

RIME/IME Posters Abstracts

1

Developing Residents as Teachers

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To meet the challenges of instilling teaching skills within residents across departments, complying with ACGME, AAMC, LCME, and specialty-specific requirements regarding teaching, and provide teacher training to residents given their complex schedules and job requirements, the University of Iowa Carver College of Medicine has created a systematic process that is applicable to any department. This process addresses the needs of residents as teachers, incorporates methods for collecting data and evaluating progress, develops support within the department for continuous and on-going reinforcement of residents' teaching skills from faculty and administration, and shares best practices across departments. This poster details the process, the departments, and the workshops being used at UIHC.

2

A Two-Year Study of Minority Students' Perceptions and Use of Deep Breathing Meditation (DBM) To Reduce Testing Stresses

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Purpose: Since stress can interfere with learning and testing, we examined how utilizing a pro-active approach to stress management could assist minority; postbaccalaureate students reduce stresses associated with these situations. We examined their beliefs, perceived symptoms regarding academic stresses, and use of deep breathing meditation (DBM).

Methods: A 10-month study conducted over a two-year period, surveyed 64 MEDPREP students at the beginning and end of the 2004 and 2005 summer semesters and after the MCAT in April 2005 and 2006 to assess their perceptions of testing stresses and use of DBM. Students first attended two, one-hour informational sessions regarding stress and test performance, were taught how to perform DBM, and evaluated with the HeartMath monitoring system. Students then participated in regular 5-minute DBM sessions in two classes over each academic year and were encouraged to use DBM in all testing situations. Data were analyzed using T-Tests and frequencies.

Results: The majority of students (73%) had never used DBM before attending MEDPREP; 100% used DBM outside of class after participating. Results indicated that students significantly reduced feelings of: test anxiety ($p<.000$), exam nervousness ($p<.000$), self-doubt ($p<.000$) and concentration loss ($p<.000$). Students reported they believed regular practice of DBM would help them academically ($p<.000$) and reported using DBM if they became anxious during exams in testing situations outside of class ($p<.000$).

Conclusion: The results suggest that significant positive behavior changes occurred when minority postbaccalaureate students practiced a stress reduction technique on a consistent basis.

3

Training Medical Students in Smoking Cessation Techniques: Improved Knowledge Does Not Predict Improved Skill

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We developed a program to teach smoking cessation techniques to first- and second-year medical students at the Indiana University School of Medicine, which is composed of nine regional campuses distributed throughout the state. One campus (Evansville) was selected to pilot the program from 2002 to 2006. Another campus (Ft. Wayne) was selected to provide a comparison group for internal validity. Program elements included the 5A and 5R counseling techniques recommended by the US Public Health Service. Program effectiveness was assessed, in part, with pre- and post-program tests administered to students at the beginning of their first year and at the end of their second year. The results showed that the Evansville students ($n = 42$) improved their post-test scores by 30.6% compared to pretest scores ($p < 0.001$), whereas the Ft. Wayne students ($n = 37$) improved their post-test scores by a much smaller margin (6.2%). However, when the performance of Evansville and Ft. Wayne students ($n = 11$ each) was evaluated and scored on a five-point scale during a videotaped encounter with a standardized patient, no appreciable difference in cessation skills was observed between the two groups (Evansville, 3.2 ± 0.54 , mean \pm SEM, versus Ft. Wayne, 3.1 ± 0.50). These findings suggest that demonstrated improvements in knowledge, beliefs, and attitudes—as measured on a written test—do not necessarily translate into corresponding improvements in the clinical setting. We speculate that the “hidden curriculum” students experience early in their clinical training may undermine the formal instruction they receive.

4

Faculty Observers of Year 2 Teaching Cases that Open with Standardized Patients

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Objective: Second year medical students at Southern Illinois University School of Medicine develop clinical reasoning and clinical exam skills through patient problems presented throughout the academic year. These patient problems may present in the form of a carefully trained standardized patient (SP).

Methods: One to two patient problems per unit open with a SP and have Doctoring faculty observe. Each student has twenty minutes to do a focused history and physical exam on the patient. Small groups of six to seven students meet with doctoring faculty following the patient encounter. One student presents information acquired from the history and another student presents information from the physical exam. Faculty observers provide immediate feedback to students on their history and physical exam taking skills and oral case presentation skills. Students also evaluate and provide feedback to their peers. The group also discusses history and physical exam findings and how these relate to the differential diagnoses based on the presenting complaint. When initiated three years ago, only a few SP case openings used this debriefing method. Today, it has more than doubled.

Results: Both students and doctoring faculty have benefited from this method. Students have more opportunities to be observed by faculty and to receive immediate feedback. In addition, students have an opportunity to practice their oral presentation skills in a non-threatening environment and receive immediate feedback from faculty and peers.

Conclusion: While the costs have increased due to more SP encounters, the benefit has been immeasurable.

5

Preparing Medical Students for USMLE Step 1: Beyond Just Exam Content

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Purpose: Completing USMLE Step 1 is a large milestone for medical students. Although students require individual study time, it is imperative for institutions to adequately prepare them. However, study habits of students, along with services offered by medical schools, are diverse and the ideal methods for assisting students are not known.

Methods: A twenty-question survey was administered to third-year medical students at Loyola University's Stritch School of Medicine (SSOM) eliciting experiences with Step 1 preparation.

Results: A total of 66 students out of 135 (49%) responded. Thirty-eight (58%) students took Step 1 four weeks after completing second year final exams. Twelve (18%) students took the exam sooner, and 3 (5%) took > 6 weeks of individual study time. Ninety-two percent took the exam at a local testing center. All students utilized Kaplan, Inc.'s, Q-bank, with 43 students rating the service "very useful". Only four students altered their testing date. The majority (59%) began studying for Step 1 immediately after class finals, 14% took time off before studying, and the remaining 27% began studying during the academic year. Fifteen students that waited until after finals to begin studying admitted they retrospectively would have started earlier. Eighty-eight percent of students had a set study schedule, 46% attended school-sponsored faculty review lectures, and 94% completed an online NBME practice exam that was paid for by SSOM.

Conclusion: Some services were more heavily utilized than others. Schools must discuss appropriate study timelines as well as provide and suggest study services that will be utilized.

6

Baseline Attitudes, Knowledge, and Skills Regarding Patient Safety in First-Year Medical, Pharmacy, Nursing, and Applied Health Students

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The project seeks to gain an understanding of what first year UIC health science students know, believe, and are concerned about regarding patient safety. A health science student questionnaire was designed and given to first-year medical, pharmacy, nursing, and applied sciences students at the UIC Medical Center to gain a better understanding of student attitudes and knowledge. Medical errors, patient safety, and quality health care have emerged as central public concerns. Designing curricula to address patient safety education is not specific to medical schools. All health science schools have similar educational needs since patient care has become more team-oriented. Educators need to better understand what first-year health science students know, believe, and are concerned about regarding medical errors and patient safety. There has been little published to date in the literature focusing specifically on the competencies and skills required to successfully address patient safety and quality outcomes in a health science curriculum. Additionally, there are no published data that characterize baseline attitudes, knowledge, or skills of incoming health science students. The project will provide important information on: (1) possible differences in baseline patient safety attitudes, knowledge, and skills between first-year, same-discipline students; and (2) possible discipline-specific differences in baseline patient safety attitudes, knowledge, and skills of first-year students. Additionally, secondary benefits that may result from this project include utilizing the data to define curricular strategies and methodologies to effectively target patient safety and quality outcomes at the student level as well as changes that occur over time secondary to interventions.

7

Health Care Concerns for the 21st Century: The Loyola Model of Transformative Education

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Loyola University Chicago Stritch School of Medicine developed an innovative course model to introduce current health care issues to students during the first week of their fourth year. This course takes the theory of business professionalism and justice to application within the context of bioterrorism. In addition to existing AAMC recommendations for curricular content in teaching bioterrorism, the goals were: (1) Develop a multidisciplinary curriculum with content experts from the FBI, Chicago Fire Department, Cook County Department of Public Health, Illinois Poison Center, Nuclear

Medicine Department, CDC, and Emergency Medical Response; (2) Utilize Stritch's signature process of a reflective community learning model.

Instructional Methods: 1. Lecture based sessions are the primary method of content delivery; 2. Student led disaster drill with a chemical decontamination procedure.

Program Evaluation Results: 1. Community involvement through extensive local and national, commercial news coverage; 2. Course components will be made available for training medical and non-medical audiences; 3. Recent Snite Foundation grant funding to continue to develop and expand course.

