

# 2008 CGEA RIME / IME POSTER ABSTRACTS

1

## **Assessing Faculty Perceived Competence as Teachers to Improve Resident Training**

Barbara Anderson, MS, University of Wisconsin School of Medicine and Public Health  
Kathleen Maginot, MD, University of Wisconsin School of Medicine and Public Health  
Patricia Kokotailo, MD, University of Wisconsin School of Medicine and Public Health

Background: In 1999, the Accreditation Council for Graduate Medical Education, (ACGME) endorsed resident training in six core competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice. The purpose of this study is to examine faculty perceptions of their ability to teach to the competencies. Methods: On-line surveys were emailed to 125 UW Department of Pediatrics faculty. The survey contained four groups of questions each related to one competency. Questions measured the significance of the competency to clinical practice; the gap between current and desired level of teaching; and, asked respondents described current teaching strategies. Results: 45 (36%) surveys were returned. On a five-point scale, (1 being "not competent" and 5 being "highly competent") the gaps between current and desired competence ranged from 0.58 for Interpersonal and Communication Skills to 1.07 for Practice-based Learning and Improvement. Importantly, the gap for Systems-Based Practice was also large at 1.02. In describing current teaching strategies, respondents mentioned case based teaching, clinical experiences and modeling most often, acknowledging a lack of strategies to teach "Systems-Based Practice." Conclusion: In business, gap analyses measure current market performance and desired performance. Business plans are adjusted to reduce the gap. In adult education, gaps identify need for educational opportunities. Pediatrics faculty reported significant gaps in their ability to teach two of the ACGME core competencies. Based on the gaps identified, faculty development programs will be designed and implemented in an effort to reduce the gap and ultimately improve resident teaching.

2

## **Video Feedback to Improve Presentation Skills in Surgery Interns**

Rebecca Anderson, PhD, Froedtert East Clinics Medical College of Wisconsin  
Philip Redlich, MD, PhD, Medical College of Wisconsin  
Travis Webb, MD, Medical College of Wisconsin

Objectives Surgery residents are required to achieve competencies in skills for planned and impromptu presentations. Video replay and coaching are reported to improve performance of this skill. We determined the resident response to, and perceived usefulness of, videotaping of presentations followed by a replay feedback session. Methods Learners (10 surgery and 2 physician assistant interns) provided a 6-8 minute PowerPoint presentation during week #3 of a 6-week protected-block curriculum. Presentations were videotaped and evaluated by self, peers, and faculty (2) on a multi-item survey. Videotapes were edited for strengths, weaknesses and replayed during a feedback session while soliciting comments from presenters, peers and faculty. Learners completed evaluations and results compiled. Results A wide variety of topics were presented. Average of all learners' presentations was rated similarly for self (4.5), peer (4.7) and faculty (4.6) (5 point scale, 5=excellent). The feedback session was highly rated for educational value (4.67), usefulness to improve presentation skills (4.75), likelihood that information learned would be useful in future presentations (4.83) and that an aspect of their presentation style would be modified (4.83) (5=highest). The level of comfort while being videotaped was the lowest rated item (3.3). The overall rating of the feedback session content was 4.9 (5=highest) compared to 4.4 for the average of all curriculum sessions. Educational Significance Despite reporting feeling somewhat uncomfortable being videotaped, the learners valued the feedback session highly, and reported being highly likely to modify future presentations. Videotape replay feedback sessions may be a useful tool to improve presentation skills.

3

### **Common Competency-Based Educational Experiences Help Meet Internal Medicine Goals as well as LCME Standards**

Lisa Antes, MD, University of Iowa Carver College of Medicine

Inpatient and Outpatient Internal Medicine clerkship experiences are offered for M3 students in Iowa City and Des Moines. Although the inpatient and outpatient experiences are not linked in the third-year curriculum, clerkship directors at both sites have collaborated to identify common, overarching educational goals for these experiences using the Clerkship Directors in Internal Medicine Core Medicine Clerkship Curriculum as a guide. Working with these goals, learning goals and objectives based on the ACGME competencies and specific to Inpatient and Outpatient Internal Medicine have been developed to support similar educational experiences at both sites. The clerkship directors evaluated each of the topics in the core curriculum to determine where best they could be taught between the Inpatient and Outpatient Medicine clerkships. Technology allows students to access common resources for learning. Clinical skills are evaluated using the collegiate evaluation form and the students' knowledge is assessed using the same computerized exams developed by faculty at both sites. Much time and energy has been given to develop experiences for students that are common to Inpatient and Outpatient Internal Medicine as well as between educational sites. This allows the clerkships to meet LCME standards and introduces students to the internist's approach to caring for patients.

4

### **CGEA Clerkship Administrator Certificate Program Results**

Gary Beck, MA, University of Nebraska Medical Center

Virginia Cleppe, AM, Medical College of Wisconsin

Fredrick McCurdy, MD, PhD, MBA, Texas Tech University Health Sciences Center at Amarillo

Background: In 2004, the Association of American Medical Colleges Central Group on Educational Affairs (AAMC CGEA) developed a program to assist clerkship administrators (CA) in the identification and further development of administrative skills to enhance their careers as clerkship administrators. Purpose: The purpose of this study was to ascertain the long-term effectiveness of an innovative professional development program for clerkship administrators and to provide input for further development of this program. Methods: A 14-question survey was sent to 57 participants. Two were returned as undeliverable and a total of 22 (38.6%) were completed, two from men and 20 from women. CA's from a variety of medical specialties were represented. Results: The overall quality and relevance of workshops averaged 4 on a 5-point Likert scale. Two items averaged 3 (Neutral) were having a vision for their own professional career development and having a national certification program. For participants who did not complete the certificate program, lack of time and resources did not accommodate them finishing a project. Two commented their clerkship directors did not see the certificate program as meaningful which influenced their inability to complete the program. Conclusion: Greater recognition is being given to CA development as evidenced by invitations to conduct the program at the University of Iowa and Texas Medical Branch. The CGEA Clerkship Administrator Certificate Program provides a unique professional development opportunity for clerkship administrators. Based on survey results, more advanced training is being considered.

5

### **Emotional Intelligence of Fourth-Year Medical Students**

Nicole Borges, PhD, Wright State University Boonshoft School of Medicine

Purpose: Emotional intelligence research has examined students early in their medical training, but what about the emotional intelligence of students as they approach physicianhood? As students get closer to finishing their undergraduate medical education and receiving their medical degree, how emotionally competent are they? The purpose of this study was to assess the emotional intelligence of fourth-year medical students and to compare their emotional intelligence with regard to gender. Method: 84 fourth-year medical students (42 male, 42 female) completed the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). Response rate was 97%. Results: Descriptive analyses showed that the mean score for the MSCEIT Total was 97.07 (SD = 12.11). This suggests that medical students performed in the average range regarding their abilities to identify emotion in themselves and others, use emotion to solve problems, understand

complex emotions, and manage emotions in themselves and others. Results of a multivariate analysis of variance showed no differences in emotional intelligence were noted between men and women at  $p < .01$  level of significance. Conclusions: Overall results of this study suggest that emotional intelligence of fourth-year medical students appears to be in the average range with regard to their ability to reason with emotions and use emotion to enhance thought. Although these graduating medical students scored within the average range on the MSCEIT, given the importance of understanding emotion in the care of patients, it is concerning in some respects that medical students were not in the above average range on the MSCEIT scales.

6

#### **A Student-Driven and Student-Designed Global Health Module**

Sae-Rom Chae, BA, University of Illinois at Chicago College of Medicine

Saifullah Siddiqui, BA, University of Illinois at Chicago College of Medicine

Jason Carroll, BS, University of Illinois at Chicago College of Medicine

Rima Koka, PhD, University of Illinois at Chicago College of Medicine

Anne Gunderson, EdDc GNP, University of Illinois at Chicago College of Medicine

Context: With the phenomenon of globalization and the changing global landscape, it is important that medical students understand the relevance and role of global health. However, the medical curriculum currently provides neither the knowledge nor an opportunity for debate and discourse over the state of global health. The aim of this study is to pilot-test and evaluate an educational module that will increase students' understanding of the global disease burden; the impact of culture, history, and socio-economic background on health; and the need for a sense of professional responsibility to deliver quality patient care on a global scale. Objectives: To design and evaluate a pilot global health module that is well-integrated, relevant, and student-driven. Key Messages: Four second-year medical students worked with professors to design and implement a pilot global health module for all second- and third-year medical students. Through assigned readings, a large plenary lecture, and smaller working group discussions, medical students will learn about the various aspects of global health including the international scope of disease, poverty and its social impact, and the importance of awareness of international trends and policies that affect healthcare provision in the US. Students will also, by discussing controversial global health issues, consider the complexities in addressing these issues and the role they, as future physicians, might play in creating solutions. Conclusion: To become well-equipped physicians, it is important that medical students understand germane global health issues and their inevitable influence on healthcare at home.

7

#### **Gauging Student Interest and Attitudes Toward Global Health: Development of a Comprehensive Global Health Program**

Sae-Rom Chae, BA, University of Illinois at Chicago College of Medicine

Saifullah Siddiqui, BA, University of Illinois at Chicago College of Medicine

Jason Carroll, BS, University of Illinois at Chicago College of Medicine

Rima Koka, PhD, University of Illinois at Chicago College of Medicine

Anne Gunderson, EdDc GNP, University of Illinois at Chicago College of Medicine

Context: The benefits of a global health experience and/or curriculum during undergraduate medical education are becoming increasingly apparent. Students become better trained at recognizing the impact of culture, history, and socioeconomic background on disease etiology and learn to critically consider the disparities that may shape a patient's health. In addition, students develop a greater sense of altruism and responsibility to contribute to the betterment of health on a global scale. However, there is a lack of global health curriculum, programming, and/or student services for students to pursue coursework or medical experiences overseas. This may be due to the lack of awareness about students' interest in global health issues and assumptions about their present knowledge and attitudes. Methods: All first, second, and third-year medical students (approximately 500 students total) at the University of Illinois at Chicago College of Medicine were asked to complete an anonymous 21-item questionnaire during one of their classes. Students were informed of the voluntary and confidential nature of the survey. The questionnaire assessed student attitudes and knowledge concerning global health issues, the perceived importance of including global health curriculum in medical education, issues and experiences of particular interest to the student, and past experiences surrounding global health.

Students were also asked to provide basic demographic information including the salience of religion in their lives and their race/ethnicity. Conclusion: The results of the survey will be used to justify and develop a comprehensive global health program for undergraduate medical education that includes coursework, resources, and support services.

8

### **Integration of Funduscopy Principles by Community-Based Ophthalmologists as an Innovation in a First-Year Physical Examination Course**

Erica Cichowski, MD, Creighton University School of Medicine

Kathryn Huggett, PhD, Creighton University School of Medicine

Jayne Murray, MS, Creighton University School of Medicine

Floyd Knoop, PhD, Creighton University School of Medicine

Purpose: First-year medical students have limited exposure to the principles and practice of employing an ophthalmoscope and performing a funduscopy examination. Ample literature identifies the eye examination as a neglected aspect of medical education. In the recently revised curriculum for our Interviewing and Physical Exam course, we provided a unique and innovative opportunity to increase instruction and observed practice of the eye examination. Methods: Prior to the course we contacted community-based eye doctors, asking for assistance and participation in a small group practice session for first-year students. The practice session was scheduled for 2 hours during an afternoon small group program. The community-based participants also received objectives and a brief, detailed explanation of the small group learning experience. Prior to the small group session the entire class received a single introductory lecture on the eye exam, including information on visual acuity, anatomy of the eye, visual fields, eye alignment, extra ocular movements, testing convergence, pupillary light reflex and the diagnostic positions of gaze. The lecture ended with an explanation of the standard and panoptic ophthalmoscopes and instructions on how to perform and write up funduscopy and eye examinations. Results: Although results are in progress, the small group sessions were well-received by both students and community faculty. During the session, community faculty provided formative assessment as students completed the eye examination. Conclusions: This innovative approach provided a format that allowed medical students first-hand experience in learning the principles of an eye examination and supplemented instruction provided by clinical faculty.

9

### **DOC.COM: An Interactive Learning Resource for Healthcare Communication Using E-Learning Principles that Engage Students and Assist Faculty**

William Clark, MD, Harvard Medical School American Academy on Communication in Healthcare

Purpose: The not-for-profit research and education group, the American Academy on Communication in Healthcare [www.AACHonline.org](http://www.AACHonline.org) designed doc.com as an e-learning resource to teach difficult areas, including interpersonal skills and communication, handling mistakes, understanding professional boundaries, a mindful approach, balance and self-care, collaborating with peers and staff, and fostering an empathic approach that extends across cultures. Several decades of educational research confirm that knowledge and skills can be taught- all physicians (and students) can improve healthcare communications and relationships through focused study. Method: doc.com is a web-based resource for practitioners, residents and students that facilitates engagement through using best e-learning principles, such as short text segments, thought-provoking questions for reflection, behavioral checklists and assessment questions with feedback. doc.com includes interactive features that facilitate faculty and learners' working together over the web, as well as special resources to help faculty implement learning sessions and track grading. doc.com's 41 modules cover the communication competencies that IOM and AAMC reports considered essential. Module texts present cognitive knowledge and over 400 videos demonstrate effective skills. Unique "annotated scrollbars" name in real time the demonstrated skills, and hyper-link to additional author commentary or references. These features bring depth and breadth to the demonstrations, engaging learners and stimulating them to explore the complexities of interviews that appear intuitive and simple. doc.com's expert physician authors and editors are from Harvard, Hopkins, Yale, Stanford, McMaster and other outstanding medical schools.

