

## Poster Abstracts

### Getting Agreement Among Surgeons About Error: A Statistical Problem

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**Purpose.** The purpose of this study is to analyze three methods for evaluating interrater agreement. **Method.** A series of laparoscopic cholecystectomy procedures were recorded and evaluated. Two attending surgeons completed extensive rater training, during which interrater agreement was calculated throughout, utilizing three methods: raw agreement, Cohen's kappa, and a third method (Cicchetti and Feinstein, 1990). Although raw agreement exceeded the recommended 80%, kappas remained somewhat low. **Results.** Reliance upon raw agreement is susceptible to two flaws. The majority of a temporally-based scoring matrix will be likely comprised of non-errors. Thus, a failure of raters to agree that errors have occurred may be overshadowed by the frequency of agreement on lack of error. Additionally, raw agreement offers no correction for the percentage of agreement accounted for by chance. When Cohen's kappa is employed, the proportion of "negative agreement" unbalances the assumption of relative symmetry that kappa requires, causing the statistic to overcorrect and produce unreasonably harsh evaluations. This unbalance can be addressed by utilizing Ppos and Pneg calculations. Our raw agreement statistic was 90%. Cohen's kappa was moderate ( $k=.39$ ). The values of positive and negative kappa were similarly divergent, with Ppos = .44 and Pneg = .95. **Conclusion.** Commonly reported interrater agreement estimates in clinical research may overestimate rater agreement. Error coding methods are not adequately categorized by raw agreement or an omnibus index. An examination of these values, in conjunction with the calculation of separate indices of positive and negative agreement, offers the most effective means of establishing interrater reliability.

### Evaluating a Structured and Unstructured Format for the Medical School Preadmission Interview

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**Background / Rationale** The medical education researcher literature consistently recommends a structured format for the medical school preadmission interview (MSPI). There is however little direct evidence for making this recommendation. In addition, a recently study by Kreiter et al. (2006) suggests there is little or no statistical reliability rationale for presenting the same questions to all examinees. This study examines the contributions of the structured and unstructured components of the MSPI at the University of Iowa. **Methods / Data / Results** We obtained IRB approval to investigate 5 years, 2003-07, of interview data. We conducted two G studies on over 3000 interviews and one multivariate G study on 166 applicants who interviewed twice examining both inter-rater reliability and test / retest types of reliability. Surprisingly, the unstructured format was more reliable from both an inter-rater agreement perspective and in the random replications (test/retest) analysis. In addition, the universe score correlation ( $r_u = .82$ ) and person-by-format interaction indicated that the two formats do not measure identical aspects of applicant performance. An examination of weighted composite scores indicates a sum score with approximately equal weights on both formats maximizes reliability and information. **Discussion** At least from a reliability perspective, the popular advice regarding interview structure may need to be reconsidered. While fairness and reliability are important considerations, issues of validity and how best to use the interview time should also be considered when designing the interview process.

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### Gender Bias in the Medical Student Performance Evaluation

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**Background.** Because of the increase of women in medicine, it is important to consider the potential for stereotypes to impact career advancement at critical gate-keeping points. Specifically, the possibility that language used in evaluations or recommendations might trigger gender-based stereotypes, which might disadvantage women. Differences based on gender were found by Trix and Psenka in an analysis of letters of recommendation presented by applicants for medical school faculty positions. **Methods.** The MSPE summarizes a student's performance in medical school and has the potential to significantly impact a student's ability to match in a specialty and program of her choice. The authors examined five years of MSPEs (2003-2007) and student performance measures, e.g. USMLE scores, honors grades received, and clinical clerkship evaluations, to determine whether the relations between MSPEs and performance measures differed by gender. Using factor analysis and ANOVAs, they tested for gender differences in MSPE factors and whether such differences were consistent with variation in students' performance measures. **Results.** The authors found no systematic bias in the MSPEs that might disadvantage women medical students. Although female students were more likely than male students to be described as compassionate, enthusiastic, and inquisitive this finding was consistent with observed differences in their clinical clerkship performance evaluations. **Conclusion.** Given the importance of the MSPE in the resident application process the authors recommend that institutions should examine the language used in their own MSPE letters.

### Faculty and student attitudes towards technology in a technology enhanced integrated medical school curriculum

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**Purpose:** Technology is increasingly used in medical education. This study describes the attitudes of students and faculty towards the use of selected technologies in a technology-enhanced integrated curriculum. **Method:** A survey concerning the use of technology was collected at the end of each semester for the graduating class of 2010. Faculty completed a technology survey at the middle and end of the second year. Analyses consisted of descriptive statistics and proportional analyses were used to determine significant differences. **Results:** Most students took lecture notes directly on the computer with less than 3% using paper and pencil. The use of specialized note taking software dropped over time from 73% to 51%, while the use of Microsoft Word increased from 5% to 16%. Students that wrote notes directly on the computer remained relatively constant, while those that typed increased from 38% to 60%. Podcasting of lectures was popular, but lecture attendance dropped over time. While student preference for electronic textbooks increased over time, most students would buy print or a combination of print and electronic textbooks. Most faculty reported that having computers in learning activities enhanced the learning process and indicated that the electronic textbooks were easy to integrate into their learning activities. **Conclusions:** The technology was well received by students and faculty and it tended to enhance the learning environment. Student use of the technologies changed over time. If technology can enhance the learning environment, then we should embrace it because our students have.

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### Team-Based Learning in a 4 Week Family Medicine Clerkship: A Teaching Method that Supports Clinical Competencies

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Team-Based Learning (TBL) has long been used in higher education, and now has emerging use in medical education. However, there is limited literature and experience related to effective use of TBL in relatively short required clinical clerkships. We developed and implemented a TBL curriculum for a one month Family Medicine clerkship. Eight, half-day TBL sessions during the month address “the content breadth of Family Medicine” (e.g. diabetes, hypertension, arthritis, skin ulcers, injury), the process of care (e.g. Evidence-based, patient-centered care, acute care vs. chronic disease management), and the values of family medicine (e.g. continuity, comprehensive, patient-centered medical home) while still teaching the attitudes and skills required for the outpatient assessment and management of patients in a Family Medicine setting. TBL, with its required pre-readings and quizzes followed by team application assignments, is an approach that allows Family Medicine to highlight and instill upon students the key skills to address core ACGME competencies, including Patient Care, Professionalism, Practice-based Learning and Improvement (e.g., accountability for own learning), Systems-based (e.g., teamwork), Practice-based learning and Improvement (e.g. Evidence-Based Medicine) and Interpersonal and Communication Skills. Faculty facilitators required minimal training as it takes advantage of family medicine educators natural communication skills – interactive, engaging teachers, rather than “lecturers.” The TBL curriculum can be adjusted to meet the needs of learners and instructors. This poster will outline the TBL curriculum and it’s evaluation by students. The strengths, challenges and implications of the TBL methodology for educators in any clinical clerkship setting will be highlighted.

### Professional Career Ladder for Program Administrators

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Introduction: Moving from a College of Medicine to a Health Science Center (HSC) brings exciting opportunities for professional staff. In the past Medical Education Coordinators (MECs) were considered clerical staff. There was no emphasis on higher education, self-directed activities, research/quality assurance. HSC designation asks professionals to maintain quality clinical practice, conduct research, and teach. MECs were asked to assist with activities of research and education. Monitoring new curriculum and additional clinical sites were added to MECs role. GOAL: The MEC Team Leaders goal was to design a four-step professional career ladder built upon education and research/quality assurance activities. METHOD: A new Academic Dean and Director of Medical Education questioned the role of the MECs as clerical staff. MECs performed many managerial duties. The Director Medical Education asked the MEC Team Leaders to conduct a market analysis of similar positions in colleges of medicine that reflected the independent activities of the MECs. The MEC Team Leaders conducted an electronic market analysis. Subsequently, they developed a Career Ladder that reflected the national movement toward a professional Program Administrator. The MEC Team Leaders designed a four-step professional career ladder built upon education, research, and quality assurance. OUTCOME: With Academic Dean approval, the Director Medical Education met with the Human Resources Benefits Director, who agreed with the MEC Team Leaders’ recommendations. The MEC Team Leaders placed the professional career ladder with differential compensation into the organizational format. Immediately, MEC job satisfaction rose significantly. (See Tables 1, 2, 3, 4.)

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### Achieving Minimal Geriatric Competencies in Neurology: Using E-learning to Standardize Education

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**Purpose:** To ensure that graduating medical students are prepared to care the rising number of elderly patients, the AAMC and the Hartford Foundation sponsored a consensus conference to develop the “Minimum Geriatric Competencies for Medical Students” to provide a national standard for geriatric education. However, clinical clerkships with students dispersed across clinical sites face challenges in providing standardized and high quality geriatric education. To address these challenges we designed an e-based module for a required M3 neurology clerkship on “Neurology & Dementia: Psychosocial Aspects of Care”. **Methods :** A e-learning team composed of a geriatrician, neurologist and an education specialist collaborated on a required on-line curriculum module using the ANGEL e-learning management system addressing 50% of the geriatric competency domains. Through the use of multiple formats and multiple medias, the 2-hour module takes the learner through a series of case studies with associated audio and video segments hyperlinked to explanatory text (home care options, driving) and external resources (advanced directives, community based resources concluding with a required quiz. **Results:** 73% of M3’s preferred the self paced and interactive on-line format to traditional lecture. All M3 neurology clerkship students completed the module (n=40). Quiz results demonstrated learning of core concepts and high clerkship director satisfaction. **Conclusion:** The AAMC/Hartford Minimum Geriatric Competencies for Medical Students can be achieved using e-learning to provide a standard curriculum, strongly supported by students with demonstrated knowledge increases in geriatrics, while eliminating the need for faculty (and learner) time in lectures.

### The Impact of Computer-Assisted Learning Program (CLIPP) in a Pediatric Clerkship

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**Problem:** The LCME standard, ED-2, requires identification and monitoring of the types of patients that students must encounter.. However, seasonal variations in pediatric illness and variations in preceptor practices create significant challenges in meeting this standard. The Computer-Assisted Learning Pediatrics Program (CLIPP), a comprehensive internet-based learning method including 31 virtual interactive pediatric cases designed to cover core curriculum content, was developed by members of COMSEP and has been well received, with an estimated 3,000 to 4,000 cases being reviewed by students weekly. We asked whether M3 student experience with CLIPP cases could help us meet ED-2 requirements while standardizing the exposure to cases and improving retention of knowledge. We evaluated the impact of concurrent experiences with real patients on end of rotation OSCE performance. **Methods:** CLIPP cases were made available to M3 students for in the 2007-2008 year. Students were oriented to the cases and provided with instructions regarding two required cases covering fever and well child care. Completion of the CLIPP cases was tracked. Patient contact logs and end of clerkship Pediatric OSCE scores on fever and well child cases were obtained and compared to the previous academic year (2006-2007). **Results:** 100% of students completed the required cases. Students saw a mean of 163 febrile patients and 117 well child cases. The number of patient encounters did not affect performance outcomes. The average OSCE score improved on the fever case (p=0.010) but not the Well Child OSCE. **Conclusion:** Impact of CLIPP use on performance outcomes was present but limited.

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### Games/Sims for Health: What does the Research Tell Us?

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Games, sims and virtual worlds are viable tools for training, prevention, intervention and health education. As these technologies mature, they are proving both practical and efficient choices in many sectors of healthcare, public safety and biomedical education. How effective are these tools? Are they ready for real-world applications? What does the evidence indicate? What trends are indicated? This poster will illustrate major findings through a literature review of published research categorized by technologies used to date, healthcare sectors represented and strength of evidence documented in the current body of literature. Demonstrations of existing programs, tools and applications will provide a view of trends and future implications for healthcare consumers, providers and researchers. As games, sims and virtual environments are receiving increased attention and are being embraced as alternative communication, commerce and collaboration tools, it is vitally important to measure their effectiveness and assess potential directions.

### Interprofessional Teamwork and Communication Simulation Workshop for Medical and Nursing Students

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Teamwork is central to effective medical and nursing care. Improving communication and coordination within teams are cited by the 1999 IOM report as important ways to reduce errors and improve patient safety. Medical and nursing students do not usually have an opportunity to practice effective communication in a team setting during training, but immediately following they are thrust into environments that require them to work well together, sometimes in critical situations. To address this gap in education, a unique program to enhance interprofessional cooperative learning has been developed at the University of Minnesota. This program is designed for third and fourth year medical students on their Emergency Medicine rotation and nursing students in the last semester of their nursing program. In simulated situations using high fidelity mannequins, students manage four emergency cases. The focus is on teamwork and communication during critical situations while clinical aspects of acute patient care are practiced. Cases begin with nursing students performing an assessment and documenting their findings. Medical students then enter and the nursing students communicate findings using SBAR format. The medical and nursing students collaborate and perform their respective roles in history taking, physical exam, and interventions. Immediately following the simulation, physician and nursing faculty debrief the cases with the students. The goal is to guide self-reflection of teamwork and communication and review the ideal management of the cases. During the debriefing, students view video of their performance in order to identify examples of good teamwork as well as areas for improvement.

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### The BATHE Technique as a Method for Teaching Patient-Centered Medical Interviewing

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The BATHE Technique as a Method for Teaching Patient-Centered Medical Interviewing Teaching medical students the art of patient-centered medical interviewing is challenging. Many students learn medical interviewing by using mnemonics as a guide (CODIERS, PQRST). At The Ohio State University College of Medicine, we found that students fill in each letter in the mnemonic as they would a multiple choice test and the interview is often incomplete and not patient-centered. With a recent curricular change, the faculty decided to teach the BATHE technique as a method for obtaining a history of present illness. This technique, developed by Stuart and Lieberman, has primarily been used as a counseling tool for primary care physicians. The BATHE technique allows students to incorporate a mnemonic, but focuses their questioning on the patients perspective and illness experience, hallmarks of a patient-centered interviewing technique. Preliminary data show that both students and teaching faculty felt it to be a useful guideline for performing the interview.

### Various Forms of Distress Among Medical Students: A Multi-institutional Study

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Background: Little information is available to guide development of LCME required student wellness programs. Methods: Students (n= 4287) at 7 medical schools were surveyed in 2007 with the Maslach's Burnout Inventory(MBI), PRIME MD, and Medical Outcomes Study Short Form (SF-8), Epworth Sleepiness Scale(ESS), and Perceived Stress Scale(PSS) to measure burnout, depressive symptoms, quality of life(QOL), sleepiness, and stress, respectively. The primary analysis involved descriptive summary statistics. Results: 2248 students responded (response rate = 52.4%). A high level of distress was common among responders. 50% had burnout (1085/2154). Symptoms of depression were similarly common with 47% (1037/2228) endorsing one or more PRIME MD items. 41% (899/2178) reported a mean QOL score half a standard deviation below the population norm, a difference that has been considered clinically significant.55 Likewise, 46% (1034/2233) scored  $\geq 11$  ESS, a level corresponding to mean scores for patients in need of medical intervention for sleep disorder,35 and 49% (1073/2206) scored half a standard deviation higher on the PSS than the norm for age-matched U.S. general population.37 Only one in 5 students (456/2246, 20%) had no form of distress. Roughly 13-17% of students endorsed 2, 3, 4, or 5 (361[16%], 373 [17%], 288 [13%], 221 [10%], respectively) forms of distress with fewer (71 [3%]) reporting all six form of distress. Conclusion: Distress is prevalent among U.S. medical students and manifests in a variety of ways. Programs to promote student well-being need to take a comprehensive approach to addressing the various forms of distress if they are to meet the needs of all students.

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### Development and Implementation Of A Graduate Medical Education (GME) Scholars Program

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**OBJECTIVES:** To develop and implement an institution-wide GME Scholars program to prepare residents and fellows for faculty positions with a focus in medical education (ME) or healthcare administration (HCA). **METHODS:** The HCA curriculum includes topics and speakers from the Medical, Business, Law Schools, School of Public Health, and IT Department. The ME curriculum covers medical education broadly, with speakers from UM and across North America. Each track provides a 20-month fellowship-like training experience with pre-requisite readings, small group seminars, workshops, and scholarly projects. Participants are paired with a faculty mentor. A Development and Advisory Committee of Program Directors determined aims, scope, and strategy for implementation. Each track accepts 15 scholars in a competitive application process. Program evaluation includes: a pre-program survey (CV analysis and statement of goals); post-program survey (CV analysis and goal attainment); and matched peer group survey. **RESULTS:** Preliminary data from the ME track demonstrate participation from surgery, radiology, emergency medicine, pediatrics, cardiology, neurology, anesthesia, and psychiatry. Average attendance is 72%. Retrospective pre-post self-assessments of knowledge and confidence in applying key concepts (scale 1-10) demonstrate significant improvement (mean effect size = 1.36 +/- 0.56; Cohen's d). Individual module pre-post knowledge assessments demonstrate significant improvement (paired t-test). **CONCLUSION:** Preliminarily, we have successfully implemented a GME Scholars Program that can accommodate and is attractive to house officers from a range of GME training programs with varying clinical scheduling challenges. Initial objective and subjective feedback demonstrate significant positive effects on knowledge and confidence in concepts and skills related to medical education.

### Measuring Teaching and Learning Behaviors in the Clinical Skills Lab

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**Purpose:** The purpose of this study is to describe an instrument for measuring teaching and learning behavior in the skills lab, and the results of pilot work with this instrument. **Methods:** An instrument was developed, based on the literature, and pilot work. Two trained raters utilized the instrument to observe sessions on knot-tying, suturing, surgical airway, chest tube insertion, line placement, and shock scenarios with a human-patient simulator. Teaching behaviors of 8 instructors and the behaviors of 11 M4 students were coded at 30-second intervals. **Results:** Interrater agreement was established at 80%. A total of 660 observations over 5.5 hours were made. The proportions of behaviors recorded appear in the tables below.

Teacher Behaviors	Learner Behaviors
Giving Clinical Examples	0.5%
Listening to Teacher or Video	34.7%
Demonstrating a Skill	10.9%
Querying teacher	6.7%
Describing a Skill	6.6%
Practice w/Feedback	6.3%
Providing Information	11.4%
Practice w/o Feedback	17.2%
Administration or Management	5.2%
Testing or Evaluation	16.6%
Conducting Evaluation	19.2%
Guided Practice	12.0%
Specific Positive Feedback	0.6%
Moving Between Stations	0.2%
Specific Negative Feedback	0.2%
Off-Task	0.3%
Specific Corrective Feedback	6.9%
Other	6.1%
General Positive Feedback	1.7%
General Negative Feedback	0.2%
Response to Query	9.4%
Asking a Question	5.8%
Other	21.4%

**Conclusions:** Designing and implementing learning activities in the skills lab must include feedback and active learning time. Systematic observation yields valuable information about teaching and learning behaviors in the skills lab.

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### Video Feedback on Patient-Physician Communication Skills for Practicing Faculty Physicians

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*Michael Marshall, MD, Aurora Medical Group*

*Suzanne Weiss, Aurora Health Care*

*James Katz, Aurora Health Care*

Physician education is necessary for improved practice and especially important for physician educators who are teachers and role models for medical students and residents. As practicing physicians, faculty most often do not have opportunities to reflect on their communication skills and receive one-on-one feedback leading to plans for improvement. Aurora UW Medical Group (AUWVG) has partnered with Aurora Medical Group (AMG) to create a workshop for practicing physicians to improve patient-physician communication skills. A pilot of the course, including AUWVG faculty physicians, involves a one-to-one feedback session for physicians to view their communication skills as videotaped with actual patients in their clinics. The course will occur November 2008. Physicians will meet with educators to receive feedback based on their Press-Ganey scores related to patient loyalty and satisfaction, ratings on an assessment scale of their verbal and non-verbal communication behaviors seen on their video encounters by three independent raters, a pre-course self-evaluation and a self-evaluation of their videos performed during their one-on-one feedback session. Narrative comments on the videos by the three raters will also be presented. Action plans for improving communication will be collaboratively generated by the end of the feedback session with follow-up communications on progress eight weeks after the course. Improvements in communication skills and resulting improvements in Press-Ganey scores are anticipated.

### Health communication practices related to childbirth: patients perceptions of a qualitative difference between care providers.

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**Purpose:** To qualitatively explore patient perceptions of communication during a health care experience using a case study of women in childbirth using doulas (paraprofessional labor support). Literature documents women bringing doulas, paraprofessional support, to their hospital births. Medical research has shown the support of doulas impact maternal and infant birth outcomes (Hodnett et al. 2005; Kennell 2004). Likewise, the intervention of using a doula differs from nurses, childbirth educators, and family/ friend support (Scott et al. 1999; Bertsch et al 1990). The literature would suggest it is the unique role of the doula, in offering support, education and advocacy, which can be attributed to better outcomes (Gurevich 2003; Morton 2002). This research offers more detailed insights into why women choose to bring support advocates to their hospital births. **Methods:** A qualitative study using ethnographic methods of observation and in-depth interviews over the course of a year followed nine women and nine doulas as they interacted with each other before, during and after the childbirth experience. **Findings:** Patients described that the communication that occurred between care-providers (health-care professionals and doula paraprofessionals) was qualitatively different. Women in the study sought out a “different” perspective on childbirth for their childbirth education after interactions with their professional health care providers; a reason they sought out an “alternative” perspective. According to the women, doulas communicated information differently. Doulas were credited with communicating more diverse and complete information regarding options of care, extensively communicating patient rights in decision making, and directing communication attention to the woman as opposed to medical equipment. **Educational significance:** These findings contribute to the understanding of ways patients may perceive medical communication of health content and also perceptions of how the health content is communicatively delivered.