Implications: 1. Development of curricular/learning content and delivery that can be modified to suit a particular group's needs. Opportunity to pilot different assessment techniques and methodologies (audience response system); 2. As a result of the collaborative effort among local, national and federal experts, the content could be used as an on-line training tool for health care educators at many different levels: ER doctors, school nurses, community hospitals, clinics, and support agencies, e.g., police and fire.

8

Faculty Development-Focused Noontime Topics

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The Faculty Development Program, Focused Noontime Topics, is held monthly from September through June to provide faculty with an opportunity to have lunch and network, along with participating in a short informational and educational experience. Topics and speakers are chosen by Faculty Development committees, with input from a needs assessment survey and suggestions by faculty. Through participation in these activities, faculty is exposed to techniques for improving teaching skills, mentoring opportunities and topics for career management. Objectives specific for each luncheon topic are developed.

Methods: The luncheons are held in the Private Dining Rooms adjacent to the main hospital cafeteria from 11:00 a.m. to 1:00 p.m. This is a central site on campus and convenient to almost everyone. Using responses from the most recent needs assessment and suggestions from participants, luncheon program topic suggestions are brought to the committee. The major themes addressed this year were: • Teaching and evaluating professionalism • Feedback made easy • Teaching and learning styles • Blending active learning into a classroom presentation • Dealing with students/residents experiencing academic or clinical performance problems • Fair use for educators in the electronic age • Creating an effective poster • The one-hour negotiator • Intellectual property

Results: In the 2005-06 academic years there were nearly 400 faculty who attended the noon luncheons. Evaluations were positive and usually averaged 4 or better on a 5 point Likert scale. The highest rated program was the "One Hour Negotiator" presented by Senator David Landis from the Nebraska Unicameral. One audience member commented that this was "quite possibly the most informative, useful and entertaining talk that I have attended in 14 years at UNMC".

Conclusion: The Faculty Development Focused Noontime Topics program allows faculty with limited time for more lengthy programs to attend topics of their choice in an informal and collegial environment.

9

Improving Resident Competence in Pediatric Sedation

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Pediatric procedural sedation is an important process. In practice, pediatricians may be called upon to provide sedation for children in diverse settings. Second and third year Pediatric Residents at Loyola University Medical Center perform sedations with variability in training and experience. We developed a comprehensive multidisciplinary training process involving education, knowledge evaluation, and observation of sedations followed by direct supervision of residents performing sedations. After successful completion of these components, residents are "certified" to provide pediatric sedation. A checklist allows residents to track their progress towards competence in pediatric sedation. Education components: 1. An airway workshop 2. Two didactic lectures addressing sedation processes and pharmacology. 3. A didactic presentation on MRI safety 4. A tour of MRI areas. Direct Observation: Residents observe 2 sedations performed by a certified provider. Documentation of Knowledge: Passing score on a written examination covering sedation knowledge. After this, the resident must independently perform a minimum of 5 sedations under the direct supervision of a sedation attending. The attending completes a checklist documenting appropriate actions including: sedation focused history/physical exam, review of risks/ benefits (informed consent), choosing medications, setting up equipment and directing the sedation process. Upon successful completion of the above process, the resident is certified to perform independent sedations, with review of each case by sedation faculty. We believe this educational process has dramatically improved patient safety, resident comfort and competence in provision of Pediatric sedation. In this process we are able to document medical knowledge as well as procedural competence using direct observation.

10

Assessing the Educational Needs of Indiana Physicians

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When CME programs are based on well-conducted needs assessment they are more likely to achieve their ultimate goal of improving clinical outcomes by changing physician behavior. Additionally, information technology and the practice of medicine are changing rapidly and educational needs are changing accordingly. It is critical then that CME providers conduct research and gather information directly from their learners as a part of a comprehensive needs assessment strategy in order to allow CME providers to design more effective activities and increase the likelihood that physicians will participate, learn, and apply to practice what they learn. This poster will summarize the demographics and

responses of 863 Indiana physicians to a 13-item questionnaire distributed to participants of CME conferences and the Indiana State Medical Association Annual meeting in 2005/2006. The questionnaire contained questions regarding respondent physician demographics, format preferences (e. g. live lectures, monographs, video streaming, CD-ROM), areas of interest, degree of practice change and potential barriers to practice change. Ninety-six per cent of the respondents stated that they changed practices as a result of CME. While 75% stated that they preferred live lectures, 58% wished them to be televised to their home hospital. In a rapidly changing practice environment, and advances in information technology, educational needs of physician learner change accordingly. The high response rate suggests that physicians value CME and are interested in having input as to its content and format. The data also suggest that CME programs are effective in changing physician's behavior.

11

A Longitudinal Faculty Development Program Based Upon the PRECEDE Model

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Objective: The PRECEDE model for health education planning guided the development of an on-going longitudinal program for faculty development. This model was chosen because it emphasizes reinforcing and enabling factors, which have been demonstrated to contribute to improvement in professional practice.

Methods: This faculty development program is composed of plenary sessions and workshops. In the initial plenary, participants used critical incident technique to initiate discussion of effective teaching. Faculty then participated in two 2-hour long workshops. Workshops focused on brief clinical teaching (METRC) and giving effective feedback. Workshop activities included presentation and discussion of teaching skills, practice and video recording with standardized medical students, then review of video-recordings. Presentations during the plenary and workshops served as predisposing factors. Review and discussion of video-recordings during the workshop served as reinforcing factors. Students who served as standardized students act as enabling factors in clinical settings.

Results: On post-workshop commitment-to-change and self-efficacy instruments, participants described learning related to both specific workshop objectives and discussion of the video-recordings. Participants listed changes to teaching practice they intended to make, but reported moderate levels of commitment to implement those changes. Participants reported greater changes in capabilities to perform feedback skills than METRC skills.

Conclusions: Initial activities have been well received and participants have reported changes in knowledge and skills as a result of the workshops. The self-efficacy instruments show promise as a method for assessing the impact of teaching skills workshops. Planned activities include plenary sessions exploring teaching experiences and workshops evaluating learners and teaching procedural skills.

12

Assessment of Self-Awareness, Self-Care, and Personal Growth Competency in First- and Second-Year Medical Students

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In recent years, medical schools have begun to emphasize more than the ability to master volumes of scientific facts. Instead, emphasis is being given to the so-called hidden or competency-based curriculum, which includes such skills as effective communication, moral reasoning, and professionalism. One of these skills is self-awareness, essential for helping the graduate approach medicine with understanding of his or her limits, strengths, and vulnerabilities. We help develop this competency in basic science courses by generating instruments for self-assessment of responses to emotionally stressful events. These stressful events arise spontaneously during rigorous training. For example, in Gross Anatomy laboratories, students complete questionnaires that probe their emotional and behavioral responses to group work with cadavers. Similarly, in Physiology laboratories, questionnaires follow training and first attempts at venipuncture, after serving as a venipuncture subject for other students, and after a reproductive physiology exercise involving work with semen samples donated by class members. Anxiety is measured prior to each laboratory experience, then graphed and discussed at the conclusion of the semester. Also in Physiology, sleep latency and current sleepiness are measured and discussed in the context of lectures on sleep. As a final example, the Patient/Physician Relationship course considers stress management techniques, and includes a Myers-Briggs type personality inventory to promote greater insight for students into their personal strengths and weaknesses. These examples illustrate that self-awareness and self-care can be promoted and encouraged from the earliest days of medical education in the basic sciences.

13

Evaluating Knowledge and Attitude Changes from Two Years of Implementing a Course Module About Cultural Proficiency in Providing Patient Care for Second-Year Medical Students

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Purpose/Background: Culturally appropriate communication is important to healthcare professionals. The knowledge and attitudes comparison pre-post of a ten hour course module in the second year of medical school about culturally proficient patient care will be presented.

Methods: A problem/activity based course module was developed by a multidisciplinary, multicultural faculty team including clinical faculty from the Department of Family and Community Medicine Univ. of IL COM-R. Professional panels, case studies, role playing simulations, and video segments occurred and were then discussed in small groups. Knowledge and attitude indicators for 46 items were collected in the first year and 83 collected using an improved survey in the second year. About fifty students anonymously

completed the identical pre and post surveys each year using an IRB approved process. Non-parametric statistical tests for independent populations were used to test for statistically significant change ($p < .05$) pre versus post the course module's implementation.