10

**Medical Students' Ophthalmologic Skills: Is an Ophthalmoscope Necessary?**

Anna Cook, BS, Creighton University School of Medicine

Erica Cichowski, MD, Creighton University, Department of Medicine

Anna Maio, MD, Creighton University, Department of Medicine

Kathryn Huggett, PhD, Creighton University School of Medicine, Office of Medical Education

Amanda Lofgreen, MS, Creighton University School of Medicine

Purpose Revision of the clinical skills curriculum at Creighton University required the Class of 2010 to purchase both standard and panoptic ophthalmoscopes. Prior classes were encouraged to purchase equipment, but few did. This study assessed whether owning an ophthalmoscope improved examination skills. Methods Sixty second- and third-year students were randomly selected to choose either a standard or panoptic ophthalmoscope and perform an examination on a simulator. Outcomes were assessment of technique by an investigator, identification of the simulator's fundus from ten photographs, and self-assessment of familiarity and comfort level with the examination. Results 100% of the Class of 2010 owned an ophthalmoscope compared to 43% from the Class of 2009. All examination steps were performed by a majority of students except only 10% dimmed the lights. 30% correctly identified the simulator's fundus. The Class of 2009 self-assessed their familiarity with the examination at 5.6 and their comfort level performing the examination at 5.1. The Class of 2010 rated their familiarity at 6.9 and their comfort level at 5.8. A small subset (N=2) had performed >30 fundoscopic examinations in the past year. Both students correctly identified the simulator's fundus and rated their familiarity and comfort level at 8.5. Educational Significance Second- and third-year students demonstrated basic understanding of the fundoscopic examination, but an inability to perform the skill. Students who performed >30 exams were able to identify the fundus accurately and felt more comfortable and familiar with the examination. The importance of repeated practice for acquiring clinical skills is suggested.

11

**USMLE Step 1: Opportunities for Senior Students to Assist**

Matthew Deluhery, BS, Loyola University Chicago Stritch School of Medicine

Rachel Brown, BS, Loyola University Chicago Stritch School of Medicine

Patricia McNally, EdD, Loyola University Chicago Stritch School of Medicine

Objectives: At our school preclinical professors and education specialists have taken a lead role in preparing medical students for USMLE Step 1. Despite programs to involve clinical (third-year) students in preparation efforts, they have remained an underutilized resource. Further, the ideal role for these third and fourth year medical students is unknown. Methods: A fifteen-question survey was administered to second-year medical students approximately one month prior to taking USMLE Step1 at Loyola University Chicago's Stritch School of Medicine. Results: A total of 74 students out of a possible 139 (53%) responded. When asked how they wanted to score on Step 1, 63% stated "well above average", 34% stated "somewhat above average", and 3% stated "average". Eighty-six percent of students rely most on older students' advice to plan for USMLE Step 1. On a Likert scale (5-Very Helpful 4-Somewhat Helpful 3-Neutral 2-Somewhat Not Helpful 1-Not Helpful) mean scores for helpfulness of an Internet forum, large group question/answer sessions, and one-on-one mentor with a senior medical student were 4.2, 3.8, 3.0, respectively. The majority (97%) wanted more input from senior students and 70% stated they would be willing to assist student in the upcoming year prepare for Step 1. Sixty-one percent of students wanted specific specialty advice from more senior students. Conclusions: Senior medical students are frequently an underutilized resource when schools prepare students for USMLE Step 1. Administration, educators, and students should collaborate to prepare students for this critical examination. This offers teaching experience to senior students and builds school morale.

12

**A Developmental Perspective on Patient-Centered Education: Setting Up the Structure to Facilitate Change**

Carla Dyer, MD, University of Missouri - Columbia School of Medicine

Kimberly Hoffman, PhD, University of Missouri - Columbia School of Medicine

Rachel Brown, MBBS, MPhil, University of Missouri - Columbia School of Medicine

**Objective:** The University of Missouri has developed key competencies for our graduates. Our primary goal is the graduation of physicians who are able to deliver effective patient-centered care. Informed by our students, faculty, and patients, we have developed a definition of patient centered care that describes observable behaviors expected of our students. We are incorporating these behaviors into the admissions process, curriculum and student assessment. **Methods:** Our goal is to initially admit applicants with the potential to develop these key characteristics. By combining components of the current application process with the observable qualities described above, we have developed an instrument to assess patient centeredness in our applicants. In addition, pre-clinical problem based learning cases have been examined for patient centeredness. We have introduced explicitly arranged exposures to the patient's perspective in the child health clerkship, adding to an established patient centered experience in the family medicine clerkship, with anticipation that other clerkships will soon follow. Finally, we used the behaviors described above to develop an end of third year OSCE which will assess a student's ability to deliver patient centered care, in addition to being an instructive tool in these qualities. **Results:** We will present multiple methods to assess patient centeredness across the educational experience. **Conclusions:** These collaborative efforts across our curriculum will reinforce the importance of developing patient-centered physicians at our institution, ultimately benefiting our students and patients alike. Similar changes may be applied at other institutions interested in promoting a vision of patient centered care.

13

**Impact of Extracurricular Geriatric Medicine Training: A Model Based on Student Reflections of Health Care Delivery to the Elderly**

Linda Goldenhar, PhD, University of Cincinnati College of Medicine

E Gordon Margolin, MD, University of Cincinnati

Gregg Warshaw, MD, University of Cincinnati

Although many professional and accrediting bodies have identified competencies for medical students pertaining to caring for older patients, including understanding the basics of the health care delivery system, the highly structured curriculum in medical school provides few opportunities for these competencies to be achieved. One possible solution is to let students participate in geriatrics-related extracurricular educational and clinical activities and ask them to reflect on their experiences. This paper presents the results of a qualitative analysis of student reflections from participating in such a program implemented at the University Of Cincinnati College Of Medicine. One hundred and thirty of 321 student journal entries (collected over 3 academic years) containing any mention of the health care system were qualitatively analyzed. The themes and resulting model that emerged from the data includes three distinct levels of health care delivery: individual, organizational and systems. Each level is presented and explained using illustrative student quotes. As a whole, the model indicates that students in this innovative extracurricular experience gained important knowledge about how medical care is provided to the elderly. The model developed may provide additional structure for future medical students as they reflect on their early encounters with the complex health and social forces affecting the quality of care received by older adults.

14

### **Challenges and Opportunities in Developing an Integrated Electronic Patient Log**

Melissa Griggs, MEd, University of Missouri-Columbia  
Elizabeth Garrett, MD, University of Missouri-Columbia  
Kimberly Hoffman, PhD, University of Missouri-Columbia  
Gina Johnson, BS, University of Missouri-Columbia  
Caroline Kerber, MD, University of Missouri-Columbia  
Catalina Kersten, MD, University of Missouri-Columbia  
Mark Wakefield, MD, University of Missouri-Columbia

Authors: Melissa Griggs, MEd, Elizabeth Garrett, MD; Kimberly Hoffman, PhD, Gina Johnson, BS; Caroline Kerber, MD; Catalina Kersten, MD; Mark Wakefield, MD  
**Title** Challenges and Opportunities in Developing an Integrated Electronic Patient Log  
**Purpose** The University of Missouri has developed a web-based system (PLOG) to track patient encounters by clerks during the third year. This electronic system provides a framework that allows cross-clerkship comparison while providing enough flexibility to meet the needs of individual clerkships. We framed creation of this system as multiple PDSA cycles. The system has been successfully used for two years. **Methodology** Data were analyzed to better understand student experiences, the appropriateness of the minimum encounter requirements, and the usefulness of the system. **Data** evaluated include: 1) patient encounters (location, diagnosis, frequency, level of participation, age, gender); 2) time to meet requirements; 3) satisfaction, usability, time requirements, and navigation of the system by students; and 4) use of data, impact on students' evaluations, and changes resulting from PLOG data usage by clerkship directors. **Results** The number of patients logged varied from 15-157 per student per eight week block. Patients ranged in age from newborn to >80 (40% age 15-45) with the majority in the outpatient clinic setting. Most students were able to meet requirements; however, mid-year data analysis prompted changes in some requirements. **Conclusions** PLOG has provided clerkship directors data regarding individual student experiences as well as overall clerkship trends. It helped identify mid-course corrections and prompted discussions of professionalism. The PLOG data also assisted in efforts to improve the educational objectives of clerkships and helped clinical curriculum leaders gain an understanding of the total third year experience.

15

### **Use It or Lose It Medical Knowledge Retention as a Function of Time**

Sharon Grover, MD, Loyola University, Stritch School of Medicine

Knowledge retention in medical students is affected by the time between knowledge acquisition and applied clinical practice. How can knowledge retention be optimized? **Background:** In 2006 eighty percent of Loyola's psychiatry didactics were taught in the third year clerkship; this left insufficient time to develop clinical skills. In January 2007, a psychopathology series was designed and implemented to shift core psychiatry didactics to the second year. However, unless the knowledge acquired during the second year course is retained, the development of the needed skills will be compromised. This study was designed with the purpose of assessing knowledge gained in the second year in order to determine the success of the curriculum change. **Methods:** This study will measure retention of knowledge as a function of time using a standardized test designed directly from concepts taught during the second year. Second year students are enrolled in the psychopathology course during winter quarter. However students enter the clerkship from six to ten months after the course on a rotating basis, with cohorts separated by six weeks. **Hypothesis:** Because retention may decrease with time, a comparison will be made of test scores across cohorts with the assumption that earlier cohorts will have retained more information relative to later cohorts. **Data analysis:** This study is ongoing with data available for the first 3 of 8 cohorts. Preliminary analysis shows a decline in knowledge retention over six months by 10%. If this trend continues, it may be necessary to alter the second year course to optimize retention or reintroduce didactic training during the clerkship.

16

**A New Audience for Faculty Development: Biomedical PhDs**

Larry Gruppen, PhD, University of Michigan

Alice Frohna, PhD, University of Michigan

Objective or purpose of innovation Biomedical PhD students often look towards academic careers in liberal arts colleges or smaller universities, but are a largely invisible and neglected audience for faculty development in fundamental educational methods and teachings skills. Methods or materials used The University of Michigan's Program in Biomedical Sciences (PIBS) provides an integrated admissions and initial curriculum for all biomedical PhD students. In collaboration with the UM Department of Medical Education, PIBS has offered a 2-credit course in teaching skills for PhD students and post-docs. The course consists of established faculty development resources in such topics as curriculum design, lecturing skills, and small-group facilitation. It also contains elements specifically designed for this audience, including laboratory instruction methods and development of an educational philosophy statement for use in job applications. Results Over the four years of this course, a number of students have gone on to seek jobs in academia and have provided feedback on the value of the course. They note that preparation in educational skills distinguishes them from the field of candidates for these highly competitive positions. Feedback has highlighted the importance of practice in teaching methods and insights from faculty working in these kinds of positions. Conclusions As far as we have been able to determine, this is a novel and innovative course for biomedical PhD students that augments the educational sophistication of an often neglected part of many medical school communities. Such a course could be readily adopted by any medical school with a biomedical training program and faculty development expertise.

17

**Take a Look at Yourself: Incorporating Reflection into Pre-Clinical Medical Education**

Tamara Gutierrez, MD, Ohio State University College of Medicine

There has been increasing emphasis in the literature of late on the importance of reflection in medical training and practice, but not necessarily a plethora of suggestions on how to actively engage students in the reflective process. As part of our pre-clinical behavioral science curriculum at Ohio State University College of Medicine, we have attempted to remedy this situation using a variety of approaches. The primary approach has been a new system of short electronic quizzes which are used to ask reflective questions at the beginning of each school year, as well as intermittently throughout the year in coordination with the professionalism, behavioral medicine, diversity/spirituality, meaning in medicine, and integrative medicine learning modules. These quizzes allow for collection of student answers that can then be reviewed in small group or on an individual basis as the student moves forward through the training process, providing insights into the growth process. In addition, students in the addiction module attend an AA meeting and write a reflective essay and students complete a year-long volunteer project followed by a reflective paper summarizing their experience and a presentation on what they gained from that experience to an audience of their peers. Over the past year of increased emphasis on reflection, both student and facilitator comments indicate that it is enriching small group discussion and student learning. These practices would be applicable to any medical school with an online curricular program, and we are continuing to build upon them at OSU each year.

18

**Looking Beyond The Association of American Medical Colleges' Graduation Questionnaire: Do Graduates' Responses Change After Five Years?**

Heather Hageman, MBA, Washington University School of Medicine

Donna Jeffe, PhD, Washington University School of Medicine

Dorothy Andriole, MD, Washington University School of Medicine

Alison Whelan, MD, Washington University School of Medicine

Purpose: We sought to identify predictors of 5-year post-graduate (PGY-5)-survey completion and evaluate changes in response to identical items on our PGY-5 survey and the Association of American Medical Colleges' Graduation Questionnaire (GQ). Methods: Individualized records linked our 1999-2001 graduates' responses to an on-line PGY-5 questionnaire with their

demographic (gender, race/ethnicity) and academic information (Step I score, third-year-clerkship grade-point average, MD/PhD graduation, Alpha Omega Alpha election) and, for graduates who completed the GQ with identifiers, responses to two GQ items (satisfaction with the quality of their medical education and career-setting-preference plans), which were also included on the PGY-5 questionnaire. We used Dillman's Tailored Design Method to administer the surveys. We identified independent predictors of PGY-5 completion and tested changes in individual graduate's responses to the two parallel GQ- and PGY-5-survey items. Results: Of 347 1999-2001 graduates (50% women, 62% white), 249 (71.8%) completed the PGY-5 and 146 (42.1%) released identified-GQ responses. Using multivariable logistic regression, only identified-GQ completion predicted PGY-5 completion (adjusted odds ratio 1.630, 95% confidence interval 1.001-2.655). PGY-5 responses to items regarding satisfaction with the quality of their medical education (dependent-samples t-test,  $p = .857$ ) and career-setting-preference plans (Wilcoxon signed-rank test,  $p = .519$ ) did not change significantly from their GQ responses. Conclusions: A large, demographically and academically diverse sample of our graduates completed PGY-5 surveys, suggesting that long-term educational-outcomes assessments are attainable from a broad range of graduates. The stability of GQ responses evidenced by our graduates' PGY-5 responses validates the predictive value of selected GQ responses.

19

### **Application of "Lean Manufacturing" Principles to Teach and Assess ACGME Competencies**

Stanley Hamstra, PhD, University of Michigan Medical School  
Steve Kronick, MD, University of Michigan  
Terry Kowalenko, MD, University of Michigan  
Sheri Moore, University of Michigan  
R Van Harrison, PhD, University of Michigan

**Objective:** The Accreditation Council for Graduate Medical Education (ACGME) has mandated that residency programs provide evidence of competence in a variety of dimensions. The University of Michigan recently implemented a training initiative for clinical staff based on "Lean Manufacturing" principles that emphasizes quality improvement and efficiency in healthcare delivery, known as the Michigan Quality System (MQS). Although house officers have not been directly targeted for this training, "Lean" principles indirectly address at least two of the ACGME competencies, Practice-Based Learning and Improvement and Systems-Based Practice. Recently, the Emergency Department teamed with MQS and the GME Office to extend this curriculum directly to house officers. Our aim is to determine whether this approach is a feasible and effective method for training house officers. Our larger goal is to effectively leverage existing health system resources to train and assess house officers in the ACGME competencies. **Methods:** Following a pilot implementation with 3rd-year house officers, the curriculum was recently implemented with the current cohort of 11 2nd-year house officers. This included a didactic session on "Lean" principles and quality improvement, as well as projects aimed at implementing these principles. Residents were administered a retrospective pre-post assessment of knowledge gained. **Results:** Responses to the retrospective pre-post assessment showed significant within-subject improvement in all areas of the curriculum, with each item in the 14-item test significant at the  $p < .01$  level (effect sizes ranged from 1.4 to 3.8). **Significance:** Existing healthcare system resources can be effectively adapted for training relevant competencies in the residency curriculum.

