richard Schwarzstein, MD

Ayse Atasoylu, MD, MPH

Keith Baker, MD, PhD

Lisa Breen, MD

Thomas Byrne, MD

Vincent Chiang, MD

Marc de Moya, MD

Anne Fabiny, MD

Jon Fox, MD

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Joseph Rhatigan, MD

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Elizabeth Rider, MSW, MD

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Amelie Rorty, PhD

Leon Sanchez, MD, MPH

Lidia Schapira, MD

Doug Smink, MD, MPH

Robert Stanton, MD

Carrie Tibbles, MD

Augustus A. White, III, MD, PhD

Alan Woolf, MD, MPH

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TENTH ANNUAL Medical Education Day



October 25, 2011 Tosteson Medical Education Center Harvard Medical School

AWARD RECIPIENTS

HMS MEDICAL EDUCATION DAY ABSTRACT AWARD 2011

VARIATION AND IMPRECISION OF CLERKSHIP GRADING IN U.S. MEDICAL SCHOOLS

*Erik K. Alexander MD, Nora Y. Osman MD, Jessica L. Walling BA,
& Vivian G. Mitchell MD*

Department of Medicine, Brigham & Women's Hospital and Harvard Medical School,
Boston, MA – UNDERGRADUATE MEDICAL EDUCATION POSTER

PRELIMINARY DATA ON THE EFFECTIVENESS OF A RESIDENT-AS-TEACHER PROGRAM IN DERMATOLOGY

Susan Burgin, M.D., Assistant Professor, Harvard Medical School, Department of Dermatology, BIDMC; *Ruth Ann Vleugels, M.D.*, Instructor, Department of Dermatology, BWH; *Amy Sullivan, Ed.D.*, Director of Education Research; and *Lori Newman, M.Ed.*, Director of Faculty Education, both at the Shapiro Institute for Education and Research at BIDMC. – GRADUATE MEDICAL EDUCATION POSTER

COMMUNICATION AND CARING IN THE CLINIC: A RANDOMIZED EDUCATIONAL INTERVENTION

Beth A. Lown, MD, Matthew A. Carmody, MD, Richard N. Jones, PhD

Mount Auburn Hospital, Department of Medicine – GRADUATE MEDICAL EDUCATION POSTER

COMPARISON BETWEEN A GLOBAL RATING SCORE AND A TRADITIONAL OSCE EVALUATION TOOL FOR RATING MEDICAL STUDENT PERFORMANCE DURING A SIMULATED PATIENT ENCOUNTER

Takashi Shiga, M.D.,^{1,2,3} *Emily Hayden, M.D.*,^{1,2,3} *Edward Krupat, Ph.D.*,¹
Anne Fabiny, M.D.,^{1,4} *James Gordon, M.D., M.P.A.*^{1,2,3.}

¹Harvard Medical School; ²Department of Emergency Medicine, Massachusetts General Hospital; ³MGH Learning Laboratory; ⁴Cambridge Health Alliance
– SIMULATION POSTER

AWARD RECIPIENT ABSTRACTS FOLLOW

VARIATION AND IMPRECISION OF CLERKSHIP GRADING IN U.S. MEDICAL SCHOOLS

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

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

Abstract:

Background: Despite standardized curricula and mandated accreditation for all US medical schools, concern exists regarding the variability and imprecision of medical student evaluation. To date, no complete review of clerkship evaluation in US medical schools has been performed.

Methods: Clerkship evaluation data were obtained from all AAMC affiliated US allopathic medical schools reporting enrollment during 2009-2010. De-identified reports were analyzed to define the grading system used at each institution, as well as the percentage of each medical school's class placed into each grading tier as part of a full year's academic enrollment. Inter- and intra-school grading variation was then assessed in part by comparing the proportion of students receiving the top grade.

Results: Data were analyzed from 119 of 123 accredited medical schools. Within this cohort, dramatic variation was detected. Specifically, we documented 8 different grading systems using 27 unique sets of descriptive terminology. Imprecision of grading was apparent as institutions frequently used the same wording (such as "honors") to imply different meaning. The percentage of students awarded the top grade in any clerkship exhibited extreme variability (range 2-93%) from school to school, as well as from clerkship to clerkship within the same school (range 18-81%). 97% of all US clerkship students were awarded one of the top three grades regardless of the number of grading tiers. Nationally, fewer than 1% of students failed any required clerkship.

Conclusions: There exists great heterogeneity of grading systems and imprecision of grade meaning throughout the US medical education system. Systematic changes which seek to increase the consistency of terminology, the transparency of grade distribution, and the reliability of grade meaning are needed to improve the student evaluation process at the national level.

PRELIMINARY DATA ON THE EFFECTIVENESS OF A RESIDENT-AS-TEACHER PROGRAM IN DERMATOLOGY

Susan Burgin, M.D., Assistant Professor, Harvard Medical School, Department of Dermatology, BIDMC (Tel: 617-667-4995 Email: sburgin@bidmc.harvard.edu); Ruth Ann Vleugels, M.D., Instructor, Department of Dermatology, BWH; Amy Sullivan, Ed.D, Director of Education Research; and Lori Newman, M.Ed., Director of Faculty Education, both at the Shapiro Institute for Education and Research at BIDMC.

ABSTRACT: Submitted as a poster presentation for “Graduate Medical Education.”

Study summary: 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. The Resident-as-Teacher Program in the Harvard Dermatology Department, initiated in 2007, provides residents with preparatory guidance on best practices for small group, case-based teaching; experience teaching medical students in small groups; experience teaching co-residents in 5 review sessions in the department’s annual “Art of Differential Diagnosis” course; and formal feedback on teaching immediately after each observed session.

Objectives: 1.To assess residents’ interest in and perceived value of the program.
2. To study the effectiveness of feedback provided after direct observation of teaching.

Study design and analysis: An anonymous questionnaire was designed and administered to assess residents’ interest in the program and teaching skills learned. A subset of residents were observed and assessed in two separate teaching sessions by a clinician educator using a teaching observation form. Teaching skills were assessed in 15 performance domains. After the first session, the resident received detailed feedback on his/her performance. A second observation was conducted to determine if the feedback provided led to improved resident teaching. Descriptive statistics were used to describe questionnaire item responses. Paired *t*-tests were used to test differences in residents’ observed skills pre- and post-intervention. All skill items were summed and averaged to create a composite skill score.

Results: Twenty of 22 residents (91%) completed the questionnaire. Eleven of these were senior residents who reported attending a total of 22 feedback meetings. Nine of 11 residents (80%) strongly agreed or agreed that the feedback increased their confidence in leading small group discussions; 100% noted that feedback was given in a respectful way, and 81% noted it was a valuable experience. Residents reported having learned a broad range of skills. Fifteen of 19 residents were very interested or interested in an expanded Resident-as-Teacher Program. 70% were very interested or interested in learning more about lecturing techniques, teaching procedural skills, and precepting medical students in an ambulatory clinic. Six residents received paired feedback sessions 1 to 4 months apart. A statistically significant increase in 10 of 15 observed teaching skills domains was noted. The change in residents’ teaching skills as a whole was also statistically significant ($t=10.8$; $p=0.0001$).

Conclusions and next steps: The Harvard Dermatology Resident-as-Teacher Program has been enthusiastically received. Preliminary data regarding its effectiveness show statistically significant changes in the residents’ teaching performances. We plan to further study the program’s effectiveness and to schedule new teaching sessions for the program. Sessions will include an expanded number of topics such as large group presentation skills and teaching in the ambulatory setting.

COMMUNICATION AND CARING IN THE CLINIC: A RANDOMIZED EDUCATIONAL INTERVENTION

Beth A. Lown, MD, Matthew A. Carmody, MD, Richard N. Jones, PhD
Mount Auburn Hospital, Department of Medicine

Contact: Beth A. Lown, MD (email: blown@mah.harvard.edu; telephone: 617-499-5140)

Poster presentation: Graduate Medical Education; Assessment

Introduction

We initiated a program to teach and evaluate interpersonal/communication skills for internal medicine residents in out-patient clinics.

Methods

Twenty four of 29 eligible residents consented and were block randomized to intervention (n=12) and no intervention (n=12) conditions. Blocking was performed on resident pre-assignment to off-site practice and hospital-based clinic. For each resident assigned to the intervention, two patient encounters were videotaped before and two after the intervention (4 videos per resident). Residents, their clinic preceptors and investigators identified two of eight skills for targeted improvement. Residents reviewed on-line teaching modules, reflection worksheets, segments from *doc.com* and received feedback from preceptors on their communication over the intervention period. Outcome data included patient ratings of communication for all residents using the Communication Assessment Tool (CAT). Trained external faculty raters, blind to target skill assignments, rated eight skills on all videos (intraclass correlation coefficient 0.8) using the Kalamazoo Essential Elements Communication Checklist (adapted).

Results

Residents showed significant gains for “Shares information” and “Reaches agreement.” The relative gain at f/u for residents assigned “Reaches” as a targeted skill, compared with those for whom it was not, was highly significant ($p < 0.01$). For targeted skills, the proportion of ratings at the level of “excellent” increased from 12% to 31% after the intervention. We saw an overall downward trend in patient satisfaction with resident communication. This trend was not significant in the intervention group. At the end of the intervention, however, multivariate analysis adjusted for clustering of items within patients and residents showed no significant difference between the intervention and control groups in % CAT items rated “excellent.”

Discussion/Implications for field

Video-review with self-assessment, preceptor feedback and self-study of on-line resources can improve trained faculty’s ratings of residents’ interpersonal/communication skills. Differences in faculty and patient ratings suggest these assess important but different aspects of behavior and relationship. Both should be assessed. Future studies should explore the differences in faculty and patients’ perceptions of communication.

COMPARISON BETWEEN A GLOBAL RATING SCORE AND A TRADITIONAL OSCE EVALUATION TOOL FOR RATING MEDICAL STUDENT PERFORMANCE DURING A SIMULATED PATIENT ENCOUNTER

Takashi Shiga, M.D.,^{1,2,3} Emily Hayden, M.D.,^{1,2,3} Edward Krupat, Ph.D.,¹
Anne Fabiny, M.D.,^{1,4} James Gordon, M.D., M.P.A.^{1,2,3}

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Category: Poster Presentation - Simulation

Introduction: Multi-dimensional assessment tools for Objective Structured Clinical Examinations (OSCE) have been well-described and validated. However, it's unclear how a simple global assessment score correlates with a traditional OSCE metric.

Methods: During a new simulator-based OSCE focusing on geriatric simulation, 190 senior medical students were rated by instructors using a traditionally constructed OSCE evaluation metric. The metric was developed through local instructor-based committee discussion and revision (multiple question domains, total 100 points). Students were also rated using a single global rating score asking for an overall evaluation of performance (one question, scale 1 [poor]-8 [excellent]). For the purpose of this research, "passing" scores were set at 60 [traditional metric] and 5 [global rating].

Results: We were able to obtain ratings for 190 students from 194 dental and medical students. Mean score on the traditional OSCE metric was 62.8 (SD=11.8). Mean score of the global rating was 6.0 (SD=1.1). The correlation between the simple global assessment score and the traditional OSCE metric was 0.58. (Spearman's correlation coefficient $P < 0.01$) The sensitivity of the global rating in identifying inadequate performance as judged by the traditional gold standard evaluation was 22.2%; specificity 97.6%; Negative Predictive Value 71.7%; Positive predictive Value 82.4%.

Conclusions: A poor global rating score is a reasonably good predictor for inadequate OSCE performance using a traditional assessment tool; students who show adequate performance by global assessment are unlikely to underperform using a more detailed metric.

TENTH ANNUAL

HMS Medical Education Day

Poster and Technology Demonstration
Abstracts (grouped by category)

**[WWW.IDIMAGES.ORG](http://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 [<http://beta.idimages.org/> in its testing phase] 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, annotated cases for students in the first two years of medical school have been developed to illustrate the major topics covered by the course. 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 (once the beta testing site is live), 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.

A WEB-BASED MEDICAL EDUCATION TEACHING TOOL

Patrick Gordan¹ MD FCCP, Jacob Yacov Kogan² MD.

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²Brigham and Women's Hospital, Department of Neurology

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Background

Medical students and teachers interact in a variety of environments in which they discuss a diversity of content. Different teaching modalities are used to accomplish this. For instance, PowerPoint® can be an effective tool to teach basic science material within a large lecture hall. On the other hand, a chalk talk at the bedside can be more appropriate for small group learning about patient care. Whether PowerPoint® or chalk talks, lack of portability limits the effectiveness of any learning moment. When portability is provided, the student can revisit the material when desired, thus reinforcing the learning points.

Objective

We aimed to create a web-based, portable learning tool using a chalk talk style to teach bedside medical information to medical students and residents-in-training.

Methods

We built a web-based, interactive chalk talk style learning tool. Individual chalk talks were constructed by creating videos of tablet-based chalk talks with voice-over. The URL is www.mdchalktalk.com. We created a preliminary critical care and neurology curriculum.

Conclusion

By harnessing the portability of the internet, we successfully created a web-based medical education tool that allows the student to revisit a preliminary critical care and neurology curriculum as desired. The material drew from high yield clinical situations. This web site has been used by Mount Auburn Hospital Internal Medicine Residents. There is growth potential in terms of expanding the number of curriculum topics, teachers, and students.

**TECHNOLOGY DEMONSTRATION:
CENTER FOR EVALUATION AT HMS**

Ed Krupat, PhD, Liz Peet, MA, Aga Jackson, Stephen Pelletier, PhD,
Darren Chernicky

Rite of Passage: HMS Students' Skills Put to the Test

This brief video (4 ½ minutes) explains the Objective Structured Clinical Exams (OSCE's) that all HMS students are required to take. Brief interviews with faculty, students, and standardized patients explain the need for such testing and the value received by students. This is a valuable, brief overview of clinical skills testing at HMS.

http://hms.harvard.edu/public/video/final_osce.mp4

SURGERY IN THE BOX; A NOVEL MIS SIMULATION MODEL

Malcolm W. Mackenzie, MD FACOG

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Category: Technology Demonstration/Simulation

Within minimally invasive surgical education programs, simulations of minimally invasive surgical procedures employ a variety models. Measures of "similarity" of these models to actual surgery and how the performance of tasks on these simulation models prepares the operator for the real surgical procedure include the concepts of "haptics", "face", "construct" and "predictive" validity. Current surgical simulation models fall short in most measures: few models provide for appropriate haptics, non-human biologic tissue models commonly lack face validity, construct validity has been demonstrated only in task based synthetic models, no model boasts predictive validity and human cadaveric tissue models though enjoying good face validity and haptics are prohibitively expensive.

We present laparoscopic/hysteroscopic surgical simulation models utilizing prepared mammalian tissue. These fabricated models are constructed to closely mimic the great variety of normal and abnormal human anatomy and when placed within a box trainer, support the performance of gynecologic surgical procedures utilizing standard instruments, and providing for the full measure of validity and haptics. Tissue models are constructed to recapitulate normal and abnormal female anatomy, representing surgical conditions that are the focus of surgical training. Given their outstanding haptics and face validity, such inexpensive models are most promising for providing simulation of the highest predictive validity.

WEB-BASED LEARNING APPLICATIONS IN MEDICAL EDUCATION

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Category: Technology Demonstration

Over the past year, our group has explored a variety of web-based learning applications for use in the education of students, residents, and staff. While in their infancy, our programs have been received favorably by learners, and their roles are expanding rapidly. Our most recent projects involve online modules to teach faculty feedback skills, and a comprehensive online course to augment simulator-based teaching of transesophageal echocardiography to residents. This exhibit will allow for interactive demonstration of several of the approaches utilized including:

1. Web releases of slide shows
2. Creation of video for online distribution
3. Website development
4. Implementation of online learning management systems (Chu et al., 2010)
5. Experiences with live web broadcasting
6. Strategies for lecture capture and distribution

There is a natural progression from the simple posting of lecture slides to the implementation of online learning systems with integrated course content and lecture capture. With each successive step, the robustness of the tool improves. As the level of technological complexity increases, however, so too does the cost and the challenge of implementation.

The merits and limitations of each technique listed above will be explored in the context of a medical education environment. Experiences from each type of learner cohort will be examined, including preference results and commentary from participants in ongoing courses. While in the early stages of testing, preliminary feedback suggests favorable adoption of these new modalities.

Discussion will also address identifying and properly utilizing existing resources and developing cost effective ways to apply new technology to education. Approaches to enhance adoption and compliance will also receive attention.

Reference:

Chu, L. F., Young, C. A., Ngai, L. K., Cun, T., Pearl, R. G., & Macario, A. (2010). Learning Management Systems and Lecture Capture in the Medical Academic Environment. *INTERNATIONAL ANESTHESIOLOGY CLINICS*, 48(3), 27–51.

RESIDENTS HELPING IN NAVIGATING OR SCHEDULING (RHINOS): AN ON-LINE SYSTEM FOR FACILITATING SELF-DIRECTED LEARNING

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Category: Technology demonstration

Introduction: A fundamental, daily challenge for anesthesia and surgical residency programs is optimally matching residents with available operative cases. Trainees need exposure to a diverse set of cases that are appropriate for their level of training while meeting the minimum number of required case types set by the Accreditation Council for Graduate Medical Education (ACGME). While assignment practices vary, typically an attending physician distributes such that each resident is exposed to important case types. These practices require cumbersome manual record keeping and do not permit trainee input. We have developed a system that solicits trainee input on case selection and facilitates attending physician review of case experience.

Methods: In a Flash-based environment, we have developed an easy-to-use application that integrates our electronic operating room schedule, our anesthesia information management system and a database of assignment requests. Next day cases for a given resident's clinical assignment are displayed by default and allow for quick drag-and-drop selection of ranked operating room assignments. Assignment requests can be reviewed by attending physicians and assignments made with a drag-and-drop interface. Completed cases are displayed through a calendar-like visualization that describes case length, patient acuity and procedures performed.

Results: A pilot project was undertaken on two anesthesia clinical services for a period of two months. A total of 250 scheduling requests were processed. Preliminary feedback was positive. Formal evaluation is pending. A major revision is in progress that will permit selection of educational topics for intra-operative discussion in addition to soliciting input on operating room assignments.