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### Factors Affecting Early Procedural Competency of Third-Year Medical Students *Adrienne Jones, Second Year Medical Student, Loyola University Chicago Stritch School of Medicine* *Gregory Gruener, MD, MBA, Loyola University Chicago Stritch School of Medicine* *Patricia McNally, EdD, Loyola University Chicago Stritch School of Medicine*

Using an anatomical model as a surrogate for clinical competence, we investigated the association between demonstrated simulation performance and the following factors: number of procedures observed, number of procedures performed, score on a cognitive-based pretest, USMLE Step 1 score, and self-assessed comfort level with all procedures. Immediately prior to clerkships, all students received a training module including a description of the procedure, modeling of the procedure by an instructor, and student simulation using anatomical models. Students also completed a cognitive-based pretest assessing knowledge of indications for each procedure. During the 12-week clerkship period, students reported the number of procedures they had observed or performed. Students reported their own comfort levels with performing procedures in general. Archived scores on the USMLE Step 1 exam were also used for analysis. The number of procedures observed over the 12-week period was found to correlate significantly with procedural assessment score ( $p=0.042$ ) and self-reported confidence level ( $p=0.006$ ). No data was found to support a correlation between procedural assessment scores and pre-test cognitive scores, number of procedures performed, or USMLE Step 1 scores. Procedural assessment scores were comparable between the four basic clerkship tracks (Medicine, Ob-Gyn/Peds, Psych/Family Med, Surgery). Students who rotated through a surgery or obstetrics/gynecology clerkship within the 12-week period reported a higher mean number of procedures observed and performed. Using an anatomical model as a measure of clinical procedural competence showed that clinical observation—not performance—of a procedure improves procedural assessment scores, and that procedural observation is related to self-assessed confidence levels.

### Exposure to Workplace Violence: A Survey of Pediatric Residents

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**Objective:** Pediatric Residents are often exposed to verbal abuse and/ or physical assaults from patients and patients' families during the course of their Residency training. The objective of this study is to determine the prevalence of workplace violence in Pediatric Residency Training Programs. We hypothesize that residents are poorly trained to handle such workplace violence and that they would benefit from further training in how to prevent and respond to workplace violence. **Methods** In 2007, a 25 item web-based questionnaire was distributed to 1211 Pediatric Residents of all training levels from 25 Pediatric Programs about their experiences with verbal and/ or physical abuse while on duty. **Results:** We received 541 return surveys, a 45 % response rate. Many pediatric residents who responded to our survey (33 %) had been verbally abused or physically assaulted by patients and/ or patients' families during their residency program. Verbal abuse was much more common than physical assaults. 71 % of pediatric residents reported having no teaching about workplace violence during their residency training. The majority (74 %) would like to receive more training in managing angry patients and families. **Conclusions:** We conclude that Pediatric Residents are often exposed to verbal threats during the course of their patient care. They are also at risk of physical assaults by angry patients and /or families. Pediatric Residents require more training on how to prevent and respond to workplace violence. This important topic should be incorporated into the Pediatric Residency Curriculum.

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### Education in Ethics and Professionalism: Moving from Lecture Hall to Clinical Experience

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To advance medical students' engagement with ethical and professional issues encountered during the third year of medical school at the Carver College of Medicine at the University of Iowa, we introduced an Ethics & Professionalism Seminar in two required clinical clerkships. The Seminar included Case Observation and Assessments (COAs) in the form of written reflections submitted on-line in advance of the Seminar. For the COAs, students were asked to describe and assess a clinical experience they observed during the clerkship that involved a patient and raised an ethical or professional issue. Select COAs were chosen for group discussion in each Seminar during which author identities of COAs were kept anonymous unless disclosed by the author. The Seminars were held during each Inpatient Internal Medicine clerkship and Pediatrics clerkship in 2007-08 at two sites (Iowa City and in Des Moines). There were 282 students rotating on Inpatient Internal Medicine and/or Pediatrics in 2007-2008, and almost all students completed two Case Observation and Assessments (one during each rotation) and 16 Seminars were held (8 per clerkship). Seminars were co-facilitated by the clerkship director and a physician-ethicist in Iowa City and by local faculty in Des Moines. Evaluations showed: 35% of students agreed that the COA assignment helped make them more observant of ethical/professional issues during the clerkship; 46% agreed that writing a COA provided a valuable opportunity to think through an important ethical/professional issue; and 62% agreed that the Seminar allowed them to learn valuable points from other students' clinical experiences.

### If You Build It, They Will Come Evaluate Paper-based Versus Web-based

#### M3 Evaluations of an Internal Medicine Clerkship

*Caroline A. Kerber, MD, Kimberly Hoffman, PhD, William Connelly, and Helen Cook, University of Missouri*

**Introduction.** In 2007-2008, MU SOM began collecting clerkship evaluations using a standardized, web-based format available to students 24/7. Prior to 2007, paper-based evaluations were collected and transcribed into a database to protect anonymity. Within the internal medicine clerkship, the solicitation, transcription and analysis of evaluations were onerous and had vast limitations. **Methods.** Paper-based evaluations were compared to web-based evaluations regarding completion rate, number of comments per student, word count per comment, and word count per student as a proxy for quality of comments. Paper-based evaluation data was hand-counted, and web-based evaluation data was automated. **Results.** Data for three academic years will be presented. The example below shows sustained change in evaluation behavior.

	Block 10		
	Paper-based 2006-2007	Web-based 2007-2008	Web-based 2008-2009
# students (participation rate)	17 (100%)	14 (100%)	17 (100%)
# Likert questions	11	21	21
# prompts for comments	12	5	5
Total # comments	13	67	85
Average # comments/student	0.76	4.79	5
Average # words/student	9.88	220	186
Average # words/comment	12.92	46	37
# students who wrote comments	6 (35%)	14 (100%)	17 (100%)

**Conclusions.** The online system had more questions and fewer prompts for comments than the paper-based forms yet it generated far more comments. This was an unanticipated consequence of utilizing technology for clerkship evaluations. During the second phase of this project we seek effective strategies to analyze qualitative data into actionable items to further enhance all clerkships. This is relevant to course directors investigating technologic solutions to data collection and interpretation.

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### The UIC COM Mentors Program: A Novel Program for Introducing First-Year Medical Students to Clinical Correlations with Basic Science Courses

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**Objective:** Medical students value early exposure to patients, yet typically lack structured opportunities for integrating classroom learning with clinical problems. The Mentors Program was designed to: (1) Increase opportunities for first-year medical students to use classroom knowledge in clinical problem solving, (2) Expose students to specialties early in medical school, and (3) Allow residents and fellows to serve as mentors and teachers. **Methods:** Three to four first-year students were matched with a mentor based upon students' career interests. Students attended clinic or rounds with their mentor at least once. Each group selected one patient to study and present to their class. Presentations included the patient case description, relevant information from basic science coursework, and a summary of students' discussion with their mentor. During the presentations, mentors commented on case presentations and discussed their specialties. **Results:** During 2007-8, 60 first-year medical students and 18 residents or fellows from ten medical specialties participated in the program. Program evaluation included on-line surveys and feedback sessions. Most students found the program beneficial to course learning and integration. Clinical sessions and discussions with mentors were rated most useful by students. Write-ups and case presentations received mixed reviews. Mentors thought the program was useful and did not find the time commitment problematic. **Conclusions:** The Mentors Program has been successful in providing students opportunities for clinical exposure under the guidance of residents and fellows. Student and mentor suggestions for improving both mentor and student preparation and scheduling of case presentations have been incorporated into the program.

### Medical Students' Self Reported And Observed Competencies In Geriatrics

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*TGIF Clerkship Collaborative, Medical College of Wisconsin*

**Purpose** The 2008 AAMC Graduation Questionnaire included items from the AAMC/Hartford Consensus Conference on Minimum Geriatric Competencies for Medical Students (MGCMS). Nationally, graduating seniors strongly agreed/ agreed that they could "... identify those medications that should be avoided or used with caution in older adults" (76%) and "...assess an older adult patient's fall risk, identify underlying causative factors, and make recommendations for further evaluation and initial management" (77%). Do students actually demonstrate these minimal geriatric competencies during required clerkships? We report the results from an observational study of third-year medical students (M3's) clinical encounters specific to falls and medication competencies. **Methods** M3's were randomly observed in five required clinical rotations were observed June-July 2008. "Tag-along" observations focused on fall and medication related activity was recorded utilizing a MGCMS derived checklist. Data analysis performed using SPSS for windows. Study was granted exempt status following institutional IRB review. **Results** 113 clinical encounters were recorded for 58 M3's; 26% were geriatric patients. 21% of encounters included medications that should be avoided or used with caution in older adults in 21% of encounters and 14% included falls. Falls and medications were more frequently addressed in patients aged > 65 than < 65. Falls was assessed more often on Neurology ( $p < .01$ ) and medication reviews occurred more often on Family Medicine ( $p = < .03$ ) compared to other rotations. **Educational Significance** Students' self reported competencies in

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geriatrics over estimates observed clinical performance. These data are driving a coordinated M3 clerkship geriatrics curriculum.

### Neuropathology Website: Interactive Resource for Year 2 Medical Students

*Kathryn Lovell, PhD, Michigan State University*  
*Geraud Plantegenest, MA, Michigan State University*

**Purpose** Michigan State University has two medical schools, offering MD and D.O. degrees. Neuropathology for Year 2 medical students is taught in two different curricular models. Self-instructional neuropathology units were developed 10 years ago on CD-ROM to serve as resources for Year 2 students. The purpose of the current innovation was to convert the materials to a web-based format with enhanced features that would provide optimal educational value and flexibility for students. **Methods** A website template was developed that could be used online or downloaded. The content was updated and additional images were provided. During the process, feedback from students was used to make modifications and enhancements, including more options for display of images/annotations and self-assessment quizzes. In fall 2008, the website was recommended in the neuroscience system course, but there were other content sources also. Feedback comments from students were requested through the anonymous online course evaluation system and a focus group was held. **Results** All of the written comments by students were positive, and indicated that the website was an excellent, easy to use resource to assist in learning the material and for review anytime/anywhere. Specific features that were mentioned as beneficial included case studies, practice questions, color images, and interactive games. Suggestions for further development included more images, diagrams, and interactive practice options. **Conclusion** Student feedback has indicated that this type of website is an important educational resource. Further studies will be designed to investigate the effectiveness of specific features of these materials.

### Improving Safety at the Ground Level: Design and Implementation of a Longitudinal, Mentored, Multi-Faceted Patient Safety Learning Program for Internal Medicine and Medicine-Pediatrics Residents

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*Michael P. Lukela, MD, University of Michigan Medical School*  
*Vikas Parekh, MD, University of Michigan Medical School*  
*John Gosbee, MD, University of Michigan Health System*  
*Stan Hamstra, PhD, University of Michigan Medical School*  
*John Del Valle, University of Michigan Medical School*

**Objective/Purpose of the Innovation:** Since the release of the report, “To Err is Human”, little progress has been made on reducing preventable adverse events in healthcare. To counter this observation, we implemented a “bottom-up” approach, where Internal Medicine and Medicine-Pediatrics residents at our institution are deeply involved in the analysis and solutions to common adverse events (AEs) by participating in a longitudinal patient safety curriculum. **Methods:** For the past 2 years, our curriculum has introduced a conceptual framework during foundational seminars that outlines key concepts in AE analysis. Our residents have applied this framework to analyze AEs in which they have been personally involved, recording them in their electronic portfolios. Residents also lead interdisciplinary discussions of AEs at patient safety conferences. Finally, we have trained a faculty Academy of Patient Safety Mentors, responsible for leading teams of residents through Patient Safety Improvement Projects (PSIP) based on select AE cases from the residents’ experiences. **Results:** Preliminary data analysis reveals a positive shift toward developing a culture of acceptance and open dialogue since the implementation of our curriculum. In addition, we have seen progression of learner analysis and reflection skills, tangible organizational responses to the PSIPs, enhanced resident involvement as “change agents”, and significant interdisciplinary interaction in both the case conferences and projects. **Conclusions:** By providing didactic, reflective and experiential elements in core patient safety concepts to residents, we believe they will become providers who are proactive instead of reactive to these important issues in the care of their own patients.

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### Prototyping a Next Generation Learning Management System to Support a Self-Directed Online Medical Student Learning Experience

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*Casey White, PhD, University of Michigan Medical School*  
*Charles Severance, PhD, University of Michigan School of Information*  
*Chris M. Chapman, B.G.S., University of Michigan Medical School*  
*Theodore Hanss, Jr., M.B.A., University of Michigan Medical School*  
*Joseph Hardin, University of Michigan School of Information*

**Objective:** To support increased emphasis on flexible and self-directed learning experiences at our medical school, we are using a rapid prototyping strategy to develop and pilot a next-generation learning management system (LMS) within a required online course. **Methods:** With a self-regulated learning conceptual model as the organizing framework for the LMS design, we chose a fourth-year 1-month required online course, “Advanced Medical Therapeutics”, which requires the student to progress through learning modules and assessments, engage in online seminars, and complete a scholarly project. We assembled a team of experts in pedagogy, information architecture, technology innovation and medical education, and solicited early input from medical students. We created an LMS prototype, embedded within the content of the course rather than on top of our curricular delivery system (Sakai™), allowing the LMS to follow, monitor and assist students as they learn. **Results:** The final LMS functionalities include tracking, to-do lists, notepad, social bookmarking, Twitter™, Q&A, Google Calendar™, and a quiz widget. Students, instructors, and course directors can track individual progress in all aspects of the course and can instantly run reports on all functions. We will pilot the prototype on 12 students in month 1, and 60 students in month 2, during which we will track and compile usage characteristics along with student progress and achievement within each component of the course. **Conclusions:** We believe that using a rapid prototyping LMS development strategy, built within a self-regulated learning framework, can effectively create educational technology that supports innovative medical student learning experiences.

### A Team Based Learning Approach to Translational Research

*Karen Marcdante, MD, Medical College of Wisconsin*  
*Sally Twining, PhD, Medical College of Wisconsin*

**A Team Based Learning Approach to Translational Research** Karen Marcdante and Sally Twining  
**Background:** The National Institutes of Health is focusing on translational research as a strategy to “drive the clinical research engine” and bring important research findings to the bedside in a timely manner. The collaborative effort needed to move research from the bench to the bedside requires that basic science investigators understand key concepts of clinical research. **Methods:** 11 biomedical graduate students completed a 1-credit introductory course on translational research, taught using team based learning (TBL). Six 3 hour sessions focused on core concepts in clinical research design, biostatistics, bioethics and regulatory issues. Consistent with TBL methodology, pre-readings followed by individual and group readiness assessments were completed by the students, with debriefing facilitated by a content expert. TBL tasks required that students design or evaluate a translational study, using the session’s concepts. Each student was also required to submit a clinical/translational research aim and plan related to their research interest area. Individual session evaluations and a retrospective pre/post comfort and confidence survey were administered. **Results:** The students rated the sessions positively, enjoying the autonomy of the TBL approach and the tasks assigned. The mean increase in both comfort and confidence scores related to key objectives was greater than 1 on a 5 point scale. All students successfully designed and presented a translational research aim. **Conclusions:** Team based learning is a useful and effective tool in presenting a new curriculum in translational research to biomedical graduate students, building on their skills and improving their knowledge and comfort related to translational research.

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### One for the resume: Disseminating And Publishing Medical Student Coursework

*Cassandra McMillan, MS, University of Minnesota Medical School*

*David V Power, MD MPH, University of Minnesota*

*James Beattie, MLIS AHIP, University of Minnesota*

This poster describes two innovative ways of helping students to disseminate their required clerkship work in the form of two different publications. Since 2001 an evidence-based medicine project has been part of the Primary Care Clerkship (PCC). The vast majority of students over the years have produced high quality CATs (critically appraised topics) and translated these complex clinical questions into equally well written PETs (patient education tools). Over the years close collaboration has developed with our health sciences librarians. Together we sought ways to showcase this outstanding student work. In 2007, when the library developed a Digital Conservancy Website which provides permanent URLs and is Google-accessible (conservancy.umn.edu), we began to publish all our PETs on it. In this format, all student work is available to the general public as was the initial intention in having students develop a PET. Since joining a national consortium in early 2008, the Family Physician Inquiry Network (FPIN), which produces a monthly paper and online publication - Evidence Based Practice, all students have been offered the opportunity to publish their CAT as a Help Desk Answer in this publication. On average, 1-2 students per course period have taken the extra steps necessary and succeeded in publishing their CAT in this way. These innovations have been well evaluated by students, particularly the small subset of students who have published their CAT, several of whom have remarked that they feel they have learned even more about applying evidence-based medicine in this process.

A comparison of concurrent vs. end-of-course faculty evaluations shows that first impressions are important

*John A. McNulty, PhD, Loyola University Stritch School of Medicine*

*Gregory Gruener, MD, Loyola University Stritch School of Medicine*

*Arcot Chandrasekhar MD, Loyola University Stritch School of Medicine*

This study sought to enhance the process of faculty evaluations by testing the hypothesis that when students are given opportunities to evaluate faculty at the time of their lectures, the evaluations would be more formative. Toward this end, we compared faculty evaluations by students who elected to submit evaluations concurrently with those from students who elected to wait until the end of the course to submit their evaluations. The study involved first year (n=144) students during their semester-long, integrated course in physiology and histology. Students used secure web-based evaluation tools to evaluate 16 faculty lecturers. Over the study period 38 students elected to submit evaluations concurrent with faculty lectures accounting for 15% of the total evaluations submitted. The majority (82%) of these students included comments compared to 62% who submitted comments at the end of the course, and the average number of comments per faculty was greater ( $p < 0.05$ ) for the concurrent evaluators. However, there was no correlation between the number of comments and the average numerical score for any faculty. Of 533 total evaluations with comments, only 15 (3%) changed their evaluations. The most important finding was the highly significant correlations (Pearson's;  $p < 0.001$ ) between the individual numerical scores for faculty evaluated concurrently and at the end of the course (R values ranged between 0.89 and 0.91 for the items evaluated). We conclude that first impressions from a relatively few number of students are sufficient to discriminate the quality of faculty lectures, but they are no more formative.

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### Do Student Evaluations Influence the Teaching Skills of Clerkship Clinical Faculty?

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The goal of this retrospective study was to determine if clinical faculty who received less than optimal student evaluations improved their teaching skills in subsequent years. Medical student evaluations of clinical faculty teaching skills were collected through web-based instruments over an eight-year period. Students were required to submit their evaluations at the end of each clerkship using a 5 point Likert scale to evaluate the teaching effectiveness of faculty. There were 19,881 student evaluations over the 8-year period for all clerkships, representing a total of 952 faculty. Of these, a total of 794 faculty were evaluated in more than one year allowing analysis of trends in student evaluations of their teaching skills. Criterion based methods and standard deviation option methods were used to group faculty as “optimal” and “sub-optimal” teachers. Of the 45 faculty who had suboptimal evaluations, none improved, 96% received similar evaluations in subsequent years, and 4% received even worse evaluations in subsequent years. In comparison, 7% of faculty who received optimal evaluations improved their evaluations in subsequent years, 92% received similar evaluations, and only 1% received poorer evaluations. Comparing evaluations of junior faculty (Instructor and Assistant professor) with senior faculty (Associate and Professor) revealed no significant difference between the two groups. Similarly there was no difference in teaching skill scores between faculty with clinical ranks and faculty with full ranks. We conclude that clinical faculty who received sub-optimal student ratings for their teaching skills did not seem to be influenced to improve their skills.

### A Population-based Model for Patient-Centered Care: a conceptual framework for curriculum redesign.

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*Staci Young, PhD, Medical College of Wisconsin*  
*Douglas Bower, MD, Medical College of Wisconsin*  
*John Meurer, MD, MBA Medical College of Wisconsin*  
*Peter Layde, MD, MSc, Medical College of Wisconsin*  
*Deb Simpson, PhD, Medical College of Wisconsin*

**Purpose:** A disconnect often exists between the traditional biologic model of medical education and the population health needs of society. As part of a process to integrate population health into our four-year curriculum, we developed a conceptual model to frame population health competencies in relation to patient-centered care. **Methods:** Core competencies and existing population health frameworks were identified through review of literature, existing curricula, and key academic and community stakeholders. Our final model combines two concepts: 1) patient-centeredness, which is optimized when the perspectives of the patient and physician overlap; and 2) a socio-ecologic model, which places the therapeutic relationship in the context of broader health determinants that students might not otherwise consider important to their patients' care and outcomes. The model stresses the physician's professional responsibility across expanding domains of influence to consider the determinants of patients' health status, to guide interventions for individuals and populations, and to advocate for systemic changes to improve health. **Results:** Existing curricular elements readily mapped into the model. It has been well received by educators, and incorporated into courses across all four years of medical school. Students report that the model helps their appreciation of the interrelationship of risk factors in a clear, easily understood way. **Conclusion:** A framework that represents the influence of individual, socio-structural and environmental factors on health in the context of the patient-physician relationship can help prepare young physicians with the skills, knowledge, and attitudes needed to shape our system to improve the health of the public.

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### Factors Influencing First Practice Location of Primary Care and Non-Primary Care Residency Graduates

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*Komal Kochhar, MBBS, Indiana University School of Medicine*  
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**Background/Purpose:** It is important to understand the reasons why residency and fellowship graduates choose to practice in specific locations to plan effective healthcare workforce development initiatives. This study documented the proportion of graduates who were practicing where they are needed. It also identified the factors affecting their practice location decision. **Methods:** A cross-sectional survey of 278 individuals completing graduate medical education programs at Indiana University School of Medicine was conducted using a standardized questionnaire to obtain respondents' demographic characteristics, reactions to their residency training, and their plans after graduation, including where they intend to practice and why they chose that location. **Results:** Two-thirds (65%) planned to be clinical practitioners, 26% planned to continue training. Half (50%) planned to practice in states other than Indiana; about two-thirds of both primary care (67%) and non-primary care graduates (60%) planned to practice in a MUA or HPSA. The most common reasons given for choice of practice location were: Met my needs/preferences (71%); Liked the people (69%); Salary compensation (47%); and Proximity to family (46%). Two-thirds (67%) thought there were many jobs for them in the state, compared to less than half (46%) of the specialists. **Conclusions:** The results found that half of Indiana University residency and fellowship program graduates stay in the state to practice, many in MUAs or HPSAs. Most of the important determinants of residents' practice location choice could be affected by policies and initiatives to make sure their needs are met and they are treated well by the existing staff.