20

### **The Integration of Simulation-Based Curriculum into the Clinical Education and Assessment of Family Medicine Interns Working with Nursing and Pharmacy Students**

George Harris, MD, MS, University of Missouri-Kansas City

**PURPOSE:** • Implement simulation-based patient care scenario to improve intern's performances of critical clinical tasks, to assess their communication with other members of the health care team, and to provide faculty, peer, and self-assessments of their decision-making and • Ascertain outcomes based on team performances, communication skills and feedback from the scenarios. **METHODS:** • Upon completion of an ACLS course, interns participated in simulation-based exercises requiring them to apply ACLS concepts and skills. With the participation of other health care team members, they responded to an acute scenario of a patient whose clinical status

continually deteriorated as the case rapidly evolved. • Using checklists, the following areas were assessed: • the critical performance steps of each intern • the professionalism and communication skills of each team • the intern did a self-assessment of their overall performance. • the faculty's assessed each intern's overall performance. • the intern assesses faculty instruction and feedback RESULTS: • Interns displayed less confidence and failed to voiced potential problems with team members present. They didn't introduce self and proceeded with the emergent condition. Forgot to order appropriate tests after a procedure and follow-up on effects of medication given. The immediate feedback was beneficial in the learning process. The faculty was approachable and gave appropriate feedback. Their overall assessment of their performance was more critical than the faculty's assessment. CONCLUSIONS: • Simulation is beneficial for reinforcing key learning concepts, improving communication skills within a medical team, and providing immediate feedback on medical decisions effecting patient outcomes.

## 21

### **Anticipating and Coping with Medical Error: An Elective Course for M2 Students**

Linnea Hauge, PhD, University of Michigan

Patricia Mullan, PhD, University of Michigan

Purpose of Innovation Medical students are likely to encounter medical error during their career. A recent survey of physicians (Waterman et al, 2007) in the US and Canada indicates that involvement in medical error and near-misses increases physician's job-related stress. Additionally, 86% of physicians surveyed expressed interest in education about error disclosure. To address this need, we developed a 6-hour elective course for M2 students. Intended learning outcomes included: 1. identifying and defining medical error categories, 2. describing disciplinary-specific methods for learning from error, 3. analyzing standards and recommendations for communicating about error with peers and patients, 4. reflecting on personal and professional challenges associated with medical error, and 5. reviewing resources and strategies for coping with error-related stress. Methods and Materials Used Nine M2 students participated in three 2-hour sessions. Learning methods included self-assessment, readings, gathering and disseminating guidelines, and group discussion. Case scenarios and an accompanying video (Gallagher, 2006) guided self-assessment and discussion. Students gathered and presented information on assigned guidelines or policies about disclosure. Additionally, they conducted discovery about M&M formats. Relevant literature served as assigned reading, some of which was completed in a "jigsaw" approach. Conclusions Given that errors and unanticipated outcomes are likely during clinical training years, it is important to introduce medical students to relevant concepts, standards, and strategies for coping with error. A brief elective provides opportunities for students to anticipate the challenges they may face and identify helpful resources they may need during their clinical training.

## 22

### **Effectiveness of Computer-Aided Instruction for MS2 Students' Acquisition of Knowledge Related to Health Economics and Health Law**

Daniel Hickey, JD, MBA, The University of Toledo, College of Medicine

Constance Shriner, PhD, The University of Toledo, College of Medicine

Objective. Medical educators are challenged to design and implement a curriculum that includes behavioral and socioeconomic content in addition to basic science and clinical disciplines. Trends in medical education reflect an increasing use of technology across instructional settings and the inclusion of self-directed and independent study opportunities in the medical education program. The objective of this study is to determine the effectiveness of using computer-aided instruction for the delivery of self-directed learning modules focused on content related to health economics and health law. Methods. Faculty designed two independent study on-line instructional modules to help second-year medical students (n=146) master specific sets of learner objectives related to health economics and health law. As part of Fundamentals of Clinical Practice II, a longitudinal course that addresses a variety of behavioral and socioeconomic topics as well as instruction in clinical skills, students were required to complete both modules – each including a pretest, a set of instructional exercises, a formative posttest, discussion board access, and module evaluation – delivered solely through WebCT. The modules were activated and made available to students to work at their own pace over a three-week period. Results. Module data from the pretest, posttest, and evaluation will be downloaded into SPSS for analysis. Descriptive statistics will be calculated

to describe students' mastery of the content as well as satisfaction with self-directed computer-aided instruction. Conclusions. To follow completion of data analysis.

23

### **A New Collaborative Degree Program: Masters in Education for Health Professions**

M Rebecca Hoffman, MD, MSPH, Southern Illinois University School of Medicine

Southern Illinois University School of Medicine and the University of Illinois at Urbana-Champaign are collaborating to offer an innovative Master's degree in health professions education. This 2-year degree program terminates with an Ed. M degree in Human Resources Education with a focus in health professions education and is designed for those who are involved (or want to be) in the education of health professionals. A novel feature of this program is the opportunity for health professions educators to work with business professionals in the core courses, providing a most unique perspective. The program consists of 9 courses over 2 years with a capstone project required for graduation. It is offered entirely online, but opportunities exist for on-site activities at SIU-SOM in Springfield, if desired. Curriculum (36 credit hours) HRE Core (16 hrs): HRE 495, Applied Research Design (Capstone) HRE 530, Organization Development HRE 532, Strategic Human Resources Development HRE 585, Program Evaluation College Foundations (8 hrs) EPSY 407, Adult Learning and Development EPS 500, History of Work and Educational Policy Health Professions Education Emphasis (12 hrs): HRE 411, Instructional Design, Curriculum in Medical Education HRE 490, Issues and Developments in HR Education, Clinical Performance Assessment HRE 590, Seminar for Advanced Students, Leadership in Health Professional Education The collaborative degree program is sponsored by SIU School of Medicine's renowned Department of Medical Education and by UIUC's HRE department, which is among the top 5 HRE programs in the country.

24

### **Exploratory Experience - A New Concept in Curriculum Design**

Suzanne Hricko, MLS, Northeastern Ohio Universities Colleges of Medicine and Pharmacy  
Richard Currie, EdD, Northeastern Ohio Universities Colleges of Medicine and Pharmacy  
Patricia McCarter, Northeastern Ohio Universities Colleges of Medicine and Pharmacy  
Lisa Morris, Northeastern Ohio Universities Colleges of Medicine and Pharmacy  
Patricia Nuznoff, Northeastern Ohio Universities Colleges of Medicine and Pharmacy  
Marilda Ward, Northeastern Ohio Universities Colleges of Medicine and Pharmacy

**Purpose** The Exploratory Experience is a four-week course required of third-year medical students at Northeastern Ohio Universities Colleges of Medicine and Pharmacy (NEOUCOMP). The goal of the course is to provide an opportunity for students to experience aspects of medicine not covered during the usual clerkship training and to supplement other career exploration experiences. **Method** Students select two of six categories reflecting various curricular themes, completing 80 hours of contact per category. The categories are research, community service, community health, medical specialty, pharmacy and professionalism/inquiry. Students must attend all planned activities, complete all assignments, communicate and interact effectively with all faculty and staff, behave in a professional manner, including appropriate dress and deportment, and, upon completion of each experience, submit a reflective essay on the value of the experience as a future physician. Faculty preceptors evaluate each student for each course objective. Students and faculty/preceptors evaluate the experience. **Results** Evaluation results for all students in the Class of 2007 and 2008 for all modes of evaluation will be available. Results will include statistics from faculty evaluations of students, sample comments from students' evaluations of the experience and the faculty, statistics and comments from faculty preceptors about the experience and results of student category selections. **Conclusions** The course has helped medical students establish an initial identity as a physician, appreciate competent and compassionate medical care for individuals and communities, uphold the virtues of professionalism, adopt a public health perspective on medical care, and embody an ethic of service to society and the medical profession.

25

**The OSU Clinical Teaching Handbook 2nd Edition: Development and Utilization for Residency Training**

Andy Hudson, EdD, The Ohio State University College of Medicine

Dawn Watson, BS, The Ohio State University College of Medicine

The OSU Clinical Teaching Handbook 2nd Edition: development and utilization for residency training Purpose: Finding suitable learning materials on clinical teaching for residents and faculty is a continuing problem. Most materials are too long and erudite for busy clinicians. Locally developed handouts too often get "filed" and provide little incentive for authors to prepare them. Methods: We will share our experiences in developing and using the Ohio State University College of Medicine Clinical Teaching Handbook 2nd edition. When writing or revising their sections authors were asked to: concentrate on the main points; use bullet or outline format, and cases or examples; stress medical clinical teaching, biopsychosocial, professional and ethically relevant issues. Results: Publication provided recognition for faculty scholarship in medical education, established faculty authors as "experts" we can call on for presentations. It made clinical teaching more visible by providing a more permanent repository for handouts and set certain standards and norms for clinical teaching. Conclusions: The handbook has garnered much positive feedback for use in residency and faculty development. Annually it is distributed to all incoming OSU residents (200 per year), clerkship faculty, chief residents and residency directors and other local hospitals and community preceptors. The first edition of the Clinical Teaching Handbook has been adopted for resident and faculty development in 50 plus universities (45 in the US and five in foreign countries) and 13 hospitals in 22 states and the District of Columbia. It has been used for faculty development in allopathic and osteopathic medicine, Veterinary Medicine, Optometry, Nursing and Dentistry.

26

**Human Spirituality and End-of-Life Care: An Introductory Course for Third-Year Medical Students**

Kathryn Huggett, PhD, Creighton University School of Medicine

Marcia Shadle-Cusic, MA, MS, Creighton University School of Medicine

Marilyn Crane, MS, Creighton University School of Medicine

Amanda Lofgreen, MS, Creighton University School of Medicine

William Jeffries, PhD, Creighton University School of Medicine

Objective: To describe an innovative course to introduce third-year medical students to both the principles of end-of-life care, and spirituality and faith traditions in the care of the dying. Methods: In 2003, Creighton University School of Medicine introduced Dimensions of Clinical Medicine: Human Spirituality and End-of-Life Care. This half-day course is required for third-year medical students and is a part of the interclerkship course. The course was developed to teach end-of-life care principles, and revised in 2006 to also address the ways in which faith and spirituality affect perceptions of death and care of the dying. Multiple methods of instruction are employed to promote participant interaction. Activities include a lecture on palliative care; video presentation of perspectives of terminally ill patients; a hospital chaplain's reflection on dying; panel presentation on faith traditions; small group discussions; and a session on spirituality and the death of a child. Following the course, students critique patient education resources on end-of-life care topics and services. In 2006, 112 students participated and completed course evaluations and pre- and post-course assessments of knowledge and attitudes. Results: Students reported changes with large effect sizes in awareness of spiritual traditions regarding palliative and end-of-life care (ES .95) and knowledge about the objectives for palliative and end-of-life care (ES .82). Students also reported satisfaction with course faculty and program design. Conclusions: A required, half-day course is an effective model for teaching medical students about end-of-life care and the cultural and spiritual aspects of death and dying.

27

**Improving Patient Care: Self and Peer Evaluation in a Team Setting at Indiana University School of Medicine-South Bend**

Stacey Jackson, MS, Indiana University School of Medicine-South Bend

Edward McKee, PhD, Indiana University School of Medicine-South Bend

Rudolph Navari, MD, PhD, Indiana University School of Medicine-South Bend

PLEASE NOTE: We have submitted a large group discussion session on this same topic. We know that it is difficult for all participants to attend sessions in which they are interested. We would like to suggest to the review committee to allow us to offer a poster on our topic for those who cannot attend our session. We will offer the same handouts as in the face-to-face session. Thank you. Within the team environment, self-perception can play a critical role in team dynamics which ultimately influences patient care. Indiana University School of Medicine (IUSM) is focusing specifically on opportunities for students to be self-aware of one's own actions, biases, and feelings through its competency-based curriculum. By using self and peer assessment techniques within the team-based learning (TBL) environment, IUSM-South Bend is utilizing a powerful form of self-reflection in teaching students about patient-doctor and peer-peer communication. IUSM-SB offers insight into the use of self and peer assessment techniques utilized in basic science courses at IUSM-SB. We will present the process for forming the TBL groups, in-class student training on giving effective feedback, and evaluation methods/tools administered as well as outcomes observed.

28

**Legacy Teachers: Recognizing Our Patients as Teachers**

Caroline Kerber, MD, University of Missouri

Elizabeth Garrett, MD, University of Missouri

Linda Headrick, MD, University of Missouri

Richard Gleba, University of Missouri

Peggy Gray, University of Missouri

Description In 2004, the University of Missouri School of Medicine introduced the Legacy Teachers Program. Our M3 students are encouraged to write a reflective essay about a patient for whom they've cared who taught them more than knowledge or technique. They're to describe a patient-teacher who aided their understanding of other facets of being a patient-centered physician. Essays have included descriptions of a patient who taught a student to listen deeply and just be present in the moment, whereas another student wrote how a patient clarified the many non-medical roles physicians fill for patients. Students can write about a patient they will never forget whose lessons will forever be a part of them, or perhaps a patient who challenged them to reflect on themselves personally. Essays are collected and judged by a faculty panel. Selected essays are highlighted at an annual luncheon where students and their legacy teachers are honored together, and where all our patients are celebrated as our best teachers. Objectives 1. To honor our best teachers, our patients 2. To encourage reflection at a critical time in students' maturation on how every patient encounter can change who we are as patient-centered physicians 3. To challenge our students to reflect on how they are meeting our MU2020 Key Characteristics Conclusions The successful Legacy Teacher program now solicits poems and other creative reflections. The spring luncheon is expanding to include M2 students to stimulate their proactive reflections and recognition of unique patient-teachers who impact their maturation as patient-centered physicians.