Discussion: The advent of anesthesia information management systems, electronic operating room schedules and highly usable graphical interfaces can enable self-directed learning in the graduate medical education environment. By soliciting input, trainees may feel more engaged in the education process and be encouraged to be active learners. Additionally, automated analysis of resident case experience allows for more informed case assignments and can facilitate equitable distribution of cases.

WWW.THEANSWERPAGE.COM: AN ONLINE DAILY EDUCATIONAL RESOURCE FOR MEDICAL PROFESSIONALS

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Introduction: TheAnswerPage.com™ (TAP) is an online medical education resource that delivers current, high-quality content in an innovative, time-saving format across multiple specialties including Anesthesiology, Pain Management, Critical Care Medicine, Obstetrics & Gynecology, and Newborn Medicine.

In 1998 TheAnswerPage.com was launched in an effort to provide daily free education to doctors in training and in practice, and to address three major concerns that medical professionals share regarding on-going medical education: time, convenience, and quality.

Learn Something Everyday™ : The Answer Page employs the Socratic-like question and answer teaching method that characterizes much of the clinical education experience. User feedback confirms that medical professionals enjoy the learning structure of the educational clinical experience. TAP succinctly provides expert analysis of a specific topic for the busy clinician through its unique content delivery methods.

Each area of specialty (i.e., Anesthesiology, Pain Management, etc.) has a parallel structure. The principal educational feature is the "Question of the Day™", a daily-changing topic in the given medical field accompanied by a peer-reviewed and referenced answer of approximately 500-1000 words. Questions and answers are grouped together into syllabus topics on a weekly basis. The syllabus is generally, though not exclusively, based on the respective specialty's board certification content outline. The entire archive of past questions and syllabus topics is searchable by date and content.

We are pleased to note that beginning in 2011, the Massachusetts Medical Society/New England Journal of Medicine with be our CME accreditor.

Those who study from The Answer Page are now able to earn AMA Physician's Recognition Award category 1 CME credits through our recently introduced Interactive Crossword Puzzles, in addition to traditional quizzes.

The Answer page has over 20,000 registered users and is read in over 40 countries across the globe. To date, TAP has granted well over 100,000 hours of AMA PRA category 1 credit to clinicians. The TAP database also stores and organizes each user's CME information and allows users to easily download, email, or print CME certificates at any time.

In 2007, The Answer Page was highlighted by the Accreditation Council for Continuing Medical Education (ACCME) as an example of particularly high-quality online educational resource. TAP has received thousands of positive written comments. In addition to major US and International universities linking to TAP as an educational resource, the founders' mission has been realized when they learned their site was also being used abroad on a daily basis by those who could not afford textbooks. Further, the site is translated in many languages across the globe! Please review our book of readers' comments!

INTEGRATING AUDIENCE RESPONSE TECHNOLOGY INTO RADIOLOGY RESIDENCY TRAINING

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BACKGROUND

The audience response system (ARS) allows speakers to actively engage their audience by posing multiple choice questions to the audience. Audience members select their answer using an electronic keypad and results are displayed on a screen in real time. In addition to permitting immediate feedback to both the audience members and the speaker, which allows for real-time adjustment in the content and delivery of material, several studies have shown that integration of audience response into traditional didactic sessions enhances learning and improves retention of covered material [1-4]. We recently integrated audience response technology into residency training of radiologists. Although some faculty physicians were less receptive to using the technology, others more readily adopted the technology. Feedback from residents was overall positive with 23 of 28 residents (82.1%) agreeing or strongly agreeing that they learn better from a lecture that incorporates the ARS than one that does not and 17 of 28 residents (60.8%) agreeing or strongly agreeing that they would more likely attend a lecture that incorporates the ARS system than one that does not.

References

1. Nayak L and Eninjeri JP. Audience response systems in medical student education benefit learners and presenters. *Acad Radiol.* 2008; 15:383-9.
2. Rubio EI, Bassignani MJ, White MA et al. Effect of an audience response system on resident learning and retention of lecture material. *AJR.* 2008;190:W319-22.
3. Streeter JL and Rybicki FJ, A novel standard-compliant audience response system for medical education, *Radiographics* 2006; 26:1243–1249.
4. Ruck BR, Hafen M, Biller DS et al. The effect of differing Audience Response System question types on student attention in the veterinary medical classroom. *J Vet Med Educ.* 2010; 37: 145-53.

**WHO IS GLOBAL HEALTH?
PILOTING AN INTERPROFESSIONAL CAREER GUIDANCE WEBSITE
FOR STUDENTS**

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Background: The emerging field of global health captures the interest of an increasing number of high school, college, and graduate students. Because global health crosses many disciplines, professions, and epistemologies, students find it hard to understand the pathways they might take to launch a career in this field. *The Realm of Possibility* is an interactive website that fosters student interest in Global Health careers through a profile-based exchange of firsthand experiences. Consistent with the recommendations of the US Department of Education's 2010 National Educational Technology Plan, *The Realm of Possibility* leverages increasingly ubiquitous tools and technologies such as social networking to facilitate informal education outside of the classroom. This project was piloted in the Technology, Innovation, and Education program at Harvard Graduate School of Education in an Educational Software Design Course.

Methods: A student focus group determined that each contributor would create brief video profiles discussing their career, non-work passions, a challenge they overcame, and their source of inspiration. The 2-minute video clips were added to a video interface. In November 2009, students in the Educational Software Design Course viewed the video clips and offered feedback to four open-ended qualitative questions.

Results: Seventeen respondents completed the survey after viewing the videos on the online platform. Their most poignant suggestions for improvement include: 1) showing the content creators in action, 2) understanding how they overcame failure, 3) presenting a typical day in their life, 4) helping students network and connect to resources, 5) adding keywords to enable search, 6) making the length of the videos less than two minutes, 7) adding demographic data and user-specific meta-data, 8) discussing work-life balance and other influences on career decisions, 9) adding the person's personal strategies for success.

Conclusion: This pilot provided rich lessons that facilitated the development of a working prototype for *The Realm of Possibility*, which will be located at StudentGlobalHealth.org. Next, we will create a second prototype to incorporate the lessons learned from the pilot into the structure of the profiles. Finally, we will collect a series of profiles to showcase the diversity of approaches people have taken to build careers centered on improving health.

TRANSESOPHAGEAL ECHOCARDIOGRAPHY SIMULATION BASED CURRICULUM: ESTABLISHING A LEARNING CURVE (Work in progress)

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Category: Poster presentation,Simulation

Background

Transesophageal echocardiography (TEE) simulation training has shown an advantage over traditional instruction methods in acquisition of basic echocardiographic concepts among anesthesia residents .There is a substantial learning curve associated with developing echocardiographic skills required for image acquisition and interpretation akin to laparoscopic surgical skills.

Aim

To establish a learning curve of achievement of basic proficiency in TEE amongst echo naive anesthesia residents via a simulation based teaching curriculum.

Methods

Anesthesia residents at the BIDMC have been invited to participate in the study. They have been divided into groups of six residents each. Every resident performs a basic echocardiographic examination on simulator (Vimedix,CEA Healthcare) which has the capability of measuring the time,manual dexterity and the accuracy of the images obtained. These metrics are compared to predetermined "gold standard" which is an aggregate of metrics obtained from an expert group of board certified anesthesiologist who performed a basic TEE exam on the simulator.

Each group undergoes a TEE instruction based on a curriculum the elements of which are as follows:

1. An on-line teaching module comprising of the basic concepts of ultrasound,doppler and its clinical applications.
2. A bi-weekly hands on teaching schedule lasting ninety minutes where the residents practice image acquisition and probe manipulation. Each training session has a theme for instance mitral valve,aortic valve etc. in addition to the basic echocardiographic evaluation under the guidance of echo board certified attendings.

The residents performs a TEE basic exam at the end of each week and the metrics are recorded. Proficiency in TEE will be established when the residents reach 75% of the "gold standard".This data will determine the learning curve for acquisition basic TEE skills.

Conclusion

Simulator based training helps in acquisition of echocardiographic skills prior to patient encounter. Establishing a learning curve will be the cornerstone in designing a robust,validated curriculum for the anesthesia residents.

References

Utility of Transesophageal Echocardiographic Simulator as Teaching Tool; Bose R et al; Journal of Cardiothoracic and Vascular Anesthesia; Vol 25,NO 2;April 2011.

**FROM STUDENT TO DOCTOR:
A SIMULATION-BASED INTERN ORIENTATION**

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Submission Category: Poster Presentation, Simulation

Abstract: Intern orientation traditionally consists of didactic, lecture format. After a needs assessment with outgoing interns, chief resident, and the residency director, we identified three areas that are problematic for new interns: transition to new role as MD, responding to common clinical emergencies, and navigation of the hospital systems.

We created a high-fidelity simulation based curriculum to address these needs. The program included four clinical scenarios: delirium, alcohol withdrawal, arrhythmia, acute myocardial infarction. The debriefing and discussion that followed addressed specific clinical topics, hospital systems and the transition from student to doctor.

Results:

Over the course of the simulation and debriefing sessions, we observed a marked change in the following areas: 1) teamwork and performance in the care of a critically ill patient, 2) BLS technique, 3) verbalizing a differential diagnosis and 4) use of closed-loop communication.

In addition, our scenarios allowed interns to learn, practice and implement hospital-specific policies surrounding clinical support systems—for example, who makes up the code team? What exactly is a rapid response and who gets called? Who do I call when I need help?

Finally, and perhaps most important, simulation and debriefing provided a venue for the discussion of personal growth: interns were given a safe place to talk with senior residents, attending physicians and nurses and about what it's really like to move from develop comfort level for their new role as a physician with its associated responsibilities.

Conclusions:

Simulation has the potential to transform intern orientation from an inactive and The clinical situations prompt discussion of medical aspects of the case while providing an organic introduction to the institutional culture. Simulation is an especially effective method to explore the transition from medical student to intern.

SIMULATION EDUCATION IN ANESTHESIA USING A CALL TEAM MODEL

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Category: Poster presentation – Simulation

Background: Simulation-based training in anesthesia has been in existence for over two decades, ranging from task trainers to teaching of crisis resource management¹. We have utilized simulation in our residency curriculum since 2006, with biweekly immersive simulations and bimonthly skills workshops. Residents have responded favorably to simulation-based training. However, several challenges have prevented us in further integrating simulation as an effective teaching tool. The hospital-owned simulation facility has limited availability and technical staff for complex scenarios. The dedicated educational time for residents is sometimes restricted by clinical duties. Furthermore, due to time constraints, the curriculum format has traditionally been designed as one simulation scenario for one volunteer trainee per session, with other residents of all levels of training observing the scenario, followed by a group debriefing. The learning goals and objectives, therefore, may not be appropriate and of interest to all the residents. Lastly, the revised ACGME policy mandates that every resident must participate in a simulation exercise each year, beginning in July of 2011. To fulfill the requirement, our department has enabled many, but not all, of our residents to participate in an all-day team-training simulation at an off-site facility. We aim to fulfill the simulation requirement by changing our current format.

Curriculum Design: To address these challenges, we have redesigned the simulation education format into eighteen one-hour multi-event simulation sessions using the on-call team as a model, beginning in September 2011. A senior resident will serve as the on-call attending to the junior residents, with learning objectives geared toward practice management. A mid-level resident and a junior resident will be assigned to level-appropriate clinical scenarios, to be conducted simultaneously, with targeted learning objectives coinciding with the didactic themes of the months. Other residents are expected to observe the scenarios in real time. Dedicated faculty will lead level-appropriate debriefings at the end of the session. Each resident is assigned to one session in advance to ensure availability and attendance.

Future direction: After this pilot year, we plan to use validated metrics to evaluate for effectiveness of simulation education and possibly resident performance. We hope this new design will allow a more thorough integration of simulation-based training into our residency education.

References

1. A brief history of the development of mannequin simulators for clinical education and training. Cooper JB, [Taqueti VR](#). [Postgrad Med J](#). 2008 Nov;84(997):563-70

A RANDOMIZED CONTROL TRIAL OF SIMULATION TRAINING FOR CENTRAL VENOUS CATHETER PLACEMENT

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Category: Poster Presentation - Simulation

Introduction: Recent data suggest that simulation-based training can also improve resident competency in placing central venous catheters (CVCs) and reduce CVC complication rates. Here, we report implementation a randomized trial of simulation-based mastery training for CVC placement.

Methods: This is a randomized controlled trial in a large cohort of internal medicine interns. Study intervention and data collection took place during each intern's 4-week rotation in medical intensive care unit. Subjects in the intervention group additionally receive 1-2 hours of instruction and practice on a venous access simulator before being evaluated on their ability to independently complete a simulated CVC placement. During actual CVC placement, interns are observed by the patient's nurse and a supervising physician. Both the nurse and the supervising physician independently document the following: (1) number of skin punctures required; (2) a global performance score based on a standardized scale; (3) the intern's adherence to 7 specific indicators of procedural technique; (4) immediate complications (arterial puncture and hematoma). The occurrence of additional complications (pneumothorax, line-associated infection, line repositioning, other major complications, and death) were obtained from chart review. Patients' anatomic obstacles to CVC placement and mechanical ventilation status are also recorded.

Results: From August 2010 to June 2011 we enrolled 73 eligible subjects. In subsequent real-world CVC insertion, the simulation trained group (n=36) was observed to more frequently adhere to instructional protocol compared to traditionally-trained interns (n=37). Simulation-trained interns more frequently confirmed by ultrasound both the location of the vein prior to puncture (P=0.01 Fisher Exact), and successful placement of the line in the vessel (P=0.003 Fisher Exact). The simulation group also performed better than the traditional group using composite score for adherence 7 specific indicators of procedure technique. (P=0.02 Wilcoxon Ranksum). No statistically significant differences between the groups were noted in (1) number of skin punctures required; (2) a global performance score based on a provided standard scale; (4) immediate complications.

CONCLUSIONS:

Compared to traditional training, simulation-trained interns were observed to more frequently adhere to key elements of instructional protocol when placing lines on actual patients. They also scored higher using a composite score for overall adherence to procedural technique. While this demonstrates differential effectiveness of simulation-based training methods for achieving adherence to procedural protocol, future work is needed to identify optimal predictive outcome measures.

COMPARISON BETWEEN A GLOBAL RATING SCORE AND A TRADITIONAL OSCE EVALUATION TOOL FOR RATING MEDICAL STUDENT PERFORMANCE DURING A SIMULATED PATIENT ENCOUNTER

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Category: Poster Presentation - Simulation

Introduction: Multi-dimensional assessment tools for Objective Structured Clinical Examinations (OSCE) have been well-described and validated. However, it's unclear how a simple global assessment score correlates with a traditional OSCE metric.

Methods: During a new simulator-based OSCE focusing on geriatric simulation, 190 senior medical students were rated by instructors using a traditionally constructed OSCE evaluation metric. The metric was developed through local instructor-based committee discussion and revision (multiple question domains, total 100 points). Students were also rated using a single global rating score asking for an overall evaluation of performance (one question, scale 1 [poor]-8 [excellent]). For the purpose of this research, "passing" scores were set at 60 [traditional metric] and 5 [global rating].

Results: We were able to obtain ratings for 190 students from 194 dental and medical students. Mean score on the traditional OSCE metric was 62.8 (SD=11.8). Mean score of the global rating was 6.0 (SD=1.1). The correlation between the simple global assessment score and the traditional OSCE metric was 0.58. (Spearman's correlation coefficient $P < 0.01$) The sensitivity of the global rating in identifying inadequate performance as judged by the traditional gold standard evaluation was 22.2%; specificity 97.6%; Negative Predictive Value 71.7%; Positive predictive Value 82.4%.

Conclusions: A poor global rating score is a reasonably good predictor for inadequate OSCE performance using a traditional assessment tool; students who show adequate performance by global assessment are unlikely to underperform using a more detailed metric.

A PERFORMANCE CHART TO MONITOR THE OUTCOME OF SURGEONS AT THE BEGINNING OF THEIR CAREER: APPLICATION TO THE THYROIDECTOMY.

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Category of submission: Poster presentation (Assessment)

Introduction

Young surgeons need time to accumulate experience necessary to achieve high performance levels. Such a learning process has to be considered when assessing their outcomes. We propose a new approach in monitoring the performance of inexperienced surgeons that incorporates the learning curve inherent to thyroid surgery.

Methods

A one-year study was conducted prospectively at five university hospitals. A total of 2,006 thyroidectomies were performed by 19 endocrine surgeons during their first eight years of practice. Main outcome measures included the occurrence of postoperative recurrent laryngeal nerve palsy and operative time. The database was randomly divided into training and testing datasets. Training data served to determine the expected performance curve of surgeons during their career as well as factors influencing outcome variation using mixed models. Testing data were plotted on CUMulative SUM (CUSUM) charts using estimates from previous modeling step. Classical chart displayed case-mix adjusted surgical outcome. Performance chart presented outcome adjusted both for patient's case-mix and surgeon's experience.

Results

For every surgical outcome, a significant relationship between surgeon's performance and experience was observed ($P < .01$). Generation of performance curve demonstrated improvements in both safety and efficiency of thyroid surgery from the first to the eighth year of surgeon's practice, as evidenced by the gradual reduction from 15.7% to 3.3% for the recurrent nerve palsy rate and from 139 to 75 minutes for the operative time. Integrating this learning process to the assessment of individual surgeons' outcome revealed marked differences in performance measurement relative to the classical approach. The CUSUM performance chart changed the magnitude of indicator variations and the sense of outlier signals related to surgeon's performance.

Conclusions

Not considering the initial learning curve of young surgeons exposes to biased measurement and to misinterpretation in assessing their individual performance for thyroidectomy. The performance chart represents a valuable tool to monitor the outcome of surgeons at early stage of their career with the expectation for them to reach quickly expert skills and optimal outcomes for their patients.

DO HMS GRADUATES PURSUE RESEARCH CAREERS? WHY AND WHY NOT?