### Teaching the Teachers: Evaluation of an Educational Faculty Development Initiative

*Nersi Nikakhtar, MD, University of Minnesota/Minneapolis VA Medical Center*  
*Sonal Sidhwani, MD, University of Minnesota/Minneapolis VA Medical Center*  
*Craig Roth, MD, University of Minnesota/Minneapolis VA Medical Center*

**PURPOSE:** The Clinician Educator Initiative (CEI) is a monthly hour-long lecture and workshop series designed to promote development of internal medicine clinical educators and their skills in these roles. After one year, we surveyed the participants to measure effectiveness in motivating change in education practice and effects on confidence in educator skills. **METHODS:** All participants from the prior year were invited to complete an online survey including information about years of experience and realms of clinical duties. They were asked to rate relevance of the skills in the CEI in their practice and confidence implementing them using Likert scales. Open-ended questions asked for descriptions of how they changed their practice as a result of CEI and for feedback to reshape future sessions. **RESULTS:** 20/31 (64.5%) of eligible participants completed the survey. Years in practice ranged from one to 28 (mean=8.3). Providing feedback and bedside teaching were identified as the highest priorities by a majority of respondents (n=13, n=14 respectively). A majority of respondents reported increase in confidence with these skills as a result of the CEI (feedback n=13, bedside teaching n=9). Of respondents who reported change in practice (n=5), all reported a change in how they delivered feedback. Most who suggested improvements (10/16, 62.5%) preferred hands-on workshops to lectures. **CONCLUSIONS:** A series of short, monthly faculty development workshops motivated clinician educators to change how they provide feedback and improve bedside teaching, two key skills for educators. Confidence in these skills increased in many of the participants. Future workshops should use interactive skill-building activities whenever possible.

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Medical Education through Diversity and Service - MEDS  
A Student Led Service and Education Experience  
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*Richard Hoffman, PhD, University of Minnesota Medical School Duluth*

Medical Education through Diversity and Service - MEDS - is an organization that provides opportunities for medical students to take an active role in their medical education by experiencing healthcare and service in the United States and other countries. MEDS is a student-run organization devoted to increasing students' cultural awareness by promoting involvement in community service and medical education throughout the world. Exposure to different cultural perspectives on healthcare strengthens the ability of students to serve an increasingly diverse population. The principles of MEDS are to foster cultural development, to provide a venue for continuance of global experiences, to provide a framework for encouraging teamwork and collaboration, and to create a student organization with ownership of an important educational endeavor. One-third to one-half of the students in the first two years of medical school participate in MEDS international experiences. These students increase their cultural awareness by observing and getting involved in community service and medical relief organizations domestically and internationally. MEDS fosters interclass collaboration and increases the likelihood that students will meet the mission of the Duluth campus which is to train family practice physicians for rural and American Indian communities. Countries in Africa, South and Central America, the Caribbean, Pacific Islands, Europe and the United States as well as Mongolia have been visited by students participating in MEDS.

Medical Student Run Obesity Education for High School Students  
*Sarah Potts, BS, Medical College of Wisconsin*  
*Stephen Humphrey, BA, Medical College of Wisconsin*  
*Melissa Holmes, BS, Medical College of Wisconsin*

Purpose Obesity in the pediatric population has escalated in the last 10 years. Significant challenges facing high school (HS) teachers include motivating adolescents to reflect on their current lifestyle habits and committing to healthier behaviors. As future physicians we sought to educate HS students about the science of healthy lifestyle choices and its impact on obesity. Methods Medical students developed a standardized instructional module to teach HS students in health courses. Objectives focused on increasing science knowledge associated with obesity and making 1-2 healthy lifestyle changes. Multiple instructional strategies used included a 1 hour interactive presentation by two medical students, a 30-day healthy behavior challenge, and a sustained presence via poster and teacher reinforcement. A brief pre-post knowledge quiz was distributed to self-assess science knowledge and lifestyle behaviors. A teacher evaluation of the module was also given. 25 medical student presenters were trained on module content and presentation skills prior to presentations. Results Sixteen class periods in four HS (N=400 HS students) were taught by medical student pairs (N=25) in a large metropolitan area. Teachers were enthusiastic and reported that students were highly responsive to the module and presenters. Preliminary analysis of the pre-quiz reveals students had a moderate obesity knowledge (>60%) and were willing to make lifestyle changes to improve their own health. Medical student presenters were pleased with implementation of curriculum and receptiveness of HS students. Conclusions Medical students can easily and effectively design, implement and evaluate training module for high school students to improve healthy lifestyle decisions.

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### The Ohio State University College of Medicine's Honors Undergraduate Biomedical Sciences Program

*Carol A. Powell, MLS, The Ohio State University, John A. Prior Health Sciences Library*

*Bruce Biagi, PhD, The Ohio State University College of Medicine*

**Objective/Purpose:** To attract honors-eligible high school students who are interested in biomedical research and careers as health sciences professionals. Graduates with a Bachelor in Biomedical Sciences degree are prepared to enter into graduate or professional programs leading to an MD, PhD, MD/PhD, or other professional programs in the health sciences. **Methods:** Small class size, individualized advising and coursework that emphasizes problem solving, teamwork, and oral and written communication skills are characteristics of BMS coursework. A one-year research experience is a minimal requirement and Medical Center faculty serve a significant mentorship role. Students are also given opportunities to explore clinical medicine and the delivery of health care. **Results:** Juniors and seniors have scored in the high 30s on the MCAT examination, and have been admitted early to a number of medical schools and graduate health sciences programs. Students have participated in summer global health programs in several developing countries, and in clinical and research preceptorships at health care organizations in the United States and abroad. One student has become first author of a paper in a prestigious biomedical research journal; another has won a statewide award for his work in biomedical informatics. **Conclusion:** Any higher education institution with a medical school could consider instituting this type of honors undergraduate program. It attracts the "best and brightest," and provides talented students an early, in-depth exposure to the value of biomedical research and to a broad spectrum of health sciences professional opportunities.

### Core Curriculum Days: Reuniting Third-Year Medical Students to Address Essential Skills and Attitudes

*Roberta B. Rusch, MPH, University of Wisconsin School of Medicine and Public Health*

*Yolanda Becker, MD, University of Wisconsin School of Medicine and Public Health*

*Laura Dast, BA, University of Wisconsin School of Medicine and Public Health*

*Christine Seibert, MD, University of Wisconsin School of Medicine and Public Health*

**Title:** Core Curriculum Days: Reuniting Third-Year Medical Students to Address Essential Skills and Attitudes **Authors:** Rusch RB, MPH, Becker YT, MD, Dast, LC, BA, Seibert CS, MD **Objective:** To illustrate the structure of Core Curriculum Days at the University of Wisconsin School of Medicine and Public Health (UWSMPH), and describe how third-year medical students participate in active learning to acquire skills ranging from communicating bad news to bridging cultural gaps. **Methods:** UWSMPH students rotate through multiple sites during their third year. Core Days were instituted almost 15 years ago to convene third-year students for curriculum that is essential, but did not have ownership in any particular rotation. Three Core Days have been planned annually. Curricular topics have included: revealing intimate partner violence, employing palliative care, disclosing errors or unanticipated outcomes, identifying healthcare disparities, and appreciating differing value systems. Learning objectives include knowledge, skills and attitudes. Innovative teaching methods help deliver the curricula, utilizing standardized patients enacting scenarios, student-led discussions, reflection exercises, and multimedia. **Results:** Evaluations are important to this process, including pre-surveys to gauge students' starting comfort level and prior knowledge. Six-month follow-ups inform planners how Core Days have impacted students' comfort level and care of patients. Student evaluations are overwhelmingly positive. **Conclusions:** Core Curriculum Days provide opportunities for third-year students to reunite and engage in meaningful learning experiences covering curricular topics that have not found "homes" in clerkships. The topics and the delivery of this curriculum are crucial to the growth and advancement of students.

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### You Had Me at Hello: Using a Collaborative Design Process to Revitalize Orientation for Medical Students

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*Christopher Stillwell, MA, UW School of Medicine and Public Health*

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*Patrick McBride, MD, MPH, UW School of Medicine and Public Health*

*Jane Crone, NP, MEd, MS, UW School of Medicine and Public Health*

*Joe Ebinger, UW School of Medicine and Public Health*

**Purpose:** In Fall 2008, University of Wisconsin School of Medicine and Public Health (UWSMPH) significantly expanded orientation in order to better welcome students to the medical school community, foster collaboration and professionalism, familiarize students with resources for academic success, and introduce the UWSMPH mission to serve the health needs of Wisconsin. **Methods:** Using a collaborative design process, including elements of curriculum design and distributed leadership, we identified key stakeholders as members of the planning team, collectively developed goals, and charged stakeholders with the creation and implementation of orientation activities. Our planning team included deans, staff, students, and faculty. The event was evaluated using a 35-question online survey that asked participants to rate the achievement of goals, effectiveness of each session and suggest improvements. **Results:** Of the 158 (96%) respondents, over 86% rated orientation as fairly or very effective at meeting each of the stated goals. As compared to 2007, the 2008 orientation showed statistically significant improvements in mean effectiveness ratings for welcoming students and giving students information to get a good start in medical school. On a 4-point scale (0=Not Effective to 3=Very Effective), 19 of 25 activities achieved mean ratings of > 2.0. The top rated activities were off-site faculty dinners, small groups where patients shared illness narratives and student-produced orientation videos. **Conclusion:** The collaborative design process and implementation of an expanded orientation effectively introduced students to the medical school community and made them feel prepared. Longitudinal follow-up will determine the permanence of these effects.

### Looking in the mirror: The impact of medical school faculty professionalism on student perceptions of professionalism

*Patricia Sexton, DHEd, ATSU-Kirkville College of Osteopathic Medicine*

Faculty members interact with medical students actively and passively to influence student development as professionals. The purpose of this study was to examine student perceptions of faculty professionalism at an osteopathic medical school and implement a faculty development program to improve the culture of professionalism. Recent focus on medical professionalism by the public, national accrediting bodies, and the medical profession itself has caused many to pause and take note of how the attitudes and behaviors attributed to the term professionalism develop. The attitudes and behaviors that constitute professionalism are taught both explicitly and implicitly. The influence of faculty members on the design, delivery, and evaluation of the formal curriculum requires that they are constantly aware of the impact of the informal curriculum on learner values. A curricular program at an osteopathic medical school was designed to improve individual faculty members' awareness and understanding of professionalism.

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### Evolution of Problem Based Learning Groups: Expanding EBM Learner Objectives

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*Daniel Hickey, JD, MBA, College of Medicine, U of Toledo*

*Brian Fink, PhD, College of Medicine, U of Toledo*

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*Roland Skeel, MD, College of Medicine, U of Toledo*

*Carol Bennett-Clarke, College of Medicine, U to Toledo*

**Objective:** This innovation was developed to maximize the contribution of faculty facilitated small group case discussions to the overall clinical skills curriculum by integrating new topics and experiences as a means to address new and expanded LCME requirements and AAMC recommendations. **Methods:** A ten-year history of Problem Based Learning Groups was revisited and overall contribution of these groups to the preclinical curriculum reviewed. The value of facilitated groups is recognized but the feasibility and resources required limit the number of courses that can rely on small group discussion/instruction as a standard part of the course structure. New learner objectives related to the practice of evidence based medicine and assessing the validity of published literature were incorporated into the existing small group discussion format. This expansion required facilitators to assume a more active role in the group discussions. All faculty were provided with supporting materials to ensure that the additional learner objectives were met. **Results:** End of course surveys suggested that students were satisfied with the use of the small group format for this additional content and there was no indication that these added experiences detracted from the value of their clinical case discussions. Curriculum governance determined that expanded use of faculty resources added value to the existing small group format while at the same time was successful in providing educational experiences well aligned with the content. **Conclusion:** Minor adjustments in curriculum structure and content can be effective means to meet increasing demands for content coverage and optimize the contribution of faculty resources.

### Implementing a First-year Medical Student Curriculum in Chronic Care Changed their Attitudes about Chronic Disease

*Brian Sick, MD, University of Minnesota*

*Kathleen Watson, MD, University of Minnesota*

*Joseph Brocato, PhD, University of Minnesota*

**Objective:** To pilot a year-long curriculum in chronic care for the first-year medical students designed to give students a better understanding of the lives of patients living with a chronic disease. **Method:** Eight students were randomly selected from a group of students who volunteered to participate in a pilot of the curriculum. Prior to the start of the pilot the eight students were asked, as a focus group, about their preconceived notions of chronic care. The questions asked included: what comes to mind when they hear “chronic illness” and “chronic care” and who are the providers of chronic disease management. Students were also asked why they volunteered and what they hoped to accomplish in the curriculum. Follow-up questions were asked at the end of the experience. The narrative comments were then analyzed to see changes over time and to better understand the impact of the experience on the group. **Results:** Responses from the individuals indicated that after the experience the students had a broader understanding of chronic illness and chronic care, gained a deeper appreciation for the complexity of the health care system, developed more compassion towards the needs and challenges of patients with chronic diseases, and had an expanded view of the healthcare team involved in the care of patients with chronic diseases. **Conclusion:** A year-long curriculum early in medical school brought first-year medical students to a deeper understanding of chronic disease and the challenges faced by patients attempting to navigate a complex health care system.

## Poster Abstracts

### Results of Faculty Development Initiative for Clinician Educators

*Sonal Sidhwani, MD, Minneapolis VA Medical Center, University of Minnesota*

*Nersi Nikakhtar, MD, Minneapolis VA Medical Center, University of Minnesota*

*Craig Roth, MD, Minneapolis VA Medical Center, University of Minnesota*

**Purpose:** The Clinician Educator Initiative (CEI) at the Minneapolis Veterans Affairs Medical Center was created to meet the needs of 31 faculty of clinician educators in the division of General Internal Medicine. We describe the assessment of these CEI sessions. **Methods:** The CEI sessions are held once each month on Tuesday from noon-1 pm when no patients were scheduled. Speakers included local, regional or international experts in education invited on basis of faculty input. Topics discussed ranged from : ‘Giving feedback’ to ‘Bedside teaching’ to ‘Educational portfolios’. At the end of each CEI session, faculty were invited to fill out an evaluation that included a five point Likert scale response for the following questions: importance of topic, effectiveness of teaching style for learning and how much additional learning was gained from the session. Additionally two open ended questions were included: identify one of the presenters behaviors or teaching points that helped your learning and list one thing you will try doing or change in your teaching or work because of what you learned. **Results:** Most topics and speakers were rated highly with an average Likert score of 5 for topic importance and teaching style and 4 for additional knowledge. Less than 25% of respondents answered the first open ended question with the most common response being ‘[use] interactive methods’ and ‘[give] concrete advice’. The last open ended question was rarely answered. **Conclusions:** Faculty have positive opinions about CEI sessions. Though, a commitment to change was not made by the majority of our faculty immediately after the session.

### Using Team-Based Learning to Foster Active Learning in Radiology

*Edward Simanton, PhD, Sanford School of Medicine*

*Mahendri Raidoo, MD, Sanford School of Medicine*

**Rationale and Objectives** The purpose of this study was to examine the effectiveness of Team-Based Learning as an active learning method in radiology education. **Materials and Methods** Team-Based Learning (TBL) was used in the radiology portion of a gross anatomy course. Student performance and course evaluation data were collected and analyzed during two years. **Results** Individual Readiness Assurance Test (IRAT) and Group Readiness Assurance Test (GRAT) scores indicate that significant learning occurred during TBL sessions. Student ratings and narrative comments in course evaluations showed that students believe that TBL is an effective tool for teaching radiology. **Conclusions** Student evaluations and test performance suggest that TBL is a active learning technique for use in radiology education.

### What medical students remember: A preliminary study examining what students remember from their first three years of medical school.

*Edward Simanton, PhD, Sanford School of Medicine*

*Lori Hansen, MD, Sanford School of Medicine*

*Jane Gavin, MS, Sanford School of Medicine*

As we are faced with curricular decisions, we sometimes must make decisions about how content will be offered based on student/faculty preferences and maybe some anecdotal information. Students seem to prefer concentrated blocks of content rather than multiple classes happening simultaneously over a longer period of time. At this time, the preclinical curriculum at the Sanford School of Medicine contains block courses and long-duration courses. In the third year, clinical rotations can be taken in block format on the Sioux Falls and Rapid City campuses or in a longitudinal format on the Yankton campus. In this study we plan to examine the relationship between course duration and long term retention in preclinical and clinical courses. Fourth-year students will be presented with material that they learned in the first three years of medical school. By comparing students original performance and current knowledge, we hope to gain insights into what class formats provide better long-term retention of information.

## Poster Abstracts

### Formative Observational Assessment of Internal Medicine Clerks

*R. Brent Stansfield, PhD, University of Michigan*  
*Ken Pituch, MD, University of Michigan*  
*Nicholas Slocum, MD, University of Michigan*  
*Amanda Berling, MD, University of Michigan*  
*Amanda Osta, MD, University of Michigan*  
*Amir Rabbani, University of Michigan*

Objective Direct observation of trainees' clinical skills in real clinical settings is crucial for ensuring competence. This study evaluated a tool to assist experienced clinicians as they observed, rated, and debriefed inexperienced clinicians. Methods Three chief residents in internal medicine were trained to use the micro-CEX, an adaptation of the mini-CEX evaluation instrument. Training focused on defining marginal vs. competent performance levels using videotaped examples. The micro-CEX consists of 6 9-point quantitative ratings (history, communication, and examination skills; problem identification, differential diagnosis generation and risk assessment) and space for notes on the content of the interaction, and answers to 7 debriefing questions assessing higher-order critical thinking (eg: "What is in your differential diagnosis?" and "What did you find out from your history that helps your differential diagnosis?") Each rater observed and rated M3 clerks in one or more real live patient interactions, then provided the students with structured feedback. Results Fifteen student-patient interactions were observed by one of three raters. Encounters lasted from 30 to 50 minutes; then debriefing lasted 8 to 15 minutes. Ratings ranged over most of the 9-point scale, and the 6 items showed a Cronbach's alpha of .91. The evaluators reported great benefit in ability to spot important deficits in students' clinical and problem solving skills. Students appreciated the attention and feedback. Conclusions Direct observation and feedback using the micro-CEX is feasible and constructive. Further refinement and field testing will determine its ability to become widely used as a formative feedback tool.

### Social Determinants of Late Stage Presentation of Breast Cancer In Limited Resource Settings:

#### A Field Experience Training Study

*Jaye Stapleton, MPH/MPP Candidate, University of Michigan*  
*Ahmed Hablas, MD, Gharbiah Cancer Society*  
*Hussein Khaled, MD, National Cancer Institute -- Cairo*  
*Ibrahim Seif-Ildin, MD, Tanta Cancer Center*  
*Sofia Merajve, MD, PhD, Patricia Mullan, PhD, and Amr Soliman, MD, MPH, University of Michigan*

Center Objectives: Although increasing numbers of students in health professional schools are involved in global health projects, few formal academic programs guide their training(1). Chronic diseases constitute an increasing part of disease burden in limited-resource countries. The leading cause of cancer death in women worldwide is breast cancer, with highest fatality rates occurring in limited-resource countries. This reflects the number of late stage presentations upon initial diagnosis. It is important to understand this issue within the context of the country's healthcare infrastructure. As part of an innovative master's level training program featuring field experience in international settings, my study examined social determinants of late stage presentation of breast cancer in Egypt. Methods: Following formal coursework, my mentor guided my access to clinics in Cairo and Tanta Egypt, where I conducted a case-case comparison of breast cancer patients diagnosed at Stage I/II versus Stage III/IV, among patients diagnosed within the last year. I administered an oral questionnaire to investigate various factors linked to late stage presentation in the literature. Results: In this study, I was able to identify and recruit 350 subjects. Results will be analyzed with stage at diagnosis as the dependent variable, with predictor variables including disease history, disease knowledge, screening practices, education, income, and distance from treatment facility. Conclusion: In this presentation, we share the results of these analyses, as well as the responses of our international collaborators. The results will assist health professionals in Egypt in their efforts to decrease late stage presentation and breast cancer fatality rates. 1. Greenberg J, Mazar R. Toward a more Global Medical Education. JAMA. 2002; 288: 1651.

## Poster Abstracts

**An Educational Partnership to Create a Medical Student Learning Portfolio**  
*Amy Stickford Becker, MA, University of Wisconsin School of Medicine and Public Health*  
*Ann Ruscher, MD, University of Wisconsin School of Medicine and Public Health*  
*Shobhina Chheda, MD, MPH, University of Wisconsin School of Medicine and Public Health*  
*Hardin Coleman, PhD, Boston University School of Education*  
*Julie Foertsch, PhD, University of Wisconsin School of Medicine and Public Health*  
*Steve Head, University of Wisconsin School of Education*  
*Christine Seibert, MD, University of Wisconsin School of Medicine and Public Health*  
*Susan Skochelak, MD, MPH, University of Wisconsin School of Medicine and Public Health*

**Purpose:** The integration of portfolios into the medical school learning experience is intended to engage medical students in self-reflection about their experiences, support and document their growth in knowledge, skills and abilities, and encourage feedback among and between students and faculty. Beginning in 2006, the University of Wisconsin School of Medicine and Public Health partnered with the University of Wisconsin School of Education to explore the creation of a learning portfolio for medical students. **Methods:** Utilizing the School of Education's consultation and electronic software program, a pilot portfolio project was developed and implemented into the preclinical learning experiences. **Results:** Through the support and assistance of the educational partnership, there have been significant gains in the understanding and development of a learning portfolio for medical students. Student and faculty ratings and feedback from the pilot project supported the School of Education's findings in three important areas: (1) Students need adequate time and appropriate structure in choosing artifacts and developing reflections; (2) Portfolio assignments need to be closely aligned with and genuinely integrated into the curriculum; (3) Students require ongoing and meaningful support, and formative feedback on portfolio assignments. **Conclusion:** The collaborative efforts of a portfolio project helped to advance knowledge and understanding of the value, structure and best practices of implementing a learning portfolio for medical students.