29

**Third Year Medical Students Performing Procedures? Building an Orientation to Keep Us All Safe**

Michael Koller, MD, Loyola University Stritch School of Medicine

Keith Muccino, MD, Loyola Stritch school of medicine

Objective: "See one, do one, teach one" has not been an effective way for students to develop competence in procedures. Previously, Loyola presented a brief lecture series to orient third years to procedures. A first-time assessment at the end of third year showed variability in procedural competence. Our overall goal is to demonstrate competence in three procedures in an end of third year OSCE. Methods: The entire third year class participated in a three-day

orientation prior to the start of clerkships. We taught three procedural skills in a standardized, adult learning styled workshop that incorporated hands-on learning in groups of four students and one faculty, just in time for the start of third year. We utilized content from NEJM's articles and videos in clinical medicine series as well as recently purchased task trainers to teach three of the procedural skills included in LCME's medical school learning objectives: arterial puncture, inserting a nasogastric tube, and inserting a Foley into a male and female model. Results: Pending. We anticipate students will report more procedures are done this year and that students will be competent in these procedures at the end of third year. Students self report the number of procedures done. Conclusion: Faculty reported satisfaction with the workshop model and were eager to participate in next year's orientation. Student's reported feeling ready to participate in these procedures at the start of their clerkships, having practiced on task trainers under the watchful eye of faculty.

30

### **I've Always Wanted to Be in the Movies! Making Instructional Videos for Medical Students**

Michael Koller, MD, Loyola University Stritch School of Medicine

Background: As faculty face increased demands for clinical productivity, time for teaching is at a premium. Making an instructional video to teach physical exam steps or procedure skills is not only an effective way to standardize education, but it also saves faculty time. Objective: To describe the process at Loyola to create instructional videos for clinical teaching. Methods: Research the material (because medical students identify every mistake!), meet with stakeholder faculty for ideas and support, develop a script that breaks content down into discrete steps, create cue cards, partner with your video department, and practice delivery with goal of "one take" to avoid wasting time and resources in editing. Place video on intranet and/or provide as free DVDs to students to access 24/7. Results: Dr. Michael Koller has made over fifteen videos for undergraduates. Most students find the physical exam videos helpful to learn physical exam steps. These videos are available for free and are among the most accessed content on Loyola University's medical education network (LUMEN).

31

### **Development and Scoring of a Computer Assisted Laboratory Utilization Simulation Designed to Improve Evidence-Based Clinical Problem Solving**

Clarence Kreiter, PhD, University of Iowa  
Thomas Haugen, MD, University of Iowa  
Christopher Goerdts, MD, University of Iowa  
Ronald Feld, PhD, University of Iowa  
Timothy Leaven, MA, University of Iowa  
Fred Dee, MD, University of Iowa

Introduction and Purpose: LabCAPS is a web-based patient simulation model developed at the University of Iowa that is used for performance-based competency assessment and education of medical students and first year house staff. Dynamic simulations allow the sequential ordering and interpreting of tests to arrive at a diagnosis. Forty cases have been constructed, and formative evaluations are underway. Crucial to evaluating LabCAPS educational and assessment role, our ongoing research aims to develop an automated scoring system that reliably and validly summarizes the quality of trainees' performance. Methods and Analysis: LabCAPS cases are generated and delivered from a Perl-scripted CGI database. Cases allow a prescriptive approach to scoring, thus enhancing the ability to generate logically defensible "objective" scoring keys. An aggregated check list driven scoring method, based on the proportion of experts selecting responses, will be compared with a novel automated evidence-based consensus building approach. Score reliability and validity of the two methods will be examined. Generalizability Analysis will examine how the number of experts and cases engaged impact score reliability. Correlational analysis along with true score correlations will address validity by comparing LabCAPS scores with other objective and global assessments by level of clinical and educational experience. Correlation with expert global ratings of performance will provide additional validity evidence. Conclusion and Applicability to Other Schools: LabCAPS employs technology that allows distant access for use in the curriculum at schools across the country. This project is funded by a grant from the National Library of Medicine.

32

**Pandemic Deployment Training for Medical Students: Collaborating with State Agencies in Medical Education**

Janet Lindemann, MD, Sanford School of Medicine

Brian Dzwonek, EdD, Sanford School of Medicine of the University of South Dakota

Edward Simanton, PhD, Sanford School of Medicine of the University of South Dakota

In the spring of 2007, the Sanford School of Medicine in conjunction with four South Dakota state agencies trained the first and second year medical students for deployment in a medical emergency. This training used the H5N1 avian flu as the example pandemic but the principles could apply to any medical emergency. In addition to the content about avian flu, students were provided training in incident command, communication systems, personal protective equipment, immunizations and anaphylaxis. Students' knowledge and attitudes were assessed using pre-post evaluation and competency was verified in five skill areas that are key to successful deployment as first responders. Overall the intervention had a significantly positive impact on student knowledge and increased the students likelihood to participate as first responders based on the pre-post attitude survey.

33

**The Cultural Colloquium: Using an Immersive Diversity Experience to Teach Cultural Competence**

Janet Lindemann, MD, Sanford School of Medicine

Lisa Amiotte, MD, Sanford School of Medicine of the University of South Dakota

Edward Simanton, PhD, Sanford School of Medicine of the University of South Dakota

Brian Dzwonek, EdD, Sanford School of Medicine of the University of South Dakota

In order to create a meaningful educational experience in cultural competence, the Sanford School of Medicine integrated a cultural immersion experience into third year. In the fall of 2005, Cultural Colloquium was first included in the third year curriculum. Students begin each Cultural Colloquium week with one day of lectures and small group activities presented by speakers from diverse cultures, followed by a day-long tour of a Hutterite colony. Days three through five are committed to self-selected cultural immersion and service experiences throughout the state. Cultural groups selected by students for this experience include: Native Americans, Senior citizens, Persons with disabilities, Immigrants/refugees, and other. Following this week-long experience, students return to their normal clinical rotation schedule while they reflect on their experience. Four months after the immersion experience, they present their experiences in a poster session to each other, the faculty and the public. Students ratings of this experiences are very positive with the cultural colloquium being one of the most positively rated components of the third-year curriculum.

34

**Fanning the Flames for Educators: A Career Vitality Workshop for Clerkship Directors**

Michael Lund, MD, Medical College of Wisconsin

Paola Palma-Sisto, MD, Medical College of Wisconsin

Deborah Simpson, PhD, Medical College of Wisconsin

Purpose: Directors of third-year medical student clerkships are asked to spend a significant amount of uncompensated time performing the "grunt work" of education. Through the leadership of the Division of Educational Services, we developed a series of retreats aimed at improving career satisfaction and professional vitality. Methods: We designed a Clerkship Directors Faculty Development program consisting of six half-day retreats over two years. Our main goal was to look for ways to improve our satisfaction with our roles as teachers and educators and to improve our own scholarly activity. To that end, we organized half-day sessions on improving curriculum vitae, writing an educators' portfolio, and writing grants/abstracts for educational projects or conferences. We collaborated on topics of interest to educators at our school that went beyond the "business" part of our roles, including the merits of OSCE's that most of our clerkships had recently implemented and how we could improve their consistency and educational/feedback value across the curriculum. Results: Final results regarding participant satisfaction are not available yet, as the retreat program is still underway. However, there has been an increase in

educational work product dissemination. Two workshops have been accepted at MedEdPORTAL. At least two clerkship directors have submitted applications for promotion, and others have submitted educational materials to peer-reviewed journals. Discussion: Developing a faculty development retreat for clerkship directors can be expected to improve job satisfaction as well as to increase educational productivity through shared publication and dissemination of novel educational ideas.

35

**OSU Neurology Clerkship Curriculum Project: A Student-Produced Web-Based Resource**

Joanne Lynn, MD, The Ohio State University College of Medicine  
Brandon Miller, PhD, The Ohio State University College of Medicine  
Dawn Carter, MA, The Ohio State University College of Medicine  
Emily Klatte, MD, The Ohio State University College of Medicine

Ohio State's Neurology Clerkship initiated a year-long project to develop a web-based neurology curriculum to cover the American Academy of Neurology's (AAN) recommended topics for a core neurology clerkship. The AAN recommends coverage of topics such as: neurologic examination, principles of neurologic localization, neurologic emergencies, specific neurologic diseases and cardinal neurologic symptoms. Current textbooks inconsistently cover the topics of the recommended curriculum, so this project was designed to involve third year students to work as a team to produce a web-based educational resource to serve as a study and self-evaluation guide for peers and subsequent classes. During each rotation, students are each assigned a topic and asked to: write a 1-2 page paper about the topic, find two well-written related articles in the literature, write two NBME style questions, and find 1-3 relevant websites. The clerkship director reviews and edits submissions prior to entering the information onto the website which is structured around the core curriculum outline. The primary material is being collected over the first eight months. Students in the last four months will be assigned to work on topics for a board review section. The first year of this project will generate the basic content of the student-constructed neurology website. Subsequent years will focus on updating and expanding materials and generating additional questions and strategies for pre-and post testing of knowledge. This is an experiential learning exercise that can be replicated at other institutions and which promotes self-directed learning and collaboration, as well as generating excellent learning materials.

36

**Leveraging Institutional Risk Management Training for House Officers**

Monica Lypson, MD, University of Michigan Medical School  
ES Mckeown, University of Michigan  
SG Anderson, University of Michigan  
RC Boothman, University of Michigan  
Stanley Hamstra, PhD, University of Michigan

Objective: In response to the 2003 Institute of Medicine report on patient safety, the University of Michigan Health System (UMHS) Risk Management Department developed learning modules for error prevention and risk management. These modules are interactive web-based units based on prototype cases to highlight our institution's risk management principles and approaches to patient care. Recently, the GME Office teamed with the Risk Management Department to determine whether this approach is a feasible and effective method for training house officers in risk management principles. Our larger goal is to determine whether we can effectively leverage existing health system resources to train and assess house officers in the ACGME competencies. Methods: The module involves 3 components: Documentation Errors – failure to adequately document medical decision-making and the process of care for a patient; Communication Errors – failure to ensure effective multidisciplinary communication, including use of the chain of command; Professionalism – use of disclosure and root cause analysis amidst a catastrophic outcome to enhance systems and processes and avoid a recurrence. Based on the existing learning module, we developed a pre- and post-test to assess knowledge gain. Results: To date, 12 of 81 GME programs at UMHS have participated in the learning module and associated pre- and post-tests. Based on this pilot run, the test showed moderate to good reliability (Cronbach's alpha = 0.62), and several critical items showed significant improvement. Conclusion: A healthcare institution's risk management module can be an effective way to teach

37

**ENCORE: A Competency-Based Medical Student Education Pilot Program**

Rajesh Mangrulkar, MD, University of Michigan Medical School

Background: Much of the current structure of undergraduate medical education is quite similar to that which existed earlier in the 20th century, yet the content, expectations and practice environments have created significant challenges that require fundamental changes in the ways our learners encounter basic science and clinical material. In addition, the marked advancements in our understanding of medical science and educational methods create an opportunity to revolutionize the content and methods by which medical education occurs. Description: The University of Michigan Medical School is designing a pilot program for medical student education called "ENCORE: Ensure Competence, Inspire Excellence". This new program will combine continuous, formative and summative assessment of higher order educational outcomes with flexible learning paths for achievement in nine defined competency domains. Competency standards will be set explicitly, and a comprehensive and valid set of existing and new assessment tools will measure learner achievement of these outcomes. Students will select flexible learning paths, made up of curricular elements derived from existing and new learning experiences that are mapped directly to specific clinical patient presentations. Finally, completion of an "INSPIRE Excellence" path will be mandatory, comprised of scholarly pursuits of new scientific knowledge, transformative clinical care or community service, designed to foster academic leadership skills. The current plan is to enroll a group of medical students for this pilot program beginning in August 2009. This overview will also present a progress summary, covering the process of setting outcomes, pilot assessments, and the plans for a comprehensive Learning Management System.

38

**ENCORE: Outcomes Generating the Competencies Underlying an Outcomes-Based Medical Education Pilot Program**

Rajesh Mangrulkar, MD, University of Michigan Medical School

Tamara Stein, University of Michigan Medical School

David Stern, MD, PhD, University of Michigan Medical School

Objective: Outcomes-based medical education is designed to ensure that all graduates demonstrate competence. Starting with nine major competency domains as an organizing framework, we have used a recursive, iterative, collaborative methodology to define specific graduation competencies within these domains for ENCORE, a pilot educational program. Methods: The framework structure begins with a finite set of 126 clinical presenting concerns, defined by the Medical Council of Canada, subdivided into 18 related clinical categories. After piloting the process, we subsequently held a workshop with three teams of faculty to generate differential diagnoses and outcomes for 20 concern clusters, captured in a web-based interactive database, and stratified within each of the 9 competency domains. We further augmented the database by enlisting 15 advanced medical students to review reference texts and publications developed by consensus panels of clerkship directors and content experts. Results: We have generated differential diagnosis lists for each of the 126 clusters of presenting concerns – the lists ranging from 5 to 40 diseases. Each diagnosis maps to an ICD-9 code to facilitate integration with clinical databases. In addition, we have populated the database with more than 10,000 outcomes in the 9 domains, extensively cross-referenced by source. Conclusions: Further refinement and validation of the outcomes will be completed by faculty with clinical expertise associated with specific clusters of patient concerns. These outcomes will then be used to design assessment methods and learning experiences for the ENCORE Program at the University of Michigan Medical School.

39

### **Muddy Waters: Increasing Student Questions Through Anonymity**

Michael Markus, MD, Wright State University Boonshoft School of Medicine

Patricia Hudes, MSIT, Boonshoft School of Medicine at Wright State University

Muddy Waters: Increasing Student Questions Through Anonymity Michael J. Markus M.D. and Patricia Hudes, M.S. I. T. Context: The purpose of the "Muddy Waters" tool was to: 1. provide a forum for student questions 2. provide access to faculty outside of the classroom 3. clarify content and identify weaknesses in the curriculum. In the first trial using post cards and a question box no questions were submitted. A student focus group explained that they would have used the tool if it were anonymous and web-based. In 2007, the same "Muddy Waters" concept was used, but this time following the students' suggestions: The "Muddy Waters" link was provided on the course website. Question submission was anonymous. Questions were relayed to the course director or appropriate faculty member. Answers were posted at the "Muddy Waters" website within one to three days. Results: 30% submitted questions. 63% read all of the questions posted. 97% used "Muddy Waters" at least once. 91% rated "Muddy Waters" as a helpful learning tool. Questions reflected a variety of concerns: from printing errors in course materials and inconsistencies between references to conceptual difficulties. A post-course survey was conducted on students' perceptions of "Muddy Waters": 93.3% of the comments were positive and 94.4% would like this tool to be used in all courses. Conclusions: Students are more likely to ask questions when provided with an anonymous forum. "Muddy Waters" was a useful channel for student/faculty communication and an effective tool to clarify course content and identify needed improvements.