RESEARCH IN PROGRESS

Ed Krupat, PhD, Director, HMS Center for Evaluation
Gordon J. Strewler, MD, Master, Walter Bradford Cannon Society; Director, Scholars in Medicine Program

Under the auspices of an R01 grant from NIH's National Institute of General Medical Sciences, we have recently embarked on a four year project to better understand the reasons that attract HMS medical students to enter research careers; and to determine, in particular, whether the factors that influence students toward or away from research apply differently to minority and non-minority students. In addition, because of the fortuitous timing of this project, it will allow us to determine the extent to which the new Scholars in Medicine (SiM) Program affects students' career intentions. An inherent limitation of this student survey is that participants can only declare their *intentions* to pursue various careers, and interpretation of the data are therefore problematic as most students will undergo a lengthy period of residency and fellowship training before actually embarking upon their careers. Therefore, as a complement to the student survey, four classes of HMS alumni (entering HMS cohorts of 1996-1999) will also be surveyed to offer a retrospective perspective on career choices and the factors that determine them.

The proposed research has the primary aim of addressing several gaps in knowledge (e.g., about minority students' choices and their determinants, about the careers of HMS graduates, about the impact of SiM), with the broader goal of informing interventions to address a national need: to have a population of medical science researchers whose characteristics parallel those of the broader population. In contrast to prior non-theoretical research efforts, we have applied a well-respected social science model, the Theory of Planned Behavior (TPB), to guide this research.

In the course of studying and comparing the first two cohorts entering under the new SiM requirement and the last two cohorts who were not subject to this program, we will survey each of the four cohorts longitudinally, at the end of their pre-clinical basic science education and at the end of their principal clinical experience. The primary outcome will be percentage of effort devoted to research, in the form of intentions for students and reported actual effort for graduates. Based on the TPB, we predict that career choice intentions are a function of several factors:

- Attitudes toward the career
- Social norms
 - Perception of significant others' desires for them
 - Perception that relevant others are also pursuing similar routes
- Perceived behavioral control (belief in one's relevant abilities)

A factor that has been identified as influential among minority students is that of "stereotype threat," an unpleasant feeling that one's performance is being given special attention, and that this performance has the potential to confirm a negative [stereotype](#) about one's social group. We will study the extent to which this occurs among HMS students; and also the manner in which positive mentoring experiences help overcome career-related barriers among both minority and non-minority students.

PROTOCOL FOR EVALUATION AND REMEDIATION ONE-YEAR PEDIATRIC ANESTHESIA FELLOWSHIP TRAINING PROGRAM

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Category: Poster Presentation / **ASSESSMENT**

Abstract:

Increased emphasis on clinical based competency and performance has caused many institutions to reassess and modify the systems used to evaluate standardized ACGME core competencies. Validated, evidence-based research on methods to identify and subsequently remediate deficient performance is lacking.

In the case of one year sub-specialty training programs, fellowship programs trust that residency graduated trainees meet requirements necessary to function as competent, independent physicians. Fellowship Program Directors are charged with the development and implementation of a formal evaluation and remediation policy when trainees fail to meet well defined ACGME Core Competencies.

In spring 2008, The Office of the Program Director (OPD) within the Department of Anesthesiology, Perioperative and Pain Medicine at Children's Hospital, Boston formalized an evaluation and remediation process for physicians that participate in the one year pediatric anesthesia fellowship program. Consistent with published proposed models for remediation of performance, each fellow is evaluated through multimodal assessment tools that allow trends in clinical or professional behavior to be followed.

A fellow's clinical performance, professionalism or progress may be deemed inadequate at any point of their training. Informal attempts with members of the OPD and the fellow's advisor are initially made to correct identified and communicated deficient behavior. If corrective behaviors do not occur, a formal meeting will be called to address identified issue(s). Should the OPD determine the performance deficiency be remediable, an Individualized Remediation Program (IRP) is developed and implemented. Key to the success of the IRP is the allowance of physical, psychological and emotional assessments through the Office of Clinical Support (OCS) at Children's Hospital, Boston. Modification of the clinical status of the trainees occurs during the IRP time period. A small group of faculty works with the fellow, providing daily assessment and debriefing of clinical performance or progress. At the end of a specified amount of time, the fellow meets with the OPD to discuss compliance with, status of and progress within the individual's IRP. Documentation of this entire process is contained within the fellow's training file. The fellow's summative clinical evaluation will state an individualized remediation program was completed.

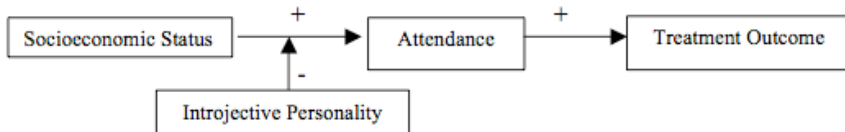
To date, three anesthesiologists have been enrolled in the department's remediation program. Each individual was successfully remediated and allowed to graduate from the training program.

HOW AND FOR WHOM DOES SOCIAL STATUS INFLUENCE GROUP PSYCHOTHERAPY OUTCOMES? PROPOSING A RETROSPECTIVE ANALYSIS

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Background: When compared to patients of higher socioeconomic status (SES), lower SES patients tend to experience more stress (Galo & Mathews, 2003), fare worse in psychiatric settings (Lorant et al. 2003), and benefit less from psychotherapy (Falconnier, 2009). Lower SES patients enjoy less improvement in their functioning at post-treatment follow-up and tend more often to be “unilateral terminators.” Attendance and completion of therapy is sometimes a concern for lower SES patients (Gift, et al., 1988; Reis & Brown, 1999). Patient-specific factors (e.g., inhibition, tx resistant) can also influence treatment compliance (MacNair-Semands, 2002; Littlejohn, 2006). We propose a retrospective investigation. We aim to collect and analyze medical files of a heterogeneous mix of chronically mentally ill patients. These patients were enrolled in weekly psychodynamic psychotherapy groups. The groups were long term. Each group was led by one psychiatry resident and one staff clinician. We aim to test the following hypotheses: (1) Attendance patterns (Reardon et al., 2002) mediate the relationship between patient SES and treatment outcome. (2) The direct positive relationship between patient SES and attendance is moderated by patients’ personality styles (i.e., Introjective).



Measurement and Analysis: We will collect demographic information in order to account for patient’ SES. We will use the Hollingshead (1971) Index of Social Position. We will also assess SES considering patient exposure to economic hardship (as determined by health insurance plan) and patient risk of exposure to community violence (i.e., presence or absence of high-crime and economic poverty in patient’s immediate community). We will review medical charts and implement a coding scheme (Frey, et al., 1976) to assess personality utilizing Blatt and Shichman’s (1983) configurations of personality (Introjective/Anaclitic). We will evaluate attendance considering the following (1) regularity of attendance; (2) treatment duration; (3) patient status as drop-out or completer of treatment. In order to assess outcome, we will collect patients’ previously recorded responses to an outcome measure -- Schwartz Outcome Scale (SOS-10; Young, et al., 2003). We will track stability, reductions, and increases in psychiatric medications. We will evaluate pre-post treatment Global Assessment of Functioning scores. We will test hypotheses using structural equation modeling (Kenny, 2011).

Implications: Implications may include enhancing recruitment strategies (Klein & Carroll, 1986) to address patient personality, and consideration of supplemental case management for patients of lower socioeconomic status (Miranda et al., 2003).

A BIBLIOMETRIC STUDY OF JOURNALS' PUBLICATION OF MEDICAL EDUCATION ARTICLES

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Poster presentation: Misc category

Background. The advent of new medical education (ME) journals suggests increased interest in production of medical education articles. We studied changes in the number of such publications over time and changes in where such articles have been published.

Method. We used MEDLINE retrieval via medical subject headings (MeSH) to identify ME publications from 1966-2009 (the years when electronic cataloguing has been available and complete) in all journals and in ME journals (i.e., those in which more than 50% of articles are dedicated to ME).

Results. The number of ME articles indexed as the major topic (total=72,751) increased four-fold from 1014 articles in 1966 to 4923 in 2009. In 1966, 276 journals published ME articles; in 2009, 829 did. Over 43 years, 3,869 different journals published at least one ME article; 20 different journals published 30% of ME articles. During this period, 17 different ME journals existed, and published 18% of all ME articles. However, not all survived. From 1966 until the 1980's, there were only 1-3 journals dedicated to ME; in 2009, MEDLINE indexed 13 (in 2011, 14 are indexed); and several new ones are not yet indexed. Despite an increase in journals in all fields, ME journals now account for a larger proportion of all journals indexed in MEDLINE than in 1966 (0.24% vs 0.04%). ME articles appear in high impact journals (e.g., JAMA), specialty journals, and ME journals, some of which are specialty-based ME journals. ME journals that published the highest proportion of ME articles also have the highest impact factor among that class of journal; however, medical journals such as JAMA and Lancet, with significantly higher impact factors, ranked among the top 10 publishers of ME articles.

Conclusion. Interest in publishing ME articles spread widely between 1966 and 2009 – well beyond the ME journals.

Implications. Scholars may want to examine these data to determine where to place their articles, asking, "Who will publish my article? Who will read my article? And Who will quote my article?"

MEDICAL RESIDENT EXPERIENCES OF DISRUPTIVE BEHAVIOR IN AN ACADEMIC MEDICAL CENTER

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Category: Poster Presentation: Culture, Society and Community

Abstract

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

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

Results. The majority of interns felt respected (58.8%) and indicated that team members generally behaved professionally (76.9%) in the work environment. However, interns were more likely to report several types of disrespectful behavior than staff physicians. Condescending behavior (OR 2.79 for interns compared to staff, $P=0.0536$), and exclusion from decision making (OR 10.68, $P=0.002$) were the most frequent types of disruptive behavior encountered by interns and were significantly more frequently reported by interns than staff. Inappropriate jokes (OR 0.91, $P=1$), berating (OR 2.76, $P=0.2451$), abusive language (OR 0.43, $P=0.137$), and gender bias (OR 1.35, $P=0.7676$) were also reported frequently. Interns most frequently identified nurses as the source of disruption, and were more likely than staff to identify nurses as the source for the disruptive behaviour (OR 24.08, $P<0.0001$). In contrast, physician staff reported that other physicians were the most frequent source of conflict.

Conclusions. Interns generally feel respected at work, and report a moderate frequency of disruptive behavior. However, interns describe higher frequency of disruptive behaviors than staff physicians and are more likely to experience disrespect from nursing as compared to other staff. The findings may be due to differences in the perception of acceptable behavior, or cultural differences in the way some nurses interact with interns.

ATTITUDES REGARDING A PEER OBSERVATION OF TEACHING PROGRAM:

RESULTS OF A SURVEY OF HARVARD MEDICAL SCHOOL PRECEPTORS IN THE PRIMARY CARE CLERKSHIP (PCC)

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BACKGROUND AND STUDY RATIONALE: Teaching in a clinical setting is a complex task requiring a balance between the needs of learners with the delivery of outstanding medical care to patients. The PCC preceptors are a geographically diverse group of clinicians, many of whom find attending faculty development programs at HMS impossible due to distance and clinical commitments. To provide these community-based physicians with appropriate faculty development resources, a pilot peer observation of teaching program has been designed and is in the early stages of implementation. This study surveyed PCC preceptors to assess their attitudes towards this faculty development program.

METHODS AND STUDY POPULATION: An online survey was distributed from the Academy at HMS to all PCC faculty. A subset of PCC preceptors volunteered to be observed by peers while teaching HMS PCC students; these “volunteer” preceptors were also surveyed to assess their post-observation attitudes.

RESULTS: There were 91 respondents from the total PCC preceptor pool of 141 faculty members (65%). Survey questions assessed potentially negative and positive attitudes towards peer observation of teaching:

Question	Agree/Strongly Agree (%)		
	BASELINE		POST-OBSERVATION
	ALL <i>(n=91)</i>	VOLUNTEERS <i>(n=15)</i>	VOLUNTEERS <i>(n=15)</i>
<i>Peer Observation would...</i>			
<i>take too much time</i>	43	7	10
<i>jeopardize autonomy</i>	40	0	0
<i>make me anxious</i>	55	53	40
<i>make patients uncomfortable</i>	45	20	10
<i>help me reflect more</i>	84	100	100
<i>provide insight</i>	82	100	90

Additionally, 100% of post-observation volunteers who responded to supplementary questions regarding willingness to participate in additional peer observation answered positively and stated they would recommend the observation of teaching experience to a colleague.

CONCLUSIONS: PCC faculty overall have divergent attitudes towards a peer observation of teaching program. As expected, the initial volunteers for this observational experience were more positive than the total group of PCC preceptors surveyed: these positive attitudes were stable or improved following the actual experience of being observed while teaching. These data support the expansion of this peer observation of teaching program as a supportive new resource for faculty development at HMS.

“FEEDBACK WEDNESDAY”: A METHOD TO IMPROVE FEEDBACK TO RESIDENTS AND SUSTAIN THE GAINS

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Poster category: Continuing Medical Education (Faculty Development)

Context: Few faculty have been taught how to give useful formative feedback to residents. This may hamper training because effective feedback is essential to improving resident performance and preparing trainees for independent practice.

Objective: Increase the frequency and usefulness of feedback to residents.

Design: Pre-post feasibility and effectiveness study. Resident and faculty electronic surveys in 2009-2011; resident Web-based feedback tool. Exempted by BIDMC IRB.

Participants: All 67 faculty and 54 residents in anesthesiology at a single academic medical center.

Intervention: In Spring 2009, five 45-minute collaborative faculty workshops were completed over a 90 day period. Three new workshops, addressing difficult feedback and the Professionalism and Communication competencies were held in Spring 2010. A Feedback Wednesday notice is posted to our intranet homepage each week, and an email reminder is sent.

Main Outcome Measure: Improvements in feedback frequency and usefulness as reported by residents. Secondary measures: Changes in approach and improvement in sufficiency of feedback to residents reported by faculty.

Results: Survey response rates in 2009, 2010, and 2011 respectively were 67%, 77%, 91% (residents); 30%, 53%, 62% (faculty). Frequencies for "always" and "frequently" (from a 5-point scale) and "agree" responses were calculated. Sixteen percent of residents rated feedback sufficient in 2009, 30.2% and 30.6% in 2010 and 2011. Perceived usefulness of feedback also increased slightly, from 42.1% in 2009 to 47.6% and 57.1% in 2010 and 2011. Resident level of comfort receiving face to face feedback has remained relatively steady over the 3 years (86.8, 79.1, 87.8%). Interestingly, the percentage of attendings that are comfortable giving face to face feedback has continued to increase from 42.1% in 2009 to 60% and 77.8% in 2010 and 2011. Percentage of attendings reporting that feedback is sufficient has improved following the workshop interventions, increasing from 10.5% in 2009 to 40 and 42.9% in 2010 and 2011. When attendings were asked if they had changed the frequency, content, or way they gave feedback to the residents following the intervention, 79.4% agreed in 2010, and 69.8% agreed in 2011.

Conclusions: We have demonstrated improvement and sustained gains in resident and faculty perceived sufficiency of feedback. Faculty comfort delivering feedback has continued to improve over the intervention period. We continue to seek ways for residents to use this feedback in active reflection and goal-setting.

THE DEVELOPMENT, IMPLEMENTATION, AND ASSESSMENT OF AN INNOVATIVE MENTORING LEADERSHIP PROGRAM TO TRAIN FACULTY MENTORS

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Category: Poster Presentation, Continuing Medical Education.

Purpose: Mentoring relationships are considered to be among the most valuable contributors to a successful academic career. Few programs exist to develop faculty mentors, and even fewer to improve the mentoring effectiveness of established mentors and cultivate a mentoring community.

Methods: The Faculty Mentoring Leadership Program (FMLP) at Brigham and Women's Hospital was developed as a peer learning experience for faculty mentors to enhance their skills and leadership in mentoring and create a supportive community of mentors. A planning group representing key administrative, educational, clinical and research mentorship constituencies designed an innovative nine-month program for mid and senior level faculty mentors. The participants self-assessed their mentoring abilities at the initiation, completion, and six months after the completion of the program and evaluated the individual sessions and entire program.

Results: The FMLP consisted of nine monthly luncheon sessions led by two co-facilitators. Sixteen faculty mentors, representing a diversity of backgrounds and specialties, participated. Session evaluations indicated a preference for interactive group discussions on cases amalgamated from the participants' experience rather than didactic lectures. When compared to baseline assessments, immediate and six-month post-course self-assessments indicated improvements in mentoring effectiveness, the ability to accomplish mentoring goals, and a positive impact on the participants' mentoring careers.

Conclusions: The FMLP resulted in self-rated improved mentoring effectiveness, confidence in mentoring, and ability to achieve mentoring goals for established faculty mentors. The program participants valued the interactive case-based discussions focused on specific mentoring issues. Considerations for other institutions seeking to develop similar mentoring leadership programs are discussed.

ONLINE LEARNING MODULES FOR SURGICAL CRITICAL CARE

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Poster Presentation

Category: Graduate Medical Education

Abstract:

The surgical critical care division has approximately 50 residents rotate through the different units each year. Traditionally they have received both bedside teaching and daily didactic lectures as part of their education. However due to calendar variations in patient case mix and lectures, their educational exposure may not be standardised.

In an effort to improve the core knowledge of critical care of the residents, 8 core areas of knowledge were identified. These were: ICU ‘housekeeping’ (prevention and prophylaxis), shock, vasoactive agents, respiratory failure and ventilators, acid-base and renal disturbances, sedation and pain management, nutrition, ethics and end of life care. For each of these areas, three review articles were found. In an attempt to keep the reading manageable, each learning ‘module’ is expected to be completed in a ‘self-directed’ manner and take one week to complete.

The articles are made freely available for download from the BIDMC portal, under the ‘Critical Care Web’ tab. They were made available to the residents for the start of the 2011-12 academic year.

In an effort to evaluate whether this educational initiative is helpful to the residents, an online multiple-choice exam was created. Using “Classmarker” software, a 32-question exam was created with questions standardised from the SCCM and BASIC examinations and is emailed to each resident. The exam includes a section for feedback about the modules and whether they feel that their knowledge has improved. We have a comparison group from the previous year who completed the exam, but didn’t receive the online modules.

At the end of the current year, we plan to analyse the results to assess the impact this initiative has had on our resident education program.