**University of Minnesota Simulation PeriOperative Resource for Training and Learning (SimPORTAL)**  
*Robert M. Sweet, MD, University of Minnesota Medical School*  
*Troy Reihsen, University of Minnesota Medical School*

Robert M. Sweet, MD, Troy Reihsen University of Minnesota Simulation PeriOperative Resource for Training and Learning (SimPORTAL) The simulation program at the University of Minnesota is an integrated virtual reality simulation development that includes live 3D interconnectivity and skills-oriented rather than department-oriented programs. Initially, a symposium for industry leaders, clinicians and researchers was held to share knowledge regarding development and use of simulation devices for assessment and training. Subsequently, a full day faculty retreat, that facilitated 96 participants, was held to help faculty become engaged in the development and integration of simulation tools into "criterion-based" technical skills curricula based on task-deconstruction principles. Through a series of large and small group sessions, participants from multiple disciplines and educational backgrounds shared curricular and assessment ideas. From this work came a list of six core skills sets: critical care, basic surgical, endoscopic, microsurgical, trauma/emergency, and percutaneous access. The Virtual Reality development laboratory, the Center for Research in Education and Simulation Technologies (CREST), has satellites in both the Academic Health Center Simulation Center and in the Medical School's SimPORTAL. This has allowed for the promotion of cross-collaboration between developers and center users. SimPORTAL is a central videoconferencing hub for the simulation program with bidirectional AV feeds including live and archived 3D-streaming and display capabilities between the operating theaters across the Fairview Hospital network, the simulation training centers, the 1 live animal experimental surgery center, and the Institute of Technology's Medical Device Center, with the ability to stream remotely. This poster will further explain the development and utilization of SimPORTAL; discussing the bridging of silos in an attempt to serve both the training and simulation research missions.

## Poster Abstracts

### Using SBAR to Teach Communication Skills to First Year Emergency Medicine Residents

*Matthew Tews, DO, Medical College of Wisconsin*

*Jason Liu, MD, Medical College of Wisconsin*

*Robert Treat, PhD, Medical College of Wisconsin*

Using SBAR to Teach Communication Skills to First Year Emergency Medicine Residents Matthew Tews, DO; Jason Liu, MD; Robert Treat, PhD 11/8/08 Introduction Currently, no standard presentation format is taught to emergency medicine (EM) residents to utilize when calling to admit patients to the hospital. This is an area of great variability with potential patient safety implications due to miscommunication. The Situation-Background-Assessment-Recommendation (SBAR) model (Haig et al., 2006) provides a framework to communicate pertinent information reliably and consistently. This model was examined to determine if it could be taught to and effectively used by EM residents during admission presentations. Methods An educational study was designed as part of a curriculum to teach eight PGY-1 EM residents communication skills. A standardized reporting format structured on the SBAR model was taught during a one-hour didactic intervention. All residents were evaluated during pre-post-intervention simulated case presentations using a checklist which highlighted each pertinent point of the SBAR model. A survey was given to the residents to determine the quality of training and potential clinical utility. Data was analyzed with SPSS 15.0. Results The reliable ( $\alpha=0.87$ ) survey yielded statistically significant increases for the quality of training, comfort level in making presentations, and ability to effectively communicate information using the SBAR format ( $p<0.05$ ). There was a statistically significant increase in resident pre-test [Mean(SD)=10.5(3.0)] and post-test [15.9(1.1)] scores as revealed by a Wilcoxon Signed-Ranks test:  $Z=2.527$ ,  $p=0.012$ . Conclusion First year EM residents learned to effectively use a structured communication tool in simulated physician-to-physician admission case presentations. This model has implications for improving effective communication between physicians and therefore improving patient safety by structuring the communication process.

### Recruitment Guidelines using ACGME Competencies or How to Select a Candidate in Six Easy Steps

*Dora Thompson, BA, Cedars-Sinai Medical Center*

*Lois Shuman, Indiana University School of Medicine, Indianapolis, IN*

*Jill Philip, University of Michigan Health System, Ann Arbor, MI*

*Linda Galante, Henry Ford Hospital, Detroit, MI*

**PURPOSE:** Creation of a more systemic and efficient ERAS application review process. **METHODOLOGY:** The APCR1 Professional Development Committee has established guidelines for Program Directors and/or Selection Committees using the six competencies as an assessment tool to filter information found on ERAS applications. Decreasing the time spent reviewing applications is crucial in order to extend invitations to exceptional applicants in a timely manner; therefore the guidelines set forth will facilitate an expedited process. **DISCUSSION:** In our model, competencies can be found in various parts of the ERAS application. By identifying specific items and assigning a numeric value to each entry, a numeric score would be given to each applicant, making sorting applications uniform and time saving. 1. Patient Care • MSPE • Letters of recommendation • Transcript – 3rd and 4th year rotations • Medical School Awards 2. Medical Knowledge • Transcript • USMLE Scores • AOA member • MSPE • Research experience • Medical School Awards 3. Practice-Based Learning and Improvement • MSPE • Letters of recommendation • Research experience 4. Interpersonal and Communication Skills • Personal Statement • MSPE • Personal contact via telephone, e-mail or in person 5. Professionalism • MSPE • Letters of recommendation • Personal statement 6. Systems-Based Practice • Work experience • Research • Volunteer experiences • MSPE **CONCLUSION:** The six-step system proposed above provides the Program Director and/or Selection Committee Chairs a systematic and efficient protocol by which to select from future applicants in a concise, impartial, and cost-effective manner. 1Association of Program Coordinators in Radiology

## Poster Abstracts

### Medical Student Reflections on Difficult Patient Encounters: An Analysis of Lessons Learned

*Sajani Tipnis, MD, Medical College of Wisconsin*  
*Douglas Bower, MD, Medical College of Wisconsin*  
*Gunnar Larson, MD, Medical College of Wisconsin*  
*Staci Young, PhD, Medical College of Wisconsin*  
*Tomer Begaz, MD, Medical College of Wisconsin*  
*Deborah Simpson, PhD, Medical College of Wisconsin*

**Introduction:** Patient centered care (PCC) is a core competency in medical education requiring the student to incorporate the patient's perspective of disease, lifestyle, beliefs, and ability to access services into the medical decision. Yet limited information is available on what students identify as barriers to PCC and the impact of training on students' ability to address barriers. **Methods:** During a half-day PCC workshop (January 2007), 200 third year medical students completed a critical incident form (CIF), describing a time when they felt unable to achieve excellence, not because of the patient's disease, but because of other factors. At the conclusion of the workshop, the students reflected on strategies to achieve PCC and recorded on the CIF. Authors analyzed a random sample of 140 student CIFs using a constant comparative qualitative analysis methodology to identify common themes reported on CIFs pre/post workshop. **Results:** Themes associated with difficult patient encounters included patient's: (1) social circumstances, (2) emotional state, (3) barriers to care, and (4) non-compliance with care plan. Post workshop, students identified the importance of improved communication, negotiation, reframing emotional reactions and recognizing biases as strategies to improve PCC along with the use of the Kleinman questions and community resources as avenues for gathering information. More than 50% of students failed to identify any lessons learned through the reflective process. **Conclusion:** As educators, we must identify student perceived barriers to PCC and teach specific strategies to address these barriers if we are to successfully prepare students to provide PCC.

### Use of a Simulated Patient Curriculum to Teach Pre-clinical Pediatric Physical Diagnosis Skills

*Sajani Tipnis, MD, Medical College of Wisconsin*  
*Robert Treat, PhD, Medical College of Wisconsin*  
*Jennifer McKanry, MEd, Medical College of Wisconsin*  
*Julie Mitchell, MD, MS, Medical College of Wisconsin*  
*Paola Palma-Sisto, MD, Medical College of Wisconsin*

**Objective/Introduction** Time constraints in the clinical setting make teaching medical students how to complete an accurate patient history (Hx) and physical examination (PE) challenging. The use of standardized patients (SPs) as an alternative method of teaching Hx/PE skills was used with M-2 medical students rotating through the pediatric portion of a Clinical Exam and Reasoning (CER) course. **Methods** Twenty-two students that completed CER course requirements with pediatric preceptors in the spring of 2008 received didactic teaching for the pediatric specific physical exam during the first CER session. Students were randomly assigned to complete four history and physical examinations in a traditional clinical setting (n=16) or with preceptors in an SP setting (n=6). An OSCE was used to assess Hx/PE skills of all students at the end of the course. A student survey with five items on a five-point Likert-scale was administered to students to evaluate the course. **Results** Student OSCE exam score differences between traditional clinical ( $79.8 \pm 8.2$ ) and SP settings ( $85.3 \pm 8.4$ ) was not statistically significant ( $p=0.149$ ) as determined by a Mann-Whitney U-test. The reliable survey data ( $\alpha=0.95$ ) revealed that all students in the course had a satisfactory experience ( $>3.9$ ) with no differences between the groups. **Conclusion** No significant difference in performance of the students on the final OSCE was reported. All 22 students found the simulated experience valuable. As a result of this evidence, the medical school agreed to fund the CER curriculum using SPs for all students for the subsequent year to teach Hx/PE skills.

## Poster Abstracts

### Interpersonal Skills and the Effects of Student Scores in M-3 Objective Structured Clinical Examinations

*Robert W. Treat, PhD, Medical College of Wisconsin*  
*Deborah Simpson, PhD, Medical College of Wisconsin*  
*Dawn Bragg, PhD, Medical College of Wisconsin*  
*Amy Macali, Medical College of Wisconsin*  
*Sunny McQuiston, Medical College of Wisconsin*  
*M-3 OSCE Directors, Medical College of Wisconsin*

**Purpose** An end-of M-3 year required OSCE revealed that some students performed satisfactorily on the overall examination but poorly on the checklist item, “Based on your interaction with this medical student, would you consider having this student as your future health care provider (FHCP)?” An analysis of these students’ videotaped performances, review of the literature and debriefing of standardized patients (SPs) resulted in the identification of four unassessed interpersonal skill (IS) items: empathy, credibility, organization, and poise. This study examined the IS items’ psychometric properties and their relationship to FHCP and OSCE scores. **Methods** The four IS items were included in the 2008/09 M-3 clerkship-specific OSCE checklists. SPs, following training, assessed student performance using a 4-point Likert-scale (1=no, absolutely not to 4=yes, definitely) along with other station specific checklist items during required end-of-clerkship OSCEs. 195 M-3 students completed at least four clerkship OSCEs during the eight-month study period. Reliability and stepwise linear regression were performed using SPSS 15.0. Results Station reliabilities were  $\alpha > 0.70$ . Fourteen percent of IS station performances received negative ratings (2=no, probably not; 1=no, definitely not). IS checklist items were moderately correlated ( $\rho=0.4-0.7$ ) with overall student scores. Regression modeling revealed that the IS items significantly predicted student scores for OSCE stations. Amount of variability accounted for was case-dependent and ranged from  $R^2=0.15-0.67$ . **Conclusions & Educational Significance** Empathy, credibility, organization and poise helped explain the differences in checklist and FHCP scores and can predict student OSCE scores providing opportunities to shorten checklists.

### The Impact of Formal Coaching Sessions on the Quality of Resident-Led Journal Clubs

*Colin Turner, MD, University of Minnesota, VA Medical Center - Minneapolis*  
*Nacide Ercan-Fang, MD, VA Medical Center - Minneapolis*  
*Steven Fu, MD, VA Medical Center - Minneapolis*  
*Hanna Bloomfield, MD, VA Medical Center - Minneapolis*  
*Erin Raci, MD, University of Minnesota*  
*Yan Bakman, MD, University of Minnesota*  
*Brian Miller, MD, University of Minnesota*  
*Dylan Zylla, MD, University of Minnesota*

**Background:** Appraisal of the medical literature and public speaking are two critical but undertaught lifelong learning skills in medical education. Residency training programs have used resident-led journal clubs as a tool to increase proficiency in both areas. However, without proper coaching or preparation, our program found the quality of these teaching sessions to be widely variable and unpredictable. **Intervention:** We instituted an individualized series of educational coaching sessions for residents who were scheduled to give journal clubs during the academic year. Before giving their formal presentation, residents initially meet with preceptors in a series of coaching sessions. First, a statistical methods mentor answers questions about study design and helps the presenter to pick an “EBM teaching point” for the group. Second, a clinical content expert helps the resident gain appreciation for the background and context of the study. Third, a chief resident and the associate program director provide mentorship on presentation skills and how to moderate an academic discussion. Finally, we instituted a formal feedback and evaluation system to guide their future efforts. **Results:** Presenters report improved skills and confidence in critically appraising articles, applying them to clinical practice and leading a formal academic presentation. Audience members report improved quality of presentations, better consistency between presenters, and a higher educational value. **Conclusion:** Our formal preparation sessions for resident-led journal clubs have led to improved educational quality for both presenters as well as learners.

## Poster Abstracts

### Enhancing Critical Thinking through Reflective Small Groups

*Kathleen V. Watson, MD, University of Minnesota Medical School*

*Majka Woods, PhD, University of Minnesota Medical School*

Within the framework of the University of Minnesota Medical School's new competency-driven curriculum, all students will need to demonstrate development in critical thinking and reflective practice. A 2008/2009 pilot involving four faculty and 52 volunteer students in Years 1 through 4 provides a forum for testing these learning hypotheses:

- o Professional growth and development are enhanced when interactive small groups include students from all levels of medical school/competency attainment.
- o Dedicated small groups working in a reflective, cooperative environment influence students' abilities to define their emerging learning and professional needs. The pilot also provides a context for understanding:
- o Student commitment to a learning opportunity not associated with a grade.
- o Student and faculty perceptions of the challenges, strengths and weaknesses of small community environments.
- o The facilitation, management and administrative support requirements for a full-scale rollout in 2010.

Our poster will describe the activities designed to influence student perspectives, the strengths and challenges of the initiative and its potential impact on future small group design within the context of the competency-driven curriculum. The University of Minnesota Medical School is a grantee of the Relationship-Centered Care Initiative through the Indiana University School of Medicine; this pilot grew out of our participation in RCCI.

### MED 2010: Innovation and Improvement in Medical Education

*Majka B. Woods, PhD, University of Minnesota Medical School*

*Linda Perkowski, PhD, University of Minnesota Medical School*

*Leslie Anderson, University of Minnesota Medical School*

MED 2010: Innovation and Improvement in Medical Education Medical education has been struggling with the concept of curriculum reform since the early 1900's. Explicit pre-planning, documentation of both failure and success, and maintaining positive forward momentum is imperative if the newest round of changes, focused on competency development are to have a lasting impact on the continual evolution of medical education. Competency based medical education reform is not a quick fix to a long standing set of concerns in the field. Any reform effort is likely to fall short of the primary goals if there are unaddressed and unanticipated weaknesses in the framework. Understanding the cultural shift that will be required to move from a traditional curriculum to a competency based curriculum is imperative. Creating a system that encourages sustainable reform from a traditional to a competency based medical education model is not a clear path to follow. Using a variety of processes and tracking progress along the way will be critical to creating replicable and sustainable change. This poster will explore the MED 2010 model that is being developed at the University of Minnesota. The conceptual model, framework and discussion of the developmental process will be outlined.

## Poster Abstracts

### SPICE It Up! Using a qualitative approach to involve students in transforming medical education at the University of Minnesota.

*Julia Wynn, Masters of Arts, University of Minnesota*  
*Brad Clarke, Masters of Science, University of Minnesota*

Students' Perspective on Integration and Continuity of Education (SPICE) sessions are student discussion groups facilitated by medical education specialists at the University of Minnesota Medical School. Students are randomly selected to attend a minimum of one session during their undergraduate medical education. The purpose of these groups is to both interpret and communicate the students' perspective regarding their educational experiences including teaching and learning principles, curriculum integration, evaluation, and the assessment of their skills and knowledge. Data is coded and summarized into themes that are used in conjunction with other data to drive program change and improvement.

### Professionalism and Self Reflective Learning: On 9-month Rural Electives in Minnesota

*Therese Zink, MD, MPH, University of MN*  
*Kathleen D. Brooks, MD, MBA, MPA, University of Minnesota*

Purpose Self reflection is part of developing professionalism. Self reflection and sharing during a 9-month rural elective for 3rd year medical students placed in communities throughout rural Minnesota. Methods As the only student in a community, opportunities for sharing with other students and faculty are essential. Students receive six visits from faculty and are brought together in small regional groups four times during the elective. Six on-line modules foster discussion and posting "interesting stories" is encouraged. These are accessible only to faculty and students who respond. Faculty respond with the goal of support and mentoring. Students' stories with a universal theme are invited to "write up" their stories. This involves sharing drafts of the story and getting feedback from faculty which deepens the student's self reflection and learning. Results These products are shared publicly: • During RPAP orientation—a student reads his/her reflective piece and the author and faculty facilitate discussion. • Publication in the creative or reflective sections of medical journals and case reports. • Selections in an anthology: *The Country Doctor Revisited: A Reader of 21st Century Rural Health Care* (Kent State University Press, 2009) • Post on a university wide web site (development in process) Conclusions The BENEFITS FOR STUDENTS include: Deeper processing of important events, creates a track records of publications, opportunities to teach peers and model self-reflection, create a broader forum discussing important ethical and policy issues, and the fun and pride of seeing your name in print.

## Friday Abstracts

### What predicts full-time faculty appointment among contemporary US medical graduates?

*Dorothy A. Andriole, MD, Donna B. Jeffe, PhD, and Heather L. Hageman, PhD,  
Washington University School of Medicine*

*Kimberly S. Ephgrave, MD, Univ of Iowa Carver College of Medicine*

*Monica L Lypson, MD, Univ of Michigan School of Medicine*

*Brian E. Mavis, PhD, Michigan State Univ. College of Human Medicine*

*Nicole K Roberts, PhD, Southern Ill University School of Medicine*

*Leon McDougale, MD MPH, and David P. Way, Ed, Ohio State University College of Medicine*

**Purpose:** To identify factors associated with full-time faculty appointment. **Methods:** With CGEA-collaborative project grant support, we constructed a multi-institutional data base of individualized records for our schools' 1997 – 2002 graduates who completed the AAMC-Graduation Questionnaire (GQ) with identifiers, linked to their USMLE Step 1 scores, AAMC Faculty Roster System data and AMA Physician Master File records (data base de-identified for analysis). A multivariable logistic regression model tested the significance of associations between predictor variables of interest and full-time faculty appointment: adjusted odds ratios (ORs) and 95% confidence intervals (CIs) are reported. **Results:** Of 1413 graduates no longer in GME as of 2007, 190 (13%) held full-time faculty positions in academic medicine. Variables significantly associated with a greater likelihood of faculty appointment included higher Step 1 scores (OR: 1.01, CI: 1.0 -1.02), MD-PhD degree graduation (OR: 2.75, CI: 1.28-5.88) , female gender (OR: 1.43, CI: 1.01 - 2.02) and GQ career-setting preference of “full-time academic faculty” (OR: 3.52, CI: 2.31 - 5.36) . Variables associated with a lower likelihood of faculty appointment included GQ specialty choice of Family Medicine (OR: 0.34, CI: 0.16 - 0.71) and having any debt at graduation (OR: 0.64, CI: 0.42 - 0.97). **Conclusion:** Several factors were independently associated with appointment to full-time faculty positions. **Educational Significance:** Targeted strategies - such as activities to promote interest in academic medicine careers among medical students and loan repayment programs for indebted graduates – may have an impact on the composition of our academic medicine workforce.

### Clerkship Directors' Ratings of Students' Preparation for Clerkships in a New Curriculum

*Giulia Bonaminio, PhD, University of Kansas School of Medicine*

*Anthony Paolo, PhD, University of Kansas School of Medicine*

*Heidi Chumley, MD, University of Kansas School of Medicine*

**Purpose:** In 2005, the University of Kansas School of Medicine replaced discipline-specific courses with an integrated preclinical curriculum to better prepare students for the practice of medicine. Each year, clerkship directors rate students' preparation for their clerkships, providing one measure of curriculum effectiveness. The purpose of this study was to compare directors' ratings of students' preparation for clerkships between students completing the discipline-specific versus the integrated curriculum. **Methods:** In 2005 the Office of Medical Education created a 12-item 4-point Likert-scale survey, organized by ACGME competencies. At the end of the first rotation, directors were asked to rate the level of student preparation from 0 (much less prepared than expected) to 3 (better prepared than necessary). The survey was collected for three years of the discipline-based curriculum and one year of the integrated curriculum. **Results:** The response rate was 76% for the discipline-based and 62% for the integrated curriculum. For medical knowledge, directors rated students in the integrated curriculum as adequately prepared, which was significantly higher than the ratings of the discipline-based curriculum. ( $2.00 > 1.57, p < 0.05$ ). In the other competencies, directors reported that students were less adequately prepared, and there were no differences between discipline-specific or integrated curriculum. **Educational Significance:** The directors indicated that students trained in the integrated curriculum had a knowledge base that better prepared them for clinical courses. This is important because building this medical knowledge base is a major focus of the preclinical curriculum. Further analysis will include comparing students' performance on national and local assessments.