Results: Evaluation from year 1 indicated positive changes ($p < .05$) in five knowledge and attitude indicators (details will be provided in the poster) • view of cultural diversity in the United States • comfort with patient considering use of traditional herbal remedies • view that all patients should disrobe completely for a physical exam • self assessed ability to describe three traditional healing practices • view of appropriateness of utilizing a patient's family member or friend as a language interpreter Year 2 comparative results will also be tabulated and presented after the course module evaluations are done in January 2007.

14

Development of a Validated Difficult Airway Management (DAM) Multiple Choice Exam

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Background: Development and validation of a DAM multiple-choice examination used as a formative assessment tool is described.

Method: An 8-step system to create the exam included: (1) A target audience: anesthesia residents; (2) A specification table to identify topics [1,2]; (3) Question writers; (4) A "how-to" manual for type-A questions; (5) A checklist to ensure the exam follows specific rules; (6) An external review board of specialists to edit content; (7) Pilot exam at external sites simulating written board conditions; (8) Statistical analysis to validate test and assess inter-group discrimination.

Results: The 112-question exam was administered at four sites in March 2006. Results are listed in table 1. The Kuder-Richardson reliability coefficient was 0.8 [1].

Conclusions: Residents' knowledge was demonstrated at 50%. The knowledge acquired in DAM is low using current methods of clinical-based teaching. Development of a validated test was achieved by adherence to the 8 steps. Table 1 Individual Training Year Exam Results Residency Year/ Raw Score (n) (mean \pm S.D.) P value CA-1 (34) 61 ± 6.6 CA-2 (27) 66 ± 7.5 0.020* CA-3 (33) 68 ± 12.8 0.008** Total (94) 65 ± 10 0.012*** *, ** Compare to CA-1, multiple regression analysis controlling for residents' age, sex and academic center. *** Analysis of variance between the groups. References: 1. Linn RL, Gronlund NE. Measurements and Assessment in Teaching, 8th ed. Upper Saddle River, NJ: Prentice-Hall, 2000. 2. "Using the Taxonomy of Educational Objectives." P 29-36. Gronlund NE. How to Write and Use Instructional Objectives. University of Illinois.

15

Teaching Professional Attitudes and Conduct: An Interactive Approach

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Objectives: It is well known in the medical literature that patient satisfaction is related to professional attitudes and conduct more than knowledge. We, however, spend most of our efforts in medical education focusing on the acquisition of knowledge rather than improvement of clinical skills, particularly professionalism. This curriculum is designed to help teach and foster professional attitudes and conduct in medical students through a series of interactive sessions.

Methods: The Professional Attitudes and Conduct (PAC) curriculum in the second year covers: 1) Elder Care, 2) Issues in Treating Adolescents, 3) Domestic Violence, 4) End of Life Issues, 5) Diversity and 6) Patient Safety. The sessions begin with a didactic component. The students then break up into small groups that are faculty facilitated. The small groups view vignettes and role play. The students share as a group how the various situations were handled and areas for improvement. The small groups then reassemble in a large group to share their experiences and lessons learned.

Results: The majority of students rate these activities as above average.

Conclusions: 1) group learning is a very powerful and effective teaching format. 2) Professional attitudes and conduct can be introduced to the students early on, even before they have significant clinical contact. 3) Faculty involvement is essential to the curriculum. 4) The interactive nature of the curriculum makes it a desirable teaching activity for involved faculty. 5) Regrouping at the end of the sessions is an effective way to share valuable learning experiences.

16

Chief Residents Leadership Development Workshops

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Objective: Indiana University School of Medicine (IUSM) recognized the need for positive interaction of chief residents across disciplines and for developing the skills chief residents need in their leadership roles. A series of workshops were planned with the purpose of inviting the residents to notice and think about the informal curriculum of the residency programs - what values, relational patterns, and professional attitudes are fostered by daily interaction.

Methods: A needs assessment of chief residents was conducted to determine the challenges of chief residency. From this assessment a curriculum of specific approaches to dealing with these challenges was developed which included conflict management, team building, negotiation skills, time management, communication skills, and the four

competencies of leadership - management of attention, management of meaning, management of trust and management of self.

Results: Chief residents from all programs and the representatives of the IUSM resident organization, the House Staff Forum, were invited to attend a series of workshops conducted by IUSM faculty, program directors, and visiting experts in the leadership field, consisting of an initial half-day session prior to the beginning of the academic year and additional quarterly, two hour sessions. The workshops' structure included lectures, small group sessions, and discussions. The majority of the time was spent in interactive sessions with residents sharing their thoughts, feelings, and insights on a particular topic.

Conclusions: Program evaluations have been positive and there are plans to conduct these sessions each academic year. Discussion and networking are the key components of the workshops, providing an opportunity for problem solving and understanding across disciplines.

17

The Integration of Simulation-based Curriculum Into the Clinical Education and Assessment of Family Medicine Interns

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PURPOSE: Implement simulation-based patient care exercises to improve interns' performances of critical clinical tasks, communication with other members of the health care team, and self-assessments of their decision-making and * Ascertain outcomes based on interns' performances and perceptions of the exercises.

METHODS: During orientation, family medicine interns participate in didactic sessions and workstations to learn Advanced Cardiac Life Support (ACLS) concepts and skills. After the two-day course, they participate in simulation-based exercises that require them to apply ACLS concepts and skills as they and other health care team members respond to three closely-related scenarios of a patient whose clinical status deteriorates as the case rapidly evolves. Interns are assessed on how they formulated hypotheses for the varying clinical presentations, responded to the decisions they made, identified the clinical complications as they occurred, and communicated with the health care team. Using checklists, faculty rate interns' actions during the scenarios and debrief the interns at the close of the simulations. Team members assess each other's communication skills and discuss the decisions they made. Interns assess how well they performed their clinical tasks, communication, and decision-making. Focus groups with PGY-1 interns to elicit their opinions about the value of the exercise are planned. Focus groups with PGY-2 residents are also planned to gauge potential long-term benefits and weaknesses of the exercise.

RESULTS: To come

CONCLUSIONS: Simulation can reinforce ACLS training. It may also improve interns' clinical skills, communication, and decision-making abilities in responding to a rapid deterioration of a patient's clinical status.

18

Effect of Changing a Major Medical School Course to Pass/Fail in the Middle of a Graded Curriculum

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As some medical schools have chosen to change their entire curriculum to pass/fail grading, medical students' performance has remained the same while maintaining high student satisfaction. In the spirit of fostering collaboration amongst medical students instead of competition, and because the course is competency-based, the course directors for the first and second year clinical skills course, Patient Centered Medicine at the Loyola University Chicago Stritch School of Medicine, decided to change the course to pass/fail while all other surrounding courses continued to grade using Honors, High Pass, Pass and Fail. The course directors feared that changing a solitary course to pass/fail would end in reduction of student performance, as students would still be required to compete with each other for grades in all other courses. Our current results show that students perform similarly to past graded years, and student satisfaction with the pass/fail grading is very high.

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CardioLab: An Interactive Program to Teach Cardiac Performance

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Objective: Pressure-Volume (P-V) loops provide an important framework for understanding cardiac performance. Static representations of P-V loops fail to illustrate the dynamic nature of the cardiac cycle or how alterations in the primary determinants affect normal heart function. To address these important issues we created a computer simulation program that serves as an interactive teaching tool that can be used by the instructor in a lecture format or by the student independently.

Methods: We developed a computer simulation of P-V loops that illustrates the different phases of the cardiac cycle during normal and altered conditions. The simulation starts with the normal cardiac parameters, and provides the user with the ability to change the primary determinants of cardiac function: 1) preload; 2) afterload; 3) contractility. The program is totally interactive, intuitive and self guided. At any stage of the simulation a HELP option and brief contextual tutorial are available to the student. We use CardioLab in our first-year medical course on human physiology.

Conclusions: In our experience this type of computer simulation has proven extremely useful to convey essential concepts of cardiac performance. Animation provided by the simulation allows the student to better grasp the dynamic nature of the cardiac cycle. Also the possibility of on-line interaction challenges the traditional passive role of

students, allowing them to explore the basic concepts of cardiac function at their own pace. CardioLab is an excellent tool for teaching and it is freely available on the web.

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Teaching Basic Electrophysiology With the Aid of a Computer Program

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Objective: Understanding the basis of electrophysiology is essential to the training of a first-class physician. A solid basis in these fundamental concepts paves the way for a better comprehension of more complex phenomena. We implemented a computer program (LabAXON) that simulates the electrical activity of a neuron axon. This program helps the student to understand the generation of the action potential and the effects of extracellular ionic concentration and stimuli waveform.