PRIMARY CARE REDESIGN – A NOVEL RESIDENCY ELECTIVE

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Poster Presentation, Graduate Medical Education

Many practices are retooling into patient-centered medical homes (PCMH), but most residents don't work in a PCMH. We developed a two-week elective rotation to immerse residents into PCMH concepts with the goal of encouraging residents to consider primary care careers. The rotation includes required background reading, meetings with local leaders in primary care redesign, and attendance at a group visit. Residents take one night of telephone call in HCA to better understand systems of care delivery. In addition, each group of residents works as a group of consultants focused upon a particular problem in Healthcare Associates (HCA), our hospital-based primary care practice, and presents their plan to practice and hospital leadership as the culminating activity of the elective. Resident schedules are weighted with visits and meetings in week one and are relatively unscheduled in week two to allow for project work.

To date, three groups of 4-6 residents have done this elective; 12 of the 16 have been primary care residents. The three projects thus far included a study of Saturday hours for our practice, a proposed work plan for a new administrative support position for residents, and an analysis of the highest cost patients in our Blue Cross risk contract.

Feedback has been obtained through an anonymous web-based survey. Ten of 16 residents were probably or definitely planning careers in primary care both before and after the elective, though 87% did feel that the elective experience increased their interest in primary care practice. Approximately 2/3 of residents thought they would have a role in practice management in their futures both before and after the elective. The degree to which residents agreed that new approaches to care delivery would improve physician work life did not change significantly. After the elective, residents felt better prepared in the practice of cost effective medicine, in quality improvement, in care for populations of patients, and to practice in managed care settings. Residents self assessed their knowledge as improved in the realms of financial management, physician compensation, productivity measures, customer service, national healthcare organization, and management of our practice. 80% would definitely recommend this elective to others.

MENTORSHIP IN A CARDIOLOGY TRAINING PROGRAM

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Poster Presentation – Graduate Medical Education

Effective mentorship is an important part of developing a successful academic career. Mentored junior faculty members are more likely to be supported by grant funding, be productive researchers, and overall enjoy greater career satisfaction.

Physicians in training often struggle to find a suitable mentor. The process is time consuming and requires knowledge about suitable potential mentors - both of which are particularly limited in the first year of fellowship when clinical demands are greatest. Formalized mentorship programs can reduce the difficulties associated with finding a mentor and developing a scholarly activity.

Proposal

We plan to develop three separate tracks within the Cardiovascular Division and provide a formal mentorship program to facilitate progression along these tracks.

1. Scientific Investigator Track – Focused on the development of a career in basic and translational science.
2. Clinician Investigator Track – Focused on the development of a career in clinical research in cardiology.
3. Clinician Educator Track – Focused on the development of a career as a teacher of cardiology.

Methods

1. Develop three tracks within the Cardiology Fellowship and define the requirements for scholarly activity, and elements of success within each track.
2. Each Fellow will choose a track and be assigned a mentor to help guide them on the track.
3. Define and implement a timetable for frequent meetings with mentor and mentee, and provide resources to augment the relationship.
4. Monitor the progress of each fellow along their chosen track.
5. Reward fellows and their mentors when they achieve success.

Evaluation

- Pre-intervention needs and satisfaction survey questionnaire administered to Fellows using the REDCap system (using a 5 point Likert scale).
- Compare to a post-intervention questionnaire (using a 5 point Likert scale).
- Compare the overall difference in report of satisfaction with mentorship among fellows via Chi-square test.
- Track scholarly output and compare to pre-intervention productivity.

PRELIMINARY DATA ON THE EFFECTIVENESS OF A RESIDENT-AS-TEACHER PROGRAM IN DERMATOLOGY

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ABSTRACT: Submitted as a poster presentation for “Graduate Medical Education.”

Study summary: 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. The Resident-as-Teacher Program in the Harvard Dermatology Department, initiated in 2007, provides residents with preparatory guidance on best practices for small group, case-based teaching; experience teaching medical students in small groups; experience teaching co-residents in 5 review sessions in the department’s annual “Art of Differential Diagnosis” course; and formal feedback on teaching immediately after each observed session.

Objectives: 1. To assess residents’ interest in and perceived value of the program.
2. To study the effectiveness of feedback provided after direct observation of teaching.

Study design and analysis: An anonymous questionnaire was designed and administered to assess residents’ interest in the program and teaching skills learned. A subset of residents were observed and assessed in two separate teaching sessions by a clinician educator using a teaching observation form. Teaching skills were assessed in 15 performance domains. After the first session, the resident received detailed feedback on his/her performance. A second observation was conducted to determine if the feedback provided led to improved resident teaching. Descriptive statistics were used to describe questionnaire item responses. Paired *t*-tests were used to test differences in residents’ observed skills pre- and post-intervention. All skill items were summed and averaged to create a composite skill score.

Results: Twenty of 22 residents (91%) completed the questionnaire. Eleven of these were senior residents who reported attending a total of 22 feedback meetings. Nine of 11 residents (80%) strongly agreed or agreed that the feedback increased their confidence in leading small group discussions; 100% noted that feedback was given in a respectful way, and 81% noted it was a valuable experience. Residents reported having learned a broad range of skills. Fifteen of 19 residents were very interested or interested in an expanded Resident-as-Teacher Program. 70% were very interested or interested in learning more about lecturing techniques, teaching procedural skills, and precepting medical students in an ambulatory clinic. Six residents received paired feedback sessions 1 to 4 months apart. A statistically significant increase in 10 of 15 observed teaching skills domains was noted. The change in residents’ teaching skills as a whole was also statistically significant ($t=10.8$; $p=0.0001$).

Conclusions and next steps: The Harvard Dermatology Resident-as-Teacher Program has been enthusiastically received. Preliminary data regarding its effectiveness show statistically significant changes in the residents’ teaching performances. We plan to further study the program’s effectiveness and to schedule new teaching sessions for the program. Sessions will include an expanded number of topics such as large group presentation skills and teaching in the ambulatory setting.

Title: NEUROLOGY AND PSYCHIATRY RESIDENTS' UNDERSTANDING AND PERCEPTIONS OF PALLIATIVE CARE EDUCATION

Name of presenter(s), including degree(s): Chahine LM¹, MD; Meyer F², MD; Sullivan AM³, EdD Chemali Z⁴, MD, MPH

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Category of submission: Poster presentation; Category for poster: Graduate medical education

Abstract

Background: In recent years, there has been increasing recognition of the importance of incorporating palliative care education into the curricula of neurology and psychiatry residencies. The Accreditation Council for Graduate Medical Education stipulates inclusion of palliative care education in the curricula pertaining to both residencies, but without specific recommendations for the form or content of education. Various strategies for the incorporation of these requirements into residencies have been utilized, but the long-term efficacy of such strategies is not known.

Objectives: The objectives of this nationwide cross-sectional survey study of Neurology and Psychiatry residents include assessment of their experiences with, attitudes toward, and knowledge of, various domains of palliative care and their preferred methods of palliative care education.

Methods: Survey development processes will be detailed. All Neurology resident program directors and a random sample of Psychiatry programs across the United States will be contacted by e-mail for their program's participation. From participating programs, all Neurology residents and a sample of Psychiatry residents (approximately 1,200 from each specialty) will be surveyed. Surveys will be distributed electronically using a web-based survey, with survey invitations sent by e-mail. Information to be collected will include: (1) demographics, (2) content and value of palliative care curriculum the resident has been exposed to (as perceived by the resident), (3) resident experiences with patients at the end-of-life and other palliative care-related experiences, (4) resident comfort level with the latter experiences, (5) knowledge base of residents in palliative care, (5) culture and attitudes pertaining to palliative care.

Results: Pending. Results to be compared to prior national survey of medical students from 2002.

Discussion: Understanding neurology and psychiatry residents' perspectives on palliative care will be key in designing and implementing effective palliative care education programs for them. The results of this survey will be used to generate recommendations for program development.

THE ACADEMIC HALF-DAY: AN INITIAL SURVEY OF RESIDENTS IN THE HARVARD COMBINED ORTHOPAEDIC RESIDENCY PROGRAM

Presenters: Brian Clair (Harvard Medical School Year 4) and Naven Duggal, M.D. (Department of Orthopaedic Surgery, Beth Israel Deaconess Medical Center)

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Submission Category: Poster presentation (Graduate Medical Education)

Introduction: In the Harvard Combined Residency Program (HCORP), the academic-half day is called “The Core Curriculum”. Over a two-year rotating cycle, attending staff and visiting professors provide organized topic presentations and other educational activities to create a structured learning environment for residents. The Core Curriculum provides a forum for residents to quickly gain factual knowledge outside of working with patients. Additionally, it serves to prepare residents for the American Board of Orthopaedic Surgery (ABOS) exam and helps residents obtain competency in the ACGME 6 core areas: patient care, interpersonal and communication skills, medical knowledge, professionalism, practice-based learning, and systems-based practice.

Methods: A survey was developed to assess resident perceptions of the quality and content of the academic half-day core curriculum. Residents in years PGY-2 through PGY-5 were asked to rate the educational value of the curriculum. They were then asked to rank the top three most important of eleven clinical and eight practice management topics (based on topics from the Educational Needs Assessment Committee) for the residency review committee to focus on in the future. Finally, they were asked to choose one of the following learning modalities as the preferred method for learning each topic: traditional lecture format, problem-based learning (PBL) or team-based learning (TBL).

Results: Overall, 86% of residents found the curriculum to be educationally valuable. The most frequently ranked clinical topics were “Learn techniques that improve diagnostic ability” (25%), “Reading and interpreting imaging studies” (20%), and “Assessing my own learning needs” (15%). The most frequently ranked practice management topics were “Learning surgical procedures most frequently done” (28%), “Applying evidence based guidelines” (27%), and “Assess patient outcomes” (14%). TBL was ranked as the preferred learning method for all of the top three ranked clinical topics and for the top ranked practice management topic.

Discussion and Conclusion: The majority of residents find the academic half-day core curriculum to be educationally valuable and they prefer a team-based learning approach for their priority clinical and practice management topics.

CREATING OPPORTUNITIES FOR ORGANIZATIONAL LEADERSHIP (COOL): A MODEL FOR INTEGRATING LEADERSHIP TRAINING INTO RESIDENCY PROGRAMS

Presenters: Chandlee C. Dickey, MD, Ujala Fawad, MD, David Topor, PhD, Rodney Dismukes, PhD, MHA

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Category: Poster presentation, Graduate Medical Education

Background: Traditionally in psychiatry residencies provided on a balanced approach focusing on psychotherapy and pharmacology with adjunctive research methodology. While these disciplines are the cornerstones of psychiatry, proficiency of them is insufficient for the demands facing today's program graduates. The increasing financial constraints require our programs to invest time and expertise into teaching our residents how to teach what they know, how to lead, and how to improve systems. Indeed, one of the ACGME core competencies is practice-based learning and improvement. This includes several disparate elements including "using quality improvement methods... with the goal of practice improvement". Yet with vast medical knowledge which needs to be imparted coupled with high service demands, residency programs may be hard pressed to also teach administration. Moreover, they may lack a conceptual framework for integrating the array of required competencies.

Innovation: At Harvard South Shore Psychiatry Training Program (HSS) we developed a graded and progressive "track" for teaching administration and leadership. In the process of designing of this track called COOL, we modeled how to effect change. Departmental leadership interest was sought; resident involvement was instilled by forming a joint resident/faculty "Action Team" to write the initial design documents; stakeholders were consulted; all before final decisions regarding track design were implemented. In this way residents could participate in the creation of a track while using LEAN/system redesign principals.

COOL Objectives/Implementation: All PGY II residents participate in a semester-long course during which basics of systems redesign, personal leadership style, finance, strategy, and the art of negotiation are described. Faculty are sought within and outside of our department who have such content expertise. Interested residents can also attend a three day training in LEAN principles. PGY III residents motivated to delve deeper into learning and experiencing leadership roles can apply, along with two mentors (content expert and a systems redesign expert), to have dedicated time in the PGY IV year to work on the systems redesign project. The resident in the process will learn how to add value, diminish waste, educate others, listen to and negotiate with stakeholders; and effect change.

This year there is one PGY IV resident in the program who will be evaluating the process by which patients are admitted to the hospital. This project has clear implications for patient-centered care, efficiency, as well as resident fatigue.

Evaluation & Dissemination: COOL was presented at a workshop for residency training directors as a model for teaching leadership. This was well-received as programs appreciate the need for their residents to learn leadership skills but feel unprepared to offer such training. Further dissemination will hopefully include a manuscript written by the current COOL track resident. As with all systems redesign projects, feedback regarding this track design will be reviewed and incorporated.

Conclusions: Residents are cognizant of the need for leadership skills for their future success. Programs have ample resources to teach these skills, if they are creative in seeking the resources.

THE MODELS OF DISEASE BOOT CAMP: A NEW APPROACH TO INTRODUCING SUBSPECIALTY CLINICAL FELLOWS INTO BASIC POSTDOCTORAL RESEARCH FELLOWSHIPS

Heather E Doherty, PhD¹, Joseph Loscalzo, MD, PhD² and Thomas Michel, MD, PhD³

The HMS Curriculum Fellows Program¹, Brigham and Women's Hospital Department of Medicine^{2,3}, The Harvard Catalyst^{1,3}, and Harvard Medical School¹⁻³

Subspecialty clinical fellowship programs typically include a year of more of research training as a prerequisite for board certification. Many clinical fellows previously pursued basic research studies, either as part of an MD-PhD program or another intensive basic research experience during or after completion of medical school. However, by the time fellows complete their subspecialty training, many years may have elapsed since their last engagement in basic research. Whereas subspecialty fellows pursuing clinical research have the option of pursuing any of several clinical research training courses before or during research fellowships, those fellows pursuing basic research fellowships typically go straight from their clinical training into the lab. We perceived an unmet need for these basic research fellows, who often face a challenging re-introduction back into the lab, in many cases years removed from current biomedical advances outside of their specific areas of interest. We therefore designed a "Models of Disease Boot Camp" (dubbed MoD) that was offered for the first time in July 2011. The MoD course was offered as a pilot program open to subspecialty clinical fellows in the BWH Department of Medicine who had substantive previous research experience and were about to start a postdoctoral fellowship in a basic science lab. Applications were solicited by mass e-mail to all clinical fellows at BWH/Partners subspecialty programs and by meetings with clinical fellowship directors. A total of 13 students were accepted into the course, of whom 12 enrolled and completed the course. The MoD course was designed by a small working group of basic science faculty at BWH, along with a "focus group" of several potential students. Many other Harvard faculty were also consulted on the course design, including leaders of the Harvard Catalyst.

The MoD Boot Camp met M-F from 8:30-1:30 for 3 weeks, and had several components:

- a) Interactive didactic sessions reviewing recent advances in basic biomedical research, with a focus on bio-informatics, functional genomics, RNA interference, stem cell biology, tissue engineering, systems biology, and bioethics- all led by leading researchers from across Harvard who served as guest faculty;
- b) Daily "hot topics and cool papers" discussions, in which students in the course selected a research article that had influenced the direction of their planned research project, and typically including the student's research mentor as a discussant;
- c) Career strategy sessions, including discussions of academia-industry relations, a mock study session, and lunches with junior faculty and senior fellows.

Responses on the final (anonymous) course survey were positive (100% response), with the overall value of the course rated at 4.7 out of 5.0, and likelihood of enrolling if they had the choice over again at 4.9/5.0. The goals for the course were to provide students with updates on advances in biomedicine, with career development guidance, and preparation for postdoctoral and academic careers. In all these categories, students rated the course 4.8/5.0. All students indicated an interest in maintaining contact with one another by having periodic retreats in the future. We conclude that the unmet needs of clinical fellows committed to basic research may be partly met by providing a course that provides scientific updates, opportunities for networking, and career guidance.

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INNOVATIVE TRAINING OF DENTISTS AS ORAL PHYSICIANS TO PROVIDE LIMITED PREVENTIVE PRIMARY CARE

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Category: Poster presentation – Graduate medical education

An innovative, one-year curriculum for general practice dental residents (GPDRs) has been developed and implemented to develop Oral Physicians (OPs) who are incorporating preventive primary care into their practices while cross-training with physicians about the interrelationship of oral and systemic disease.

With their biomedical training and clinical experience, most dentists are currently overtrained for what they actually contribute to overall health, and are more than capable of providing limited primary preventive care within their existing scope of practice.

In addition to the oral exam, in which the *de facto* OPs are already able to recognize the oral manifestations of more than 100 disorders, and pharmacological intervention, the time saved by delegating uncomplicated dental procedures to the evolving mid-level providers (e.g. dental therapists) will allow dentists as OPs to provide and/or oversee all dental care as well as preventive primary care in their offices including vital signs, screening for major chronic diseases, nutritional issues relating to eating disorders including obesity, smoking cessation, and administration of vaccines.

With a grant from the Milton Fund, the efficacy of a specifically designed training program is being evaluated at the Cambridge Health Alliance in conjunction with Harvard's Schools of Medicine and Dental Medicine. Included in the curriculum are didactic and clinical training in addition to clinical specialties and rotations in Pediatrics, Internal Medicine, Anesthesia and Oral Surgery, Emergency Medicine. The major addition is Psychiatry to enhance clinical interviewing skills, and Oral Medicine for Oral Physicians to gain experience for their expanded roles as practitioners within overall health care.

Preliminary evaluation of the program after one year revealed an increase in objectively measured pre- to post-training medical knowledge. Qualitatively, a major improvement in interviewing skills of trained patients was noted, particularly in GPDRs' ability to obtain a detailed medical and social history including important sensitive, covert issues not ordinarily explored by dentists.

An innovative program to train dentists to provide limited preventive primary care as OPs has been implemented at Harvard with most encouraging results. Program expansion is anticipated.