## Friday Abstracts

### Monitoring and Tracking Curricula for Curriculum Review, Horizontal and Vertical Integration, Benchmarking, and LCME Review

*Laura Dast, BA, University of Wisconsin School of Medicine and Public Health*

*Carol Roddy, MS, The Ohio State University*

*Carrie Thorn, MS, Michigan State University College of Human Medicine*

*Terri Cameron, MA, Association of American Medical Colleges*

The Liaison Committee on Medical Education (LCME) requires that medical schools be able to verify that: • Curriculum content is coordinated and integrated within and across the academic periods of study (horizontal and vertical integration). • Content and workload in each discipline are monitored, including the identification of omissions and unwanted redundancies. • Individual course and clerkship objectives are congruent with institutional educational objectives. Schools have many options for meeting these requirements, and this session will demonstrate the options three schools chose; the reasoning for the choice; the advantages and disadvantages; and how CurrMIT, AAMC's Curriculum Management and Information Tool, has been used to complement and enhance their existing curriculum tracking methods. This session will provide brief (5 minute) overviews of how three schools use their curriculum management systems to track and monitor their curricula, what CurrMIT adds to their curriculum monitoring process, and their future plans for curriculum oversight. Another five minutes will be spent demonstrating how CurrMIT can assist in tracking and monitoring curricula and in meeting LCME requirements. The remaining time (25 minutes) will be a guided discussion with attendees regarding the pros and cons of their curriculum management systems and how they use those systems to support administrator, faculty, and curriculum committee oversight of the educational program. Notes will be taken and distributed to attendees.

### Toward "High Stakes" Certification in Central Line Placement: Construct Validation of a Central Line Workshop Performance Metrics

*Yue Dong, MD, Mayo Clinic Multidisciplinary Simulation Center*

*Harpreet Suri, MD, Kianoush B. Kashani, MD, Wojciech Pawlina, MD,*

*Ognjen Gajic, MD, John J. Mullon, MD, Otis B. Rickman, MD, and William F. Dunn, MD, Mayo Clinic*

Introduction: Validated simulation-based "demonstrated performance" measures are needed to assess clinical skills in a risk-free environment. Central line (CL) placement is associated with patient risk, known to be inversely related to experience. The Mayo Clinic Multidisciplinary Simulation Center (MCMSC) designed and implemented a simulation-based Central Line Workshop (CLW) for training clinicians to institutional standards for the placement of central lines. The CLW was conducted within MCMSC and the Procedural Skills Laboratory of the Mayo Clinic Department of Anatomy. Videotaped learner performance afforded opportunity for assessment of demonstrated competency consistent with IHI, ACGME and institutional standards via performance metrics. We hypothesized that the checklist based performance assessment tool will distinguish between the less experienced and more experienced clinicians. Methods: Consent was obtained from CLW participants. After completion of the instructional portion of the CLW, the participants completed a "Competency Evaluation" station. Each learner's performance was graded using a 15 item checklist; a composite score; quantification of venipuncture attempts, and skin-entry needle sticks. Participants were grouped according to self-defined past 2 year experience in placing CLs: group 1: 0-1 CL; group 2: 2-49 CL; group 3, >50 CL. Results: Patient maximal barrier precautions, success independent subclavian venipuncture, total number of internal jugular venipuncture attempts, and composite score stratified groups 1-3. Conclusion: Demonstrated proficiency stratification via simulation methodologies is possible for clinicians placing central lines within a non-clinical, zero risk environment. This construct validation study confirms the utility of our assessment tool in the context of the Mayo Central Line Workshop training platform.

Students Applying Quality Improvement Principles to Curriculum Evaluation and Integration: A Discussion of Two School's Experiences

*Julie Foertsch, PhD, Univ. of Wisconsin School of Medicine & Public Health*  
*Christine S. Seibert, MD, Univ. of Wisconsin School of Medicine & Public Health*  
*Thomas R. Viggiano, MD, M.Ed., Mayo Medical School*

Since 1996, Mayo Medical School has been using a Continuous Quality Improvement process to evaluate and improve its preclinical curriculum. This process has been successful at improving the quality of student feedback and faculty responsiveness, demonstrably increasing the effectiveness of Mayo Medical School's pre-clinical curriculum. Mayo has a small class size of only 42 students. In Fall 2008, the University of Wisconsin School of Medicine & Public Health transformed its own preclinical course evaluation into a CQI process modeled after Mayo's, but with important modifications to accommodate UW's culture, class size (160+ students), a history of decentralized, faculty-controlled course evaluations, and faculty anxiety accompanying a major curricular change. In this session, representatives from both schools discuss the theory of CQI as applied to curriculum evaluation, the experience and differences of applying CQI principles in two schools with different class sizes, and the pros and cons of this evaluation approach. Key structural decisions to be discussed include how many students should be involved and the length of their tenure, how committees are chosen, who coordinates and manages the committees, the degree of input from the school's evaluation unit, the timeline for producing reports, and what is done with each committee's report.

Social Networking: What are the Ramifications for Medical Education?

*Larry Hurtubise, MA, The Ohio State University College of Medicine*  
*Elizabeth Ryan, EdD, Northwestern University Feinberg School of Medicine*  
*Janet Riddle, MD, University of Illinois-Chicago College of Medicine*

This session is presentation of a comparison of various social networking sites and a discussion of the ramifications for medical educators. At the 2008 CGEA meeting the Members of the Faculty Development SIG and the Technology in Medical Education (TIME) SIG discussed investigating a social networking site, Facebook, to enhance communications and collaboration among CGEA members who are at a distance. After some exploration of three different tools, Facebook, NING, and LinkIn, the Faculty Development SIG choose to use LinkedIn, while the TIME SIG choose NING. The groups also recognize that most of our students take advantage of Web 2.0 utilities like social networking sites( Skiba et. al. 2008). "Informal learning is a significant aspect of our learning experience. Formal education no longer comprises the majority of our learning. Learning now occurs in a variety of ways – through communities of practice, personal networks, and through completion of work-related tasks. Technology is altering (rewiring) our brains. The tools we use define and shape our thinking." (Seimens 2005) The adoption of these communication tools in medical education warrants further discussion and study.

## Friday Abstracts

### IPod Touch: Dealing with Disruptive Innovations TIME SIG Invited Presentation

*Larry Hurtubise, MA, The Ohio State University College of Medicine*  
*Catherine R. Lucey, MD, The Ohio State University College of Medicine*  
*Michelle Ostmoe, University of Wisconsin School of Medicine and Public Health*  
*Justin Harper, The Ohio State University College of Medicine*

Is the iPod touch and recorded lectures technological advances or disruptive innovations? Within the last 5 years, advances in computing first made it possible to access lecture materials on the internet at home, then via a wireless network and now anywhere there is a cellular signal. Advances in knowledge management and library science allow students to quickly find a recording of the lecture they need when they need it. These technological advances are already changing medical education and health care in a significant way. Some students have come to rely on this anytime, anywhere access lectures and a more flexible schedule to enhance their education with more clinical experiences. Students bring this familiarity with mobile devices and access to online resources to clinical rotations where their technological expertise heightens their stature on the health care team. "I have already altered the course of health care 3 times because I have an iPod touch," says Justin Harper third year medical student at The Ohio State University. Ongoing changes in health care require curriculum changes while advances in technology are changing age old educational paradigms. Discussion about these innovations and the educational environments they are disrupting are valuable for the present and may provide a model for thinking about educational change in the future.

### Assuring Professionalism in our Learning Environment

*Janet Lindemann, MD, Sanford School of Medicine of the University of South Dakota*  
*Karen Marcdante, MD, Medical College of Wisconsin*  
*Jennifer Quaintance, PhD, University of Missouri Kansas City School of Medicine*

Medical schools must ensure that the learning environment for medical students promotes the development of explicit and appropriate professional attributes (attitudes, behaviors, and identity) in their students." Thus reads Standard MS-31-A of the Liaison Committee on Medical Education (LCME). In fulfilling this newly articulated standard, medical schools need to not only define professional attributes and promote them among their students, faculty and staff, but perform regular assessments of the learning environment to identify positive and negative influences. How can institutions develop effective strategies to promote professionalism in their students' learning environment? Three institutions present instruments they have developed along with early data about their clinical learning environments. The first is an evaluation instrument focusing on literature-based professionalism parameters used for students to rate peers, residents and faculty and for faculty to perform a self-assessment. The second is a brief critical incident form on which students are able to report exemplary or inappropriate professional behavior. Finally, the third is a narrative paper on the topic of professionalism development in which students describe professional behaviors they have observed in themselves or others. Participants will be able to work with each form and discuss their utility in providing evidence needed to meet the new LCME standard.

## Friday Abstracts

### The Implication of the Institute of Medicine's Review of Resident Work Hours

*Monica L. Lypson, MD, University of Michigan*

*Nicholas Osborne, MD, University of Michigan*

*Andrew T. Filak, Jr., MD, University of Cincinnati College of Medicine*

*Ronald J. Markert, PhD, Wright State University Boonshoft School of Medicine*

In 2007 as part of an investigation into preventable medical errors Rep. John D. Dingell (D-Mich.) and colleagues on the House Committee on Energy and Commerce, asked the Institute of Medicine (IOM) to examine the impact of resident duty hours on patient safety. The IOM then formed a consensus committee to: 1) Synthesize the global evidence on resident duty hours and the impact on healthcare safety. 2) Develop strategies that would enhance work schedules and improve safety while ensuring both quality of care and educational objectives. The results of the committee's deliberations are due to be publicly distributed in February, 2009. Any changes in the current duty hour standards and/or any profound legal involvement in their regulation will have a significant impact on the learning environments for both medical student and graduate medical education. The purpose of this discussion group is to hear from our three speakers on how proposed changes may affect both residents and institutions. The panel will briefly review the IOM's report from their vantage point with 30 full minutes allotted to discussion. This discussion group is Sponsored by the GME-Section of the CGEA.

### Professionalism in Graduate Medical Education: misrepresentation of research publications by orthopaedic residency applicants

*Ronald J. Markert, PhD, Wright State University Boonshoft School of Medicine*

*Emmanuel K. Konstantakos, MD, Wright State Univ Boonshoft Sch of Medicine*

*Richard T. Laughlin, MD, Wright State Univ Boonshoft Sch of Medicine*

*Lynn A. Crosby, MD, Wright State Univ Boonshoft Sch of Medicine*

**Background:** In our previous study, published in 1999, we showed that 18% of research citations listed as 'published' by orthopedic residency applicants were misrepresented. Since our last report, we sought to determine if there was any change in the behavior of those applicants wishing to pursue the field of orthopaedics. **Methods:** We evaluated the research citations that were listed in the Publications section of the Common Application Form from the Electronic Residency Application Service for all applicants to our residency program for the 2005 and 2006 application periods. Citations were required to be from journals listed in Ulrich's International Periodicals Directory. When no match was found, the citation was labeled as misrepresented. Misrepresentation was defined as either: 1) authorship not found on an existing article or 2) claimed authorship of a nonexistent article. **Results:** One hundred and forty-two of 396 (35.9%) applicants during the 2005 and 2006 application periods listed publications. One hundred and thirty-one citations were referenced as appearing in journals per our search criteria, and all were verified. Twenty-seven of 131 or 20.6% (95% CI = 14.2% to 28.7%) citations were misrepresented. **Conclusions:** Misrepresentation of research publications from orthopedic surgery residency applicants has increased modestly from our original report (from 18% to 20.6%). As we recommended in our last report, we urge residency programs to require applicants to submit reprints of their publications. Also, standardized guidelines should be developed to help prevent misrepresentation through the Electronic Residency Application Service.

Monitoring Climate Change: Medical Student Experience of Medical School Expansion

*Brian Mavis, PhD, Michigan State University*  
*Aron Sousa, MD, Michigan State University*  
*Kathryn Lovell, PhD, Michigan State University*

**Purpose:** Our medical school is engaged in a five-year plan to double class size and open a second four-year campus. This study describes the development and implementation of a longitudinal assessment of institutional climate to monitor medical student perceptions during this expansion process. **Methods:** An institutional climate questionnaire was developed, pilot tested and implemented in 2005 to monitor student perceptions related to educational and social climate issues. Medical students in all four years were given the opportunity to complete this anonymous questionnaire. A factor analysis was used to develop scale scores for data reporting and analysis. Trends associated with respondent gender and minority-majority status were tested as well as trends associated with survey year, admissions cohort and training year. **Results:** The response rate ranged from 68% to 90% by admission cohort, or 71% to 78% by survey year. Six scales were derived from questionnaire items: satisfaction, person-centered, stress, attitudes towards medicine, intolerance, and breadth of educational experiences. The second year of medical school is characterized by lower satisfaction, lower breadth of experience and higher stress. Trends associated with respondent or cohort characteristics accounted for only small amounts of variance. **Significance:** This questionnaire provides a useful baseline assessment of climate issues for monitoring the impact of expansion on students. The results suggest that student perceptions have remained consistent by matriculation cohort and that little change is attributable to the process of medical school expansion. On-going monitoring and refinement of portions of the questionnaire are planned for the future as expansion continues.

Transforming Health Care Through Education in the Realm of the Four Horsemen  
of the Medical Education Apocalypse

*George Mejicano, MD, University of Wisconsin School of Medicine and Public Health*  
*Mark Albanese, PhD, University of Wisconsin School of Medicine and Public Health*  
*Larry Gruppen, PhD, University of Michigan Medical School*  
*Laura Dast, University of Wisconsin School of Medicine and Public Health*

Medical Education is facing a convergence of challenges that we characterize as the four horsemen of the medical education apocalypse: teaching patient shortages, teacher shortages, conflicting systems, and financial problems. Expanding class sizes and new medical schools are coming on-line as medical student access to teaching patients is becoming increasingly difficult owing to the decreasing length and increasing intensity of hospital stays, concerns about patient safety, teaching physician shortages and needs for increasing productivity from those who remain. Further, medical education is facing reductions in funding from all sources, just as it is mounting its first major expansion in 40 years. We contend that medical education is on the verge of crisis and that little outside assistance is forthcoming. If medical education is to avoid a catastrophic decline, it will need to take steps to re-invent itself and make optimum use of all available resources. Curriculum materials developed nationally, increased reliance on simulation and standardized patient experiences, and adoption of quality control methods such as competency-based education are suggested as ways to keep medical education vital in an environment that is increasingly preoccupied with fending off the four horsemen. We called for a national dialogue about how the medical education community can address the problems represented by the four horsemen, and offer some potential ways to maintain the vitality of medical education. This workshop is our first effort to stimulate action since publication of our article in the December 2008 issue of *Academic Medicine* in which this call was made.

## Friday Abstracts

### Approaches to Scoring Patient Notes in High Stakes Clinical Competency Examinations

*Linda J. Morrison, MSW, Southern Illinois University School of Medicine*

*George Bergus, MD, University of Iowa Carver College of Medicine*

*Erica Nelson, MD, Southern Illinois University School of Medicine*

*Dianne Wagner, MD, Michigan State University College of Human Medicine*

Rationale: The writing of patient notes as a post-encounter exercise for students in SP-based clinical competency examinations has been utilized for many years. This practice has seen an increase in recent years as schools prepare students for the USMLE, Step 2 Clinical Skills Examination. A sound, well-considered and defensible scoring process is essential, particularly in a high stakes examination where student promotion is at issue. Accuracy, reliability, and fairness are some of the key features faculty seek to instill in their scoring plans. Results of the process provide the basis for feedback to students as well as to the curriculum. This session will present the scoring procedures developed by three Midwestern medical schools. Objectives: Participants will • Learn three approaches to scoring student-generated patient notes • Understand the issues involved in scoring patient notes (such as focus, reliability, fairness, resource availability, desired feedback, etc) • Be provided materials they can adapt to the needs of their own schools or programs. Topic outline: • Presentation of three approaches, including o Global ratings vs. key word scoring o Single vs. multiple faculty raters o Non-physician raters o Standardization of raters o Consistency of ratings across cases o Provision of feedback to students and to the curriculum • Solicitation of additional models from participants • Discussion with participants of strengths/weaknesses of the approaches (and how to ameliorate the latter) • Discussion of questions, either those below or audience-generated.

### A Multi-Specialty Faculty Development Program on “Patient Handoffs”:

#### Early Progress & Next Steps

*Jeffrey A. Morzinski, PhD, Medical College of Wisconsin*

*Geoffrey Lamb, MD, Medical College of Wisconsin*

*Deborah Simpson, PhD, Medical College of Wisconsin*

*Karen Marcdante, MD, Medical College of Wisconsin*

*Linda Meurer, MD, Medical College of Wisconsin*

*Laura Currey, MS, Medical College of Wisconsin*

Primary care educators are uniquely positioned to improve access to quality health care through the training of tomorrow’s physician workforce. As the medical home for all types of patients, primary care physicians and their clinics must provide, direct and coordinate care. Primary care physicians must be particularly skilled at providing “handoffs”, care transitions for their patients to enhance quality and continuity of care. The costs of ineffective care transitions and associated medical errors and inefficiencies are staggering. However, national and local data reveals that primary care educators have had no training on this vital topic. Therefore, this faculty development program was designed and implemented to improve a significant quality health determinant for all patients by developing our primary care faculty as effective “master educators” in the area of care transitions. This Discussion Group focuses on the composition of a 2-year faculty development program for a multi-specialty cadre of 13 faculty members representing both inpatient and outpatient specialties at the Medical College of Wisconsin. In the first year the FD program trains faculty to develop care transitions curricula for medical students and multi-specialty residents. In the second year these educators engage community preceptors for their critical input on relevance, feasibility and utility of their curriculum plans. In addition to reviewing first-year program results, group discussion will yield rich commentary on the makeup of care transitions curricula and the anticipated benefits and challenges associated with preceptor preview of these curricula prior to their adoption and implementation.

## Friday Abstracts

### Building Bridges that Work: Creating and Refining Student and Resident Transitions Courses

*Paola Palma-Sisto, MD, Medical College of Wisconsin*  
*Michael R. Lund, MD, Medical College of Wisconsin*  
*Philip N. Redlich, MD, PhD, Medical College of Wisconsin*

The journey from the first day of medical school to the end of specialty training includes a combination of gradual learning and sharp transitions. For example, expectations change when students transition from preclinical work to clerkship rotations. Our discussion will focus on the process to create courses to address those transitions, particularly the transition from preclinical to clinical years, as well as the student to resident transition. At our institution, we have used a continuous quality improvement model to implement and update our transition courses. The course for rising M3 students required significant review, as evidenced by the perception of inadequate preparedness by the clerkship directors. Following a needs assessment that involved all stakeholders, including students, clerkship directors, involved faculty, and administration, a comprehensive 3 day transition course was implemented. Since June 2005, the course has been modified, redesigned, and updated using student subjective surveys. Similar strategies for design have been used for Surgery and Pediatrics residency transition courses. Key components of successful transition courses include orientation, addressing anxieties, evaluation, day-to-day issues, clinical skills, and survival in a new environment. At the conclusion of the discussion, participants will be able to:

- Identify key points of transition during medical education
- Describe the process of design, implementation, evaluation and redesign of transition courses
- Identify strategies to develop or improve transition courses in their respective institutions

The design, implementation, evaluation and redesign of transition can lead to a well received educational opportunity with potential for improvement in performance outcome measures.

### Academic Development: Assisting Students Experiencing Academic Crises & Examining Issues in Accommodations.

*Gina Paul, PhD, Southern Illinois University SOM*  
*Susan Kies, EdD, University of Illinois College of Medicine*

**Description and Rationale:** There are a number of issues that cause medical students to struggle academically in medical school. Published results of our Academic Development SIG study of medical schools located in the central region regarding common academic problems and strategies to help students overcome these problem areas will be presented. In addition, we will present our preliminary results examining the types of accommodations provided by Midwestern medical schools as requested by our ADSIG members attending the Columbus meeting in 2008. Our current study is examining such issues of how ADA committees function within CGEA's Colleges/Schools of Medicine, the procedures these schools follow to identify students, how schools define students' needs for accommodations, and identify the common types of disabilities observed and accommodated provided to those in need. The small group discussion will provide a brief overview of the two Academic Development SIG studies, and present some of the approaches utilized at two Midwestern medical schools in helping medical students experiencing academic problems. The floor will be opened to participants to discuss their assistance programs, concerns, problems, and solutions; the sharing of information will be a valuable component to this session.

Using Minnesota D5 Data for Residents: Teaching Practice Based Learning  
and Improvement in Real Time

*Anne Pereira, MD, MPH, Hennepin County Medical Center*

*David Hilden, MD, Hennepin County Medical Center*

*Peter Weissmann, MD, Hennepin County Medical Center*

**Purpose:** To teach internal medicine residents practice based learning and improvement and systems based practice with real data about their primary care patients. **Intervention:** Utilizing our electronic health record, we identify each resident's panel of diabetic patients. Since July, 2008, we have been able to provide them a spreadsheet of diabetic patients for whom s/he is identified as the primary provider. Information is derived from the Minnesota D5 initiative (state based initiative to measure and improve care of diabetics) and includes the following: Patient currently smokes (yes or no) LDL-cholesterol < 100 Glycosylated hemoglobin < 7.0 Aspirin use (yes or no) Blood pressure < 130/80 Information is presented for each patient, in aggregate for the individual resident's panel of diabetics, and in aggregate of all clinic providers. This is done in the context of a weekly ambulatory care curriculum in which faculty preceptors review evidenced based guidelines in diabetes care and use real cases to illustrate optimal patient management. In addition, each time a patient with diabetes mellitus attend the residents' continuity clinic, residents receive a summary sheet of the patients' D5 score. **Results:** To date, residents have received the provision of these data with enthusiasm. Preceptors report enhanced conversations with residents about challenges in guideline interpretation and application. Residents report using these data when counseling their individual patients. **Next Steps:** A working group of residents and faculty will recommend systems changes for the group practice and then re-measure faculty and resident D5 scores six months after the intervention.