Methods: This program was based on the work of Nobel prize winners in Medicine Hodgkin and Huxley. LabAXON allows the students to reproduce the basic experiment these scientists performed on the squid giant axon. Important concepts such as Current-Voltage relationships, threshold (amplitude vs. duration), refractoriness and Ion Reversal Potential can be explored in an interactive way. A user-friendly interface permits a rapid change of parameters and the ability to see the effects on-line. Also we created a workbook with a list of exercises that covers the essential points of the lecture.

Conclusions: The processes that take place at the membrane set the stage for several concepts that will come out in the following years of the student's education: how drugs interact with channels, effect of ionic imbalance, refractoriness of the membrane, to name a few. Computer simulations help to reinforce those topics in the student in a self paced manner. It constitutes an excellent aid for the medical educator. LabAXON and the companion workbook are freely available on our departmental website.

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On-Line Medical Professionalism and Ethics Teaching and Assessment Project

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IUSM's curriculum requires that all graduates show proficiency in nine competencies. With nine instructional sites it is important that all students are exposed to an equivalent learning experience and uniform assessment method. This project assesses competencies in "Professionalism and Role Recognition" and "Moral Reasoning and Ethical Judgment". Using ANGEL, first year medical students can achieve proficiency by completing an online exercise that requires the student to read and evaluate a vignette describing ethical and professional issues. They have two hours to consider a randomly assigned case and respond in writing. Students are encouraged to elaborate on their interpretation of the situation, cite infractions, and list solutions. On submission of their response, a set of applicable discussion points (DP) is furnished automatically. Second year medical students repeat the same exercise and, in addition, author a case vignette for

the case bank. This can be a personal experience, a fictional story or a combination thereof and must have a set of DP. Each submission is read by a faculty and evaluated (unsatisfactory, satisfactory, or superior) based on the DP addressed. Students receiving an unsatisfactory mark are counseled and given additional reading assignments and another chance to show their proficiency. After online beta-testing with 30 students, early results indicate most students like the exercise, and understand the purpose of it. Student-generated vignettes show that they put a significant amount of thought into the project. We anticipate expansion of the case bank and school-wide availability by 2007.

22

Culture, Narrative and Medicine

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Mark Kuczewski, PhD, Loyola University Medical Center

Teaching cultural competence to medical students effectively is an ongoing challenge, as it is not easily reduced to a technical skill. The newer concept of teaching “cultural humility” means approaching understanding of others’ and one’s own cultures as lifelong processes of self-reflection and self critique: issues of personal and professional growth. Narrative medicine and reflective techniques as described by Rita Charon and Rachel Remen are well suited to teaching these concepts. As a result, I developed a novel elective course for fourth year medical students that combines the use of literature and narrative writing with personal reflection to explore relevant culture issues. During the four-week course, students read poetry, short stories and novel length narratives. Authors include Mary Oliver, Rafael Campo, Jhumpa Lahiri, Ann Fadiman, William Carlos Williams and Alex Kotlowitz. Readings were selected to reference the physician’s relationship to various cultural issues. Students also must write a personal reflection about a relevant question before each session. We then meet in seminar format and discuss the readings and our written reflections. The students will also be assigned a short in-class narrative writing assignment to facilitate each session’s discussion. Reflective listening rules will govern the discussion. The final assignment is to write a patient history from the patient’s perspective as a narrative story. The course will pilot in January 2007 for ten students. I will present the course outcomes.

23

A Team-Teaching Approach to EBM in a Competency-Based Curriculum: Lifelong Learning Strategies

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Since 2002, library faculty from the Indiana University School of Medicine have been teaching 3rd year medical students how to retrieve the best evidence from MEDLINE to

address their clinical questions. In preparation for their Neurology, Medicine, and Psychiatry clerkships, students attend a review of evidence-based medicine principles and techniques for searching the literature. The session is team-taught by two faculty members, one from the Internal Medicine department and the other from the Library, with the librarian reviewing important MEDLINE principles for constructing a good subject search and applying appropriate evidence-based filters. During the clerkships, students are asked to generate clinical questions arising from their patient encounters, search MEDLINE for the best evidence, critique the results, and then apply them back to their patients' care. Library faculty provide individualized feedback on the student searches. A follow-up session two months later reinforces MEDLINE principles using student searches as examples and extends the discussion to other evidence-based, point-of-care resources that fit the new "5S" organizational model. To add to the interactivity of the follow-up sessions, librarians have recently begun using an audience response system to measure students' understanding of literature retrieval techniques and to gauge student preferences for information seeking on clinical topics. Overall, the sessions have been well received by the students.

24

Use of On-line Exams to Assess MS2 Skill in Pulmonary Auscultation

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Arcot Chandrasekhar, MD, Loyola Stritch School of Medicine

Objective: Assess MS2 skill in pulmonary auscultation. Because on-line exams were implemented for all courses at Stritch this academic year, PCM 2 (Patient Centered Medicine, year 2) was able to individually assess MS2 proficiency in pulmonary auscultation. Previously, MS2s had one lecture (highly rated) and utilized CDs with lung sounds in small groups (ten MS2s with one MS4 and one attending) to learn lung sounds. However, there was no objective evidence of competency. This year, two lectures separated by one week were assigned to lung sounds. The pulmonary lecturer (who is also the Associate Dean of Computers) created on-line exercises for both sessions. First MS2s individually completed an on-line exercise identifying lung sounds immediately after the lecture and then spent time in small groups reviewing answers. One hour before the second lecture a week later, each MS2 completed an on-line exam, identifying lung sounds in the context of a clinical scenario (from material covered the week prior). To our surprise, the students scored poorly on this second exam (average 61%). However, because he had immediate results of the on-line exam, the pulmonary lecturer directed his interactive second lecture to cover only the material missed on the on-line exam. The second years found the use of the on-line exam with subsequent lecture directed to their results to be one of the best sessions of the semester. They expressed confidence in their ability to identify lung sounds! I hope to use this format with heart sounds next year, too.

25

Towards An Informal Curriculum That Teaches Professionalism: Impacts And Outcomes Of Cascading Change At IUSM At Three Years

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David Mossbarger, MBA, Indiana University School of Medicine

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Purpose of Innovation: The Relationship-Centered Care Initiative (RCCI) is a four year effort at IUSM to initiate self-sustaining culture change by fostering widespread reflection on and mindfulness of the values being conveyed in everyday personal interactions and organizational behavior. Our goal is to foster an informal curriculum that consistently reinforces and exemplifies the values and principles of the competency-based formal curriculum in the domains of professionalism, communication, ethics and self-awareness.

Methods used: In approaching such large-scale organizational change, we knew we could not design and impose a culture, nor could we “process” every member of the organization through an intervention to “change” their behavior. We adopted a metaphor of ripples spreading in a pond to refer to changes in patterns of relating that would start locally and then spread. We adopted a strategy of emergent design, recognizing that we could only design a first step – the stone dropped in the water – and only after it was completed could we discern the next step, based on who became involved and what ideas they developed.

Results: While many have called for change, few have offered systematic methods to influence the informal curriculum and effectively change the culture of an academic medical center. We will display the emergent changes at the end of three years of our project, and share the outcomes and impact of the project, to include AAMC Graduation Questionnaire trend data, growing participation, changing patterns of relating, new institutional procedures and programs, cultural artifacts, and external evaluation.

26

Supplementing Instruction on Heart Sound Identification With a Downloadable MP3 File Improves Student Performance.

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Michael DelCore, MD, Creighton University

The 2005 AAMC Recommendation for Clinical Skills Curricula for Undergraduate Medical Education included identification of normal and abnormal heart sounds. Proficiency at discriminating the characteristics of heart sounds is enhanced by repetitive exposure to the sounds (Barrett et al., American Journal of Medicine 119: 73-75, 2006). To supplement our instruction in a Cardiovascular System course in the second year of the medical curriculum, we recorded a sound (MP3) file that included brief commentary on identifying 8 basic heart sound patterns with 30 second samples of each. The 8 minute file was made available through the course website and also on pre-loaded "loaner" MP3 players (iPod nano). The iPods feature a "Music Quiz" game that can be used to self-test

identification of sounds. More than two-thirds of the class downloaded the file or borrowed an iPod. Since heart sound instruction (teaching methods and instructors) was otherwise identical to the previous year, we used four questions that involved aural identification of heart sounds and appeared on the final exam in both years to compare student performance. The class that had access to the MP3 file performed better on each of the questions, the % answering correctly increasing on average by 10% (SD 4%), although the overall class performance on the 100 question final exam was similar (mean score was 0.4% higher in the current year). On the course evaluation, 90% of the respondents agreed or strongly agreed with the statement "The MP3 files of the heart sounds helped me learn to identify the sounds" and 66% agreed or strongly agreed with the statement "I found listening to heart sounds on an iPod a convenient way to review them." We conclude that availability of a short MP3 file reviewing heart sound identification is a useful supplement to other methods of instruction.