40

### **A Tail of Two Cohorts: Student Performance Variability in an OSCE**

Brian Mavis, PhD, Michigan State University

Rebecca Henry, PhD, Michigan State University

Mary Noel, PhD, Michigan State University

Christopher Reznich, PhD, Michigan State University, College of Human Medicine

Purpose: Many faculty believe that students are reasonably consistent in their performance: certain students are expected to always be among the bottom or top of the distribution. The purpose of this study was to investigate the consistency of student performance throughout an OSCE, by identifying the best and worst performing students for each case. Methods: Third-year medical students (N=112) completed a comprehensive clinical skills exam; six stations yielded composite ratings of communication, history-taking and physical examination skills. Students were rank-ordered on each station; the top 20 and bottom 20 students were identified for each station, representing those students two SD from mean. Results: Overall, 9 (8%) students were never in the top or bottom tails, while 32 (29%) were in both top and bottom tails. Thirty-seven (33%) students were in the top tail but never the bottom one, while 34 (30%) students were in the bottom tail but never the top. Ten (9%) students were in the top tail for three or more cases; one student (1%) was in the top tail for all six cases. Nine (8%) students were in the bottom tail for three or more cases; no one was in the bottom tail for all six cases. Conclusions: The variability of student performance was greater than expected, and supports case specificity. More importantly, the findings suggest that a majority of students have areas of strength to build upon as well as weaknesses that need further attention. Effective remediation might focus more on poor performance and less on poor performers.

41

### **Introducing Ultrasonography to First-Year Medical Students During Gross Anatomy**

Audrey McCandless, MD Candidate, BS, Ohio State University College of Medicine

David Bahner, MD, The Ohio State University College of Medicine

Robert DePhilip, PhD, The Ohio State University College of Medicine

Emily Newman, BS, The Ohio State University College of Medicine

Objective: To improve understanding of clinically important anatomical relationships by teaching students how to acquire and interpret ultrasound images and make correlations with anatomical dissections. Methods and Materials: This exercise took place during the thorax and abdomen division of the gross anatomy block. First-year students attended a 1.0 hour introductory lecture

on ultrasound focused on a clinical case (biliary colic and cholecystectomy). Students then received 1/2 hour of instruction in small groups (6 students) on how to acquire and interpret ultrasound images using a portable unit. Small group instructors were second-year students who had attended a training session on abdominal imaging. Groups were further supported by fourth-year students completing a year long elective in ultrasonography, emergency medicine residents, and faculty credentialed in ultrasonography. Target images included the gallbladder, hepatobiliary tree, portal triad, branches of the aorta, and subxiphoid view of the heart. A 20-item survey was distributed to the first-year students after completion of the exercise. Responses were scored on a 1-5 point Likert scale. Results: Students (n = 50) reported that the ultrasound exercise facilitated their understanding of three-dimensional anatomy (4.32 +/- 0.68). They suggested that more hands-on ultrasound time would be beneficial (4.42 +/- 0.78) and that they would like to see ultrasound more fully integrated into the anatomy curriculum (4.02 +/- 0.91). Conclusions: This ultrasound intervention within an existing anatomy curriculum is feasible with minimal faculty resources needed. Future studies will formalize the experience and examine its effectiveness in how well students understand and retain knowledge of clinically important three-dimensional anatomical relationships.

42

### **Culture of Empowerment: Students Make Things Happen**

M Eileen Mehl, MA, The Ohio State University College of Medicine

Objective: It is possible to create a culture that empowers medical students to be engaged in and initiate innovations in their education. To do this it is necessary to have support from the senior leadership, include student opinions, and work with students as equals. It is vital to let them know that their participation impacts decision making. Method: Student groups are often considered ancillary to the business of learning in medical school. I propose that they are an excellent venue for learning. Using Jane Vella's "12 Steps to Effective Adult Learning," we can identify specific education theories and demonstrate how effective learning takes place. Vella's Principles are very important to the development of life-long learning. 1. Sound Relationships 2. Sequence of Content & Reinforcement 3. Praxis 4. Respect for learners as Decision Makers 5. Learning with Ideas, Feelings, and Actions 6. Immediacy 7. Clear Roles and Role Development 8. Teamwork 9. Engagement 10. Accountability Results & Conclusions: Students are able to pursue specialized knowledge through interest groups as diverse as Complementary Medicine, International Health, the Ultrasound Academy, and Groups for each of the medical specialties. In student groups focused on service such as Ride for World Health, Columbus Free Clinic and Medical Students for Kids there are opportunities to apply what they are learning in the classroom. Participation in Student Government is an excellent setting for learning and practicing professionalism. The poster will illustrate the benefits and logistics of student participation in 60+ organizations.

43

### **First-Year Medical Students Can Actually Be Helpful and Wanted in a Busy Community Clinic**

Aaron Michelfelder, MD, Loyola University Chicago Stritch School of Medicine

Amy Blair, MD, Loyola University Chicago Stritch School of Medicine

Kayhan Parsi, JD, PhD, Loyola University Chicago Stritch School of Medicine

Micheal Macken, MD, Loyola University Chicago Stritch School of Medicine

Jennifer Rocci, Loyola University Chicago Stritch School of Medicine

Cindy Schlessinger, Medical Student, Loyola University Chicago Stritch School of Medicine

Objective: Given that clinical demands on physicians are high, and having students often slows down physician productivity, this project aimed to see if first year medical students could learn in a busy community clinic while actually contributing to patient work flow. Exposure of the students to the members of the patient care team would contribute to knowledge of the various roles and establishing healthy attitudes surrounding teamwork. Methods: Six first year medical students were selected to spend some of the time required for their clinical skills course in a busy community clinic. They were trained to function like medical technicians, spent some time rooming and helping with patients, and some time learning directly from physicians. They also selected projects on community, advocacy and health policy. Results: Preliminary results show that these students did contribute to patient care and became desirable additions to the health care team instead of merely "shadowing" first year medical students. In addition, they developed

a sense of the roles on the patient care team and observed how support staff can be effectively utilized. Conclusions: First year medical students can learn in a busy community clinic while contributing in a positive way to the overall functioning of that clinic. Given scarce resources in medical education, this pilot may serve as a model for encouraging community clinics to partner with medical schools.

44

#### **"Bringing Down the Silos: Combining Four Courses Into One"**

Lisa Morris, AS BMRT, Northeastern Ohio Universities Colleges of Medicine and Pharmacy  
Suzanne Hricko, MLS, Northeastern Ohio Universities Colleges of Medicine and Pharmacy  
Ellen Wagner, Northeastern Ohio Universities Colleges of Medicine and Pharmacy  
Patricia Nuznoff, Northeastern Ohio Universities Colleges of Medicine and Pharmacy  
Mariida Ward, Northeastern Ohio Universities Colleges of Medicine and Pharmacy

To better integrate the 2nd year medical curriculum, our school combined four second-year courses. The courses, Principles of Medical Science, Radiology, Pharmacology, and Pathology merged into one course called Principles of Medicine. The process began two years prior to implementation when faculty and coordinators met to divide the content into nine organ system modules. Each module convened a content team consisting of representatives from each of the original courses. Content team discussions focused on: module topics, sequence, learner objectives, identifying redundancy and faculty recruitment. Many exam questions became vignette style, integrating concepts from the original courses. Students receive exam feedback at the end of each module; an official, cumulative course grade is given at the end of the year. Course feedback is collected through focus groups and on-line forms. Exam scores compared between the 2004-05 and 2006-07 academic years showed no significant change in student scores on internal exams as a result of the integrated curriculum. Years were selected for comparison to reflect the exam process before and after the curriculum change. Course evaluation feedback indicated some material redundancy and the need for faculty development to encourage lectures to further integrate their topics. Time management within lectures is also needed. Content meetings are being held to make revisions for the 07-08 academic year. Student performance and course feedback data is being reviewed as are suggestions for further integrating topics.

45

#### **Effects of Meditation in Increasing Well-Being in Medical School**

Daniel Muller, MD, PhD, University of Wisconsin School of Medicine and Public Health  
Gayle Love, PhD, University of Wisconsin School of Medicine and Public Health  
Susan Skochelak, MD, MPH, University of Wisconsin School of Medicine and Public Health

Objectives Physicians are exposed to enormous stress starting from their first contemplation of attending medical school, to admittance, training, and practice. A failure to cope can lead to depression, anxiety, and disrupted personal and professional relationships. Our first objective was to measure the well-being of medical students from the beginning compared to the end of the year. The second was to examine the effects of a course in meditation. Methods The first and second year medical students were invited to participate. We used 2 questionnaires reflecting well-being; the Profile of Mood States (POMS), and the Perceived Stress Scale (PSS). The meditation training used Mindfulness Based Stress Reduction. Results Completing questionnaires were 45 M1 and 73 M2 students. Nineteen students completed the meditation course. Students showed significant increases in negative emotions such as depression, tension, anger, and fatigue from the beginning of the year compared to the end. Significant increases in the PSS were seen for males, although, females had overall higher levels at baseline. Students undergoing meditation training had slightly higher levels of baseline negative emotions, and these either did not increase or declined by the end of the year. There was a significant decrease on the PSS for students who underwent the meditation training. Conclusions First and second year student exhibit significant decreases in measures of well-being from the beginning to the end of the year. Meditation training may help some students mitigate the stress of medical school training and result in increased levels of well-being.

46

### **Guiding Residents Into Maintenance of Certification**

Margaret Mulligan, MS, Medical College of Wisconsin

GF Carrera, MD, Medical College of Wisconsin

C Kahn, Jr, MD, Medical College of Wisconsin

The American Board of Medical Specialties (ABMS) provided a framework of six core competencies with four components within a ten-year process for Maintenance of Certification (MOC). The ABMS framework allowed each specialty's society or licensing board to interpret and provide specific requirements for MOC. The requirements reflect the specialty's stance on the continued competency of physicians within their specialty or subspecialty. In light of the American Board of Radiology's (ABR) MOC requirements, the Medical College of WI (MCW) Diagnostic Radiology Residency Program responded by building MOC behaviors within ABR diplomates during residency. The MCW Diagnostic Radiology Residency Program directed all residents to complete at minimum of one CME credit per month, mandated two self-assessment modules (SAMs) for all residents, and integrated MOC and quality improvement (QI) within a non-interpretive skills conference series. For over three years, self-reporting by residents has demonstrated compliance with CME requirements. Further, surveys have shown a positive response to MOC and QI conferences. As SAM requirements were implemented within the 2007-2008 academic year, data regarding compliance is not yet available for analysis. As the ABR makes more information available regarding the Cognitive Expertise and Practice Quality Improvement components, the MCW Residency Program will continue to actively involve and prepare residents in these areas. By adopting a proactive approach to MOC, the MCW Diagnostic Radiology Residency Program ensures that residents matriculate with behaviors conducive to MOC.

47

### **Perceptions of Pediatric Residents Regarding Acute Otitis Media (AOM) Learning**

Caroline Paul, MD, University of Wisconsin School of Medicine and Public Health

**INTRODUCTION:** Competency-based curricula in AOM are limited. This study aimed to assess pediatric residents' perceptions of their AOM learning experience. **METHODS:** Graduating residents (GR) and residents in all current classes were administered a web-based survey. It focused on anxiety, confidence with knowledge and clinical skills, preferred learning modalities and attending experience. **RESULTS:** The response rate was 86% (44/51). 84% of residents reported confidence in their knowledge of AOM diagnosis and management. 25% of residents reported being anxious during the exam; reported confidence and anxiety did not differ between classes. 73% of residents reported confidence in clinical skills. The majority of current residents wanted to acquire more clinical skills. Amongst lecture, small group, continuity clinic, web-based teaching and hands-on teaching, the preferred learning modality was continuity clinic to increase knowledge and hands-on training to increase clinical skills. 48% of residents reported attendings varied in their evaluation and management of AOM. Varying proportions reported receiving feedback from their attending on their AOM exam (PL-1 23%, PL-2 42%, PL-3 80%, and GR 67%). 75% of residents desired to learn pneumatic otoscopy; 25% reported that their attending demonstrated this skill. The proportion of residents who reported knowing how to use a pneumatic otoscope was higher than that who reported actual use of one (64% vs. 7%  $p < 0.0001$ ). **CONCLUSIONS:** While reporting confidence in AOM knowledge and clinical skills, residents still reported some performance anxiety and a desire to increase skills. Faculty development may decrease inconsistency in attending teaching practice. Future curricula should emphasize pneumatic otoscopy training, formalize already existing clinical venues and become competency-based.

48

### **Teaching Skills for Medical Students**

Jeff Pettit, PhD, Carver College of Medicine University of Iowa

Kristi Ferguson, PhD, University of Iowa Carver College of Medicine

**BACKGROUND:** This course provides medical students with teaching skills that will be valuable during residency and their professional careers. **OBJECTIVE:** Provide fourth year medical students with the knowledge and tools necessary for effective instruction. The focus is on the

delivery of teaching skills of effective instructors and not the content. **METHODS:** Multiple methods will be used to provide the knowledge and tools: A. Faculty create of an Individual Learning Plan for each student to focus on areas of interest B. Students review current literature regarding residents as teachers C. Interactive classes that allow practice in small group teaching, presentations, providing feedback, managing challenging learners, developing objectives, and teaching psychomotor skills D. Outside class, students will observe and evaluate lectures, presentations, Grand Rounds, rounding, and other opportunities given by residents and faculty E. Students will act as simulated patients, conduct case-based learning sessions, teach PE skills, and other venues when there is opportunity **RESULTS:** The course was first offered in the Spring 2007 to nine fourth year medical students. Ratings on fifteen items to evaluate the course ranged from 4.67 to 5.00 using a Likert scale of strongly disagree (1) to strongly agree (5). **CONCLUSIONS:** The course was well received by the first group of fourth year students. The elective course will be offered during three blocks in the Fall and three blocks in the Spring with more time for practicing skills.