Immersion: A New Model for Resident Continuity Practice

*Anne Pereira, MD, MPH, Hennepin County Medical Center*

*Peter Weissmann, MD, Hennepin County Medical Center*

**Background:** Residents in categorical internal medicine programs are stressed by the simultaneous responsibilities of inpatient management and continuity clinic sessions. Current models of resident continuity clinic require this, while internal medicine community practice has shifted away from requiring these simultaneous responsibilities. **Purpose:** To develop an innovative internal medicine training model in which residents are immersed in ambulatory practice separated from their inpatient training responsibilities. **Model:** As part of our ACGME Educational Innovations Project (EIP), since July 2006, our residents have two continuity clinic practice sessions per week on non-ward rotations and no continuity clinic during their ward rotations (alternating months). They are paired within small group practice and training year with another resident with an opposing schedule, who is available for acute care issues in the resident's primary care panel when their primary care physician is on an inpatient rotation. **Results:** Based on survey data and in-depth interviews, residents prefer the current model of practice and describe an increase in satisfaction in providing primary care. Similarly, clinic faculty preceptors describe enhanced satisfaction. Patients do not perceive decreased access to their primary care physician, and visit data show a 70% concordance in clinic visits. **Next Steps:** We plan to continue in our current model, which two additional training programs plan to adopt. New ACGME RC-IM program requirements will allow non EIP programs to innovate in this way.

## Friday Abstracts

### Minnesota's Future Doctors: A Regional Model for Engaging Underrepresented Pre Meds

*Jo Peterson, PhD, University of Minnesota Medical School*

*W. Robert Fleischmann, PhD, University of Minnesota Medical School*

*Ruth Baires-Raihle, MA, Mayo Medical School*

On February 14, 2009 a team of 70 community leaders, medical students, and physicians representing the University of Minnesota and Mayo Medical School will serve as members of the selection committee for Minnesota's Future Doctors. They'll select 20 college freshmen to participate in a three paid summer, pre-medical pipeline program. The committee will also select an additional 30 students to participate in an academic year program which occurs between students' sophomore and senior years of college. Minnesota's Future Doctors, developed by the University of Minnesota and Mayo Medical School, provides world-class opportunities for under resourced, underrepresented students to achieve success in medical settings. These young Minnesotans are actively recruited from community colleges, state universities, private colleges, and University of Minnesota campuses. The focus of this discussion is to outline the three year program and its competencies. Attendees will discuss the first year of the program, which includes academic enrichment courses flavored with MCAT questions, case studies reflecting the real lives of physicians and patients, tours of hospitals and research institutions, clinical observerships, and volunteering in underserved communities. The attendees will analyze the second year of the program which includes students residence in Rochester with proximity to Mayo Clinic, enhancement of their electronic portfolios, shadow physicians, volunteer, and prepare for the MCAT. During summer three, students will draft their AMCAS, participate in mock med school interviews, and prepare for the MCAT. Participants will use their own experiences to aid the presenters in developing the third and final summer of the program.

### Streamlining Faculty Efforts in Creating Online Instruction

*Geraud Plantegenest, MA, Michigan State University*

*Deborah Sleight, PhD, Michigan State University*

*Kathryn Lovell, PhD, Michigan State University*

Medical education is often distributed geographically, but it is difficult to achieve standardized instruction for students and residents at each training site. One solution is to provide some of the instruction online, which also gives students and residents flexibility in using the materials. Although faculty create this online instruction, many of them do not have enough time or technology skills to do this efficiently. Strategies to streamline their design and development efforts are needed. The MSU College of Human Medicine (CHM) has developed a checklist for this purpose. Participants in this discussion will: understand the advantages and disadvantages of online instruction, the types of online design useful in a distributed environment, the challenges other faculty have faced and the solutions found, types of help faculty need and different models of providing assistance, and how one institution is working to streamline faculty efforts. The 15-minute presentation provides a description of faculty experience designing online materials to accompany traditional courses, CHM's model to streamline faculty efforts, and a description of what can be done online to enhance traditional courses. Participants will receive a handout of the presentation slides, which will include screenshots of online instruction examples, and a copy of the CHM Checklist. The three speakers have extensive experience in the design of online instruction from different perspectives: teaching faculty with experience designing and teaching a blended course; design and implementation of educational technologies and use of the checklist with faculty; and instructional design and evaluation of curriculum materials.

## Friday Abstracts

### New pressures on professionalism: social networking and its impact on medical students and education

*Melissa Rethlefsen, MLS, Mayo Clinic*

*Stephanie Kerns, MLS, Galter Health Sciences Library, Northwestern University*

*Roberta Rusch, MPH, UW - Madison School of Medicine and Public Health*

With the rise of social networking sites such as Facebook, the lines are blurring between friends and colleagues, creating opportunities for new learning experiences as well as unprofessional behavior. While some medical educators are new to these sites, others have already found creative ways to engage students, while others have discovered and dealt with issues of ethics and professionalism. This discussion group will begin with a brief presentation on social networking sites—some for doctors and students only, some open to the public—followed by an interactive panel discussion with students and medical educators. Participants will:

- Understand how Facebook and other social networking sites work
- Learn the importance of Facebook and social media to medical students and residents
- Explore how Facebook and other social media use impacts professionalism
- Discuss ways to incorporate Facebook and social media use into professionalism curricula
- Discuss the impact of the “digital footprint” on career issues, such as residency applications and the informed patient.

### MedEdPORTAL: Advancing Learning and Scholarship for Teaching

*Robby Reynolds, MPA, Association of American Medical Colleges*

*Michael Saleh, Association of American Medical Colleges*

*Cindi Chou, Association of American Medical Colleges*

*Eric Wilkerson, Association of American Medical Colleges*

Faculty invest significant time and effort into creating teaching and assessment tools. The Association of American Medical Colleges (AAMC) developed MedEdPORTAL (MEP) to serve as a free, yet prestigious publishing venue and dissemination portal through which medical and dental educators can share their educational works. MEP is an international service that was designed to promote collaboration and educational scholarship across institutions by facilitating the exchange of high quality peer-reviewed educational materials and solutions. MEP’s collection contains over 1,000 successfully peer-reviewed published teaching and assessment resources. MEP resources are being utilized in over 1,700 medical and dental schools, teaching hospitals and other health education institutions in over 57 different countries around the globe, including all 32 CGEA member institutions. Workshop participants will learn how to advance their personal learning and receive scholarly recognition for their educational products through MedEdPORTAL.

**HOST: A Health Record Online Submission Tool**

*Steven Roskos, MD, Michigan State University*

*Robin Demuth, MD, Michigan State University*

*Dianne Wagner, MD, Michigan State University*

**Purpose:** Second year students at Michigan State University College of Human Medicine learn to write health records as part of the Clinical Skills curriculum. We created a mechanism for students to practice writing health records and receive feedback online. Our goals were: 1. Prepare students for the use of electronic health records (EHRs). 2. Standardize the grading of health record assignments. 3. Reduce administrative staff time required to manage health record assignments and their grading. 4. Allow graduate assistants (GAs, usually third or fourth year medical students) to grade submissions from any of seven clinical campuses. **Methods:** We created HOST, which is now in its second year of use. HOST allows students to submit all "history and physical" as well as "progress note" assignments in an electronic paperless system. The tool includes some features of EHRs, such as text box entries and a master problem list, but not others, such as drop down menus and prompts. Once a health record assignment is completed and submitted, a GA, who is notified by e-mail, grades the submission and provides feedback to the student through HOST. **Results:** Administrative support staff time is greatly reduced. The course directors are easily notified of late submissions and can review student's health records as well as GA's grading and comments. HOST will be formally evaluated by students in December, 2008 and results will be ready for presentation in March, 2009. **Educational Significance:** HOST is an efficient, effective tool for teaching preclinical students to write health records.

**Why do medical students remember particular lecture concepts? Influences of presentation, time spent, and the learning environment**

*Mohammed Shaikh (medical student) B. A., University of Iowa Carver College of Medicine*

*Susan Skaff Hagen, MD, University of Iowa Hospitals and Clinics*

*Marcy Rosenbaum, PhD, University of Iowa Carver College of Medicine*

*Kim Ephgrave, MD, University of Iowa Carver College of Medicine*

**Background/Purpose:** Transmission of information is critical in medical education, but little is known regarding what students recall following formal teaching sessions. We are seeking to determine why students recall lecture concepts, relative to the lecture structure. **Methods:** Participating faculty (n=12) identified 3-6 key concepts they hoped students would retain from their lectures, which were delivered every 6 weeks to groups of 10-20 students during their required surgery clerkship. Students provided 1-6 concepts they recalled following the teaching session, and completed a 12 item Likert rating. Seven teaching sessions were videotaped, allowing analysis for specific teaching behaviors. The codebook was developed by a medical student, a physician, and a medical educator with experience in qualitative analysis, which was performed using QSR's NVivo software. **Results:** A mean of over 100 evaluations were collected per lecture (1204/12), yielding 3860 concepts students reported learning. Student-derived lecture themes included most of those faculty intended, but 1-9 additional themes emerged for the 7 videotaped lectures. Time spent on the 'faculty-intended' themes students recalled ranged from 13 seconds to 29.3 minutes, averaging 7.6 minutes. For the 'faculty-intended' themes that did not emerge from student themes, faculty spent from zero to 2.5 minutes, averaging 45 seconds. Time spend on student-generated themes not 'faculty-intended' ranged from a minimum of 8 seconds to 14.5 minutes, averaging 3.3 minutes. **Significance:** Videotaping may help faculty understand how they are emphasizing concepts. Further analysis will help determine why students remember certain themes, even when lecturers spend less than one minute on the concept.

Resident and medical student 'buy-in' for interprofessional medication reconciliation  
in the inpatient arena.

*Sonal Sidhwani, MD, University of Minnesota School of Medicine  
Linda Kraemer, RN, MSN, Minneapolis VA Hospital*

**Purpose:** Medication reconciliation is an important step in avoiding costly inpatient adverse drug events (ADE's). We describe an innovative approach to interprofessional medication reconciliation that has resulted in decreased ADE's. **Methods:** After obtaining hospital leadership buy-in, we secured front line provider (residents and students) buy-in. Initially at a 'power luncheon', we presented front line providers with data about medication error rates and need for reconciliation. A pharmacist assigned to each team was present at the luncheon. This pharmacist interviewed the patients upon admission and called local pharmacies/other providers as necessary to obtain an accurate drug list upon admission (DLOA). The DLOA was then sent to the front line providers electronically, who then placed a provider addendum in the electronic medical record (EHR) that they had reviewed the DLOA and listed any discrepancies/changes. **Results:** During our study period, 90% and 57% of patients were interviewed by the team pharmacist and had a provider addendum in EHR, respectively. The number of ADE's decreased by 50% during the project. At the time of discharge a higher proportion of discrepant medication orders were noted when a DLOA had not been performed. Both provider and pharmacist participants felt the DLOA process was 'somewhat' or 'very helpful'. Anecdotal references were made by providers reporting that compared to other teaching facilities in the community, our process was 'best' and 'most helpful'. **Conclusions:** Successful medication reconciliation efforts are possible with education of and 'buy-in' from residents and students and with a team pharmacist.

Preliminary Results Of A Multi-Center Study Of Burnout And Empathy In Medical Students

*Edward Simanton, PhD, Sanford School of Medicine, USD  
Karyn Baum, MD, MEd, University of Minnesota-Twin Cities School of Medicine  
Cathy Chavez University of Iowa Roy J. and Lucille A. Carver College of Medicine  
Virginia Cleppe, A.M., Medical College of Wisconsin  
Gary L. Beck, M.A., University of Nebraska Medical Center*

**Purpose:** Understanding through verbal and non-verbal cues is the crux of empathy, which physicians need in order to fully care for their patients. Other studies indicate empathy levels drop after students begin clinical rotations. One possible reason for this drop may be student burnout, which is known to be a significant problem. The relationship between medical student burnout and declining empathy is something that has not been approached. **Hypothesis:** To determine if there is a relationship between levels of empathy and burnout in medical students. **Participants:** 898 medical students from the Medical College of Wisconsin, University of Iowa, University of Minnesota, University of Nebraska, and University of South Dakota. **Methods:** Every medical student was invited to participate in this IRB approved study. Students completed a 30-item questionnaire using a Likert scale (1=Strongly Disagree to 7=Strongly Agree). The empathy scale was based on a modified version of the Jefferson Scale of Physician Empathy. Additional questions pertaining to burnout were included. Empathy and burnout items were summed for this preliminary analysis. **Results:** Aggregate empathy responses indicated a slight increase over the course of four years, except for the second year students surveyed. Burnout appeared to be a significant problem for M2s. M1s and M4s reported the least amount of burnout. Analysis of the survey results by gender indicated female students reported much less burnout and more empathetic responses than male students. **Conclusions:** These results are indicative of previous studies. Further analyses will be conducted to determine a relationship between empathy and burnout.

## Friday Abstracts

### SIG Session: Engaging Faculty in Hybrid Simulations

*Kris Slawinski, MA, PSOM University of Chicago*  
*Diane Wagner, MD, University of Michigan*  
*Monica Lypson, MD, University of Michigan*  
*Heather Hageman, MD, Washington University*  
*Anne Gunderson, Ed.D, GNP, University of Illinois at Chicago*  
*Pamela Andreatta, EdD, MFA, MA, University of Michigan*

The topic of this SPs & Simulation SIG session is how to engage faculty in sims projects, especially hybrid simulation projects that use SPs with other sims. The goal of this project is to provide an "end user" with a template that walks faculty through all of the things they need to do to plan a [hybrid] sim project. Attendees will know: how to inform/educate faculty of the possibilities of hybrid cases for instruction and assessment; what information to solicit from faculty in order to provide them with a successful project; how to engage them in development and planning of new projects.

### An Experience in Surgical Anatomy to Foster Mentoring between Practicing Surgeons and MS1 Students: A Pilot Study

*Hugh A. Stoddard, M.Ed., PhD, University of Nebraska College of Medicine*  
*Chandranth Are, MD, University of Nebraska College of Medicine*  
*Gordon Todd, PhD, University of Nebraska College of Medicine*  
*Lindsay C. Northam, B.A., University of Nebraska College of Medicine*

**Objective:** The number of medical students who pursue a career in General Surgery has decreased recently. This has been attributed to minimal interaction between surgeons and first year medical students (MS1). The current study described and collected feedback regarding a novel educational experience for teaching a surgical procedure to MS1 students in a gross anatomy course. **Method:** During the anatomy course, one hour was designated for a "clinical correlation demonstration". A faculty surgeon visited the gross anatomy lab to give a demonstration of the Whipple procedure, a treatment for pancreatic cancer. Using a student cadaver, the surgeon performed the procedure while a live video of demonstration was broadcast onto large screens located at each dissection table. To evaluate the experience, we administered, with IRB approval, a brief survey to garner reactions from students. **Results:** From 206 students 145 survey forms were returned. The students overwhelmingly found the surgical demonstration to be useful. For each of the survey items, less than 1% of the respondents disagreed and only 3% or less selected the 'neutral' option. An ANOVA comparison confirmed that the responses to 6 items were statistically similar to each other; somewhat fewer students had an opinion about the quality of the technology. **Significance:** The study results confirmed that this educational scheme was very popular with students. The students noted that the demonstration enhanced their knowledge of anatomy and their understanding of the clinical relevance of the structures. The results have led us to include surgical demonstrations in the MS1 gross anatomy course on a regular basis. This type of surgeon student interaction may also encourage mentoring relationships that will enhance interest in a surgical career.

## Friday Abstracts

### Don't Kill Granny: Tools for Achieving Minimum Competencies for Medical Students in Geriatrics

*Edward V. Vandenberg, MD, University of Nebraska*  
*Deb Simpson, PhD, Medical College of Wisconsin*  
*Paula Podrazik, MD, University of Chicago*  
*Mary McDonald, MD, University of Kansas*

The health care challenges outlined in the Institution of Medicine report on “Retooling for an Aging America: Building the Health Care Workforce” advocate that the level of competence in providing care for the older adult be enhanced through the entire workforce focusing on educational curricula and training programs – making medical students a prime target. In July 2007, the AAMC/Hartford Consensus Conference on Developing Competencies in Geriatrics Education in St. Louis, MO, led to the development of 26 competencies in 8 content domains - the “must know” minimum competencies in geriatrics for new interns, to ensure that every graduating medical student is adequately prepared to meet the level of competence needed to provide care to the older patient. Online repositories, such as AAMC's MedEdPORTAL and Portal of Geriatrics Online Education (POGOe), provide educational materials that can aid educators in preparing their students in achieving these geriatrics competencies. During this session, we will present the AAMC/Hartford minimum geriatric competencies, show materials available on POGOe, and invite participants to share new methods for instructing and assessing medical students to achieve the minimum geriatric competencies, and, more importantly, to assist those who need to train students in geriatrics but have few resources.

### Developing a residency scholarship curriculum

*Colin P. West, MD, PhD, Mayo Clinic*  
*Furman S. McDonald, MD, MPH, Mayo Clinic*

Education in scholarship and experience with research are essential components of training resident physicians to translate their learning into outcomes benefiting patients, colleagues, and the health care system. We have developed a robust and successful scholarship curriculum at Mayo Clinic, and wish to share the curriculum and its results with our peers. We also wish to engage our peers in a discussion of alternative approaches to scholarship education.

### Developing the Leader in You

*Jo Ann Wood, MD, MEd, University of Minnesota*  
*Anne Greb, MS, Wayne State University School of Medicine*  
*Janet Riddle, MD, University of Illinois College of Medicine at Chicago*  
*Karen Marcdante, MD, Medical College of Wisconsin*

Having unexpected conversations, sitting through yet another meeting where a colleague has failed to meet a deadline or figuring out how to get all your work done while maintaining your sanity seem to be part of every day for most of us. In fact, each of these situations provides the opportunity to demonstrate leadership skills. In fact, these crucial skills in communication, delegation and time management can be developed through everyday use, enhancing your leadership potential. This interactive workshop will allow you, working in a small group, to develop a response to each of these three common situations, identify strategies currently used by your colleagues. One of the workshop leaders will then review the literature on the topic and lead a brief discussion of various strategies used by successful leaders. At the end of the session, each participant will select one of the strategies that would improve their own performance and develop a learning plan for deliberate practice upon return home.

Using Critical Incidents to Identify Difficult Patient Care Encounters:  
Implications for Teaching Patient Centered Care

*Staci Young, PhD, Medical College of Wisconsin*  
*Tomer Begaz, MD, Medical College of Wisconsin*  
*Sajani Tipnis, MD, Medical College of Wisconsin*

Patient Centered Care is a core competency for all physicians as a strategy to address health care disparities, enhance patient physician communication and professionalism. However, there is limited information about what students perceive to be key features associated with difficult patient centered care encounters. Drawing on the findings obtained through a qualitative analysis of critical incidents authored by M3 students during a ½ day workshop on patient centered care, this session will outline recurrent themes which limit students' ability to achieve excellence in care. The results of the qualitative analysis will begin with a review of student perceived barriers to patient centered care, then shift to engage the audience in identifying teaching strategies to overcome these perceived barriers to patient centered care.

The Rural Physician Associate Program: The Value of Immersion Learning for Third Year  
Medical Students

*Therese Zink, MD, MPH, University of Minnesota*  
*Kathleen D. Brooks, MD, MBA, MPA, University of Minnesota*  
*Gwen W. Halaas, MD, MBA, University of Minnesota*  
*Deb Finstad, BS, University of Minnesota*

**Objectives** The Rural Physician Associate Program (RPAP) has provided a longitudinal, continuity immersion learning experience for third year medical students for 37 years. Today immersion learning has emerged as a strategy that addresses both educational and societal needs. RPAP was founded in 1971 to increase the number of rural primary care physicians in Minnesota. Students are assigned to a primary care preceptor(s) in a rural community ranging in size from 1,000 to 30,000 for 36-weeks. This paper describes students' perceived value of this immersion learning experience. **Methods** Data from three classes (2004, 2005, 2006) of students (n=95) were analyzed, including final essays that reflect on their experiences and logs of their patient encounters and procedures. Themes from students' essays related to the hands-on learning experience and pertinent quotations are presented. Frequencies of ambulatory encounters and procedures were calculated and compared with metro-area colleagues where possible. **Results** The continuity experience allows for one-to-one mentoring and long term relationships. Students see physicians, clinic/hospital staff, and patients as their teachers. The environment is nurturing, but nudges them outside their comfort zone. Students gain increasing competence with their skills and do best if they are independent and seek out learning opportunities. They report more hands-on experience, more confidence and autonomy than their peers in the metro-area. **Educational significance** The RPAP experience provides a nurturing, longitudinal, immersion learning experience that facilitates the gradual but steady development of clinical skills alongside a personal and professional mentor.

## Saturday Abstracts

### Looking beyond medical school graduation: what predicts achievement of American Board of Medical Specialties (ABMS) member-board certification?