27

Communicating with Consultants: An Objective Structured Clinical Encounter (OSCE) for the Sub-internship

T. Robert Vu, MD, Indiana University School of Medicine

Effective communication with consultants is an essential skill not commonly taught formally in medical schools, as evidenced by many students expressing discomfort when asked to request consultations from specialists. Yet, competence at this task is commonly expected of interns/residents. The fourth-year sub-internship is an ideal rotation for medical schools to teach this critical skill.

Purpose: We developed an OSCE for the sub-internship rotation to evaluate and teach sub-interns to effectively request specialty consultation.

Materials/Methods: The OSCE station contains a mock paper chart of a hospitalized patient. A recruited clinician-teacher (chief resident/fellow/faculty) is trained/"standardized" to play a general surgeon-consultant. The scenario begins with the student cross-covering a patient for an intern colleague who forgot to sign out. S/he (student) is paged by nursing staff reporting that this patient has now developed a fever with worsening abdominal pain. S/he is instructed to review the patient's chart which contains the necessary clinical information and additional instructions to cue the student to seek an urgent surgical consult. The surgical consultant makes him/herself available and allows the student to begin the consultation request—an interactive process allowing the consultant to assess students' clinical skills and knowledge and to provide feedback/teaching. At the OSCE's conclusion, students complete a survey anonymously to rate the instructional usefulness of this case.

Results: Student feedback (over three years) on this consultation case has been very positive (a 4:1 ratio of "most useful" to "least useful").

Conclusion: This OSCE is an effective method for evaluating and teaching sub-interns the valuable skills of communicating with consultants.

28

Discharge Planning Curriculum in Internal Medicine Residencies: A National, Cross-Sectional Survey

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Background and Purpose: Discharge planning is an integral part of the health-care process. However, data is limited on curricula that address this issue in internal medicine residency programs. The main objectives of this study were to: 1) describe format, content and evaluation of discharge planning curriculum (DPC) in internal medicine programs; and 2) identify program directors' perceptions of its role in residency training.

Method: Investigator developed survey mailed to all United States program directors included program demographics; format, evaluation and directors' perceptions of DPC.

Results: The 40% (153/387) respondents included 44 % university affiliated-community based; 29 % university based; 24 % community based; and 3% other. In 16% (24/153) of programs using a formal DPC, 79% used lecture format, 55% dedicated 2 hours annually, and 42 % evaluated it. The main content area in the DPC included hospital resources to coordinate transition to outpatient care (96%) and communication with patients' usual health care provider (75%). Two thirds of the programs discussed high risk social and medical discharge indicators. In a majority of programs, internal medicine faculty (83%) and/ or discharge planners (88%) delivered the curriculum. Directors agreed that DPC should be an important residency component (76%) and would decrease readmissions (53%); facilitate continuity of care (67%); enhance residents' system-based practice skills (83%); and increase patient (67%), referring physician (62%), and nurse (61%) satisfaction.

Conclusions: Though program directors perceive it as important, only 16% of programs across the country employ formal DPC for this important aspect of patient care.

29

Clinical Skills Day Orientation for a 9-month Rural Medicine Immersion Experience

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Jane Miller, PhD, University of Minnesota

Background: Simulations (using standardized patients and human patient manikins) can be used effectively with medical undergraduates as an alternative to lecture. Objective: To create an orientation program that improves student confidence, knowledge and skills in preparation for a 9-month rural rotation.

Methods: Ten clinically relevant cases were developed to meet educational objectives. Clinical faculty and standardized patients were recruited and oriented to the scenarios. Scenarios, ranging from a pediatric URI, to labor and delivery management, and cardiac arrest, were clustered by the urgency of the chief complaint with different amounts of

time allotted for each (20-minutes primary care and 45-minutes acute care). Students in the rural physician training program participated in the day-long session as part of their 3-day orientation. Students were randomly divided into teams. Each student completed three evaluations: 1) for 45-minute stations, 2) for 20-minute stations, and 3) to evaluate the day-long experience. Items were phrased as attitude objects using a 5-point Likert scale. Respondents were also asked for open-ended written comments and verbal comments were solicited during a debriefing session. Clinical faculty were also surveyed regarding their perceptions of student outcomes.

Results: To date 77 students have participated in the session. Qualitative and quantitative data demonstrated that students: 1) improved their confidence in preparation for their rotations; 2) refreshed or gained procedural skills for acute clinical situations; and 3) thought that this was an efficient and effective educational methodology.

Conclusions: The combination of simulation methodologies was successful. The event is repeated and evaluated annually.

30

Community Health Assessments: Bringing Value to Rural Communities

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Background: Medical undergraduates learn community health by performing a community health assessment and preparing a strategic plan to address health indicators while providing a valuable service to the community.

Objective: To teach community health by involving students in the assessment of community health data and in the development of a plan and resources to improve community health.

Methods: An online module was developed on community health for students in a rural longitudinal elective experience that includes a well-defined project with the following steps: 1. Identify the priority health indicator(s) you want to use in your assessment and explain your choice. 2. Include community health data/information for the selected indicator(s). 3. Create a plan to address the chosen indicator, including resources you will need to implement your plan, such as funding, people, technology, and physical space. 4. Describe how the plan can or will be implemented. 5. Select outcomes measures related to the health indicators and/or to the plan you develop in order to evaluate the impact of your project.

Results: To date 64 students have completed projects on many health issues that have involved surveys, data analysis, plans and resources. Several communities have received grants to continue these projects and to incorporate interprofessional students in ongoing experiential learning. These community health issues include obesity, Latino health access and geriatric risk assessment and falls prevention.

Conclusions: Medical students learning in rural communities can develop and participate in community health projects that have the potential to make a difference.

31

Development of a Standardized Assessment Tool to Evaluate Clerkship Students Across Disciplines

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Purpose: Timely and accurate feedback is essential to improve performance of clerkship students. Our web-based standardized assessment tool: 1) enables faculty to provide students with timely feedback on their clinical performance, 2) supports real-time assessment in off site clinical rotations, 3) promotes longitudinal assessment of student performance across clerkships, 4) reinforces desired outcomes of the third year by describing poor, marginal, and high student performance in key domains across all clerkships, 5) promotes better discrimination among student performance within a given clerkship by providing descriptive anchors, and 6) provides readily available data analysis to support continuous improvement of individual clerkships.

Method: Clerkship directors collaborated to develop 11 general categories and 86 descriptive statements of desired student performances that were common across all clerkships. Up to 5 optional descriptive statements unique to individual clerkships could be added. Faculty rate students using the radio buttons for the standardized assessment descriptions and provide written feedback. The Surgery clerkship piloted the web-based system. Currently all clerkships use the system.

Conclusion: Two-Five minutes of faculty time are required to complete an evaluation. Number of evaluations each student received increased (Surgery=57%). Number of evaluations completed increased in each clerkship ranging from 42- 405 unique evaluations. Completion rates in each clerkship ranged of 44-100% of anticipated. Average amount of comments per student increased across all clerkships (Surgery from 137 to 343 words/student). Timeliness of feedback greatly improved (from 6-8 weeks to one week). The web-based system allows students and curriculum leaders to monitor student performance across clerkships.

32

Population Health and Prevention: Attitudes, Backgrounds, and Satisfaction of Medical Students

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Purpose of Study: The purpose is to evaluate M1-M4 medical students' backgrounds in and attitudes about population health and prevention (PHP) issues, and their satisfaction with the implementation of a longitudinal, dynamic PHP curriculum. Healthy People 2010 identifies the lack of training for health care professionals in population health and prevention as a significant issue impacting the health of people in the United States.¹

Methodology: A revision of the PHP curriculum began in 2005. Data collection included

surveys, real-time feedback, focus groups, and qualitative results from a continuous quality improvement circle.

Summary of results: 288 students participated over four years, with about 95% of the 1st and 2nd year students responding. Descriptive results from surveys, real-time feedback, and themes from quality circles will be presented.