EVALUATION OF AN EDUCATIONAL INTERVENTION TO INCREASE PREVENTIVE HEALTH SERVICES PROVIDED TO ADOLESCENTS AND YOUNG ADULTS BY INTERNAL MEDICINE PHYSICIANS

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Introduction: The US Preventive Services Task Force recommends screening for sexually transmitted infections (STIs), alcohol misuse, and depression in adolescents and young adults (AYAs). Despite these national guidelines, few AYAs receive routine preventive care in these areas. In addition, internal medicine (IM) physicians often report inadequate preparation to care for adolescent patients as they transition to young adulthood. We aimed to create, deliver, and evaluate an educational intervention designed to increase Brigham and Women's Hospital (BWH) Internal Medicine (IM) residents' comfort with and confidence in their ability to care for AYAs, as well as the percentage screened appropriately for *Chlamydia*, HIV, alcohol misuse, and depression.

Methods: PGY1 residents in the categorical, primary care, and medicine-pediatrics tracks of the BWH IM residency as of July 1, 2010 were eligible for enrollment. Residents were assigned to intervention (n=29) or control (n=23) arms based on alternating ambulatory block schedules set by the residency. Residents in the intervention arm participated in a 2.5 hour workshop led by two faculty trained in adolescent and internal medicine; residents in the control group received no specific AYA instruction. Eight to ten residents participated in each workshop, which consisted of a discussion of evidence-based screening recommendations for AYAs in addition to practice interviewing adolescent instructors (AIs) and receiving feedback from the AIs. Residents in both groups completed a survey before the educational session and a subsequent survey approximately ten weeks later. The Partners Research Patient Data Registry was accessed six months after the intervention to identify all patients ages 16-26 seen by the participating residents in the ambulatory setting since the intervention. Rates of screening for *Chlamydia*, HIV, alcohol misuse, and depression were calculated.

Results: Residents with experience caring for AYAs were more likely to report comfort and confidence with mental health topics and those planning careers in primary care were more likely to report comfort taking a substance use history at baseline. There were no other differences in baseline comfort or confidence by demographic factors or by treatment group assignment. Following the workshop, significantly more residents in the intervention group felt confident identifying substance misuse (78%) and depression (70%) and treating STIs (89%) and depression (59%) compared to residents in the control group. Ten percent of ambulatory patients seen by the residents were between the ages of 16-26. Residents in the intervention group were no more likely than those in the control group to order screening tests for *Chlamydia* (40%) or HIV (10%) or to document screening for alcohol misuse (62%) or depression (37%) for patients in this age group.

Conclusions: AYAs represent an important population seen by IM residents for whom preventive screening is suboptimal. An educational intervention utilizing AIs may improve resident confidence but may not increase adherence to screening guidelines.

THE IMPACT OF INTRODUCING AN ELECTRONIC CHARTING SYSTEM ON RESIDENT PRODUCTIVITY IN THE EMERGENCY DEPARTMENT

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Background:

Electronic medical records are becoming the standard in US hospitals to improve communication of information and longevity of patient records. Introducing electronic charting to an academic Emergency Department (ED) has the potential to slow residents' ability to evaluate patients, although this has not been studied previously. Decreasing resident productivity would affect both ED flow and resident education, as each patient encounter contributes to the educational experience. This study evaluates how the introduction of electronic medical record (EMR) for documentation affected the productivity of interns in an academic ED.

Methods:

A retrospective study of shift data for first year Emergency Medicine (EM) residents from a large, academic, tertiary care center was performed before and after the institution of a mandatory EMR on July 1st, 2010. No 2009 interns used the EMR, while all 2010 interns were required to use the electronic chart. The ED is split into high and low acuity zones. Shift data from the ED tracking system was matched to each resident shift from July to September for EM intern classes starting in 2009 and 2010. A linear regression was created to model the relationship of productivity (patients per shift) to using an EMR (yes vs no), as well as other possible confounders: admissions, inherited patients, daily ED volume, and acuity zone (high vs low) for each shift. All dependent variables were included in the model, as well as the single significant interaction term high acuity * EMR.

Results:

645 shifts were reviewed: 315 shifts before and 330 shifts after EMR implementation ($p = 0.56$). 6109 patients were seen primarily: 3047 before and 3062 after EMR ($p = 0.847$). The model represented a good fit to the data ($R^2 = 0.65$). After adjusting for admissions, inherited patients, acuity zone and ED volume, using EMR increased productivity overall by 1.17 patients per shift ($p < 0.0001$). However, using EMR in the high acuity zone decreased productivity by 1.43 patients per shift ($p < 0.003$). High acuity shifts independently cause a decrease of 6.47 patients per shift. Admissions and inherited patients increased productivity per event by 0.63 ($p < 0.001$) and 0.12 ($p = 0.002$) respectively, while ED volume did not significantly affect productivity ($p = 0.33$).

Discussion:

Despite the initial assumption that mandatory electronic charting is detrimental to intern productivity, the actual effect of using an EMR depends on the acuity of the patient population. Overall, using the EMR has a significant impact on intern productivity. This effect is positive when caring for low acuity patients and negative when caring for higher acuity patients.

CLOSING THE GAP IN PRIMARY CARE TRAINING: AN INNOVATIVE CURRICULUM IN MULTIDISCIPLINARY, POPULATION MANAGEMENT

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GRADUATE MEDICAL EDUCATION POSTER

Statement of Problem: Increasingly, chronic disease care requires primary care physicians to practice population prevention and management. Current primary care training for residents focuses on clinical management transpiring over individual patient encounters. Outpatient training for residents should incorporate panel management strategies, multidisciplinary prevention methods, and team building and leadership.

Curriculum Description: An innovative, practicum-based curriculum spanning the three years of residency was developed to fill this gap in training. In the first year, the resident will (1) identify a chronic disease of relevance to the practice, instantly forming a longitudinal patient panel for management. By early second year, the resident will (2) formulate a population management strategy taking into account principles of quality improvement (and incorporating feedback from a population medicine expert). The resident will also (3) enlist the support and feedback of the health care team, who will participate in the management of the patient panel under the leadership of the resident. Over the second and third years, the resident will (4) engage in complex chronic disease care under the guidance of a seasoned clinician, incorporating multidisciplinary approaches to prevention and treatment: health education, behavior change, psychosocial interventions, pharmacological management, appropriate specialty referral, and care coordination. Finally, the resident will (5) gather data and, as needed, modify his/her panel management strategy over time.

Pilot Curriculum: This curriculum is being piloted at PCIMA, a primary care site affiliated with the BWH/Harvard Vanguard Medical Associates Primary Care Residency based at the Faulkner Hospital. The chronic disease of focus is diabetes.

Panel management approaches involving a multidisciplinary team have been identified to optimize care. Two broad outcome areas are being targeted for improvement: adherence with interval screening and control of risk factors. Adherence with interval screening is ensured by a telephone outreach protocol. Patients with suboptimal risk factor control are stratified into low risk and high risk. Patients who repeatedly fail to meet targets are identified by the team and scheduled an appointment with the resident for management. During these appointments, the resident provides health education and develops a lifestyle (nutritional, exercise, stress management) and medical (pharmacological, referral, diagnostic) action plan *in agreement with the patient*, and uses a number of behavioral change techniques (motivational interviewing, "target setting," and "resolving barriers") to encourage self-management. Follow-ups within one to three months are scheduled with the goal of achieving risk factor control.

Key Findings: To date, the curriculum has increased the proportion of chronic disease visits seen by the resident and has resulted in increased number of longitudinal clinical encounters. (Data to be presented in poster.) The resident has also gained skills to assess systems capabilities and lead a collaborative systems change; manage patients with multi-system diabetic complications; and practice behavioral change interviewing techniques.

Conclusion: This "population chronic disease management" curriculum has the potential to enhance systems/population training of chronic disease by residents in any continuity clinic experience and generate clinical expertise and innovation.

MGH GLOBAL PRIMARY CARE CURRICULUM

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Category: Poster Presentation: Graduate Medical Education

As a key component of the Global Primary Care (GPC) Residency Program at Massachusetts General Hospital (MGH), the GPC Curriculum seeks to understand how “health for all” may be achieved for people and communities around the world. It highlights comparative lessons across diverse country and resource settings, considers the broader socioeconomic and political context of health, and examines the full arc of care delivery – from governmental policy and planning to local communities where “the rubber meets the road.” The objectives of the GPC Curriculum are to:

1. Teach core concepts in primary health care delivery, policy, evaluation, and community engagement – optimized for busy residents and students;
2. Introduce primary care interns to potential faculty mentors; and
3. Assess the impact of specific teaching methods and the overall curriculum on residents' knowledge, attitudes, and practice related to global primary care.

Structure: The curriculum will be an immersive four-week experience offered to all MGH primary care and selected categorical interns that covers health sector reform and community-oriented primary care across a range of high-, middle-, and low-income countries. Teaching methods will include case studies, faculty panels, critical reading of literature, analysis of current events, and interactive team-based problem solving. Community-based experiences will be integrated and aligned with in-class learning objectives, such as discussing health policy on Beacon Hill, participating in Boston Health Care for the Homeless Street Teams, and conducting home visits with Community Health Workers.

Content: Two 4-session mini-courses will be debuted in the 2011-2012 Academic Year:

Primary Health Care and Health Sector Reform – *an introduction to the Primary Health Care movement and how countries across the wealth spectrum have attempted to create a more just and effective health care system for their citizens.*

Session 1: Primary Health Care in the 21st Century

Session 2: Affordable Care Act & U.S. Health Care Reform

Session 3: Mexican Health Sector Reform

Session 4: Liberian Health Sector Reform

Community-Oriented Primary Care – *a deeper inquiry into specific U.S. and international examples of health care delivery, examining the challenges, successes, and pitfalls faced in several innovative primary care systems.*

Session 5: Community Health in Boston (Chelsea; Codman Square; CHA-Revere)

Session 6: Primary Health Care in Uganda

Session 7: Boston Health Care for the Homeless Program

Session 8: Community Health Workers and Primary Health Care

Assessment: Assessment of the curriculum will use both qualitative and quantitative methods, including a pre- and post- course interview, survey, quiz and writing exercise. These tools will be used to assess the quality and relevance of the content and structure, the impact on attitudes and practice, and gains in knowledge.

COMMUNICATION AND CARING IN THE CLINIC: A RANDOMIZED EDUCATIONAL INTERVENTION

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Poster presentation: Graduate Medical Education; Assessment

Introduction

We initiated a program to teach and evaluate interpersonal/communication skills for internal medicine residents in out-patient clinics.

Methods

Twenty four of 29 eligible residents consented and were block randomized to intervention (n=12) and no intervention (n=12) conditions. Blocking was performed on resident pre-assignment to off-site practice and hospital-based clinic. For each resident assigned to the intervention, two patient encounters were videotaped before and two after the intervention (4 videos per resident). Residents, their clinic preceptors and investigators identified two of eight skills for targeted improvement. Residents reviewed on-line teaching modules, reflection worksheets, segments from *doc.com* and received feedback from preceptors on their communication over the intervention period. Outcome data included patient ratings of communication for all residents using the Communication Assessment Tool (CAT). Trained external faculty raters, blind to target skill assignments, rated eight skills on all videos (intraclass correlation coefficient 0.8) using the Kalamazoo Essential Elements Communication Checklist (adapted).

Results

Residents showed significant gains for “Shares information” and “Reaches agreement.” The relative gain at f/u for residents assigned “Reaches” as a targeted skill, compared with those for whom it was not, was highly significant ($p < 0.01$). For targeted skills, the proportion of ratings at the level of “excellent” increased from 12% to 31% after the intervention. We saw an overall downward trend in patient satisfaction with resident communication. This trend was not significant in the intervention group. At the end of the intervention, however, multivariate analysis adjusted for clustering of items within patients and residents showed no significant difference between the intervention and control groups in % CAT items rated “excellent.”

Discussion/Implications for field

Video-review with self-assessment, preceptor feedback and self-study of on-line resources can improve trained faculty’s ratings of residents’ interpersonal/communication skills. Differences in faculty and patient ratings suggest these assess important but different aspects of behavior and relationship. Both should be assessed. Future studies should explore the differences in faculty and patients’ perceptions of communication.

ATTITUDES TOWARD TRAINING GASTROENTEROLOGY FELLOWS IN GLOBAL HEALTH

Presenters: Frederick L. Makrauer, MD, Division of Gastroenterology, Hepatology and Endoscopy, Brigham and Women's Hospital, Ying P. Tabak, PhD, CareFusion and Graham McMahon, MD MS, Division of Endocrinology, Diabetes and Hypertension, Brigham and Women's Hospital

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Category of Submission: Poster Presentation, Graduate Medical Education

Introduction: 'Global Health', defined as "health issues and concerns that transcend national borders, class, race, ethnicity and culture", plays an ever-increasing role in the economic and political stability of all communities, both national and international. Specific curriculum exists for the student and house officer but not yet at the fellowship level. We measured the attitudes of Harvard GI fellows and faculty toward 'global health' to determine its potential value in a curriculum.

Methods: We conducted an online anonymous survey of faculty and fellows in the four gastroenterology fellowship programs affiliated with Harvard Medical School (BWH, BIDMC, CHB, MGH). The survey was approved by the Partners IRB and measured opinions, past experience, and current interest in global health training. The survey web site remained open for six weeks with two reminders and a gift card incentive.

Results: The response rate for fellows was 67% (44/66) and for faculty 60% (89/148), males representing 57% and 72%, respectively. Fellows were in either a clinical (51%) or basic science (49%) research track, while faculty research was 68% clinical, and 17% basic. Fellows and faculty felt that training in global health would enhance fellows' clinical (93.2% vs. 85.4%) and research (77.3% vs 79.8%) skills. Fellows (100%) and faculty (96.6%) agreed that training in global health can be acquired through "hands-on" experience. More fellows than faculty believed that the global health training would augment their leadership skills, (100% vs 87.6%, $p < 0.05$), and that AGA and ACGME should include global health content in the curriculum (84.1% vs. 62.9%, $p < 0.05$).

Three factors primarily influenced a fellow's desire to participate in a global health elective during fellowship: 1) the opportunity to challenge clinical skill (81.4%), 2) the opportunity to develop leadership skills (62.8%), and 3) a concern for personal expense and separation from family (51.2%). Fellows' preferred method of global health training was a rotation in an underserved community (61.4%); the least preferred methods were self-study of an online curriculum with take-home post-test (39.4%) or preparation of a mentored report (33.3%).

Conclusions: Both faculty and fellows expressed positive beliefs that a global health curriculum would enhance clinical, research, and leadership skills. Fellows were more positive than faculty regarding global health content in their curriculum. The most accepted method of training in global health was a rotation in an underserved community. Major concerns for fellows were personal expense, family obligations, and the loss of vacation time.

COMBATING RESIDENT FATIGUE: A NOVEL APPROACH TO QUANTIFYING THE INCIDENCE, RISK, AND SPECIFIC TIME-INTERVALS OF FATIGUE-RELATED IMPAIRMENT

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Objective:

Sleep deprivation increases the risk that residents will make medical errors. Consequently, the Institute of Medicine and the Accreditation Council for Graduate Medical Education have called for new limits on resident work hours. However, the incidence and severity of resident fatigue remains unclear. The purpose of this study was to determine the incidence and severity of resident fatigue and estimate the associated propensity for error.

Methods:

A prospective cohort study was conducted in which orthopaedic residents (PGY 1-5) at two large tertiary care centers were monitored continuously for two or more weeks. Subjects' sleep and wake periods were continuously recorded via actigraphy and a daily questionnaire to allow for individual mental fatigue analysis. Data on sleep and wake periods were processed through the Sleep, Activity, Fatigue, and Task Effectiveness (SAFTE) model, a previously validated accident prediction tool. SAFTE effectiveness scores <80 predict increased error risk; scores <70 predict critical impairment, equivalent to a blood alcohol level of 0.08.

Results:

Average daily sleep, % time spent with a SAFTE effectiveness score <80 and <70; and predicted error propensity were calculated from the data. 20 of 23 (87%) volunteer subjects completed the study. Mean daily sleep for all subjects was 5.2 hours (individual mean: 2.8 to 6.4 hours). Subjects were functioning at <80% effectiveness 49% of their time awake, and at <70% effectiveness 28% of their time awake. Overall, subjects' fatigue levels were predicted to increase their error risk by 23% compared with rested controls (individual range 11 to 49%). Night float residents functioned at <70% effectiveness 31% of their time awake compared with 15% for daytime residents ($p = 0.033$).

Conclusion:

Resident fatigue is prevalent, pervasive and variable. Fatigue modeling can be conducted non-invasively in hospitals, and may help to identify time-periods, rotations, and individuals at risk of error to guide targeted interventions.

**“Go with the fLOW”: A TWO-WEEK LOW FLOW AND CLOSED
CIRCUIT ANESTHESIA ELECTIVE FOR PEDIATRIC ANESTHESIA
CLINICAL FELLOWS**

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Category: Poster presentation in Graduate Medical Education

The techniques of low flow and closed circuit anesthesia (LF/CC) provide patients with the amounts of oxygen and anesthetic gases that match the patient’s metabolic and clinical needs. While using LF/CC, the anesthesiologist can, in real-time, measure and follow the patient’s oxygen consumption and cardiac index without the need for sophisticated or invasive techniques such as echocardiography, pulmonary artery thermodilution catheters or blood gas analyzers. By precisely matching oxygen and anesthetic delivery to the amount consumed, the clinician can avoid the waste of valuable resources while minimizing environmental contamination by halogenated anesthetic agents and greenhouse gases such as nitrous oxide.

This 10-day course introduces participants to the foundational science and clinical principles of LF/CC anesthesia. The last two days focus on the fellows’ teaching of these concepts to a junior trainee. Accordingly, this elective provides an opportunity 1) for familiarization and acquisition of clinical competency in the administration of LF/CC anesthesia and 2) to receive focused mentoring on teaching skills. Using critical thinking and synthesis of available information, fellows will use clinical data to individualize patient care. In a parallel process, the fellows will be formally introduced to the use of debriefing assisted reflection and self assessment using critical thinking as they develop and maintain a learner-centered approach to the education of residents and nurse anesthesia students. Both of these experiential learning opportunities are in accordance with ACGME competencies including “Communicate clearly in the role of teacher.” We therefore propose to use teaching as evidence of learning.

This poster will provide a context for understanding the clinical implications of the LF/CC technique as well as its utility as a teaching platform in a GME setting.