*Dorothy A. Andriole, MD, Washington University School of Medicine*  
*Donna B. Jeffe and Heather L. Hageman, PhD, MBA, Washington University School of Medicine*  
*Kimberly S. Ephgrave, MD, Univ of Iowa Carver College of Medicine*  
*Monica L Lypson, MD, Univ of Michigan School of Medicine*  
*Brian E. Mavis, PhD, Michigan State Univ. College of Human Medicine*  
*Nicole K Roberts, PhD, Southern Ill University School of Medicine*  
*Leon McDougale, MD MPH, and David P. Way, Ohio State University College of Medicine*

**Purpose:** To identify factors associated with ABMS-member board certification (BC). **Methods:** With CGEA-collaborative grant support, we constructed a multi-institutional database (de-identified for analysis) of individualized records for our schools' 1997 – 2002 graduates including AAMC- Graduation Questionnaire (GQ) responses, USMLE Step 1 and 2CK scores and BC as of December, 2007. A multivariable logistic regression model tested the significance of associations between predictor variables and BC. Adjusted odds ratios (ORs) and 95% confidence intervals (CIs) are reported for independent predictors ( $P < .05$ ). **Results:** Of 2,013 graduates no longer in graduate medical education (GME) in 2007, 1,578 (78%) were BC. Higher Step 2CK scores (OR: 1.021, CI: 1.01-1.03) and Pediatrics (OR: 2.69, CI: 1.45-5.01) or Family Medicine (OR: 3.91, CI: 2.25-6.80) specialty choice predicted a greater likelihood of BC. More recent GQ completion-year (OR: 0.50; CI: 0.45-0.55) and General Surgery (OR: 0.33, CI: 0.17-0.65), Surgical Specialty (OR: 0.09, CI: 0.05-0.14), Obstetrics/Gynecology (OR: 0.14, CI: 0.80-0.23), Neurology (OR: 0.20; CI: 0.09-0.44) or Psychiatry (OR: 0.41, CI: 0.20-0.85) specialty choice predicted a lower likelihood of BC. Step 1 score, gender, race/ethnicity and debt at graduation were not independent predictors of BC. Variables in the model accounted for 39% of the variance in BC. **Conclusion:** BC varied on the basis of specialty choice (which impacts timing of BC) and Step 2CK score. **Educational Significance:** Our results indicate that Step 2CK scores are better predictors of BC than Step 1 scores, which many program directors preferentially use in selecting their residents.

### Design of a Standardized Patient Exercise to Teach and Assess Core Competencies during Gastroenterology Fellowship Training

*Curtis Barry, MD, University of Cincinnati*  
*Uri Avissar, MD, Boston Medical Center*  
*Maureen Asebrook, University of Cincinnati*  
*Michael Sostok, MD, University of Cincinnati*  
*Stephen Zucker, MD, University of Cincinnati*

Fellowship programs are required to measure trainee progress in six core competencies; however, few assessment tools are currently available. We implemented a novel standardized patient exercise that teaches and tests all core competencies relevant to gastroenterology sub-specialty training. **Methods:** Fellows were afforded 1 hour to assess a standardized patient (SP) who was trained to portray someone referred for evaluation of abnormal liver tests. Performance was scored using assessment tools designed to examine each core competency. Medical Knowledge was graded by reviewing the trainees' consultation notes for predefined key elements. Patient care, Professionalism, and Interpersonal and Communication Skills were independently assessed by the SP and by supervising faculty using quantitative checklists. Systems-based Practice was evaluated through a coding audit of the consultation note. Practice-based Learning and Improvement was addressed via self-assessment of the videotaped encounter. Additional feedback was provided during a follow-up discussion. **Results:** Six fellows completed the exercise. Trainees in their second year scored significantly higher in Medical Knowledge ( $55.0 \pm 4.2$ ;  $\pm$  SD) versus those in their first year ( $46.2 \pm 2.3$ ;  $p = 0.05$ ). Second-year fellows also received higher Patient Care scores from supervising faculty ( $19.5 \pm 0.7$  vs.  $15.5 \pm 2.1$ ;  $p = 0.03$ ). There were no significant differences in SP evaluation scores or calculated reimbursement by level of training. Fellows viewed the exercise favorably, and most felt they would alter their practice based on the experience. **Conclusions:** A standardized patient exercise is an efficient and effective method for teaching and assessing core clinical competencies during fellowship.

## Saturday Abstracts

### Multiple Choice Exam Review As Predictor Of NBME Performance

*Gary L. Beck, M.A., University of Nebraska Medical Center Dept. of Pediatrics  
Sharon R. Stoolman, MD, University of Nebraska Medical Center Dept. of Pediatrics*

**Purpose:** Most examinations are designed to assess knowledge in specified content areas. The University of Nebraska Pediatrics clerkship uses the National Board of Medical Examiners (NBME) subject exam for a final objective measure of knowledge. Since this is developed by the NBME, specific content is unknown at the time of administration. **Hypothesis:** Administering a multiple-choice examination similar to the NBME is a good predictor of test performance. **Participants:** A convenience sample of 226 junior students from 2006 to 2008. **Methods:** At week four of the clerkship, students take a 100-question multiple choice exam that is not factored into their final grade. It is a review for the NBME examination, which counts for 30% of the overall score. This practice examination covers all aspects of pediatric medicine. It is intended to ascertain knowledge acquired from completing the Computer-assisted Learning in Pediatrics Program (CLIPP) clinical case vignettes. At the end of the course, students take the NBME Subject Exam. Using CLIPP as the predictor and NBME as criterion variable, correlations along with regression analyses were conducted in aggregate as well as by rotation. **Results:** A two-tailed Pearson correlation demonstrated an overall 0.01 level of significance. In reviewing the correlations by clerkship, the first half of the year demonstrated statistically significant relationships between CLIPP results with NBME performance. However, the second half of the year did not. **Conclusions:** Use of a practice examination may help predict NBME performance. Students beginning clinical clerkships may benefit from test-taking drills based on these findings.

### A Multi-Specialty Clerkship Collaborative To Teach Geriatrics – Injury & Falls

*Diane Brown, MS, Medical College of Wisconsin  
Douglas Bower, MD, Medical College of Wisconsin  
Gunnar Larson, MD, Medical College of Wisconsin  
Travis Webb, MD, Medical College of Wisconsin  
The MCW TGIF Clerkship Collaborative*

This session will briefly overview the development and structure of the TGIF Collaborative and provide examples of how injury related geriatrics has been integrated into multiple clerkships through the use of online modules, small group discussion with interactive role plays and team-based learning. The presenters will report students' evaluation of sessions and the results from the 2008 inclusion of geriatric competency items on the 2008 AAMC's Graduation Questionnaire. **SESSION OBJECTIVES:** At the conclusion of this session, participants will be able to: 1. Outline the features associated with effective cross-clerkship curriculum collaborations. 2. Access e-based educational resources associated with the AAMC/Hartford's Minimum Medical Student Competencies in Geriatrics and associated AAMC Graduation Questionnaire results. 3. Identify key innovative methods for integrating and teaching geriatrics across the clerkships. **TOPIC OUTLINE & METHODS/SESSION FORMAT** Min Topic Activity Format(s) 6 Overview/Purpose and Geriatric Minimum Competencies • Introduce Topic, Presenters & Objectives • Audience Brainstorm Minimal Geriatric Competencies for Medical Students; Compare/Contrast to AAMC/Hartford Competencies • Brief Review of e-based resources for geriatrics Interactive Presentation & Brainstorm 5 MCW TGIF Clerkship Collaborative • How and why established • Alignment of focus with competencies, Hospital Priorities • Infrastructure and leveraging of resources Interactive Presentation 8 Success Stories: Integrating Geriatric Injury into M3 Clerkships • E-learning based Learning Applications (Neuro, Psych, Surgery) • F2F including Team-based Learning; Student Role Plays (Family Medicine, Medicine) • Presentations will include evaluation results Interactive Presentation 18 Interactive Discussion Re: Cross Clerkship Curriculum • Are "topic champions" essential to drive cross curriculum change? • What role do "external" standards play - necessary but not sufficient? • What infrastructure is needed to support cross clerkship curriculum? • How can cross clerkship curriculums, once designed and implemented, be sustained? Break down into small groups with presenters' facilitating discussion @ key questions (and others raised by audience). 6 Small Group

## Saturday Abstracts

Reports and Identification of Themes • Presenters will serve as Panel to assist in identification of themes Facilitated sm grp reports by questions/themes 2 Summary and Closing • Revisit session objectives and findings • Handouts Provided (e.g., AAMC/Hartford Minimum Geriatric Competencies for Medical Students and Resources including AAMC GQ link to national data sets) Presentation PROFESSIONAL EXPERIENCE: All presenters are experienced clerkship directors (family medicine, psychiatry, surgery) and/or trained educators with expertise in multi-method design, delivery and evaluation of education. Collectively, the presenters have > 40 peer reviewed presentations on medical education at regional/national meetings.

### A Student Generated, Learner Centered, Educational Model for Acquiring and Developing Surgical Skills in the Early Years of Medical School

*Christopher L. Camp, BS, Matthew J. Borgo, BA, Ryan M. Antiel, BS  
Mayo Medical School, College of Medicine, Mayo Clinic  
Scott M. Thompson, BS, James P. Hassinger, BS, David R. Farley, MD  
School of Graduate Medical Education, College of Medicine, Mayo Clinic  
Thomas R. Viggiano, MD, M.Ed., Mayo Medical School, College of Medicine, Mayo Clinic*

In 2006, Mayo Medical School implemented a major curriculum reform. This reform resulted in 6-week interdisciplinary blocks interspersed with 2-week selectives. These selectives function to provide students with opportunities to customize learning experiences and explore career paths. With mentoring from the Mayo Clinic General Surgery Residency Program Director, two first-year medical students designed a selective to provide students with opportunities to develop basic surgical skills, participate in hands-on surgical experiences, and gain insight into surgical career options. Entitled “Surgery 101: Surgical Skills Acquisition Selective,” this learning experience was designed by students, for students. It currently consists of seminars on suturing and knot-tying, shadowing surgeons in the operating room, utilization of surgical simulators to practice skills, and delivery of platform presentations on common operations. The selective culminates with student-led operations in a porcine surgical suite. To ensure that this experience recurs annually and remains learner-centered, second-year students serve as preceptors for enrolled first-year students. To evaluate the course’s effectiveness, students complete anonymous surveys that assess comfort, confidence, skill development and interest in multiple aspects of surgery. Students have reported statistically-significant increases in all fourteen components of the survey, including comfort in the operating room, ability to research surgical cases, knot-tying, suturing, and giving oral presentations. Students also noted subjective increases in overall surgical abilities and interest in surgical careers. We believe our experience demonstrates that first-year medical students can effectively develop learner centered programs that address developmentally appropriate student learning needs and integrate meaningful career exploration opportunities early in medical education.

## Saturday Abstracts

### Medical Research Initiatives for Undergraduate Pre-Professional Students

*Preeti Dalawari, MD,, St. Louis University School of Medicine*

*Richard Sanker, PhD, St. Louis University*

*Jeffrey Caterino, MD, The Ohio State University Medical Center*

*Tara Hohn, BS, CCRC, Washington University School of Medicine*

As evidence based medicine continues to evolve, research skills have become an integral part of most residency programs. However, most medical students lack in significant research training. Their research experiences are generally limited to wet lab opportunities or brief classes in basic statistics. Because of the already demanding medical school curriculum, it is challenging for medical students to cultivate clinical research skills by graduation. Consequently, they lack the ability and the aspirations to pursue any significant research experiences or opportunities as a medical professional. To address this concern, our panel members have demonstrated success in teaching clinical research skills in the undergraduate curriculum. The medical research programs at St. Louis University, Washington University and Ohio State University enable undergraduate pre-professional students the opportunity to participate in clinical research; but also to interact with medical students, physicians, and patients. The objectives of these programs are to not only cultivate an interest in medicine, but to develop actual clinical research skills that can be utilized in medical school and their future medical careers. In pursuing these objectives our programs intend to remedy the disparity in research attributes in our future medial professionals by providing them with a substantial and positive experience.

### Scholarly Concentrations, Longitudinal Models of Innovation in Medical Education

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

*Matt Bien, MD, Sanford School of Medicine of the University of South Dakota*

*Linda Goldenhar, PhD, The University of Cincinnati College of Medicine*

*Hugh Stoddard, PhD, The University of Nebraska College of Medicine*

Medical education across the nation continues to evolve. Today's students are asked to assimilate an ever-expanding body of information. Lifelong learning and the ability to critically assess what is learned are more important than ever. To address this, a handful of medical schools are considering or have implemented tracks of scholarship, giving students a structured freedom within the curriculum to explore areas of personal interest and to further develop these skills. These programs also support the diverse learning needs of medical students and enhance the rigor of the medical school curriculum. The session will present programmatic models from three institutions to provide insight into the process of developing, maintaining, and evaluating these programs.

## Saturday Abstracts

### Enriching Educators Repertoire of Appropriate Instructional Strategies: A Faculty Development Innovation

*Julie Fenzel, MBA, MS, MC, Medical College of Wisconsin*  
*David Brousseau, MD, MS, Medical College of Wisconsin*  
*Anne Warwick, MD, Medical College of Wisconsin*  
*Karen Marcdante, MD, Medical College of Wisconsin*  
*Deb Simpson, PhD, Medical College of Wisconsin*

Teachers frequently depend on familiar teaching strategies - lectures with PowerPoint presentations, to achieve their educational objectives but often report that their knowledge of instructional methods to enhance learners' engagement and transfer of knowledge is limited. To address this need, we incorporated into our faculty development program for educators, an innovative instructional module (e.g., card game), to actively engage teachers in learning and applying new instructional methods. During this workshop, participants will experience the module by playing the game and committing to piloting a new instructional strategy as well as evaluate the generalizability of this faculty development strategy to their setting. The game consists of two card decks. Deck #1 contains 1-2 objectives authored by each group member, individually recorded on a card. Deck #2 consists of > 75 instructional methods each described on a separate card. When an objective card is revealed, each player selects, from 1 of 8 pre-dealt methods cards, the best teaching method in their hand and describes how it can be applied to achieve that objective. The group then selects the most suitable method presented to achieve the objective. Each member then identifies 1-2 suitable methods to pilot. Upon completion of the game, workshop participants will discuss the utility and feasibility of adapting this faculty development approach to their setting. Discussion will be informed by our evaluation data - faculty participants rated the game > 6.0 (1=poor to 7=excellent) for learning and content with 93% of participants piloting a new teaching method.

### Nuts and Bolts of Transformation: Electronic Learning Portfolios for Undergraduate Medical Education

*Joel Gordon, MD, Carver College of Medicine, University of Iowa*  
*Gerald Wickham, MA., Carver College of Medicine, University of Iowa*

In the future, electronic learning portfolios will not only be environments that foster collaborative learning, they will form the basis for reaccreditation for graduate medical education programs. Implementing a learning infrastructure anchored around the ACGME Six Core Competencies earlier in the medical education conduit will thus prepare students for the practice of using learning portfolios to enhance the physician-learner experience through collaborative feedback, guided curriculum-based reflection and assessment<sup>2</sup>. In 2008 the ACGME Learning Portfolio "Experience, Reflect, Learn, Assess" Initiative was announced<sup>3</sup>. We believe that the adoption of this innovative pedagogy will be seen as a landmark sea-change in medical education. Corollary to the ACGME announcement The Carver College of Medicine is piloting an electronic learning portfolio with a core competency curricular architecture for the third and fourth year clerkship students. Plans are underway to explore longitudinal integration throughout the four-year undergraduate medical education continuum.

## Saturday Abstracts

### Small educational research grants programs increase productivity and collaboration: the CGEA collaborative grants program

*Larry D. Gruppen, PhD, University of Michigan*

*Nehad El-Sawi, PhD, Kansas City University of Medicine and Biosciences*

**Objective:** This study was designed to evaluate the impact of a small educational grants program on research collaboration and productivity **Methods:** For the past eight years, the Central Group on Educational Affairs has sponsored a small grants program for the purpose of promoting collaborative research on medical education within the region. The effectiveness of such programs has often been assumed, but has relatively little empirical evidence. We conducted brief structured interviews with applicants to the program and compared the responses and productivity of grant awardees to those who did not receive the grants. **Results:** 20 past applicants were identified. We completed structured interviews for 8 of the 9 funded applicants and 6 of the 11 unfunded applicants. The average number of scholarly products (papers, posters, and presentations) for the funded group averaged 6.6 for each project. For those of the unfunded group who implemented the project in spite of the lack of funding, the average was 2.7 products per project ( $d = 1.2$ , large effect). The percentage of projects that consisted of collaborations among multiple institutions within the region was 71% for the funded group and only 16% for the unfunded group ( $h = 1.2$ , large effect). Respondents noted that the amount of the funding was less important to the success of the project than was the commitment to the collaboration that the funding entailed and legitimized. **Educational significance:** Small grants programs appear to have a beneficial effect on research productivity and the development and maintenance of research collaborations.

### Surgical Clinical Correlates in Anatomy: Implementation of a First Year Medical School Program

*Lisa M. Haubert, MD, The Ohio State University Medical Center*

*Susan Moffatt-Bruce, MD, PhD, The Ohio State University Medical Center*

**Background** Medical students state the need for a clinically oriented anatomy class so to maximize their learning experience. We hypothesize that first year medical students who take the Surgical Clinical Correlates in Anatomy program perform better than their peers in their anatomy course, their surgical clerkships and ultimately choose surgical residencies. **Methods** We designed and recently implemented this program. It consisted of General Surgical Knowledge, Orthopedic Surgery, Plastic Surgery, Urology, Cardiothoracic Surgery, General Surgery, Vascular Surgery and ENT sessions. Each session had defined learning objectives and interactive cadaveric operations particular to that specialty. The program was elective and had 25 participants. **Results** A questionnaire was given to all students before and after the program. 24/25 students felt the program was helpful and would recommend it to others. 23/25 students thought that the class should be continued. The data revealed opinions of surgeons had improved and those interested in surgery had increased, particularly in orthopedics, ENT and neurosurgery. We will analyze first year anatomy exam scores, clinical surgical rotation scores and residency matches of the 25 participants. **Educational Significance** A need exists among medical students to develop a clinically correlated anatomy program that will maximize their learning experience, improve their performance and allow them to make more informed career choices. The recent implementation of the Surgical Clinical Correlates in Anatomy program fulfills this need.

## Saturday Abstracts

### M4 Bootcamp: Preparing Senior Students for Surgical Internship

*Linnea S. Hauge, PhD, Melissa E. Brunsvold, MD, Eamonn P. Arble, MS  
Vince M. Cimmino, MD, Paul G. Gauger, MD  
University of Michigan*

**Purpose:** Requirements for clinical productivity and increased supervision have contributed to a decrease in clinical education opportunities for medical students. Concerns have been raised that students may be ill-equipped to begin internship. The purpose of this study is to describe the implementation and outcomes of a course designed to prepare senior medical students for success in surgical internship. **Methods:** Eleven students completed the course, which included lecture/discussion, web-based learning activities, laparoscopic and open surgical skills practice, 4 brief clinical rotations, a mock page exercise, and weekly skills lab experiences for performing skills, procedures, and managing shock. Students completed written pre- and post-tests on shock, and skills pre- and post-tests for knot-tying, suturing, and 2 emergency procedures. Students completed course evaluations weekly and at the end of the course. **Results:** Student feedback regarding the course was very positive (means ranged from 4.4 to 5.0 on a scale of 1-5 with 5=highest rating, median for all = 5). Students' confidence specific to performing skills and managing common patient problems increased, while levels of anxiety decreased. The majority (>90%) of students met intern-level requirements for open and laparoscopic skill proficiency. Performance on cricothyroidotomy and chest tube insertion was significantly improved from pre-test to post-test, as was knowledge about managing shock. **Conclusions:** Learning experiences designed for senior students entering surgery training decrease students' anxiety and increase confidence, knowledge and skill relevant to common intern tasks. The surgery bootcamp enhances knowledge, technical proficiency, professionalism, and an appreciation for the skills required to succeed in internship.

### Models for Leading Change Workshop Sponsored Jointly by the Faculty Development and Leadership Development SIGs

*Kathryn Huggett, PhD, Creighton University School of Medicine  
Jeff Pettit, PhD, Carver College of Medicine, Univ. of Iowa  
Members of the Faculty Development and Leadership Development SIGs*

**Rationale:** Medical educators provide formal and informal leadership for academic programs, departments, medical schools and hospitals. Dealing with change, and specifically, navigating transitions from current to future practice in a medical education environment is the focus of this workshop. Models for leadership offer insight into how leaders successfully handle the challenge of change. **Format:** In this session, participants will examine a case study at a fictional medical school; review characteristics of leadership models selected from business, education and organizational psychology literature; and approach the case from these leadership models (e.g., Goleman's Primal Leadership and Bolman and Deal's Four Frames). This workshop will use small and large groups to promote interaction and foster the development of skills specific to each leadership model. **Objectives:** By the end of the session, participants will be able to: Describe the methods they currently use for leading and managing change; apply leadership models to a reality-based case scenario; and compare different models for leading and managing change. **Outcomes:** Participants will leave with information and resources for each leadership model, a copy of the case, and discussion questions to use for faculty development activities at their own institution.

## Saturday Abstracts

### Developing criteria to identify and assess essay question quality

*Cheryl Hunter, PhD, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University*  
*Christine Taylor, PhD, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University*

**Purpose / Significance:** To determine a means to identify low-quality essay questions requiring revision and analyze the questions for technical errors and potential “best practices” to aid in essay question writing. **Context:** Cleveland Clinic Lerner College of Medicine of Case Western Reserve University (CCLCM) uses a competency-based assessment system in which students answer weekly essay questions. The purpose of the essay-format is for students to demonstrate in their written response both integration and application of their medical knowledge as it applies to the specific weekly content in an organ-based curriculum block. There is a relationship between the quality of a question and the ability of the student to demonstrate application and integration. Therefore, variability in essay quality would impact student’s ability to demonstrate application and integration. **Questions:** How best to identify low-quality essay questions? Once identified what are technical errors that may impact question quality? Are there “best practices” for essay writing that could assist the faculty? **Method:** Three sources of data were used to create criteria for identifying potentially low-quality essays. First, the faculty member grading a particular essay has the opportunity to flag the essay as “needing revision” on an evaluation report. Second, students upon uploading their answers have the opportunity to evaluate the particular question based on “integration of knowledge” and “application of concepts.” Lastly, the faculty grading the essay evaluate if each student met each of the required content components in their answer. **Analysis:** A total number of 60 CAPPs were identified. Each question was read by an education specialist, directing attention to technical errors that occurred in the question. **Findings:** Five themes emerged across the data that demonstrated common technical errors: irrelevant information; lack of specificity; not addressing criteria; sub-questions did not build upon one another; and lack of integration of content.