Conclusions: Identifying the background of students, understanding their general attitudes about PHP topics, and proactively responding to real-time feedback has allowed for curricular changes to occur in a smooth and timely manner. In addition, 3rd and 4th year students and faculty are being surveyed in 2006. Three main conclusions: 1. Students had little preparation in the areas of PHP. 2. Student attitudes about PHP indicated that the topic is important; ranking preventive medicine most important and biostatistics least important. 3. Positive feedback on curricular activities has improved from about 2.5 to 3.5 on a five-point scale as the integration expands. 1 U.S. Department of Health and Human Services. Healthy People 2010: Understanding and Improving Health. 2nd ed. Washington, DC: U.S. Government Printing Office, November 2000.

33

Students' Use of Study Aids and Online Lectures to Prepare for PBL Exams

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Purpose: In this research we looked at how students used study aids to prepare for PBL exams, with particular interest in the use of recordings of lectures, which are available online soon after the live lecture.

Methods: We surveyed second-year medical students after they completed their Major Mental (MMD) and Metabolism-Endocrinology-Reproduction (MER) PBL exams. The questionnaire asked students to rate the usefulness of various study aids, including online lectures, on a 5-point scale (1=not useful; 5=very useful).

Results: The response rate was 72%. Over 90% of students used mainly their lecture notes and course pack to prepare for both exams. The course textbook for the MMD domain appeared to be more useful to students (3.8) than the text for the MER domain (3.2). Most (88%) students reported studying alone rather than in groups. More (68%) students attended most or all of the MMD lectures compared to 60% for the MER lectures. Of the six lectures that were both live and recorded, an average of 55% attended the live lecture and an average 36% of respondents also watched the entire online lecture.

Conclusions: Understanding how students choose to watch a live lecture or an online one can help us improve both, and whether live lectures are necessary. Even when online lectures are not available only 50% of students report attending lectures; this did not change with the availability of online lectures.

34

Simulated Nurse Calls as a Feedback and Assessment Tool for a PGY 1 Surgical Curriculum

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Purpose: Simulated nurse calls (SNCs) have been demonstrated to increase PGY1 surgical resident confidence. SNCs were incorporated into our PGY 1 protected block curriculum to identify intern deficiencies and provide feedback.

Methods: Seven clinical call scenarios focusing on common situations facing PGY1 surgical residents were reviewed and discussed during 3.5 hours of faculty-led sessions during 1st month of training. Ten weeks later, during curriculum time, the nurse educator paged each intern, presented 2 new SNC scenarios developed by faculty and nurse educator, with a 15 minute limit, and then rated intern's responses using a checklist of expected responses and Likert scale for behaviors associated with ACGME competencies. A feedback session, using aggregate results, was conducted at the conclusion of the SNCs with the PGY1 group.

Results: Ten surgical interns and 2 physician assistant interns completed the SNCs. Approximately 50% sought additional information on the H&P, with nearly all verbalizing the correct management plan for both scenarios. ACGME competency ratings revealed deficiencies in professionalism, communication and medical knowledge in 2 learners. The use of aggregated feedback allowed a frank discussion of group deficiencies regarding case management, which were targeted in subsequent curriculum sessions. The simulated calls and feedback sessions were rated 4.5 and 4.8/5.0 (5=excellent) for session content and 3.8 and 3.7/4.0 for teaching (average 4.5 and 3.5, respectively).

Conclusion: SNCs with group feedback is an effective and well-received instructional strategy and yields needs assessment data to inform subsequent residency education sessions.

35

Rewarding Community Physicians for Teaching Medical Students in the Private Office

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OBJECTIVE: With increasing emphasis on outpatient experiences throughout core clerkships, a movement from university clinics to community physicians and increasing financial and productivity pressures, it has become increasingly difficult to recruit and retain volunteer community physicians for medical student teaching. An incentive program was undertaken to determine in what way this added benefit to the physician would affect recruitment and retention.

METHODS: Approval and funding was secured through the Pediatric Department Chairman for rewarding volunteer community preceptors. Each pediatrician would receive a \$200 gift certificate for each month that a medical student was precepted in the office. This incentive plan began in July, 2005. Physicians were surveyed after 6 months to assess reasons why they chose to teach medical students; determine the physician's perception of the advantages and barriers to teaching students; whether receiving the gift certificate affected their willingness to take students; and what other incentives the physician might find desirable.

RESULTS: After 6 months, survey results indicated that 58% of physicians chose to teach because of the joy of teaching. The biggest barrier to having students in the office was balancing the needs of patients and learners (42%). Fifty-four percent of the physicians indicated that the gift certificate did affect their decision to take a medical student for training.

CONCLUSIONS: Over half of the physicians were incentivized by the program but the period of time was too short. Further information regarding the program's impact and cost will be elicited through a survey done at 18 months.

36

A Statewide Community Teaching Scholars Program to Enhance Preceptors' Teaching Skills: Program Evaluation

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Objective: The purpose of the Community Teaching Scholars program is to enhance resources to support teaching by training community-based preceptors to develop and provide faculty development workshops around the state. The main focus of these workshops is to enable primary care preceptors to translate classroom learning into practice for clerkship students.

Methods: Two community-based faculty members (Scholars) from each of six regional medical education centers were recruited to participate in this 3-year train-the-trainers program. Scholars receive training in workshop development, instructional design, presentation skills and clinical teaching through 1) quarterly meetings focusing on teaching topics; 2) experience facilitating and co-facilitating workshops; 3) guided stepwise development of teaching skills workshops, and 4) feedback from program staff and peers.

Results: Scholars self-assessed educational skills improved as a result of the training program and scholars perceived opportunities to develop and practice facilitating workshops, learn advanced educational principles and interact with peers around the state as the primary program benefits. During the first 3 years of the program, a total of 65 faculty development workshops were provided by scholars to preceptors throughout the state, including 12 new teaching skills topics, with relatively high attendance (872 total attendees). Preceptors reported significant improvements in teaching skills and confidence following participation in workshops.

Conclusions: The program has been successful in enhancing statewide resources for faculty development and individual participants have gained valuable knowledge and

skills. The train-the-trainers model has proven to be a useful approach for addressing the statewide teaching skills needs of educational programs and preceptors.

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What Factors Influence Attendance at Medical School Lectures?

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Purpose: Lecture recordings (audio and screen video using Camtasia Studio) for most Year 1 courses were provided in a digital format within 24 hours after the lecture. The purpose of this study was to investigate factors that influence students' decisions about attending a live lecture in the context of the availability of online lectures.

Methods: A questionnaire was distributed to 106 students at the end of their first year in medical school; 85 surveys were returned. The questionnaire asked respondents to rate their lecture attendance, as well as reasons why students are more or less likely to attend a lecture. Students also were asked for comments about features that influence the effectiveness of lectures.

Results: In general, students were more likely to attend the live lectures if they believed the instructor was a good lecturer (86%) and could present understandable explanations (76%). Data indicated that 58% of students agreed with the statement "I always attend lectures if possible," and 20% agreed with the statement "I never attend lectures unless they are required." There were significant differences in decision factors for students who regularly attend lectures compared with those who do not. Written comments were organized and tallied by categories.

Conclusions: Students base their decisions to attend or not attend a live lecture based on the quality, preparedness, coursepack organization, and enthusiasm of the lecturer, as well as exam schedules. Nearly half of the students thought the availability of lecture recordings enhanced their ability to focus during the live lecture.

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A Study of Students' Perceptions of a Web-based Clinical Case Log

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To comply with Liaison Committee on Medical Education standard ED-2 regarding objectives for clinical education¹, a web-based computer log was developed (Phase 1), implemented and subsequently revised (Phases 2 and 3). This project describes students' perceptions of the case log at three points in time to assess perceptions of usefulness of evolving features as well as characteristics including ease of use and logging behaviors. Subsequent versions extended the functionality of the Phase I log and included several recommendations for desirable case log features². Data were gathered at six-month intervals using surveys (January 2006, N = 132; June 2006, N = 142; December 2006, N (estimated) = 150). Results to date indicate that revisions in the system did not impact

perceptions of logging behaviors and ease of use. However, added features (e.g., detail on level of involvement, reporting features for summaries of cases, procedures) were perceived as important by more than 50% of students. Continued use of required logging is associated with reports of an increased impact on students' clinical behavior influencing them to seek out clinical experiences, patient types and procedures. 1. Liaison Committee on Medical Education. Functions and Structure of a Medical School: Standards of Accreditation for Medical Education Programs Leading to the MD Degree. September 2003 edition. Washington, DC: Association of American Medical Colleges, 2004. 2. Bardes C, Wenderoth, S, Lemise R, Ortanez P, Storey-Johnson C. Specifying student-patient encounters, web-based case logs, and meeting the standards of the Liaison Committee on Medical Education. *Acad Med.* 2005; 80: 1127-1132.