TEACHING ACROSS DISCIPLINES IN A MEDICAL ACADEMIC CENTER: PEDIATRIC PSYCHOLOGY SEMINAR FOR PSYCHIATRY FELLOWS AND MEDICAL STUDENTS ROTATING THROUGH THE PSYCHIATRY CONSULTATION SERVICE

Presenters: Melisa Oliva, Psy.D. & Simona Bujoreanu, Ph.D.

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Category of Submission: Poster presentation in Graduate Medical Education

Abstract: The Child and Adolescent Psychiatry training program at Children's Hospital Boston has offered accredited training since 1953 and has graduated over 300 distinguished child psychiatrists. The teaching framework provides emphasis on training in the latest clinical techniques and selecting the most advantageous assessment and treatment protocols with demonstrated efficacy for specific presenting psychiatric problems.

As part of the overall training years, the Psychiatry Consultation Service (PCS) rotation provides an experiential teaching model in which psychiatry fellows and psychology trainees (post- and pre-doctoral levels) observe, learn, and practice patient care, medical knowledge, assessment and treatment skills, and systems-based practice. Attendings on the service include four psychiatrists and five psychologists.

The Pediatric Psychology Seminar is taught by two of the pediatric psychologists working within the PCS to first year psychiatry fellows throughout their 4-month rotation, as an opportunity to integrate "what we know" (science) into "what we do" (practice) on issues such as developmental perspectives in pediatric psychological care, medical trauma assessment and intervention, cognitive behavioral interventions in medical settings, pain management, management of medical non-adherence, support with medical procedures, etc.

The goals of the seminar are to learn concrete behavioral and therapeutic strategies regarding the management of different psychiatric and medical presentations on the medical floors. Qualitative data from the impact of the seminar on the residents' levels of theoretical knowledge, concrete clinical skill, and confidence level in patient care during and post PCS rotation will be presented, as well as challenges of interdisciplinary teaching in a pediatric academic health center.

LONG-TERM EFFECTS OF EMPATHY TRAINING: A ONE YEAR FOLLOW-UP QUALITATIVE STUDY

Names of Presenters: Margot Phillips, MD (Psychiatry, MGH and Boston University), Aine Lorié, PhD (Psychiatry, MGH and Kaplan University), John M. Kelley, PhD (Psychiatry, MGH, HMS, and Endicott College), Gordon Kraft-Todd, BA (Psychiatry, MGH) Helen Riess, MD (Psychiatry, MGH and HMS).

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Category of Submission: Poster Presentation, Graduate Medical Education

Background: Research shows an erosion of empathy and idealism during medical school and postgraduate training with up to 60% of practicing physicians describing symptoms of “burnout.” High physician empathy has been linked to increased patient adherence to therapies, increased patient satisfaction and improved clinical outcomes, and decreased malpractice claims. A pilot study conducted at Massachusetts Eye and Ear Infirmary (MEEI) in 2010 tested a novel training program created by Dr. Riess to improve empathy in physicians. Eleven otolaryngology residents received empathy training with positive results. The present study is a follow-up qualitative investigation of the long-term retention of the knowledge, attitude and skills of the empathy training.

Method: Nine resident physicians at MEEI from the pilot study were assessed one year later. Residents’ retention of empathic and relational skills was measured using five self-report assessment instruments. Qualitative data were obtained from a 90-minute focus group in which residents discussed the empathy training and their communication practices.

Results: Self-reported empathy with patients increased significantly as a result of the training ($p=.01$), and these gains persisted at the one-year follow-up ($p=.05$). Observed values for empathic capacity in general life and skill at decoding facial expressions of emotion increased as a result of the training but the gains did not persist at the one-year follow-up. Finally, knowledge of the neurobiology and physiology of emotion increased significantly as a result of the training ($p=.002$); however, at the one-year follow-up there was a statistically significant drop in knowledge ($p=.02$). Nevertheless, the knowledge retained at the one-year follow-up was still significantly greater than baseline prior to training ($p=.02$).

Qualitative data suggest that participants found the training to be helpful and incorporated changes in their clinical practice. The most frequently cited helpful topics include: mirroring patients’ facial expressions and emotions, maintaining eye contact, sitting down with patients, and relaxation techniques. Topics viewed as less clinically useful included decoding facial expressions and the neurobiological model of empathy. Regular practice of techniques eroded after 2-3 months. Participants reported interest in receiving additional formal and informal training as part of their graduate medical education.

Future Directions:

Future research questions include whether booster sessions of empathy training or group reflection would enhance resident empathy and reduce physician burnout. In addition, researchers should focus on how to optimize empathy in spite of socio-cultural communication barriers.

LONGITUDINAL ASSESSMENT OF PULMONARY AND CRITICAL CARE FELLOWS' PERSPECTIVES ON TEACHING SKILLS AND CAREERS IN MEDICAL EDUCATION

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Category of submission: Poster presentation (Graduate Medical Education)

Rationale: An important focus of graduate medical education is to develop and improve physicians' teaching skills. There are no data in the literature describing Pulmonary and Critical Care (PCC) fellows' opinions regarding the importance of developing teaching skills and interest in careers in medical education. **Methods:** Current PCC fellows in the four-year Harvard Combined Fellowship Program were surveyed anonymously in at the beginning of the academic year (August 2010) and again at the end of the academic year (June 2011) regarding their attitudes about the training they receive regarding teaching skills and interest in a career as a medical educator. **Results:** Overall, 27 of 34 fellows completed the survey (78%) at the beginning of the academic year, compared to 31 of 34 (91%) at the end of the year. Fellows' attitudes towards the importance of teaching skills, interest in pursuing careers in medical education, and perceptions of their abilities as teachers were largely unchanged over the course of the academic year. Fellows ranked teaching skills as important to their future careers, with 56% ranking teaching skills as "very important" at the beginning of the year compared to 36% at the end of the year ($P=0.17$). Interest in pursuing a career as a medical educator was stable over the academic year, with 48% "interested" or "very interested" at the beginning of the year versus 46% at the end of the year. Despite positive attitudes towards teaching skills and potential careers in medical education, fellows remained "unclear" as to what skills they need to learn in order to become better teachers. Specifically, for 16% of fellows at both the beginning and end of the year, it was "not clear at all" what skills they need to become better teachers, and for 48% at the beginning of the year and 68% at the end of the year it was only "somewhat clear". Over the course of the year, there was no change in fellows' perceptions of the frequency with which attendings provided fellow-level teaching or observed fellows' teaching on consult or ICU rotations. While the majority of fellows agreed with the feedback they received from attendings regarding their teaching skills, there was a statistically significant increase in the proportion of fellows who "occasionally disagree" with attendings' feedback (9.7% at the beginning of the year, 35.5% at the end of the year, $P=0.03$). **Conclusions:** These results indicate that the majority of fellows in the Harvard training program are interested in improving their teaching skills and a sizeable percentage are interested in pursuing careers in medical education. Over a year of fellowship training, there was no significant change in fellows' attitudes towards the importance of teaching skills. Unfortunately, there was also no change in fellows' understanding of what skills are necessary to improve in order to become better teachers. In conjunction with an increase in fellows' likelihood of disagreeing with attendings' feedback regarding their teaching skills, these data raise the possibility that fellows desiring to become better teachers may not be receiving the necessary instruction and support they need to actually improve their teaching skills. Increasing the frequency of observed teaching and attending-level feedback regarding teaching skills may be strategies to improve fellows' teaching skills and enhance career paths to becoming medical educators.

A CURRICULUM FOR MEDICAL RESIDENT EDUCATION IN THE CARDIAC INTENSIVE CARE UNIT

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Poster Presentation – Graduate Medical Education

Background

Internal Medicine residents and interns rotating through the Cardiac Intensive Care Unit need to learn about the presentation, investigation and treatment of disease entities that are often unique to patients who are admitted to the Cardiac ICU. Education about these disease entities and their treatment tends to occur in an *ad hoc* fashion – based on the patients who are admitted. As a result, residents and interns may not learn about specific disease processes, their investigation and treatment. There is a resulting gap in their medical knowledge.

Methods

We began by surveying the CCU attendings about the topics they thought would be most relevant to internal medicine residents. We also surveyed internal medicine residents regarding the teaching methods and format which would be most attractive to them. We then used this information to develop an educational curriculum for the Cardiac ICU that included the following:

4. An initial teaching session orienting medicine residents to the Cardiac ICU.
5. A three times weekly teaching session led by the cardiology fellow currently on rotation in the CCU.
6. Interactive case-based handout for medicine residents on twelve topics commonly encountered in the Cardiac ICU. These handouts included learning objectives and questions to help frame the discussion during the teaching session. The cardiology fellow has a “master” handout with answers to questions and topics for further discussion.
7. An online compendium of articles on these topics.

Evaluation

- Pre-intervention needs and satisfaction survey questionnaire administered to medicine residents and cardiology attendings using surveymonkey.com (using a 5 point Likert scale).
- Compare to a post-intervention questionnaire (using a 5 point Likert scale).
- Compare the overall difference in report of satisfaction with education in the Cardiac ICU via Chi square test.

ASSESSING ACGME CORE COMPETENCIES IN A SUBSPECIALTY TRAINING PROGRAM

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Category: Graduate Medical Education

Background: Clinical educators struggle for accurate methods to assess clinical competence of residents and fellows. Since 1999, the Accreditation Council for Graduate Medical Education (ACGME) has established 6 core competencies, which must be the basis for trainee education and evaluation. However, there is a dearth of well-validated models that facilitate measurement of ACGME core competencies. Many currently utilized evaluation forms do not reliably distinguish trainees who needed improvement from those who were competent in core areas. In addition, these forms do not facilitate identification of specific areas that may need improvement.

Hypothesis: The development of an improved evaluation tool to assess ACGME core competencies will distinguish fellows who need improvement from those who have achieved competencies and will shift focus away from areas in which competency has been achieved.

Study Design: The study population includes Internal Medicine Fellowship trainees completing inpatient and outpatient rotations and their supervising faculty. The pilot evaluation form and previous evaluation form were uploaded into New Innovation, an online evaluation program used to distribute evaluations forms to faculty members. The pilot evaluations form and previous evaluation forms were distributed to faculty members by block randomization to ensure equitable distribution of the two forms between fellows and faculty. Information was gathered on 112 faculty-fellow pairs. Due to missing data, 24 pairs were excluded, and 88 faculty-fellow pairs were used for analysis.

Results: Of the 45 forms returned for the existing (old) evaluation form, 23 areas of improvement were identified. Of the 43 pilot (new) forms returned, 60 areas of improvement were identified. The odds ratio for finding an area needing improvement in ACGME core competency was 2.74. For the existing evaluation form, six forms indicated any need for improvement in an ACGME core competency, whereas 21 pilot forms indicated a need for improvement. The odds ratio for the pilot form indicating ANY need for improvement in a core competency was 3.66. The differences found between Form 2 and Form 1 were statistically significant ($p=0.002$).

Conclusions: The pilot evaluation form was more effective than the existing evaluation form in identifying need for improvement in ACGME core competencies in Internal Medicine subspecialty trainees.

RESIDENT TRAINING IN ADOLESCENT SCREENING, BRIEF INTERVENTION AND REFERRAL TO TREATMENT (SBIRT)

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Poster presentation- Graduate Medical Education

Background: Substance use is associated with the top 4 causes of morbidity in adolescents. Screening and brief interventions by physicians can reduce adolescent substance use, and the American Academy of Pediatrics recommends this approach as part of general care for all adolescents. Unfortunately, physicians receive little instruction in identifying and managing adolescent substance use during training, and historically physician self-reported screening rates have been low. In 2008, Children's Hospital Boston received one of 11 grants awarded nationally by Substance Abuse and Mental Health Services Administration (SAMHSA) to develop and implement a residency training curriculum in SBIRT.

Objective: To describe satisfaction, knowledge, and practice outcomes of a residency training curriculum in adolescent SBIRT.

Methods: We developed 5 core training modules (Overview, Motivational Interviewing [MI], ADHD and Substance Abuse, Pain Management, and Drug Testing) which were administered by a faculty member as an interactive lecture separately to pediatrics and child psychiatry trainees. A 6th module on opioid replacement therapy was presented only to child psychiatry residents. Measures: 1) 16-item training satisfaction assessment with Likert-type response scale administered 30 days after the overview module; 2) Forced-choice response knowledge assessments administered immediately after each training and at the end of the residency year; 3) Perceived confidence in ability to screen and conduct MI assessed immediately before and after MI training and at end of year; 4) SBIRT implementation tracking form completed by residents immediately after each patient visit during the adolescent medicine rotation.

Results: Overall, residents reported high levels of satisfaction with >90% agreeing that SBIRT trainings were relevant, enhanced skills and allowed them to serve patients better. We found moderate to high percent-correct (72-91%) scores on knowledge post-tests with only mild attenuation (70%) by the annual assessment. Residents reported significant improvements pre- to post-training in their confidence to conduct MI. Confidence in their ability to screen for substance use was sustained but confidence in MI skills fell to nearly pre-test levels by the end-of-year assessment. 44 residents completed 206 SBIRT tracking forms, which showed high adherence to the SBIRT protocol, with 100% of patients being screened and 96% of positive screens followed by further assessment and referral when needed.

Conclusions: Our curriculum was well received by residents, improved their knowledge and confidence in conducting SBIRT, and resulted in widespread use of recommended practices immediately following the training. Opportunities for ongoing training are needed to extend confidence in MI skills.

THE USE OF A WIKI TO EXTEND GRADUATE MEDICAL EDUCATION IN AN HOURS-CONSTRAINED ENVIRONMENT

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Recent regulatory changes in the United States have limited the number of hours graduate medical trainees can spend on-site. While designed to improve patient safety by decreasing resident fatigue, these regulations have the inevitable consequence of curtailing time available for didactic teaching.

This report describes the development of a wiki as a component of didactic training and education of resident physicians without violating duty hours.

The wiki includes all the slides used in all didactic conferences in the department, as well as two salient review articles the speaker wishes residents to read. The latter then form an evolving library of vetted references on all the main topics in child neurology and neurodevelopmental disabilities. Didactic conferences occur once daily, and so the library of conferences is roughly 240 over the course of a year.

All residents take a national comprehensive assessment of their knowledge annually (Residency In-Training Examination, or RITE), sponsored by one of the national associations of neurologists (American Academy of Neurology). Residents are tracked according to their attendance at Core Curriculum lectures, accessing the wiki, or self-study alone.

Results show that residents who attend a series of lectures on a given topic (e.g., neuroanatomy) perform the best among their peers when examined on that topic, residents who study the material on their own generally perform the worst, and those who access the information electronically form a middle ground.

This latter result suggests the efficacy of this mode of instruction; the difference between those who attend “live” and those who access the slides has led to the addition of video recording of the lecture to accompany the slides beginning this year.

This suggests that electronic media can be effective adjuncts in time-limited teaching settings.

A NATIONAL SURVEY OF ANESTHESIA RESIDENCY PROGRAMS: ASSESSING LEVELS OF SUPPORT FOR RESIDENTS FOLLOWING ADVERSE OUTCOMES

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Category of submission: Poster Presentation in Graduate Medical Education

In recent years there has been a significant increase in assessing the prevalence and impact of physician burnout. At Beth Israel Deaconess Medical Center, we have recently begun an initiative to improve anesthesia resident support. As part of this initiative, we have formed a resident-led Anesthesia Resident Wellness Committee, with a goal of providing structured, but informal, peer support. This support is meant to be an accessible resource for fellow residents who are experiencing distress related to minor or major adverse clinical outcomes, upsetting interpersonal interactions or for other personally distressing events not related to residency or medicine. Another goal of the committee is to effect a culture change, whereby resident wellness is more recognized and appreciated. The group is composed of interested residents with a handful of faculty mentors and is not intended to replace more formal support structures. The ultimate purpose is to prevent small psychological insults from cascading into major dysfunction (e.g. substance abuse, burnout, or suicide).

In reviewing the literature, we could not find any studies pertaining to anesthesia resident support, following catastrophic events or otherwise, even though anesthesia trainees (<30 years old) have been shown to be particularly vulnerable to burnout. In order to develop a best-practices model of support, we conducted a survey of all Anesthesia Resident programs in the United States, looking specifically for residency-based or resident-led support structures following an adverse clinical outcome.

We conducted a national survey of anesthesia residency programs to determine the prevalence and nature of support for residents following adverse clinical outcomes. An initial survey was sent to all programs directors of ACGME approved anesthesia residencies. They were given the opportunity to volunteer their residents for a secondary survey to assess the utility of the programs they had in place.

RESULTS: pending

The Morning report Teaching Conference in Anesthesiology- “tranche de vie”

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Poster presentation: GME, CME (work in progress)

“Morning report” is a familiar information transfer technique in numerous industries that provide services on a 24 hour basis. It is a way of passing on information to the next shift, providing continuity for services which may be ongoing at change of shift, conveying con about procedural standards, and keeping key supervisory personnel informed about specif patterns or trends. In medical practice, morning report subserves all of these functions in addition to providing a context within which teaching can occur, based in cognitive fund c knowledge as well as judgment and review of quality and safety issues. In general, mornir report is very well received by residents primarily because it represents learning as natural situations unfold – from the “slice of life” presented to practicing clinicians. Moreover, in surveys of this format in internal and family medicine, surgery, pediatrics, and psychiatry, morning report has been praised by participating residents as one of the most valuable teac tools, perceived to improve patient care and medical knowledge, build better communicati skills, address professionalism, practice-based learning and improving. However, there are publications on morning report used routinely in anesthesiology training programs. We be that morning report as an education tool can be used to meet the ACGME general competencies: patient care, medical knowledge, practice-based learning and improvement interpersonal and communication skills, professionalism and system-based learning. We therefore proposed Morning Report as a new format for anesthesiology trainee educat CHB, pilot started 07/01/2011 for 6 months.

Format and Logistics:

- Every Monday for 30 min from 6:30 to 7:00.
- Participants are: all residents, currently rotating through CHB, Clinical Fellows and Attending Anesthesiologists interested in this type of conference.
- A synopsis of the cases from the preceding weekend is presented by an Attending discussion leader.
- A log of the cases and topics discussed is kept to determine the degree to which ABA points for pediatric anesthesia have been discussed during the course of the pilot (and continue once Morning Report is approved as an educational session in the Departme
- Evaluation - after each session, a survey is sent to each trainee present, soliciting assessment of content, format and actual presentation. Special attention is paid to the comparison of Morning Report to other teaching sessions conducted in a more traditic form.