### Making Sense of Student-Generated Co-Curricular Materials: Tales from the Trenches

*William B. Jeffries, PhD, Creighton University School of Medicine*  
*Chari Larsen, BS, Creighton University School of Medicine*  
*Justin Harper, BS, The Ohio State University College of Medicine*  
*Larry Hurtubise, MA, The Ohio State University College of Medicine*

As Web 2.0 tools become entrenched in the learning environment, medical students are creating products that facilitate learning of objectives presented in medical curricula. These co-curricular materials may be independently produced using in-house or publicly available platforms, or produced with the encouragement and facilitation of the medical school administration. Among the challenges for medical school educators is to determine whether to encourage and nurture student efforts or to remain solely vested in the formal curriculum. If faculty do get involved, should they attempt to vet the accuracy and appropriateness of student generated content? This session will focus on the array of co-curricular content and applications that have been developed by students to aid their learning. The session will introduce general types of content being developed by students nationwide and will feature as discussants two students who have developed widely used co-curricular content. Specific topics will include: student-developed interactive lessons that facilitate basic science learning by students at Creighton University, a system that features student-generated videos study aids created in a collaborative environment (Tutornet and Buckipedia) and an automated system to improve and shorten recorded lecture material to provide more efficient review of lectures by the students. The discussion will focus on the experiences of the audience and panelists to determine the best available tools for development of student-generated content as well as best practices for facilitating the development of reliable independent student learning aids. Issues such as legality and extent of faculty involvement will also be discussed.

## Saturday Abstracts

### Qualitative Analysis of Medical Student Portfolios to Establish a Framework for Program Assessment

Mary T. Johnson, PhD, Indiana University School of Medicine

Portfolio development is a powerful way for students to take ownership for the process of learning. As a digital artifact repository that promotes educational goals through reflection, an electronic portfolio creates a vivid picture of student learning. In the present study electronic portfolios were used by 51 first year medical students during 2005-2007 to document curricular experiences. Qualitative analysis methods were applied to analyze student-selected portfolio artifacts chosen to represent learning through activities ranging from concrete skills and knowledge acquisition to inherently more subjective areas like communication and professionalism. Reflections on relationships between portfolio artifacts and knowledge gained in these areas provided insight into student attitudes, value systems, motivations, and understanding of curricular objectives. The study described here established a portfolio-based method for reliable formative evaluation of training in nine medical competency areas for first year medical students. Content and thematic analyses were conducted using NVivo software, with consensus regarding major thematic issues achieved and reflections sorted by competency area. Results indicate that portfolios should be carefully introduced to well-prepared students and should be marked by experienced raters, using clearly articulated criteria. Feedback on portfolio work should be provided by faculty members with a shared understanding of the purpose for assessment and expected student performance. The study results were used to construct guidelines for outcomes assessment using portfolios in a newly designed rural health curriculum. These guidelines meet goals for contextual learning generated by the general medical faculty, while allowing students to independently demonstrate higher-order learning in the medical competencies.

Integrating clinical experiences with basic science from the beginning:

Symptom-oriented, competency-based medical education

Robert W. Lash, MD, University of Michigan Medical School

Larry D. Gruppen, PhD, University of Michigan Medical School

R. Brent Stansfield, PhD, University of Michigan Medical School

Tamara A. Stein, M.A., University of Michigan Medical School

Rajesh S. Mangrulkar, MD, University of Michigan Medical School

Rationale: Medical education is traditionally divided into a basic science-oriented preclinical phase, followed by a series of clinical experiences. The ENCORE (Ensure Competence and Inspire Excellence) pilot program at the University of Michigan Medical School proposes to do away with this distinction, replacing it with a series of symptom-based *learning experience modules* (LEMs) that students will encounter from the very beginning of their training. Each LEM will integrate immersive clinical experiences with clinical skills development opportunities, while requiring the completion of basic science learning objectives through self-directed learning.

*This discussion group will introduce the rationale behind ENCORE and present models for proposed LEMs, thereby stimulating attendees to discuss the values and challenges that such a model presents. The discussion will focus on pedagogy, curricular implementation and assessment.*

ENCORE combines formative and summative assessments of higher order educational outcomes using *flexible* learning paths in *specific* competency domains. Educational experiences for our early learners will consist of a series of two-week long LEMs centered on a core group of clinical problems (e.g., hyperglycemia and failure to thrive). These LEMs will be multidisciplinary in academic content and learning environments, and will integrate basic science, clinical skills, and direct patient care.

## Saturday Abstracts

During our development of these LEMs, we have come across many challenges, including defining learning objectives that will guide students' studying in independent settings, designing appropriate formative and summative assessment tools, and ensuring that we draw on clinically-relevant basic science concepts in all learning experiences. These challenges have given us the opportunity to address a variety of educational 'hot-button' topics, and during this session, participants will help us address these educational challenges.

Goals for the session: After this session, participants will have:

- a better understanding of the challenges in designing a competency-based medical student curriculum
- addressed the pros and cons of the LEM format in early medical education
- considered approaches to implementing independent study into early medical school curricula
- discussed the use of assessment strategies, including the development of an assessment program that supports symptom-focused LEMs.

Topic outline:

1. A review of the ENCORE model, and the design of a competency-based medical curriculum
2. LEM design: How we chose what does (and doesn't) belong in a two-week learning module covering a common clinical problem
3. Assessment within each LEM: opportunities, academics, portfolios

### Using a Hyperlinked E-syllabus as a Portal to Electronic Library Resources in Undergraduate Medical Education

*Michael P McGraw, MLIS, Case Western Reserve University*

Rationale: The mix of library resources tilts more and more toward digital. More and more students are "digital natives" who have scarcely known a society that was not highly wired. Everyone's time is scarce. Libraries and librarians have a unique perspective on how to maximize the utility of electronic resources to the education. The discussion will seek to bring this message particularly to administrators and teachers of undergraduate medical education. Objectives: This talk will explain how we have used a richly hyperlinked e-syllabus to facilitate undergraduate medical education. Then we will show faculty and administrators how to work with librarians to implement a similar program at their institutions. Library directors can also learn how to advocate for such a program at their institution. Methods: 1 min: Introduction of speaker 5 min: Brief history of CWRU SOM curricular reforms; brief history of CHSL and its support of CWRU SOM 15 min: How CHSL hyperlinking program supports CWRU SOM; some live web examples 5 min: Considerations in bringing a similar program to your institution: key institutional support (of Vice/Assoc. Dean level curriculum supervisors, of library director, of faculty, perhaps consult student representatives); consider what kind of electronic licenses you have (site licenses with unlimited usage are ideal) 15-20 min: Discussion amongst participants about desirability, feasibility of bringing such a program to their institutions. Break into small groups, discuss, report back to full group.

## Saturday Abstracts

### Utilizing On-Line Modules in Training Standardized Patients

*Jennifer McKanry, MEd, Medical College of Wisconsin*

*Paola Palma-Sisto, MD, Medical College of Wisconsin*

*Diane Dettinger, PNP, Medical College of Wisconsin*

Objective Structured Clinical Exams (OSCEs) are simulated patient encounters using a Standardized Patient (SP) who is trained to deliver the same case portrayal to all students. Ensuring reliability of performance is a major challenge in any OSCE program. Almost every article published on OSCEs stresses the importance of training. However, there is little literature available on how to train SPs. General practice reflects a great deal of variability in SPs training/retraining practices. Further, challenges in retraining SPs, include low SP motivation or willingness, staff time, SP cost and time. Our own random review of videotaped performance as well as less than satisfactory reliability scores indicated a strong need, in spite of these hurdles, for regular retraining in our program. We designed a two step retraining process. First, random videotapes of each SP's performance were reviewed and feedback was provided to the SP on his/her accuracy in case details, affect, and grading compared to the SP peer group as a whole. Second, we designed on-line modules that focused on key features to be portrayed, sample videos of case performance and a review student behaviors expected. SPs were required to complete on-line modules for each case they perform including quizzes to assure comprehension and accuracy in grading. In this Discussion Group we will present examples of what we have found works and doesn't work and elicit discussion on what other schools have done. The focus of the discussion will be on ways technology can be utilized to overcome barriers in training SPs.

### Applying a Population-based Model for Patient-Centered Care to develop socially responsive physicians

*Linda N Meurer, MD, MPH, Medical College of Wisconsin*

*Staci Young, PhD, Medical College of Wisconsin*

*Douglas Bower, MD, Medical College of Wisconsin*

As part of a process to integrate population health into our four-year curriculum, we developed a conceptual framework that represents the influence of individual, socio-structural and environmental factors on health, in the context of the doctor patient relationship. The model stresses the physician's professional responsibility across expanding domains of influence to consider the determinants of patients' health status, to guide interventions for individuals and populations, and to advocate for systemic changes to improve health. It has been well received by educators and students, and has been incorporated into several existing medical school courses. However, to transform education to prepare population health oriented physicians with skills and attitudes necessary to promote community health, eliminate health disparities and influence health policy, we seek innovative ways to integrate this Population-based Model for Patient-Centered Care throughout the spectrum of medical education. As a result of this session, participants will: 1) Review our Population Health competencies; 2) Describe and discuss the conceptual model for incorporating a population health perspective to patient-centered care; and 3) Discuss the application of the model to existing medical curricula. Through interactive presentations, participant discussion and brainstorming, we will critique the competencies and model, and generate innovative ways to integrate this model across the spectrum of undergraduate and graduate medical education

## Saturday Abstracts

### Providing Feedback to Clinical Trainees: A Structured Evidenced-Based Approach

*Patricia Mullan, PhD, University of Michigan*

*Stan Hamstra, PhD, University of Michigan*

*Monica Lypson, MD, University of Michigan*

Although providing effective feedback on the performance of trainees is an expectation of trainees and accrediting agencies in medical education, barriers to providing effective feedback are reflected in the reports of trainees that they seldom receive such feedback. Empirical research on effective feedback to medical trainees identifies barriers as including: lack of skills and comfort in trainees in eliciting feedback from faculty, despite the trainees' interest in receiving such feedback; lack of preparation and comfort of faculty in providing constructive feedback that is grounded in structured observation of the trainees; and perceived lack of time and institutional support for providing constructive feedback. Reviews of feedback provided to trainees indicate that it is often very general and does not guide trainees in guided improvement of their performance. Even when faculty perceive that they have provided feedback, trainees report that the feedback they receive is not grounded in observations of their performance or directed to specific changes. The further rationale for this workshop includes the evidence of the impact of educational interventions on trainee feedback that are both feasible and effective. In addition, the model for the development of this workshop can be used to elicit and develop workshops on skills development on other educational interventions. Resources for this workshop include a videotape of a resident-patient interview, and examples of relatively less and more effective faculty feedback models.

### Systematic Approach to the Revitalization of a Pediatrics Clerkship

*Paola Palma Sisto, MD, Medical College of Wisconsin*

*Sajani Tipnis, MD, Medical College of Wisconsin*

*Virginia Cleppe, AM, CISW, Medical College of Wisconsin*

*Jennifer McKanry, MEd, Medical College of Wisconsin*

*Diane Dettinger, PNP, Medical College of Wisconsin*

*Karen Marcdante, MD, Medical College of Wisconsin*

Decreased face to face time created by external standards and internal pressures forces educational administrators to find alternative ways to coordinate learner experiences. In the past, our third year students have felt we were unresponsive to their needs and that the experience did not allow effective acquisition of knowledge. We systematically reviewed each component of the clerkship and developed progressive and parallel changes focused on student experiences. To maintain a student-centered approach, we chose to "start with heart," considering the impact of each change on students' experience. Ongoing student feedback was used to assess progress. Improvements and enhancements resulted in a significant improvement in overall perception of the pediatric clerkship experience. The overall clerkship rating statistically improved over the four years of curricular reform, increasing from 4th (of 7 clerkships) to the highest rated M3 clerkship. Other measures of success include an increased number of students entering pediatric residency and improved ratings on the senior graduation survey. By the end of this discussion session, participants will be able to: identify common problems associated with developing and maintaining an educational program in the current medical school environment, understand our institution's areas of deficit and the approach we took to remedy them, and apply the systems based approach to curricular reform undertaken by us to their own programs. Systemic review of our clerkship using a variety of evaluation modalities and recognizing the student's individual needs, as well as a "start with heart" mindset can result in improved perception of a clerkship experience.

## Saturday Abstracts

### Team Development: Tactics & Tools in Medicine

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

This session is for participants who are part of any team development initiative or are considering how to incorporate teams at their institution. Participants will share how their institutions are implementing teams. Discussions will highlight tactics for educating personnel and sustaining a team environment. Although not required, participants can share any of their training techniques & tools used to support the process of creating teams. Participants will also discuss measures for determining effective teams. A possible outcome of this session will be to develop a collaborative group to investigate team development in the central region. NOTE: Pre-registration is not required.

### Validation of a MEDLINE Search Strategy Assessment Instrument for Residents

*Gurpreet K. Rana, MLIS, University of Michigan Health Sciences Libraries - Taubman Medical Library*

*Doreen R. Bradley, MILS, University of Michigan Health Sciences Libraries - Taubman Medical Library*

*Stanley J. Hamstra, PhD, University of Michigan Medical School*

*Robert E. Schumacher, MD, University of Michigan Health System*

*John G. Frohna, MD, MPH, University of Wisconsin School of Medicine and Public Health*

*Hilary M. Haftel, MD MPHE, University of Michigan Health System*

*Monica L. Lypson, MD, University of Michigan Health System*

**Objectives:** Few instruments in the literature validate information seeking skills of trainees. The ability to assess resident skills in Practice-Based Learning and Improvement is mandated by the Accreditation Council for Graduate Medical Education. This study validated a MEDLINE search strategy assessment instrument at a large academic center. **Methods:** In 2001, 20 incoming pediatric and medicine-pediatric interns' search strategies were assessed by two librarians, based on a case of a pediatric patient with bronchiolitis. In 2004, 15 of the same residents were assessed on the same case, and scored by the same librarians, providing longitudinal data. For comparison, we examined search strategy scores for pediatric and medicine-pediatric residents graduating in 2002 and faculty in 2008 with EBM expertise - again scored by the same librarians and involving the same search. **Results:** We found significant improvements in search strategies in the longitudinal data for pediatric and medicine-pediatric residents (mean improvement: 51.7 to 78.7;  $t(14)=5.43, p<0.0001$ ). Search strategy scores were significantly higher for residents who received training (2004 graduating class) than the comparison group who received no training (2002 graduating class) (median 85.0 vs. 65.0; Wilcoxon chi-square(1)=4.09,  $p=0.043$ ). There was no significant difference in search strategy scores between senior residents who received training (2004 graduating class) and faculty participants (Wilcoxon chi-square(1)=3.82,  $p=0.051$ ). **Conclusions:** The results of this study provide validity evidence for an instrument to evaluate MEDLINE search strategies. This assessment tool can serve as an effective way to measure improvements in resident information seeking skills and provide data to fulfill ACGME competencies.

## Saturday Abstracts

### Unraveling The Myth Of The Audition Elective

*Jennifer Reiser, MD, University of Nebraska Medical Center Dept of Pediatrics  
Gary L. Beck, MA, University of Nebraska Medical Center Dept of Pediatrics  
James L. Harper, MD, University of Nebraska Medical Center Dept of Pediatrics*

**Purpose:** Every year medical students take time away from their primary institution to do electives where they believe it will help to enhance their opportunity of securing a residency position in that particular program. Many faculty members encourage this practice and in some cases attest that it is very important for students to do this in order to get the residency program of their choice. **Hypothesis:** “Audition” electives continue to play an integral role in securing residency interviews. **Participants:** A convenience sample of 70 students and 44 program directors (PD) from 2005 to 2008. Fifty-nine (84%) students and 31 (70%) program directors (PD’s) responded. **Methods:** University of Nebraska senior medical students completing an off-campus elective were invited to participate in this IRB-approved study. After Match results were received, those who consented completed surveys about these electives. Students consented to obtain information from the schools where they completed their electives. PDs at these institutions then completed surveys about their ranking process and the student. Frequency data and qualitative analysis of program director responses were analyzed. **Results:** Students completed externships in 18 different specialty areas. Of those programs surveyed, 86.67% indicated the externship influenced how the student was ranked. However, when asked to rate the most important considerations during ranking, interviews were most important followed by USMLE scores. **Conclusions:** Although previous reports indicate audition electives are not important, these results indicate they continue to be very influential. Even if PDs do not indicate it on surveys, qualitative analysis of comments indicates otherwise.

### Learners with Performance Problems: Toward Effective Diagnosis and Treatment

*Nicole K. Roberts, PhD, Southern Illinois University School of Medicine  
Debra L. Klamen, MD, MHPE, Southern Illinois University School of Medicine  
Rebecca Hoffman, MD, MSPH, Southern Illinois University School of Medicine  
Reed G. Williams, PhD, Southern Illinois University School of Medicine*

**Rationale:** Various barriers prevent educators from recognizing and effectively addressing learners’ performance problems in medical school. One barrier is that educators are not certain they recognize performance problems, or when they do recognize them they are not certain the problems will persist or are serious enough to raise an issue about. Further, once a problem has been recognized and the educator is convinced it will persist, existing modes of remediation are non-specific and often ineffective. Our prior work suggests that 1) performance problems are usually persistent, 2) performance problems can be categorized over time, and 3) common remediation strategies are not effective in addressing performance problems. We propose that the categories we have developed will assist with the diagnoses of learners’ problems, and these diagnoses will assist us in developing specific, targeted remediation strategies. **Topic Outline:** In this workshop, we will present a taxonomy of performance problems developed by studying student failures and resident records over time. We will teach participants to use the taxonomy to analyze the performance problems of individual learners. After the demonstration, participants will be given a case of a learner with performance problems, and will apply the taxonomy to this learner. Finally, we will engage the audience in a discussion of practical, focused remediation strategies for specific learning problems.

## Saturday Abstracts

### Teaching in the Patient's Presence (TIPP) In the Outpatient Setting: Opportunities and Challenges For Teaching And Research

*Marcy Rosenbaum, PhD, University of Iowa*  
*David Power, MD MPH, University of Minnesota*  
*Craig Roth, MD, University of Minnesota*  
*Kelly Skelly, MD, University of Iowa*

Until the 1960s most clinical teaching occurred in the patient's presence at the bedside. Since then, the norm has become for oral presentations about patients by medical students and residents to be made outside of the exam room (or away from the bedside). With the increasing shift of teaching and patient care to the outpatient setting, this typical approach has carried over to outpatient preceptor-student interactions. While this may work in hospitals, it can be an inherently inefficient methodology for the outpatient setting. With increased time pressures and the need for faculty to be compliant with HIPAA expectations for direct patient care delivery, learner presentations need to become an integral part of the patient visit. A model variously known as Teaching in the Presence of the Patient (TIPP), Patient witnessed Precepting (PWP) or Exam Room Staffing can be an efficient method for facilitating the work of the busy outpatient teaching physician. Evidence supports both its effectiveness and acceptability to faculty, learners and patients. In light of this evidence, it is surprising that this model has not been readily adopted by the majority of outpatient teachers. Barriers to using this method and ways to overcome them deserve further exploration.

### Curriculum SIG Invited Session: Planning Transition in the Sea of Change

*Daniel R. Wolpaw, MD, CWRU School of Medicine*  
*Amy Wilson Delfosse, PhD, CWRU School of Medicine*  
*TBA, Student (Class 2010), CWRU School of Medicine*

1. Presentation of the curriculum transition at Case Western Reserve University School of Medicine, including Rationale, Vision, Principles, product and support. 2. Panel discussion featuring specific challenges to the transition from the perspective of a basic scientist, and clinical educator, and a participating medical student. 3. Open discussion

## Saturday Abstracts

### **IQ+: Integrating Medical Sciences and Patient Care in a Core Clerkship Curriculum**

*Daniel Wolpaw, MD, Case Western Reserve University*  
*Amy Wilson-Delfosse, PhD, Case Western Reserve University*

**Purpose** To weave the scientific foundations of medicine and health with clinical experiences throughout the four-year Western Reserve<sup>2</sup> (WR2) medical education curriculum. **Methods** Experience dictated that a successful integration of basic science into the third year clerkships would require a curriculum that was highly engaging and relevant to clinical care situations. Faculty and students collaborated to develop guiding principles, key features and a sample template for "pull-out" sessions that would take place at the medical school on Friday afternoons during the core clerkships. **Results** A curriculum was developed based on guiding principles that focus on 1) basic science and emerging basic science knowledge in the practice of clinical medicine, 2) reflection, feedback, and team interaction in professional growth and development and 3) advanced skills in communication, physical examination, clinical reasoning, and critical appraisal/evidence based medicine. The curriculum emphasizes interactive, self-directed learning in small-groups building on the Case Inquiry (IQ) groups that are a central feature of the WR2 curriculum. Four-hour sessions were designed to be entirely self-contained with integrated time for reflection, clinical problem solving, research, expert consultation and didactics, and related simulation exercises. Facilitation by faculty and senior students was incorporated to provide guidance and perspective. **Conclusions** A curriculum development process that utilized balanced input from faculty and students along with clear guiding principles has facilitated the creation of a session template that allows for reflection, integration of clinical and basic sciences, acquisition of new emerging basic science knowledge and clinical skills development.