39

A Comparison of the Use of Plastinated Specimens and Dissection to Teach the Anatomical Structures of the Hand

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Currently, 97% of medical schools require cadaver dissection and consider it to be an essential component of the curriculum. However, many administrators are under growing pressures to reduce or eliminate dissections from their program. Time pressures, reduced numbers of qualified faculty, and advances in technology have called into question the value of student cadaver dissections. At UT COM, we have the unique opportunity to examine the impact of plastinated prosections on efficiency of student learning. Nineteen first year medical students were included in a study involving a single lab session covering the hand dissection. All students took a laboratory practical pretest just prior to the lab. Students were placed in 2 groups and either completed the standard dissection of the hand or utilized only plastinated prosections of hands to learn the content of the lab session. Students completed a posttest and a brief survey at the end of the lab session. Results of this study indicate no significant difference on the posttest scores of students between the two groups. However, the mean time needed to complete the lab using plastinated specimens was only half that of the group who did the actual hand dissection. Students utilizing the prosections reported them easy to work with and important structures easy to identify. Overall these students were more satisfied with the laboratory experience based on level of difficulty and time productivity measures. These preliminary results suggest that plastinated prosections maybe used as a substitute for student dissections without negative impact on student learning.

Fostering Reflection on Our Culture: The Mindfulness in Medicine Column at Indiana University School of Medicine

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The behaviors, attitudes and thoughtfulness modeled by anyone in the community have an impact on everyone else – students, residents, faculty, staff, and patients.

Objective: As part of our continuing effort to stimulate attentiveness to our social, collegial and professional environment, IUSM introduced a new column, Mindfulness in Medicine (M&M), in Scope, the School of Medicine newsletter, in fall 2005. M&M is just one outgrowth of the IUSM Relationship-Centered Care Initiative (Suchman et al., 2004).

Methods: An editorial board composed of faculty and educational staff was formed to establish the objectives, desired tone, and format for the new column. Each M&M column features real stories, letters, poetry, or art from members of our campus community. Some content is self-explanatory and, in some instances commentary from one of our professional colleagues follows a story. The board collects and reviews stories, letters and other potential content, solicits expert respondents on specific topics, and works collaboratively to edit and prepare final columns. Stories recognize not only problems and challenges, but also the often laudable ethical and professional behaviors of our community members.

Results: A description of the column goals and development process will be included. Examples of published Mindfulness in Medicine material, based on real stories from IUSM, will be displayed.

Conclusions: The M&M column demonstrates how stories and other material gathered from our culture can be used as tools for improving both the formal and informal curriculum. M&M provides a venue for highlighting our shared challenges and compassionate and humanistic achievements.

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Assessing Third- Year Medical Students' Ethical Reasoning Skills Using Clinical Vignettes

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Purpose: The most widely used instruments in ethics research are Rest's Defining Issues Test and Kohlberg's Moral Judgment Interview. These instruments measure moral development and moral decision-making rather than ethical reasoning. Recently the use of vignettes to assess medical students' proposed actions on encountering ethical dilemmas has been a favored approach. We developed a tool to evaluate the ethical reasoning skills of third-year students in the Internal Medicine Clerkship with an integrated ethics curriculum.

Methods: Five vignettes were developed by a clinical ethicist to reflect common ethical issues from clinical practice: patient autonomy, professionalism, beneficence, and social justice. Students are required to respond to questions from all five vignettes: (1) What are the ethical concerns? Why are they ethical concerns? (2) What options exist? What course of action should be taken? (3) What ethical principles, values, or arguments support your decision? Scoring sheets for the five vignettes were created based on answers from three local ethicists, which yielded a high consensus rate (83%). Four components were assessed, students' ability to: identify ethical issues, consider multiple viewpoints, resolve ethical dilemmas, and justify decisions and actions.

Conclusion: Results show that clarity and content validity of the vignettes were established through a review by expert ethicists. The scoring sheets were pilot-tested (n=17) and inter-rater reliability was moderate. Solid measurement tools are essential for examining the efficacy of educational experiences and evaluating performance that help to identify gaps in students' learning. Our next step is to further develop this instrument to increase its generalizability.

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Lifelong Learning Competency at Indiana University School of Medicine: Creative Examples of Level 3 Achievement

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Competencies at Indiana University School of Medicine are set at three levels, levels 1, 2 and 3. At level 3, the advanced student demonstrates a high enthusiasm for learning, and actively pursues learning opportunities. The Medical Education in Pathology and the Advanced Regional Gross Anatomy electives provide such opportunities. The pathology elective is open to 4th-year students and 3rd-year students who have completed at least 6 months of clinical rotations. Students may participate in several activities: a. act as

teaching assistants in pathology labs. This requires a review of lecture material, gross specimens, photographs, and microscopic slides; all lectures and labs are online including digitized microscopic slides. b. prepare practice quiz questions for the practical exams themselves using USMLE-only format c. prepare study questions and reviews for one of two Angel sites (Board Review Questions or Major Diagnostic Tests); most questions include images such as patient photos, x-rays, histopathology, and EKGs. Similarly, in the gross anatomy elective, 4th-year students serve as teaching assistants for 1st-year medical students. By attending all lectures, preparing cadaveric dissections as teaching aids, and presenting their prosected specimens to the 1st-year students, the seniors review and relearn anatomy while also teaching it, thus reinforcing the link between basic and clinical anatomy. Their presentations are evaluated by faculty and other 4th year students and are recorded on DVDs.

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Programs for Tracking Medical Learning: A Student Perspective

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Medical students at Indiana University School of Medicine (IUSM) are taught within a competency-defined curriculum aligned with the AAMC Medical School Objectives Project. Competency areas include effective communication; basic clinical skills; using scientific knowledge; lifelong learning; self-awareness/personal growth; social/community healthcare; moral reasoning/ethical judgment; problem-solving; and professionalism. Several electronic programs are currently utilized to track student development in the competency curriculum. To demonstrate level one accomplishment, students at one campus create electronic portfolios consisting of nine competency entries. Portfolios are formatted using proprietary software compatible with IUSM's statewide learning management system. Some assignments are imported directly from existing courses, including faculty comments and scores, providing site-specific information about competency activities that have been assimilated into the MS1 and MS2 curriculum. Other entries are learner-selected examples from co-curricular and community-based experiences, accompanied by reflections on how each example relates to a specific competency theme. At level two, all IUSM MS3 students use electronic tools to catalog their experiences: clinical encounters tracking and professionalism journaling. Each student is assessed for attainment in all competencies during clerkship rotations using global clinical evaluations. Results are reported electronically. In the fourth year, students choose three competencies for higher-level work, documenting intention and achievement in these areas using the Electronic Competency Management System. This program includes a faculty evaluation mechanism for assessing student attainment of competency goals. IUSM's long-term vision is to combine these assessment systems into one electronic portfolio, fusing the compiled record of medical learning with evidence for students' personal sense of development as physicians.

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Teaching Oral Presentation Skills during Clerkship Rotation through a Workshop Addressing Communication Apprehension and Presentation Format

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Demonstrating "effective oral and written communication with the health care team" and "presenting a complete, well-organized verbal summary of the patient's history and physical examination findings" constitute two of the skills the pediatric clerkship endeavors to develop in students. One reference suggests that developing a structure for learning oral presentation skills is more effective than by trial and error. (Haber, R., et al., 2001, Learning Oral Presentation Skills: A Rhetorical Analysis with Pedagogical and Professional Implications, *Journal of General Internal Medicine*, 16, (5), 308-314.) Educators continue to develop different ways to enhance the student's presentation skills while on their clerkship rotation. (Green, E., et al., Developing and Implementing Universal Guidelines for Oral Patient Presentation Skills, *Teaching and Learning in Medicine*, 17(3), 263-268, 2005.) Feedback from residents and attendings after the first month of clerkship for the current JMS group indicated that a significant number of JMS were experiencing difficulty in demonstrating effective oral communication with the health care team. In response to this feedback, clerkship staff designed a two-session workshop to focus on two main areas: 1. Communication Apprehension (fear associated with public speaking) and 2. Structuring Presentations to be logical, sequential, and concise. The workshop has been offered as an optional activity to students during three rotations. Twenty-two students attended at least one session. Response to the sessions has been positive overall, and students have offered suggestions for improvement. This poster will describe the content and format of the workshop, resources used, and student feedback.