The Morning Report format:

- provides necessary knowledge for safe anesthesia care;
- improves resident understanding of common and unusual medical problems;
- provides input from experienced specialists, broadening the trainees’ perspective
- improves communication and presentation skills;
- is conducted in friendly and informal atmosphere.

LEADERSHIP IN ACADEMIC MEDICINE- WHAT DO WE NEED TO TEACH? A ROAD LESS TRAVELED

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Background: Aspiring leaders in the medical field need to be trained more thoroughly to be able to anticipate future developments of the healthcare system and successfully handle current challenges. We therefore tried to elucidate qualities that are required to succeed in academic medicine at different career levels.

Methods: We assessed a total of 169 leaders at three different career levels (chief residents, division chiefs and administrative or department chairmen) with a subjective skill survey. Additionally, two open-ended questions that addressed the skills that they felt are most necessary for effective leadership, which skill they spent the most time on, and which expertises are most crucial for advancement in their field that should be taught, were categorized and analyzed. 52 participant of a Brigham and Women's leadership course received training in financial management, communication, decision-making, people management skills and strategic planning. Individuals completed a specific survey that determined their subjective skill level before and after a leadership course.

Results: 52 responses to assess the specific skills were received prior to the leadership course. 34 (65%) participants completed the survey after completion of the course. Comparing the skill set between the different leader cohorts within the total cohort of leaders (n=117), there was a positive linear relationship of skills and career level except for decision- making skills. No statistical significant improvement was seen between mid- and senior- level leaders. Significant difference was seen between department chairmen and chief resident in all ($p<0.05$) except decision- making skills. People management skills were uniformly believed to be most important and at least a fourth of leadership time was used in that field. Administrative chairs underscored the importance of communication skills, whereas they interestingly regarded financial skills the least important. This finding was comparable to the points, chief residents allocated to the same skill (11.88 versus 10.59 out of 100), although administrative leaders spent three times the amount of time on accounting in comparison to chief residents (10.63% versus 3.35% out of a 100%). Participants of the Brigham and Women's Hospital Leadership Course showed significant improvement in the self- assessment of the various skill sets. The biggest difference ($\Delta 0.66\pm 0.2$, $p<0.0009$) was seen in the financial management expertise.

Discussion: Our data shows that the biggest gap in self- assessed leadership skills occurs at the stage between chief residents and division chiefs. Although chief residents rated their time spent equally in all different skill sets except financial management, their ability seemed poorest, especially in strategic planning (3.12±1 out of 5). According to our data that is not surprising, since only 5% of chief residents receive any formal training prior to their position, leaving them with their own acquired skills. All leader cohorts considered strategic planning skills, such as project management, institutional climate awareness and the ability to anticipate issues not particularly crucial. Most academic leaders feel very confident about their own ability in strategic planning, possibly because those individuals don't realize the importance of it, which is reflected in the little time most of leaders spent on it. It might be a skill that has yet to be recognized in the academic medical field as a way to improve productivity, as business literature suggests. This study also demonstrates that through specific leadership courses, skills can be taught and can help future leaders to be more resilient towards upcoming challenges.

INTRODUCING MEDICAL SCHOOL STUDENTS TO THE PHYSICS OF MAGNETIC RESONANCE IMAGING (MRI)

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Poster Presentation (Graduate Medical Education)

As magnetic resonance imaging (MRI) has moved away from the experimental fringes of imaging techniques and become an indispensable tool for the medical community, it is becoming expected that physicians of all specialties have a cursory understanding of the physical mechanisms by which MRI images are generated. Familiarity with the technical aspects of MRI, although not essential, provides an added layer of information that may benefit the physician in diagnosis and treatment. It also provides the language for communicating with radiologists, technologist, and patients, should the circumstance require it. Unfortunately, the complex paradigm under which MRI images are created (very different from e.g., x-ray radiography, sonography, and even computed tomography) together with the extensive engineering tricks required for real application comprises too much technical detail to cover over the time limitations imposed on the typical single-session clerkship tutorial.

Faced with these limitations, it becomes the instructor's aim first to determine the most salient features of MRI physics that would be most useful for future clinicians, and then to devise a presentation framework that would most concisely present and explain these features. In addition, the instructor must contend with the fact that medical school students have highly-varied educational backgrounds. This necessitates an approach that is engaging and educational for those with highly technical backgrounds and those whose experience with science essentially began with medical school.

Through numerous iterations of presentations and adjustments based on student feedback, a tutorial has been developed that most adequately prepares a medical student for those aspects of MRI physics that may be encountered during the course of a radiology clerkship or a future career in medicine. The outline of the presentation is ordered so as to minimize redundancy and to allow for a narrative that doesn't become bogged down in technicalities. The uppermost level of the presentation outline is: (I) Acquiring MRI Signals, (II) Forming MRI Images, (III) MR Pulse Sequences, and (IV) Special Sequences. First, the phenomenon of magnetic moment precession is explained – the Larmor equation is presented – followed by the basic parameters of T1 and T2 relaxation. After a brief introduction to the scanner hardware, the concept of using magnetic gradients to localize signals is explained. At this point, if an *in situ* assessment of student comprehension gives a positive impression, the concept of *k*-space would be introduced (albeit in a phenomenological fashion). An explanation of the nomenclature of MR pulse sequences (including TE and TR) then leads naturally into the concept of echo sequences (spin echo and gradient echo). And after a mention of gadolinium as an MR contrast agent, some examples of clinical MRI images are presented to translate the jargon into actual images and identifiable annotations. Finally, as time allows, several special MR sequences that are becoming “mainstream” are described (e.g., FLAIR, STIR, DWI, DTI, and fMRI).

VARIATION AND IMPRECISION OF CLERKSHIP GRADING IN U.S. MEDICAL SCHOOLS

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Abstract:

Background: Despite standardized curricula and mandated accreditation for all US medical schools, concern exists regarding the variability and imprecision of medical student evaluation. To date, no complete review of clerkship evaluation in US medical schools has been performed.

Methods: Clerkship evaluation data were obtained from all AAMC affiliated US allopathic medical schools reporting enrollment during 2009-2010. De-identified reports were analyzed to define the grading system used at each institution, as well as the percentage of each medical school's class placed into each grading tier as part of a full year's academic enrollment. Inter- and intra-school grading variation was then assessed in part by comparing the proportion of students receiving the top grade.

Results: Data were analyzed from 119 of 123 accredited medical schools. Within this cohort, dramatic variation was detected. Specifically, we documented 8 different grading systems using 27 unique sets of descriptive terminology. Imprecision of grading was apparent as institutions frequently used the same wording (such as "honors") to imply different meaning. The percentage of students awarded the top grade in any clerkship exhibited extreme variability (range 2-93%) from school to school, as well as from clerkship to clerkship within the same school (range 18-81%). 97% of all US clerkship students were awarded one of the top three grades regardless of the number of grading tiers. Nationally, fewer than 1% of students failed any required clerkship.

Conclusions: There exists great heterogeneity of grading systems and imprecision of grade meaning throughout the US medical education system. Systematic changes which seek to increase the consistency of terminology, the transparency of grade distribution, and the reliability of grade meaning are needed to improve the student evaluation process at the national level.

STRATEGIES OF TUTORS FOR GIVING FEEDBACK TO DOMINANT STUDENTS IN A TUTORIAL GROUP AT HMS

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Category: Poster Presentation, Undergraduate Medical Education.

Background: Research shows that medical educators are failing at feedback. We give positive or neutral feedback successfully, but when faced with a Dominant student, we find constructive feedback a challenge. Here, we define the Dominant student as one who speaks frequently (often with authority), tries to take control of the tutorial, and produces a negative impact upon learning and the group process (e.g., inhibits students' interactions, or shuts down conversation with other students).

Objectives: 1) To identify strategies that tutors use in giving feedback to Dominant students in a Problem Based Learning (PBL) tutorial at HMS. 2) To determine whether tutors prefer to give feedback to the individual or to the group, or to both.

Method: We developed an electronic, open-ended structured survey, and distributed it to tutors teaching in a PBL tutorial in the 1st and 2nd year at HMS. We conducted a qualitative content analysis to categorize patterns of response, allowing meaning to arise from the data.

Preliminary Results: Thirty-four of the 200 tutors surveyed have responded (17%). Of these, 19 (56%) had not encountered a Dominant student, while 15 (44%) had given feedback to a Dominant student. Preliminary analyses reveal such a wide variety of strategies, with no single approach predominant, that we conclude that we have not yet exhausted possible themes and, therefore, must continue to collect data. Nonetheless, these preliminary data show that tutors are either directive or indirect: that is, most tutors: 10 (67%) gave individual, face-to-face feedback and 1 (7%) gave individual written feedback; 2 (13%) preferred indirect messages, given to the entire group; and 2 (13%) used both approaches. Tutors reported praising Dominant students for their preparation and contributions, but also reported using the following strategies: asking the Dominant student to delay his/her contributions until two others had spoken; allowing the student to assume a co-leader's role; discussing the importance of team work and controlling behavior with the Dominant student; and reminding the group of the importance of team work and listening. Last, the tutor's tone ranged from stern to humorous.

Discussion

Preliminary results indicate that tutors who perceive a student as Dominant generally take action, usually giving that student direct, individual feedback. However, we are still in the process of collecting more responses, in order to detect not only trends in feedback strategies, but also a relationship between those strategies and successful outcomes. We hope to develop a set of behavioral guidelines from such data to help other tutors manage Dominant students.

VALIDATION OF AN OBSERVATION OF CLINICAL TEACHING INSTRUMENT

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Purpose: In an effort to improve clinical teaching effectiveness, we designed an “Observation of Teaching Checklist” for use by experts in medical education to provide feedback to faculty.

Our aim is to validate the checklist by comparing it with medical student evaluations of faculty.

Methods: Thirteen surgical faculty were observed once while teaching students in clinic; teaching behaviors were scored as either “observed” or “not observed” using the checklist. Results were compared to data obtained from 83 student evaluation forms submitted in the prior twelve months. Each teaching attribute was evaluated by students on a 5-point Likert scale (range: 1 = excellent to 5 =poor). Student data were transformed into a binomial data set (yes/no) in two different ways (1=Y and 1+2=Y) to allow comparison with the checklist. Student and faculty scores for each behavior were tabulated and compared for similar teaching behaviors.

Results: Both students and expert observers evaluated six comparable teaching behaviors. Close concordance was noted for 5 of 6 teaching behaviors. Student assessments of “probing your reasoning process” (93.7%) diverged from expert observer assessment of whether the teacher “fosters critical thinking” (23.1%).

Conclusion: The observation of teaching checklist correlates well with student evaluations for 83% (5 of 6) observed teaching behaviors. Discordance in one measure may relate to differences in the phrasing of questions; alternatively, faculty observers of teaching may perceive effective teaching of clinical reasoning differently than students. Overall, these data validate the observation of the checklist against student evaluations of teaching by surgical faculty.

Student Form	Student Yes=1 % (N)	Student Yes=1+2 % (N)	Observer Yes=observ ed % (N)	Observer Form
Interest in, enthusiasm for teaching	76.5% (61)	92.5% (74)	92.3% (12)	Demonstrates enthusiasm
Encouraging independent evaluation of patients	67.5% (56)	81.0% (64)	61.5% (8)	Facilitates autonomy
Question and probing your reasoning process	71.1% (59)	93.7% (74)	23.1% (3)	Fosters critical thinking
Facilitating good interpersonal relationships with patients	66.3% (55)	94.0% (78)	100% (13)	Fosters atmosphere of respect for patients
Providing frequent feedback	54.2% (45)	81.5% (66)	61.5% (8)	Provides timely feedback
Teaching clinical synthesis effectively	71.1% (59)	86.1% (68)	100% (13)	Provides rationale for clinical decision making

DEVELOPING A STUDENT-RESIDENT-FACULTY CLINIC: THE CHELSEA PARTNERSHIP CLINIC

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Social determinants of health are encountered in communities rather than clinic rooms, yet medical students find few opportunities to experience, learn about, and address social medicine in practice. A new student-resident-faculty collaborative clinic at MGH Chelsea seeks to remedy this gap while providing care to two underserved populations: post-incarceration individuals transferring back to the Chelsea community and high-utilizers of Chelsea Urgent Care who lack a primary care provider. Over the past year, Harvard Medical students have worked in collaboration with MGH Chelsea and the Chelsea community to develop and launch the Chelsea Partnership Clinic as a partner to the HMS Crimson Care Collaborative.

The development of the Chelsea Partnership Clinic has given students the opportunity to design and trouble-shoot an innovative primary care practice that incorporates medical, social, and mental health services in a co-located primary care and psychiatry clinic. With the guidance of faculty mentors, student teams have undertaken 1) the design of an operations plan, 2) an assessment of local social resources, and 3) a literature review of the target patient populations. In line with our vision of a community-centered clinic, students have established active relationships with public officials, agencies, and community organizations and have worked closely with MGH Chelsea leadership.

The Chelsea Partnership Clinic, which will officially launch this October, will operate on Tuesday evenings at MGH Chelsea Health Center using an interdisciplinary team model to address its patients' complex needs. Participating medical students receive extensive training in aspects of post-prison care and mental health. They also learn to engage social needs, offering accompaniment as their patients connect to local resources. Students serve multiple roles: clinicians, patient educators, mental health staff, and administrators. Teaching from residents and faculty is integrated to synthesize key concepts in social medicine and primary care.

This clinic exposes medical students to the community health center model while providing diverse, underserved populations in Chelsea with access to primary care and social service accompaniment.

THE IMPACT OF CROSS-CULTURAL INTERACTIONS ON MEDICAL STUDENT PREPAREDNESS TO CARE FOR DIVERSE PATIENTS

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Category: Poster Presentation, Undergraduate Medical Education

Background: A recent study, (Saha S. et al. JAMA 2008; 300:1135-1145), found that students graduating from medical schools with more diverse student populations were more likely to rate themselves as highly prepared to care for minority patients, as compared to students from more homogenous classes.

Aim: We aimed to identify the specific types of cross-cultural interactions among medical students that are associated with feeling well-prepared to take care of patients from diverse backgrounds.

Methods: All medical students enrolled at Harvard Medical School (HMS) were eligible. Our survey instrument included sections on degree of voluntary inter-ethnic interactions (including studying and socializing), participation in extracurricular activities pertaining to cross-cultural patient care, and self-rated preparedness to care for diverse patients. We identified associations between individual types of cross-cultural interactions and diversity-related activities with measures of self-rated preparedness. We also dichotomized students' participation in diversity-related activities (high = 3 – 6 monthly activities, and low = 0 – 2 monthly activities), and students' social and study time spent with peers of different ethnic backgrounds (high = >75% and low = ≤75%) and assessed the correlation between these groupings and self-rated measures of preparedness. All between-group comparisons were performed using one-way analysis of variance (ANOVA).

Results: Of the 724 students invited to participate, 460 (63.5%) completed the survey (with near equal participation across gender). We found that students at HMS frequently interacted with diverse peers and a significant proportion had participated in extracurricular diversity-related activities. Seventy-four percent (74%) of all students surveyed believed that they were overall prepared to care for patients of different racial/ethnic backgrounds from their own. Students who had participated in a greater number of diversity related activities and spent >75% of their study-time with students of different backgrounds were more likely to rate themselves as prepared to care for diverse patients as a whole. These findings were statistically significant ($p < 0.05$). For example, these students felt more prepared to perform specific skills with diverse patients (such as taking an adequate history and building trust), and to care for patients with specific characteristics commonly found in racial and ethnic minority individuals (such as patients who were new immigrants or had limited English proficiency).

Conclusions: Our data suggest that cross-cultural interactions, ranging from study time to social time, are associated with higher rates of perceived preparedness to care for patients of diverse backgrounds. Another implication of our study is that medical schools can play a strategic role in creating an environment that fosters and nurtures the development of the skills and knowledge that medical doctors need in order to better serve all patients.

SOCIAL JUSTICE THROUGH PRIMARY CARE AND COMMUNITY MEDICINE: COURSE PILOT

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Social Justice Through Primary Care and Community Medicine is an innovative student-faculty collaborative course designed for medical students participating in community-based volunteer programs, such as the Crimson Care Collaborative or the Family Van, with a special interest in social justice in health care delivery. The creation of the course and curriculum was student-driven, and under faculty guidance, students designed, co-taught, and managed the course. Broadly, the course covered the current role of the community medicine physician, focusing on understanding unique characteristics of underserved patient populations. Through the development of a scholarly project, the goal of the course was to inspire students to develop new ways to overcome current barriers to care specific to the patients served in their respective Boston-based clinics. Specifically, the course aimed to: (1) Identify current gaps in the health care system with a specific focus on patients with limited access to care, (2) Understand the changing role of community medicine physicians in the setting of health care reform, (3) Explore the role of the physician as an advocate for social justice, (4) Explore new models for health care delivery, and (5) Recognize the importance of community-based care as a key component of the health care system.

The course pilot was offered as a 6-week non-credit elective to Harvard medical students and associated volunteers in the Crimson Care Collaborative and Family Van from December 2010 to January 2011. The pilot consisted of weekly 2-hour lecture and discussion series covering six core topics: student-run clinics/mobile health care vans, social determinants of disease in Boston, health literacy, quality improvement, community organizing, and the role of the modern primary care physician. Students were assigned weekly readings and were required to develop a scholarly project, consisting of a mock grant proposal for a research or improvement project in their respective Boston-based clinics. Students were given mid-course feedback on project proposal drafts and connected with mentorship as appropriate. The course culminated with oral presentations of project proposals with classmate and course director feedback.