49

### **The REALL Program: Teaching Residents to be Educators and Life-long Learners**

Lily Pien, MD, Cleveland Clinic  
Christine Taylor, PhD, Cleveland Clinic  
Craig Nielsen, MD, Cleveland Clinic  
Carol Farver, MD, Cleveland Clinic  
Ronan Factora, MD, Cleveland Clinic  
Johanna Goldfarb, MD, Cleveland Clinic

The REALL Program: Teaching Residents to be Educators and Life-long Learners Authors: Lily C. Pien, Christine Taylor, Craig Nielsen, Carol Farver, Ronan Factora, Johanna Goldfarb Purpose: LCME and ACGME requirements highlight the importance of teaching residents the skills needed to become educators. An innovative project, designated "The REALL (Resident Educator and Life-long Learner) Program" was developed, targeting more than 800 physician trainees at our institution. Methods: The REALL program features a centralized development and a distributed implementation model, known as Train the Trainer. The rationale for this design acknowledges that residents share common needs as teachers across specialties, while teaching faculty within the trainee's specialty program have the greatest credibility and can best identify relevant examples. Fifty-five faculty trainers have enrolled in the initial series (7 modules) representing 25 different residency programs. After Train the Trainer instruction, faculty trainers will be responsible for implementing and evaluating the modules delivered. Results: Two Train the Trainer modules (Learning Styles and Observation of the Learner) have been completed by 54 faculty trainers. Preliminary evaluation results indicate faculty are confident teaching observational skills, but are less comfortable teaching learning styles. Video triggers for learning and discussion are valued, and faculty trainers appreciate the opportunity for interaction amongst themselves. Five more sessions will be held by May 2008, with a summative evaluation of the program by October 2008. Conclusions: Resident educator development is a priority for academic institutions. An innovative, integrated approach has been well received. Our experience gained may prove relevant to teaching efforts at other large academic medical centers.

50

### **Responding to an Angry Parent's Email: An Online Assessment of Professionalism, Clinical Knowledge, and Communication Skill Using an Otitis Media Case**

Ken Pituch, MD, University of Michigan Medical School  
R Brent Stansfield, PhD, University of Michigan  
Jocelyn Schiller, MD, University of Michigan  
Francis McBee-Orzulak, MD, University of Michigan  
Kerry Mychaliska, MD, University of Michigan  
Terry Murphy, MD, University of Michigan  
Kavita Warriar, MD, University of Michigan

Background: Assessing communication skills is a high priority for medical educators. To assess fourth year students' competency in communication of risk and benefit to patients and colleagues, we devised a case scenario in which a student responded to a dissatisfied parent's email. Methods Students read an email from a father demanding antibiotics for his 11-month old,

brought in by his mother that same day and sent home for watchful waiting. Students wrote email to the father, and summarized the interaction for their attending physician. Six experts rated responses on professionalism, communication skill, and therapeutic accuracy. Conclusions: Students found the task enjoyable and realistic. Interrater agreement of performance was high, and a wide variety of performance levels were observed. Take Home Message: This online tool assessed communication skill reliably. Our tests of validity and reliability indicate that the tool is ready to be tested in a larger sample of students.

51

### **Creating Direction and a Baseline for Continued Cultural Competency Development**

Brian Porter, Medical Student, Loyola Stritch School of Medicine

Meredith Hancock, Medical Student, Loyola Stritch School of Medicine

Briana Short, Medical Student, Loyola University Chicago Stritch School of Medicine

Jacquelyn Lampignano, Medical Student, Loyola Stritch School of Medicine

Mary Fitzgerald, MD, Loyola University Health System

Lena Hatchett, PhD, Loyola University Health System & Neiswanger Institute for Bioethics and Health Policy

SEE PROPOSAL Objectives: The increasingly diverse U.S. population has prompted medical schools to review their cultural competency curriculums. We addressed the same need, but at the level of the students using the Clinical Cultural Competency Questionnaire (CCCQ). Our objectives were (1) to determine the feasibility of using the CCCQ to provide baseline data to our curriculum planning committee about cultural competencies, and (2) to explore student factors that may affect CCCQ scores. Methods: We administered the CCCQ to medical students and also asked about foreign language, travel/residency, and prior training in cultural issues. Data was entered into an SPSS database. Descriptive statistics were applied and Mann-Whitney tests used to compare median scores between subgroups of interest. Results: 320 surveys were distributed, 225 were returned (70% response rate). There were no missing responses to the scale items. Scores were not affected by gender. Those who previously lived abroad for > 3 months had significantly higher Attitude scores ( $p < 0.001$  see table) and tended to have higher Comfort scores ( $p = 0.06$ ). All scores were significantly higher among students who indicated they had significant prior cultural training (see Table). Conclusions: The CCCQ is feasible for self-assessment of medical students. Students' foreign residency and prior training significantly affect self-assessed cultural competency. Table: CCCQ Subscale Scores in 225 medical students  
Knowledge Skill Comfort Attitude Previously lived outside US.

52

### **Mastering the Biomedical Literature: Preparing Medical Students for Learning-Centered Practice**

Marlene Porter, MLN, University of Toledo, Mulford Health Science Library

Jolene Miller, MLS, University of Toledo, Mulford Health Science Library

Because of the volume of available information and incredibly busy schedules, physicians require a high degree of skill in accessing, evaluating, and organizing it for efficient retrieval and reuse. The Mastering the Biomedical Literature elective (a two-week elective) in the University of Toledo College of Medicine is designed to equip students with core information skills in support of clinical decision-making and lifelong learning. Content, skills, and issues selected for the elective were based on the types of questions received at the Mulford Library from third- and fourth-year medical students as well as resident physicians. Content selection was also driven by the AAMC medical informatics objectives and College of Medicine objectives, and trends reported in the medical literature. Current topics covered in the elective include understanding the structure of the literature as it relates to evidence-based medicine; identifying relevant articles using databases such as MEDLINE; using tools for presentation and publication, including EndNote; and using technology to keep abreast of published literature. Approximately 15 students register for the elective each year, and evaluations are consistently positive, with many students reporting that they wish they had learned these concepts and skills earlier in their medical education. Students participating in our elective learn (or relearn, in some cases) skills that will support them as the practice medicine in an environment in which new developments in medicine will require them to be continually learning. Information presented in Mastering the Biomedical Literature can be adapted to a variety of educational settings

53

### **Development of an Instrument to Measure the Climate of Professionalism in a Clinical Teaching Environment**

Jennifer Quaintance, PhD, University of Missouri Kansas City  
Louise Arnold, PhD, University of Missouri Kansas City  
George Thompson, MD, University of Missouri Kansas City

**Purpose** Because a literature search identified few instruments that characterize the climate of professionalism in clinical teaching environments, the investigators designed and investigated the reliability of a tool measuring the professionalism of students, residents, and faculty in clinical settings. **Methods** The survey instrument focuses on the extent to which physicians and physicians-in-training act professionally and faculty teach about professionalism. The survey has three components: 1. respondents report the frequency of student, resident, and faculty professional and unprofessional behaviors (12 items), 2. learners report the frequency of faculty teaching regarding professionalism (10 items), and 3. faculty self-assess the frequency of their teaching professionalism (10 items). Respondents rate items using a 4-point Likert-type scale (Always, Usually, Sometimes, Never). **Results** Students (N=381) from all year levels at one medical school completed the instrument's first two components; faculty (N=97) from six departments completed the third component. Means, standard deviations and coefficient alphas were calculated for each component. Mean Stan. Coefficient Dev. Alpha Professional Behaviors Students 35.66 4.75 .89 Residents 36.42 3.96 .75 Faculty Members 39.37 4.71 .79 Professionalism Teaching – Student Assessment 33.01 6.63 .91 Professionalism Teaching – Faculty Assessment 29.87 4.12 .81 **Conclusions and Significance** Preliminary analysis offered support for the reliability of the instrument. Its significance lies in the instrument's potential to track effects of interventions promoting the professionalism of learners and faculty and to characterize learner-centered cultures. Future work includes analyses to establish the survey's validity through factor analysis and exploration of group differences and its generalizability to resident respondents and other institutions.

54

### **Leveraging Health Sciences Librarian Expertise to Support ACGME Competency Education**

Gurpreet Rana, MLIS, University of Michigan Health Sciences Libraries  
Doreen Bradley, MLIS, University of Michigan Health Sciences Libraries  
Stanley Hamstra, PhD, University of Michigan Medical School  
Monica Lypson, MD, University of Michigan Medical School

**OBJECTIVE** Effective teaching and assessment in the area of practice-based learning and improvement (PBLI) is often a challenge. Residency programs frequently overlook resources and knowledge provided by their health sciences libraries (HSL); also, the presence of library instruction in graduate medical education (GME) programs is often uneven or absent. The ACGME competencies create multiple opportunities to leverage librarian expertise to improve residency education. **METHODS** The HSL at the University of Michigan collaborated with the GME Office to develop a systematic, centralized approach to incorporating information skills for all housestaff, with an initial emphasis on PBLI. Library instruction had been successfully integrated with several programs, and the desire was to develop a set of instructional modules available to all residency programs. The HSL and GME Office developed a comprehensive eight-module information skills curriculum based on expert opinion from program directors, librarians, and frequently asked questions by housestaff. The intent was to develop modules relevant for practicing clinicians. Working as a team, the librarians developed teaching objectives and outlines for each module, while the GME Office helped to refine the modules and identified relevant ACGME competencies. **RESULTS** In fall 2007, the curriculum was presented at a GME program directors' meeting. Use of the modules is being monitored and assessment tools are currently in development. **CONCLUSION** The UM Health Sciences Libraries and the Graduate Medical Education Office believe that this approach to information skills curricula will serve as a model to other academic medical centers.

### **A Comparison of Remote Versus Hands-On Education with Human Patient Simulation in Undergraduate Medical Education**

Trent Reed, DO, Loyola University Medical Center  
 Karie Scrogin, PhD, Loyola University Medical Center  
 Allen Samarel, MD, Loyola University Medical Center  
 Michael Dauzvardis, PhD, Loyola University Medical Center  
 Keith Muccino, MD, Loyola University Medical Center  
 Alberto Martinez, Loyola University Medical Center  
 Christine Stake, MA, Loyola University Medical Center  
 Karen Rychlik, Loyola University Medical Center

**Purpose:** We performed a unique pilot study exploring opinion and exam performance differences between medical students receiving remote versus hands-on education with human patient simulation. **Methods:** Simulations of adrenergic interventions in 3 types of shock were presented to 105 second year medical students. Ten randomly selected students participated in the simulation room (SR). The remainder viewed live video feed in the lecture hall (LH), while LH audio was transmitted to the SR. Students in the SR performed histories and physical exams facilitated by a physician. Students in the LH chose appropriate drug interventions under the guidance of a pharmacology professor. The effects of drug choice were demonstrated on the patient, and mechanisms of drug action were discussed. After the presentation, students completed an opinion survey based on a five point Likert scale. One week later, students took a mid-term exam, which included three questions from the simulation. **Results:** Both groups felt the simulation was useful and preferred more similar exercises (group difference:  $P = 0.847$  and  $P = 0.685$  respectively). Both groups felt the exercise helped them better understand the mechanisms of adrenergic drugs ( $P = 0.809$ ) and their application in patients ( $P = 0.659$ ). Both groups felt the technical aspects of the presentation did not distract from their learning ( $P = 0.392$ ). 77% of LH students felt that viewing the exercise from the LH was a viable alternative to the SR. Exam results did not differ between groups ( $P = 0.817$ ,  $P = 0.117$ ,  $P = 0.634$ ). **Conclusion:** The lack of difference in exam scores and overall enjoyment between the SR and LH group suggests remote simulation can be used effectively to teach more students in a shorter period of time with less staff hour requirements.

### **Teaching Resident Rotation: Medical Students' Perceptions of Teaching Skills**

Jane Rowat, MS, University of Iowa Carver College of Medicine  
 Scott Vogelgesang, MD, University of Iowa Carver College of Medicine

Improving resident teaching to enhance student learning is an LCME expectation and a goal of the Department of Internal Medicine's Teaching Resident rotation. During this elective residents are provided with extensive teaching opportunities while delivering clerkship curriculum to third and fourth year medical students. Throughout the rotation Teaching Residents receive feedback on teaching skills from their faculty mentor. Third and fourth year students complete a web-based form about the teaching skills of the resident assigned to their rotation. In addition, third-year medical students are asked about contributions the Teaching Resident made to their education on the Carver College of Medicine collegiate clerkship evaluation form. When rating teaching skills, students scored 36 Teaching Residents very high over the last three years. More than 600 third and fourth-year medical students scored the residents' "teaching microskills" such as learning climate (4.68/5.00) and feedback (4.47/5.00). Third-year students also responded on the collegiate clerkship evaluation form that the Teaching Resident contributed significantly to their learning (3.90-4.46/5.00). Outpatient Clerkship students tended to rate the Teaching Resident lower on the collegiate clerkship evaluation form which may be due to the limited interactions these students have with the Teaching Resident when compared to the many small group encounters the Teaching Resident facilitates for Inpatient Clerkship students. It is clear that the Teaching Resident is valued by medical students and contributes to the students' education while the Teaching Resident elective provides an opportunity for residents to gain teaching skills through the delivery of curriculum and interactions with students.