The pilot course was evaluated through quantitative and qualitative surveys of students and faculty. Eight students completed the course, including one college undergraduate and one non-student participant. Student evaluations were generally positive, although we experienced challenges getting feedback from all participants and only five students (62.5%) completed the end-of-course survey. Overall, respondents enjoyed and found the class discussions educational and felt that the course strengthened their interest in community medicine. The most common suggestion for course improvement was to have more time for student discussions and student-to-student feedback on projects. All respondents also reported that they would recommend the course to others and described themselves as very likely to pursue their proposed project to completion. Conclusion: An innovative student-driven course successfully offered participants of various educational levels the opportunity to learn social justice and community medicine topics while developing projects relevant to their practices.

THE CRIMSON CARE COLLABORATIVE: A MODEL FOR PRIMARY CARE MEDICAL EDUCATION

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The Crimson Care Collaborative (CCC) is a Harvard Medical School (HMS) and Massachusetts General Hospital (MGH) student-faculty medical practice that provides high quality, affordable health care to people in Greater Boston who do not have access to a primary care physician. The CCC aims to: 1) increase medical student interest in primary care; 2) create a hands-on longitudinal learning experience for students that focuses on empathy, compassion, and patient- and relationship-centered health care; and 3) provide quality health care and excellent experience of care to patients while meeting the acute need for access to primary care. The practice operates according to a bridge-to-care model: patients are seen on an ongoing basis as needed and simultaneously work with the integrated social services team to find an appropriate long-term care provider.

The CCC is also a training ground for future primary care leaders and a dynamic learning environment that heightens student awareness and appreciation for the complexity of the primary care relationship and running a clinic. Two students, precepted by a primary care attending physician, see each patient; more senior medical students take on the role of medical educator for their more junior counterparts. Residents teach students fundamentals of primary care through interactive lectures and case-based conferences. This tiered mentorship structure also instills the practice of compassionate care through modeling and internalizing the behaviors of more senior practitioners. Beyond the traditional clinic visit, students have the opportunity to assist patients with social service needs, provide personalized health education, and learn alongside a patient how to navigate the medical system. Students are also engaged in thorough data collection on the health needs of our patient panel and the patient experience at CCC. Our analysis allows us to continue to evolve and improve our model for patient care.

Findings: The CCC completed its pilot in Spring 2010 and has operated in full since October 2010. Data from the first 167 patients across 225 visits have been analyzed. The majority of bridge-to-care patients have social services needs, make less than \$15,000 per year, and have visited an emergency department at least once in the last year. To date, 140 medical students have volunteered in CCC. Through surveys and qualitative analyses, we found that students involved in CCC reported they were motivated by a desire to help patients, better understand the social determinants of health, and gain teaching experience. Approximately one-third of students voiced an interest in primary care, and qualitative data suggested that working in CCC confirmed and enhanced student interest in pursuing a career in primary care. The majority of students reported resident case conferences as highly educational and resident teaching roles were subsequently expanded. Evaluation of students' attitudes towards primary care and subspecialty career choices over time is ongoing.

Conclusion: CCC is a reproducible model that can be used as an educational tool to teach students about primary care and the challenges of providing health care to the underserved.

MID-CLERKSHIP REVIEW OF HMS PCE LOGS IMPROVES PROCEDURAL TRAINING DURING A SURGICAL CLERKSHIP: A FOLLOW UP STUDY

Poster Submission: Undergraduate Medical Education

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Introduction: As a quality assurance project, the PCE logs of BIDMC students were reviewed during Academic Year (AY) 2009-2010. We identified a significant gap between stated curricular goals for procedural training and documented encounters during the surgical clerkship at BIDMC. In an effort to improve procedural training during AY 2010-2011, mid-clerkship e-mail reminders were sent to students. The emails stressed the importance of the PCE log as a means of evaluation and faculty of the Acute Care Surgery service were reminded of curricular goals and encouraged to contact students when a procedure was available. **Methods:** PCE logs of BIDMC students were reviewed in a de-identified fashion from August 2010 to July 2011 and compared to previously collected data collected from August 2009 to July 2010. Fisher's exact test was used to compare results. A p value < 0.05 was considered significant. **Results:** During AY10, 97 students rotated on the surgical clerkship rotation at BIDMC. Email response rate was between 84.6-100% per block. The percentage of students who successfully completed the clerkship with experience doing the stated procedures is demonstrated in the Table. In AY11 (after the onset of the intervention) 106 students completed the clerkship. There was a significant increase in the incidence of logged exposure to all eight procedures (Table 1).

Table: Percentage of students with stated experience before and after the intervention

	Foley	NGT	Airway	Aseptic	Suture	Splint	Staple	IV
% Completing – AY10	84.5	63.9	85.6	71.1	78.4	46.4	88.7	71.1
% Completing – AY11	96.2	97.2	89.6	89.6	94.3	66	95.3	85.8
p	0.0203	<0.0001	0.0384	<0.0001	<0.0001	0.0009	0.0023	0.0007

Discussion: HMS surgery clerkship goals and objectives delineate the minimum experience students should acquire during their three months of clinical training. With a simple intervention (e-mail reminders and faculty development) and direct contact of students, documentation of procedural training has increased. This demonstrates the importance of linkages between the HMS PCE Log and ongoing real-time evaluation of the clerkship. Questions for future research include definitions of procedural competency at a third year level with subsequent determination of how we can better assess competency and provide developmentally appropriate feedback to trainees.

COLLECTIVISM AND/OR INDIVIDUALISM IN MEDICAL EDUCATION: A STUDY OF NORMS & BEHAVIORS IN TWO GROUP LEARNING SETTINGS

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INTRODUCTION

In the last two decades, group learning has become increasingly prevalent over traditional didactic approaches in medical education, including in the preclinical and clinical curriculum at Harvard Medical School (HMS). A random, controlled evaluation of the New Pathway problem-based learning (PBL) curriculum at HMS suggests that PBL is associated with higher levels of information sharing, empathy, and tolerance of ambiguity among medical students (versus those in a traditional curriculum). However, PBL students also had higher levels of autonomy and frustration due to “intra-tutorial [interpersonal] conflict” (Moore, Block, Style, Mitchell 1994). Sandoval & Lee (2006) examine how organizational norms affect a group’s ability to engage in help-seeking behaviors and suggest that value systems emphasized through such norms can be dichotomized into two broad categories: individualism and collectivism.

METHODS

In the current study, a group of 12 third-year HMS students were observed in PBL and “teaching rounds” (TR) sessions at the Cambridge Health Alliance (CHA). The use of supportive communicative moves (as described in the literature) was analyzed.

RESULTS

Medical students in both PBL and TR spent the majority of their dialogue in collaborative communication as described by Barnes & Todd (1995). Sixty % of topics raised in both the PBL and TR settings led to “stacking” or continuous building on one idea. Students in PBL tended to collectively modify, expand, and affirm declarative statements made by peers. Students in TR relied on a faculty facilitator to elicit expansion and qualification of relevant ideas. Peer legitimizing, or validating, of contributions was common.

Explicit supportive behaviors occurred infrequently but slightly more often in TR than PBL. Group agreement was more common than praise or shared feelings. Nearly all instances in TR were provided by the facilitator (81%) whereas, in PBL, most instances were between students (65%). Explicit disagreement did not serve to inhibit collaborative communication and may actually be an additional supportive behavior.

CONCLUSIONS

Open-mindedness, expanding and qualifying ideas, supportive behaviors, and empowerment of fellow students fosters a sense of trust, equality, and interdependence in the face of substantial individualized risk (i.e. incompetence, embarrassment). Medical students demonstrated that individual participation, critical thinking, and diversity of perspectives can be permitted while in pursuit of collective understanding. Smith & Berg (1987) suggest this balancing between individualistic and collective norms leads to a tension, or paradox, that characterizes group learning. As demonstrated, a skilled faculty facilitator can play an essential role in maintaining such balance.

CHANGES IN CURIOSITY AND MOTIVATIONAL DISPOSITIONS OF THIRD-YEAR MEDICAL STUDENTS DURING CLINICAL CLERKSHIPS

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Background: We have previously demonstrated the feasibility of measuring psychodynamic traits of dispositional curiosity and interest in engaging in technically demanding cognitive work in third-year medical students. Furthermore, we identified increased curiosity scores in a sub-group of students who elected to participate in a high-intensity elective at the BIDMC (the “Integration Track”, IT), as compared to students who did not elect to participate in this elective (non-IT). Whether psychodynamic measures of disposition are static or dynamic is not known, and longitudinal data regarding changes (or lack thereof) of these measures are lacking. As medical school is considered a transformational experience, assessing the longitudinal effects of medical education on curiosity and need for cognition in medical students is of particular interest. In this study, we assessed whether these psychodynamic measures change over the course of the academic year in a cohort of third-year medical students. **Objective:** Prospectively measure curiosity and need for cognition scores in third-year medical students at the beginning and end of the academic year. **Design:** All third-year medical students at the BIDMC were invited to participate in the study at the beginning of the 2010-11 academic year (AY11). Students who agreed to participate were asked to complete three psychodynamic tools: the Intrinsic- and Deprivation-type curiosity scales (I/D-type curiosity), Need for Cognition scale (NFC), and Deep- and Surface Study Process Questionnaire (Deep-SPQ and Surface-SPQ). At the end of AY11, all third-year students were again invited to complete the same psychodynamic assessment tools. Additionally, students were asked to provide unique identifiers to allow for confidential longitudinal comparison of their scores. **Results:** Forty-eight third-year students completed the psychodynamic assessment tools at the beginning of AY11 (15 IT, 33 non-IT), and 38 at end of AY11 (11 IT, 27 non-IT). Of these students, 27 (11 IT, 16 non-IT) provided unique identifiers to allow for comparison of their scores from the beginning to the end of the year. For all students (IT and/or non-IT), there were no statistically significant changes in I/D-type curiosity, NFC, or Deep- or Surface-SPQ scores from the beginning to the end of AY11. There was, however, a statistically significant decrease in I-type curiosity scores in the IT group from the beginning to the end of the year (17.1+/-2.6 versus 16.2+/-2.0, P=0.02). Reciprocally, I-type curiosity scores did not decrease in the non-IT group over the course of the academic year. **Conclusion:** While psychodynamic measures of curiosity and interest in cognitively demanding activity did not significantly change over the course of third-year of medical school in the all students (IT and/or non-IT), intrinsic-type curiosity scores decreased for students in the IT group. I-type curiosity represents interest acquiring knowledge for the enjoyment of learning. Decreased I-type curiosity in the IT-group, which had higher I-type curiosity scores than the non-IT group at the beginning of AY11, may be due to the preponderance of routine, task-specific activities that occur during third-year. Decreased I-type curiosity may indicate a need for more creative, cognitively demanding, and intellectually challenging curricular content during third-year to optimize engagement of students with higher intrinsic curiosity and to minimize decreases in this quantitative measure of curiosity.

PILOT COURSE: GLOBAL ORAL HEALTH

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Poster presentation: Undergraduate medical education

Background

Students at Harvard School of Dental Medicine have indicated an interest in the global burden and management of oral diseases in global health. Given HSDM's mission to develop leaders in global health, we developed and implemented a course entitled Global Oral Health: Principles and Interdisciplinary Approaches. The purpose of the course was to exchange and implement knowledge to address global health challenges, to educate and develop current and future leaders in global oral health, and to demonstrate how interdisciplinary approaches can be incorporated into global health policy and practice through the context of oral health.

Methods

The Global Oral Health course was piloted as a six-week summer course for four students at the Harvard School of Dental Medicine. It was a discussion-based, critical thinking course that examined the extensive relationship between oral health and global health, and concept development was heavily determined by class participation and problem-based learning. Course objectives taught included the associations between oral disease and the global burden of disease, population patterns, disease trends, associated risk factors and social determinants for disease, global health institutions and interdisciplinary collaborations, cultural competency, and research ethics. During the last session, the students were given three guiding principles for global health: honesty, awareness, and responsibility. Using those principles and objectives learned in previous sessions, the students were asked to develop a "Community Evaluation and Examination Form" that, in theory, could be used to evaluate a community prior to implementing a research project or intervention program in global health. Students were also given surveys at the start and conclusion of the course to evaluate their learning.

Results

The student-developed Community Evaluation and Examination Form successfully included concepts from each of the course objectives. According to before and after student survey results, students reported an increase in their knowledge of each of the course objectives measured at the end of the course when compared to the beginning of the course. Also, students reported that they are either "somewhat likely" or "very likely" to use the concepts learned in this course in their careers. All students reported that they "definitely would" recommend the course to others. Qualitative responses were positive. The primary area for improvement recommended by the students was that the course needed to be longer in order to allow for greater depth of study.

Conclusion

Students show a growing interest in global health and must be given tools to address the needs of local and global communities in a way that benefits all parties involved. The Global Oral Health course effectively provided students with skills and tools for working in a global health setting, both locally and abroad. Due to the successful pilot and interdisciplinary structure, the course will be scaled up to thirty-five students and offered to HSDM, HSPH and HMS students for eight weeks in the spring of 2012.

THE HARVARD PRIMARY CARE INNOVATION COLLABORATIVE

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Submission: Poster Presentation, Undergraduate Medical Education

Purpose of the Course

The Harvard Primary Care Innovation Collaborative (PCIC) was a pilot elective course at Harvard Medical School sponsored by the Harvard chapter of Primary Care Progress that brought together faculty-student teams working on primary care innovation projects to network, share ideas, and learn more about clinical innovation together. The PCIC was created to address several challenges in primary care training and innovation, such as lack of support and networking for innovators; dearth of mentorship opportunities for students interested in primary care; and lack of exposure to new models of care for trainees, which can lead to discouragement about a future in primary care.

Results

For faculty, there was an increase in comfort mentoring students and feeling capable of generating new ideas for innovation throughout the course, and they generally agreed that the PCIC increased their interest in primary care innovation. Students generally agreed that the PCIC course has made them more likely to consider a primary care career

Challenge	PCIC Solution
Lack of support and networking for innovators	Five monthly educational and networking events for the full PCIC; faculty reported in survey that the PCIC increased interest in primary care innovation.
Dearth of mentorship opportunities for students interested in primary care	11 medical students (mostly first year), 1 nurse practitioner student and 1 pre-med paired up with primary care physician faculty innovators. Faculty felt more comfortable mentoring students after the course.
Lack of exposure to new models of care	12 innovation teams explored new solutions to care delivery.
Discouragement about a future in primary care	72% of students agreed that they were more likely to seriously consider a primary care career as a result of being in this course.

HMS QUALITY AND SAFETY CURRICULUM WORKGROUP: A CURRICULUM INVENTORY

Chair: Tejal Gandhi MD⁶⁷; Members: Susan Abookire, MD⁵⁷; Allen Kachalia MD²⁷; Anjala Tess, MD¹⁷, Ryan Thompson MD⁴⁷, Jack Varan⁷, Karen Wood MD³⁷

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Background

The Institute of Medicine recognized over a decade ago that many of our healthcare environments utilize systems that may be unsafe for patients and limit providers' ability to deliver high quality care. However medical schools and residency programs continue to struggle to integrate quality and safety concepts and skills into training. HMS has approached the topic by integrating individual lessons into existing courses. However, the extent of the education our students are receiving, and the path to a future standardized curriculum, remain unclear.

Description and Progress-to-date

We formed a curricular workgroup to help address these issues. Faculty members were recruited from the major Harvard affiliates. The following goals were set for the group: 1) complete teaching inventory across main teaching sites and medical school 2) develop needs assessment with support of Student Interest Group 3) introduce new curricula and expand existing pilots 4) support the Student Interest Group in their work.

A curriculum inventory was constructed by contacting HMS course directors and hospital-based faculty who teach QI. We queried the student interest group and faculty as to the topics covered, and extent of teaching delivered. This information was then catalogued by year and in the clinical years by site. We learned that in the preclinical years most teaching is lecture based or incorporates material into existing tutorial cases. Starting in the clinical years there are few central, standardized sessions. However, many affiliate sites are in the pilot phase of a dedicated case or discussion that allows students to bring their clinical experience to bear on a case of patient safety or systems improvement. There are rare experiences that allow students to actively participate in hands-on quality improvement projects. The Student Interest Group distributed a survey to their peers that confirmed students are interested in more patient safety education. One challenge we faced is that the topics covered and how they are integrated was difficult to gather since the curriculum at large is decentralized. This is especially true in the clinical years.

Next steps

In determining how to expand curricula, the group has focused on expanding existing pilots and starting with new pilots in focused affiliates. We are hopeful that the new scholarly project will allow interested students to pursue hands on QI work. Our hope is to eventually establish an existing core curriculum that is accessed by every graduate of the medical school.

IMPACT OF THE INITIAL CHOICE OF STUDY ON THE ACTUAL INTEREST OF STUDENTS OF HUMAN MEDICINE VERSUS DENTAL MEDICINE BY MEANS OF THE STUDY MODULE MUSCULOSKELETAL SYSTEM

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Poster presentation

Category: Undergraduate Medical Education

Introduction:

At the Medical University of Graz, medical students (M) and dental students (D) have to successfully complete compulsory study modules. One of these modules covers fundamentals of the musculoskeletal system for medicine as well as in dental medicine. The aim of this study was to evaluate interest and outcome of the musculoskeletal module. We hypothesized that medical students were more interested and had a better outcome compared dental students.

Methods:

After completion of the module students evaluated the module on standardized forms by hand. The following parameters were defined in both groups: achievement, motivation, general contentment, satisfaction with the virtual medical campus (VMC), contentment with respect to lectures, seminars and internships. The scale was ranging from 1 to 6, whereby 1 had been determined "that's totally true" and 6 "does not apply at all". The results of both groups were compared with each other.

Results

In total 47 students (27 M and 20 D) returned their forms. The target parameters were as followed: achievement, motivation and general contentment were at a mean of 1.755 (M) versus 3.125 (D); satisfaction with the VMC was at a mean value of 1.945 (M) versus 4.55 (M). Contentment with lectures had been rated with 1.855 (M) versus 2.365 (D), with seminars 1.675 (M) versus 2.25 (D), and internships with 2.195 (M) versus 2.3 (D). Only the difference on achievement, motivation and general contentment reached a statistically significant difference.

Discussion

We conclude that students of human medicine do have higher interest and better outcome compared to students of dental medicine on the module musculoskeletal system. Due to the low number of participants and inadequate power not all results might reach the significance level.

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