57

**Cultural Competence and Health Disparities: Using the AAMC Tool for Assessing Cultural Competency Training (TACCT) to Map and Develop Clerkship Curricula**

Roberta Rusch, MPH, University of Wisconsin School of Medicine and Public Health  
Shobhina Chheda, MD, MPH, University of Wisconsin School of Medicine and Public Health  
Susan Skochelak, MD, MPH, University of Wisconsin School of Medicine and Public Health

Cultural Competence and Health Disparities: Using the AAMC Tool for Assessing Cultural Competency Training (TACCT) to Map and Develop Clerkship Curricula Authors: Rusch RB MPH, Chheda SG MD MPH, Skochelak SE MD MPH Objective: To demonstrate the utility of the AAMC TACCT instrument in developing clerkship curricula related to cultural competency and health disparities. Methods: During a December 2006 retreat, clerkship directors were asked to complete the TACCT Instrument. In addition, clerkships were asked to consider adding curriculum to address at least one of the TACCT objectives not currently covered. Identified objectives and a description of curricula they would add were collated and internally named "TACCT 2." Between February-April 2007, a team composed of a faculty leader and an education leader met with each clerkship to review the identified objectives and develop concrete plans regarding 1) How and where this fit in the clerkship 2) What teaching methods would be used 3) What resources would be necessary 4) How would the curriculum be evaluated. In July 2007, we followed up to determine which clerkships had integrated new curricula. Results: Ten clerkships participated in the December 2006 retreat, and all ten clerkships identified plans for incorporating additional curriculum. Five clerkships had integrated this curriculum by July 2007. Examples of new curriculum included a session in Radiology devoted to health literacy, specifically communicating abnormal mammogram results, and Medicine now requires students to cover cultural issues in the social history during the H&P. Conclusions: The AAMC TACCT can be used not only to assess the current coverage of objectives related to health disparities and cultural competency, but to guide the development of new curriculum. This tool was used to begin a dialog with clerkship directors that resulted in creative, thoughtful approaches to integrating curriculum.

58

**Make It Count!**

Firuzan Sari Kundt, MA, The Ohio State University College of Medicine  
Nicole Verbeck, BS, The Ohio State University College of Medicine

This poster displays how student behavior changes when assignments count for points or a grade, when these assignments did not count toward the students' grades previously. It was hypothesized that students take increased ownership and responsibility for assignments that count towards a grade. I considered two Community Project assignments (CP is a required service-learning module in the first year): the service-learning time contributions and the submission numbers of the Agency Assessment sheet. In the early years of the CP, these assignments did not count toward a grade. Recently, however, we adopted a grading system for both CP components. Since 2003-04, students can earn university awards for their service-learning hour contributions and receive a positive notation in their MSPE. It also counts for 10% of their CP grade. The Agency Assessment sheet became part of their CP grade (10%) in 2005-06. There was a sharp increase in student service-learning time contributions since we adopted the grading system for this component of the CP. The number of completed Agency Assessment sheets also increased dramatically after it started to count for a portion of the CP grade. It is necessary to realize the importance of grades to motivate students. Assignments or expectations that are only satisfactory/unsatisfactory, pass/fail, etc. will not produce the same kind of ownership as do assignments that contribute to final scores.

59

### **Design and Implementation of a Competency-Based First-Year Medical Student Program in Chronic Disease Management**

Brian Sick, MD, University of Minnesota  
Kathleen Watson, MD, University of Minnesota  
Jennifer Welsh, MD, University of Minnesota

**Objective:** To design a longitudinal patient care and faculty mentor experience for a cohort of first year medical students focused on the care of chronically ill patients which engages them in responsible, meaningful and purposeful learning and which promotes humanism, self-reflection and professionalism. **Methods:** We designed learning experiences and assessment tools to satisfy the identified chronic care competencies. Eight of 22 volunteer students were randomly selected and their motivations for volunteering assessed and compared to the students not selected. At the mid-point of the first year, after satisfying minimum competencies to meet with patients, the students were matched with eight patients. The students interact with the patients on a monthly basis with a different task for each session and document their findings and feelings in a personal E-portfolio. Patient data is collected and maintained in student-designed registry. The students gather monthly as a cohort in special sessions to learn about chronic disease management. **Results:** The students have varied and unexpected motivations for their involvement in this curriculum. Earlier than usual they have attained the skills necessary to interact with patients. Although we attempted to add no additional work to the usual course load, this was not possible, yet the students have had 100% attendance at all extra sessions and seem to enjoy them. **Conclusions:** In this pilot project of a chronic care curriculum we have designed a program to educate students about chronic disease which pairs them early in their education with a patient with a chronic disease.

60

### **Are We Teaching M3's to Ask Fall Risk in Older Adults at the Point of Care?**

Deborah Simpson, PhD, Medical College of Wisconsin  
Diane Brown, BS, Medical College of Wisconsin  
Edmund Duthie, Jr, MD, Medical College of Wisconsin  
Geriatric Education Collaborative,

Purpose Falls is the most common mechanism of non-fatal injury (62%) for adults > 65 years treated in United States emergency rooms. Assessing Care of Vulnerable Adults (ACOVE) Quality Indicators, states that all vulnerable elders should be asked at least annually about falls. As falls is a critical health quality indicator for the elderly and part of the large context of injury, we asked, "Do clinical teachers emphasize geriatric injury control, prevention, and/or patient safety in their point of care teaching interactions with M3 students"? **Methods** As mandated by LCME ED-2, all third-year medical (M3s) students complete a PDA based clinical experience log form to monitor the degree to which they are actively seeing key clinical topics presented by a diverse population of patients. Students complete the form by checking a series of items including if the clinical teacher discussed key topics: "injury prevention", "injury control", and "patient safety". Data was abstracted records for interactions with patients >60 and analyzed to yield descriptive statistics for each of the injury/patient safety items for one year ((January–December 2006) **Results** M3s recorded experiences with 6,710 patients aged > 60 yo). Results reveal that injury control was discussed in 21% of students experiences; injury prevention in 38% and patient safety in 33%. **Discussion** In recognition that clinical teachers are not sufficiently emphasizing injury/patient safety in their point-of-care teaching interactions, clerkship directors are developing coordinated longitudinal cross-clerkship instruction focusing on injury with an emphasis on falls in older adults.

61

### **Teaching Teamwork in the Health Professions: Interdisciplinary Case-Based Groups**

Kathryn Skhal, MS, University of Iowa  
Helen Damon Moore, PhD, University of Iowa  
Dave Asprey, PhD, University of Iowa  
Laura Frey Law, PhD, University of Iowa  
Tara Clark, MSW, Univeristy of Iowa  
Michael Kelly, Pharm D, University of Iowa

Linda Snetselaar, PhD, RDLD, University of Iowa  
Joel Gordon, MD, University of Iowa Carver College of Medicine

Introduction Representatives from Medicine, Nursing, Nutrition, Pharmacy, Physical Therapy, Physician Assistant program, Social Work, and Library Sciences joined forces to create an Inter-Disciplinary Teamwork Case-Based Group curriculum, which was implemented in June of 2007. The curriculum is distinctive for its disciplinary inclusiveness and its location in the pre-clinical curriculum. Goals • Educate students to become team-oriented health care professionals • Address assumptions and break down hierarchies among health professionals Teamwork Group Composition • 254 students in 7 different programs/disciplines in 36 groups Method • Planning group meets to determine the curriculum • Facilitators were recruited and trained, stressing facilitation over direction. • Two cases drafted. Both cases were highly inter-disciplinary, involving all practitioners in the patients' care and both featured significant social and emotional considerations and barriers • Inter-disciplinary Team/Facilitator meetings of 1.5 hours on two afternoons to discuss the case, with an afternoon in the middle for further research and work on learning issues • Assessment— Students and faculty alike were assessed as to their Teamwork Attitudes; will be re-assessed one year from the program Outcomes • All disciplines agreed it was worthwhile • All disciplines agreed to participate again • It was good to have co-facilitation, educational for facilitators as well as for students Challenges/Opportunities for Improvement • Recruiting students from the different disciplines—scheduling a difficulty • On-going recruitment of facilitators • More on roles, contributions of the different disciplines, and more direction to students as to the role each can play on the team

62

#### **A Checklist for Online Instructional Effectiveness: Enhancing the Outcome of Faculty Efforts**

Deborah Sleight, PhD, Michigan State University  
Geraud Plantegenest, MA, Michigan State University  
Kathy Lovell, PhD, Michigan State University  
Brian Mavis, PhD, Michigan State University

Purpose: We are in the process of creating online lectures for clerkships and for selected clinical skills objectives to achieve consistency of content and curriculum delivery in a distributed clerkship system, and to provide "just-in-time" learning options. The purpose of this innovation is to combine effective instructional design features and student satisfaction information into a checklist for faculty that will streamline faculty development efforts, make faculty instructional time more efficient, and result in improved instructional material for medical students. Methods: We conducted a literature review to identify research about design features of online instruction and their effectiveness. Students in years 1 and 2 were surveyed about how they used online lectures and what they liked about them. We also talked to faculty in our college who were experienced in designing online lectures about the level of effort required and important instructional features. We then constructed a checklist for preliminary use by faculty who plan to design and develop online instruction. Results and Conclusions: Currently we are describing the checklist at departmental faculty meetings, and giving the checklist to faculty who schedule a meeting with a college instructional design expert. These faculty members follow the checklist and create an initial design for their online instruction. They then meet again with the instructional designer to refine their design. We will revise the checklist as we obtain more data about its use. To this end we hope to share it with faculty at other universities in exchange for data on its use and usefulness.

63

#### **Fourth Year Medical Students Identification of Ethical Issues--a Pilot Assessment Tool**

R Brent Stansfield, PhD, University of Michigan  
Ken Pituch, MD, University of Michigan  
Paul Gauger, MD, University of Michigan  
David Stern, MD, University of Michigan, Internal Medicine  
Susan Goold, MD, MHSA, MA, University of Michigan, Internal Medicine

Background: Every North American medical school has a curriculum for teaching ethical principles to medical students. The formal curriculum usually presents these principles during pre-

clinical training in a series of lectures or assigned readings. Our study attempts to discover how many ethical principles are identified by medical students late in their 3rd year as they review a hypothetical case. The learning objectives of our medical school's ethics curriculum require students to identify at least 2 important ethical issues in a case involving confidentiality and non-maleficence. Method: 121 Students reviewed a brief description of a 21 year old hospitalized gunshot victim who upon discharge will need daily dressing changes. He is uninsured, and the care will need to be done by his sister. He is HIV positive, gay, and refuses to tell his sister. Students listed the ethical issues, values, or norms that underly an appropriate course of action for this young man's physician. Results: 85% of students recorded at least 2 ethical issues. "Do No Harm" was the most frequent issue recorded. "Patient confidentiality" was second. Fewer than half of the students listed "resource utilization", "Privacy", "Public Health", or other issues. Conclusions: This hypothetical case analysis identified 24 of 121 students who were unable to elicit the two key ethical issues. Such a case is useful in evaluation both the ethics curriculum as currently constituted and in identifying students who may need further training or assessment in either understanding or applying ethical principles in real clinical situations.

64

**Document Review of a Jaundice Case: An Ecologically Valid, Paper-Based Assessment of Clinical Reasoning**

R Brent Stansfield, PhD, University of Michigan  
Ken Pituch, MD, University of Michigan  
Paul Gauger, MD, University of Michigan

Background Assessments of clinical reasoning often trade ecological validity for ease of administration and scoring. Multiple choice tests are easy to give and score, but not as representative as simulated patients, which are difficult to score and expensive to administer. We present a simple, ecologically valid paper-based assessment and a simple scoring method. Methods Students reviewed a 72-page patient record, flagging pages they deemed relevant, then listed up to 7 important clinical findings. Four expert raters determined the relevance of each page. Thirteen third-year students completed the task in 15 minutes. Two expert raters rated the students' clinical findings. Results Students found the task enjoyable and familiar. The number of relevant pages kept minus the number of relevant pages discarded was an easy score, validated by experts ratings. Conclusions A simple, naturalistic, paper-based task can provide a valid assessment of students' clinical reasoning and familiarity with care delivery systems.

65

**Medical Wilderness Adventure Race: Learning Beyond the Classroom**

Matthew Stauffer, MA, Loyola University Chicago Stritch School of Medicine  
Patricia McNally, EdD, Loyola University Chicago Stritch School of Medicine

Medical Wilderness Adventure Race: Learning Beyond the Classroom Matthew Stauffer, M.A., Patricia B. McNally, Ed.D. Loyola University Chicago Stritch School of Medicine – Maywood, Illinois, USA Objectives: The unique medical challenges confronted in the wilderness require clinical judgment, improvisation, and team work. The Medical Wilderness Adventure Race (MedWAR) provides an opportunity for medical students to practice their skills and use their knowledge in a competitive environment far beyond the classroom. Methods: Students race as self-sufficient teams through a wilderness setting for approximately eight hours. Various checkpoints require cooperation among team members to complete a given task selected from a broad wilderness and emergency medicine curriculum. From splinting a simulated leg fracture with a canoe paddle to wound management of a mock animal attack, MedWAR is an educational resource for developing and implementing creative solutions to patient care scenarios. Results: Through the Stritch School of Medicine Wilderness Medical Society Student Interest Group, medical and nursing students competed along side 30 other teams in the Midwest MedWAR in Michigan in October, 2007. MS3 through MS1 students took advantage of the event to polish existing skills as well as obtain new knowledge in a non-traditional setting. Conclusions: The MedWAR provides one of the most unique opportunities in medical education for students to not only practice medical skills, but to do so under demanding environmental conditions with little more than their critical thinking skills and the packs on their backs.

66

**Perceptions of Fourth Year Medical Students Towards the Field of General Surgery**

Hugh Stoddard, MEd, PhD, University of Nebraska College of Medicine

Kathryn Huggett, PhD, Creighton University College of Medicine

Background The number of medical students applying for careers in General Surgery in the United States has been on the decline since the 1990's. Reasons cited for choosing non-surgical careers include: improved lifestyle, ability to control work hours, decreased level of stress and equal remuneration compared to General Surgery. The aim of this study was to obtain the perceptions of fourth year medical students towards General Surgery in the mid-western region. Methodology A survey was constructed and administered to all fourth year students – both those who were pursuing a career in general surgery and those who were not at two mid western medical schools. The survey asked students about their reasons for being interested in general surgery or their reasons for not being interested in the field. Respondents were also asked questions about student perceptions of the specialty of general surgery. Results Preliminary results showed that approximately 10% of respondents were pursuing general surgery as a career. The most cited reasons for choosing the field were 'personal satisfaction with the field' and 'enjoy working with my hands'. Amongst those who were not interested in surgery the most cited reasons for not choosing the field were 'do not like the lifestyle' and 'surgeons with big egos and an unfriendly environment'. Discussion It is worth noting that financial matters were not cited as reasons either to enter general surgery or not enter the field. Issues of personal lifestyle and the culture within the specialty had the greatest impact on student choices.

67

**The Impact of Using an Audience Response System in Medical School Lectures: A Preliminary Study on Student Evaluations of Faculty**

Hugh Stoddard, MEd, PhD, University of Nebraska College of Medicine

Craig Piquette, MD, University of Nebraska College of Medicine

Purpose of Study In recent years use of audience response systems (ARS) has become commonplace in the lecture halls of many undergraduate college and university science programs. This study sought to discern whether using an Audience Response System (ARS) had an association with how medical students rated their lecturers. Methodology This analysis was conducted with student evaluations of lecturers submitted at a mid-sized, public medical school during a two week course in Pulmonology. The study was a quasi experimental design with ratings of lecturers by students as the dependent variable and using two factor ANOVA for the statistical tests. The design isolated the correlation between ARS use and ratings of lecturers by statistically controlling for each lecturers ratings prior to ARS being available. Results The mean rating for the group ARS users was .44 higher than for non users. Based on the two factor ANOVA results, this difference in the main effect was statistically significant. Although the ANOVA result showed a statistically significant higher rating for lecturers who used ARS, even after accounting for prior ratings, the effect size was negligible. Discussion The most notable finding of this study was that students gave higher ratings to lecturers who used ARS on the traits of 'actively involving students in learning' and 'organization and clarity of lectures'. Despite the statistical significance, the effect size associated with the difference was practically nonexistent. Therefore, the result of this study cannot be used to justify the adoption of ARS solely for the purpose of improving student ratings.

✓  
68

**Does Curriculum Change to Address Performance Gaps Improve EM Residents' Performance of Communication Skills?**

Christine Sullivan, MD, University of Missouri-Kansas City School of Medicine

Stefanie Ellison, MD, University of Missouri - Kansas City School of Medicine /  
Truman Medical Center

Jennifer Quaintance, PhD, University of Missouri-Kansas City School of Medicine

Louise Arnold, PhD, University of Missouri-Kansas City School of Medicine

Background: After the first year of a communication skills curriculum, emergency medicine residents demonstrated performance gaps in empathy, healthcare team communication, and patient/family communication. The second year, instructors expanded the curriculum by requiring

residents to view simulated critical care encounters depicting strong and weak communication relevant to residents' gaps. This study ascertains whether the expanded curriculum improved residents' communication skills. Method: Instructors administered an OSCE using a twenty-two item checklist to assess residents' communication skills at the close of both curricula. Paired-samples t-tests compared the OSCE performance of residents who completed both curricular years, and independent-samples t-tests compared the performance of first-year residents in the expanded and original curriculum. An ANOVA determined whether performance differed based on postgraduate year (PGY). The set alpha level was .05. Results: Sixteen residents completed both curricular years; ten participated in the expanded curriculum. For residents completing both curricular years, the total score (71% to 85%); sub-scores in empathy (34% to 69%) and healthcare team communication (64% to 81%) were higher in the second year; their sub-scores in patient/family communication were not different. First-year residents in the expanded curriculum achieved higher total scores (72% to 80%) and empathy sub-scores (34% to 73%) than first-year residents in the original curriculum. Total scores and sub-scores did not differ by PGY. Conclusion: Total score and two performance gap areas improved in the adapted curriculum. Results could be due to curriculum changes or regression-to-the-mean; PGY was not a factor. Although performance improved, communication gaps still should be a focus.

60

### **The National Human Cadaver Prosection Program**

Ernest Talarico, Jr, PhD, Indiana University School of Medicine-Northwest

Human cadavers are used in basic sciences, medical education and various specialties. There is a growing need for specially trained experts in anatomy and dissection. The National Human Cadaver Prosection Program recruits individuals in the U.S. interested in clinical/basic sciences, giving them practical experience with human cadavers. This program culminates in cadaver prosection; stressing the need for competent professionals in academia and medicine. Prosectors are selected through an extensive application process. Each receives certification in Universal Precautions, and attends sessions focusing on terminology, gross anatomy and radiography. A seminar, "Introduction to the Cadaver Experience", discusses the multiple uses of cadavers and introduces the gross anatomy laboratory. Following acquisition of dissection skills, prosectors complete an intensive, 2-day cadaver prosection, and an orthopedic workshop, using surgical instruments and orthopedic implants. Prosectors communicate their knowledge through discussion at the cadaver-side, reflect upon the experience during a memorial service, and complete an evaluation of the program. For years 2004-2007, applicants consisted of 40-160 individuals representing anatomy instructors and professors, morticians, physicians, paramedics, anthropologists, dentists, nurses, veterinarians, pharmacists, high school teachers, pharmaceuticals and counselors. Prosectors represented a cross-section of diverse ethnic, professional/nonprofessional backgrounds. A class of 24-35 prosectors was selected. All completed the program. Feedback was overwhelmingly positive: stating a high-degree of learning; a positive influence on career choice, and requesting program expansion. This program is applicable to other schools seeking to increase the knowledge of human cadaver prosection. Support: Zimmer, Inc.; Indiana University School of Medicine - Northwest; Northwest Indiana Area Health Education Center

70

### **Does Concept Mapping Provoke Deeper Learning in Problem-Based Learning (PBL)?**

Lauren Taylor, BA, BSEd, Northwestern University Feinberg School of Medicine

Elizabeth Ryan, EdD, Northwestern University Feinberg School of Medicine

Michael Altman, MD, Northwestern University Feinberg School of Medicine

Patricia Garcia, MD, Northwestern University Feinberg School of Medicine

John Snarr, PhD, Northwestern University Feinberg School of Medicine

John Gatta, PhD, Northwestern University Feinberg School of Medicine

Does Concept Mapping Provoke Deeper Learning in Problem-Based Learning (PBL)? Lauren M Taylor, Elizabeth R Ryan, Michael Altman, John L Gatta, John F Snarr, Patricia M Garcia Northwestern University Feinberg School of Medicine Objective: In addition to traditional lectures, Northwestern University Feinberg School of Medicine utilizes PBL as a learning format for basic science education in the first two years of medical school. Concept Mapping (CM) was introduced in an attempt to stimulate deeper, integrative learning. One measure of its impact might be

generation of Learning Issues (LI) that focus on relationships among PBL case elements instead of merely seeking definitions or examining processes. Methods: The primary outcome measure was the educational quality (EQ) of LIs generated by students in 8 tutor groups. The same 8 tutor groups were analyzed both before (2006) and after (2007) the introduction of CM. The cases were held constant but a new class of m1's participated in each year. All learning issues from the 16 groups were randomly ordered and scored for EQ by 3 raters blinded to study year and faculty (1=definitive LI, 2=process-oriented LI, 3=relational/integrative LI). The scores of the raters were added together for the final EQ score for each LI. EQ scores were compared using t-tests for equality of means and ANOVA. Results: The mean EQ score for all LIs combined across all tutor groups increased after CM was introduced (5.7 in 2006, 6.0 in 2007;  $p=0.016$ ). The group LI scores for 7 of the 8 tutors increased ( $p=0.005$ ). Conclusion: CM visually depicts relationships and encourages integrated learning. Concept Mapping enhances the LI quality in PBL and may be useful in other learning settings.

71

### **Temporal Patterns in Surgical Residents Ratings of a Year-Long Protected Block Educational Curriculum**

Robert Treat, PhD, Medical College of Wisconsin  
Robert Treat, PhD, Medical College of Wisconsin  
Travis Webb, MD, Medical College of Wisconsin  
Deborah Simpson, PhD, Medical College of Wisconsin  
Philip Redlich, MD, PhD, Medical College of Wisconsin  
Kellie Brown, MD, Medical College of Wisconsin

Purpose Surgical residents at the Medical College of Wisconsin participate in a bi-monthly protected block core curriculum ranging in duration from 4.5 to 5.5 days. Blocks are commonly structured with lectures, case-based discussions, skills labs, and readings. At the end of each block, residents independently evaluate the format, value, and quality of teaching using a Likert formatted evaluation form. Evaluation results revealed a drop during the mid-year sessions. The purpose of this study was to determine if the temporal decline was significant and to determine, based on a literature review, if this is a common phenomenon. Methods Resident evaluations of 2006/07 PGY-1 curriculum blocks (N=11) and PGY-2 curriculum blocks (N=8) constituted the data set. Analysis of variance was performed using SPSS 15.0 to determine if mid-year declines were significant. A literature search was conducted using Medline and PsycINFO using keyword searches (e.g., depression, mood disorders, etc.). Results/Conclusion Residents rated the quality of the curriculum highly throughout the year ( $> 4.0$  on a five-point scale). ANOVA revealed a statistically significant decrease in PGY-1 ( $p=0.014$ ) and PGY-2 ( $p=0.013$ ) ratings during the fourth block (February) of the year. Bellini and Shea (2005) reported that intern's depressive symptoms peaked during the eighth month (February) of the year. Educational Significance Based on this study and Bellini and Shea work it appears that residents are less satisfied with educational interventions during "winter months". Interactive sessions, whose ratings remained high, should be increasingly incorporated into winter curriculum sessions so that strong, consistent educational outcomes can be maintained.

72

### **Resident Evaluations: Aligning Rating Scales and Comments to Identify Progression**

Joanne Walters, MS, Medical College of Wisconsin  
Gregory Schmeiling, MD, Medical College of Wisconsin

BACKGROUND: The ACGME has required that residency training programs evaluate residents during each rotation for competence in Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills, and Systems-Based Practice. The purpose is to document progression of resident strengths and areas for improvement. OBJECTIVE: The Orthopaedic Residency Program (ORP) at the Medical College of Wisconsin sought to develop and implement an evaluation instrument that would identify the resident ability of a competency. METHODS: A review by the ORP education specialist (ES) of resident evaluations over 18 months identified the need for an instrument that yielded competency ratings consistent with resident comments. The first strategy to meet this need was to redesign the rating scale, which was 1 through 9, with 1-3 below standard, 4-6 meets standard, and 7-9 above standard. The ES restructured the rating scale to be based on the program year in which

the competency related. The second strategy was to redesign the comment section to include prompts and examples of comments to write. Initial instruction was provided electronically to faculty members with follow-up instruction to faculty and residents at a retreat. **RESULTS:** change in evaluations has improved documentation of competency progression. Initial response to evaluation change demonstrated relationships between ratings and written comments. Over time, written comments became lengthier and provided rich detail of strengths and areas for improvement. **DISCUSSION AND CONCLUSIONS:** The value and purpose of evaluations will be discussed in their relationship to residency education and the ACGME competencies.

73

### **Enhanced Student Preparedness Through Clinical Skills Curriculum Change**

Rugmini Warriar, MD, Creighton University  
Amanda Lofgreen, MS, Creighton University School of Medicine  
Erica Cichowski, MD, Creighton University  
Anna Maio, MD, Creighton University  
Kathryn Huggett, PhD, Creighton University

**Objectives:** A 2005 AAMC Task Force offered recommendations for the clinical skills education of medical students. Our school adopted many of the recommendations in revising the clinical skills curriculum for the M1 and M2 years. We hypothesized that participation in the revised curricula would improve students' clinical skills performance. **Methods:** The M1 curriculum was revised to offer more interviewing and physical examination sessions with assessment and remediation. A new applied clinical skills (ACS) course was incorporated into the M2 curriculum which included small group clinical reasoning discussion about a clinical problem. Preceptors of M2s in clinics and students were surveyed pre and post revision of the curricular intervention about student preparedness on clinical skills. **Results:** We compared preceptor ratings on student preparedness pre and post implementation of the new M1 physical diagnosis course using independent t-test. Mean ratings were higher for most of the items surveyed, with statistically significant increases for clinical skills on ophthalmologic and musculoskeletal examinations. Students who completed the revised curriculum reported greater levels of preparedness in 11 of 12 physical exam areas. M2 students who completed the new ACS reported greater levels of preparedness for presenting patients to attendings and peers. **Conclusions:** Students and clinic preceptors feel that students are more prepared to actively participate in clinic since the implementation of the revised curriculum. We plan to continually reassess our progress in developing an educational continuum of clinical skills.

74

### **Problem Based Learning Increases Resident Satisfaction with a General Surgery Educational Curriculum**

Travis Webb, MD, Medical College of Wisconsin

**Purpose:** Our General Surgery training program instituted a Protected Block Curriculum allowing for time away from all clinical duties in order to focus on educational objectives. The PGY1 curriculum was structured around didactic lectures, case-based discussions, and skills labs. In an effort to improve the educational value of our PGY2 curriculum and emphasize a transition to self-directed learning, we introduced problem based learning (PBL) sessions into the PGY2 curriculum. **Methods:** Using session and longitudinal evaluation forms, PGY2 residents evaluated the quality of content and instructional methods. Evaluation forms were collected during nine PGY2 curriculum blocks from June 2006-October 2007. Likert scale evaluation results from the PBL sessions were compared to didactic and case-based sessions using independent student t-test. **Results:** Residents evaluated all 25 PBL sessions and 50 lectures and case-based sessions. Quality of the content was rated significantly higher for PBL sessions 4.61 vs. 4.29 (Scale 1-5, 5=Excellent) ( $p=0.034$ ). Likewise, instruction and teaching was rated significantly higher for the PBL sessions 3.78 vs. 3.62 (Scale 1-4, 4=Outstanding) ( $p=0.018$ ). **Educational Significance:** Using multiple instructional methods in a resident educational curriculum leads to high learner satisfaction. Specific emphasis on adult learning principles and a transition to self-directed learning should be encouraged to promote life-long learning. Our results support the use of structured PBL sessions in a General Surgery educational curriculum.

**Resident Impressions of M4 Continuity of Care Experience**

Shawna Westermann, MD, University of Iowa Carver College of Medicine

Jane Rowat, MS, University of Iowa Carver College of Medicine

Continuity of clinical experiences is limited in undergraduate medical curriculum. The Internal Medicine Continuity of Care (COC) elective provides fourth-year students with a longitudinal experience in the outpatient setting working with the same faculty mentor. Residents who participated in the COC elective as students were surveyed regarding skill development and experiences. In addition to developing diagnostic reasoning skills as well as an approach to caring for patients, residents rated the opportunity to work with one faculty mentor very highly. Not only did the faculty mentor provide continuity to learning (5.0/5.0) but also provided for a mentoring relationship (5.0/5.0). Preliminary feedback indicates that residents felt they could use much of what they learned when starting residency (5.0/5.0); furthermore, they felt more confident treating patients in their residency continuity of care clinic (4.0/5.0). Residents were less positive regarding the educational portfolio developed during the elective. While the portfolio helps to introduce the ACGME competencies, it was not viewed as a tool to help them become more independent in their learning. Though the portfolio was not seen as being beneficial to learning, the COC elective was viewed as a valuable experience; "an educational experience not available elsewhere in the undergraduate medical curriculum".