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Evaluating Clinical Teaching Using "Stealth" Students

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Purpose: End-of-clerkship teaching evaluations have limitations as a source of feedback on teaching. They aggregate teaching encounters, are not timely, seek global generalizations, and blur the impact of multiple teachers. In an effort to improve the value of teaching evaluations, we trained medical students to evaluate faculty teaching behaviors in individual settings.

Methods: 45 third-year students viewed videotapes of actors portraying teacher-student interactions and completed a 10-item rating form derived from the literature on excellent clinical teaching. Students role-played three teaching interactions based on scripted scenarios, once as learner, once as teacher, and once as evaluator. This provided practice in identifying critical teaching behaviors in real-time. After the training, students selected actual teaching interactions to evaluate, based upon with whom they had the most contact. All faculty were notified of our research and given the option not to participate.

Students were instructed not to notify the clinicians that they were being evaluated. Results: 371 evaluations have been completed on nearly 200 faculty members. About 150 evaluations each have been completed in inpatient and outpatient settings, with the remainder evaluating settings such as noon conferences. The number of evaluations per faculty member ranges from 1 to 15. The most frequently observed teaching behaviors are assessing students' prior knowledge and establishing expectations. Behaviors that are seldom reported include assigning relevant reading, and giving positive feedback. Conclusions: Students can be trained to complete evaluations on specific faculty encounters shortly after those encounters occur, to provide a more a specific evaluation of teaching performance.

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Improving GME through Partnerships with Graduate Schools of Education

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OBJECTIVE: The ACGME has mandated that residency-training programs systematically design, deliver and evaluate their programs. A strategy to meet this mandate is for medical schools to partner with local universities to hire doctoral students in education (DSE) to assist in the design, implementation and evaluation of competency-based residency education.

METHODS: An informal assessment of GME programs identified the need for sustained support by individuals with expertise in education. Building on the previous successes in hiring DSEs to meet these needs, medical college leaders supported a proposal to establish a formal partnership between our the medical school's GME programs and its Office of Educational Services (OES) and the University of Wisconsin-Milwaukee's College of Education (UW-M) Adult and Continuing Education program to support DSE placements in selected clinical departments. The clinical departments provided the financial support for the DSEs' stipends and for OES-based supervision and resources.

RESULTS: Two DSE placements have been in place within three clinical departments (.25 FTE to .50 FTE) for 1.5 years. DSEs are jointly supervised by the residency program director and the OES director with efforts focused on each specialty's needs. To date the DSEs have co-authored competency-linked objectives for all clinical rotations and curriculum, assessment tools, residency manuals, selected PIF sections, and conducted follow-up evaluations with residency graduates. During this time period each residency program has completed an RRC site visit.

DISCUSSION AND CONCLUSIONS: Key elements in establishment of embedded DSEs in GME will be discussed and strengths/weaknesses associated with this model highlighted.

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Portfolio Assessment System Designed to Encourage Reflective Practice

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Background: Reflective practice refers to the analysis of both cognitive and affective aspects of experience in order to understand or gain new perspectives that lead to improved practice. (1,2) If encouraging the development of reflective practice is a goal of an assessment system, then evidence is needed to document progress and mentors are essential to help students to interpret the evidence.

Methods: Reflective practice, as one our program's nine competencies, is assessed using portfolios. Students work with advisors to analyze performance-based feedback as it becomes available in the ePortfolio. Evidence serves as a catalyst for dialogue about students' development as physicians and researchers. Students periodically prepare Formative Portfolios that include reflective essays, learning plans, and student-selected evidence and discuss them with their advisor in formal meetings. Students also use their formative assessments to construct yearly Summary Portfolios for review by a separate faculty promotions committee. The advisor plays a non-evaluative role in the summative process by providing feedback during the development phase, confirming that the portfolio is the student's own work and that the selected evidence is representative of the student's performance across the year.

Conclusion: Reflective practice is considered a foundational competency underscoring the importance of learning from experience and thus should be an integral component of an assessment system. 1. Schön D. *The Reflective Practitioner*. Basic Books, 1983 2. Epstein RM, Hundert EM: Defining and assessing professional competence. *JAMA* 2002; 287:226.

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Increasing Teaching Faculty Compliance with Scheduled Lectures

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Purpose: Residency programs must respond to new educational challenges presented by the ACGME competency-based mandate, duty hour restrictions and medical advances. Dedicated competency-based core curriculum sessions are a common response to providing essential training; however faculty compliance with scheduled teaching assignments remains a challenge. Faculty cancellations and/or failure to show has lead to low resident attendance and the feeling that resident education is not a faculty priority. This project seeks to increase the faculty compliance with scheduled teaching sessions.

Methods: Traditionally, core curriculum sessions were scheduled for an entire academic year, requiring one hour per week for all surgery residents and assigned teachers. In 2006-7, three separate curriculum schedules were developed to target instruction by resident-training level: PGY 3-5 residents; PGY2; and PGY1. For PGY3-5 sessions, lectures are now scheduled by semester, and for PGY1 & 2 curricula, schedules are confirmed 3-6 weeks in advance. An initial confirmation e-mail and a reminder system (4

weeks and 1 week prior to teaching obligation) for faculty and their administrative assistant was implemented.

Results: The data collection is ongoing, but through the first 6 months, only one session has been canceled in advance with zero “no shows”. Advance notice of the cancellation resulted in early notification to residents of the schedule change. Resident attendance data is pending.

Conclusion: Professionalism is a competency for faculty and residents. By targeting the teaching sessions to trainee level, scheduling in shorter time frames and implementing a reminder system, we have nearly eliminated teacher absence.

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Innovations in Residency Education through a Protected Block Curriculum Structure

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Purpose: In response to calls for improved residency education, we initiated a sequenced rollout of a competency-based, protected block surgical curriculum. The structure, format and preliminary outcomes of our curriculum are described.

Methods: The PGY-1 (initiated 2005-06) and PGY-2 curriculums (initiated 2006-07) were developed based on needs assessments performed by faculty. Topics are linked to the ACGME competencies, sequenced to match trainee level, and presented using multiple methods including interactive lectures, case-based discussions, simulated clinical calls, preparation for in-service examinations, and skills labs (e.g., cadaver dissection). Pre- and post-tests are administered for each block and a self-assessment tool is completed by each resident along with session evaluations. All enrolled residents are relieved of their clinical duties during six, 4-6 day blocks interspersed over the academic year.

Results: Pre-post block multiple-choice examinations reveal enhanced medical knowledge, with sustained results per a re-administration of a PGY 1 examination during the PGY 2 year. Residents’ longitudinal self-assessment of their ability to perform key patient care responsibilities reveals progressive improvement in efficiency, effectiveness and balance between appropriate supervision versus autonomy. Interactive, hands-on sessions are particularly highly rated with overall session evaluations at consistently high levels. Targeted improvements have been implemented based on faculty and resident input. Non-enrolled PGY3-5’s recognize the importance and need for a curriculum, and perceive that their training is has been less robust relative to that of enrolled residents.

Conclusions: The protected competency-based block curriculum model is an effective curriculum structure for surgical education with demonstrated improvement in residents’ competencies.

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Virtual Classroom and Online Role Plays as Tools for Developing Clinical Teaching in Faculty

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Purpose: Ambulatory and community based faculty identify a need for efficient teaching strategies, including how to set goals, teach history-taking and physical examination, give effective feedback, maintain flow, evaluate students, and work with problem students.

Teaching physicians identify challenges created by limited time constraints and isolation.

Methods or materials: Our faculty development program uses distance learning and technology to overcome the isolation and time constraints of target faculty. The course uses online design to create a community of learners that spans sites. The virtual classroom preserves the educationally beneficial social and interactive features of a traditional classroom. The web-based format and partitioning of content into brief highly relevant topics permit just-in-time faculty development whenever a teaching physician has fifteen minutes. Participants post comments or questions at any time of day, from any location. As an added feature, participants use online role plays for skills practice in areas of feedback, working with problem students, time efficient teaching strategies, and teaching presentation skills.

Results: The first classroom of participants completed the course. Two other pilot groups will finish in the near future. Preliminary feedback is positive supporting relevance, usability, and overall satisfaction.

Conclusions, including applicability to others: Online content and virtual skills practice scenarios are available on a public website. The virtual classroom environment to enable confidential discussion between a group of teaching physician can be created in a number of course software applications.

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Introducing First Year Medical Students to a Competency-Based Curriculum in a Relational Framework

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Objectives or purpose: Recognizing that the art of medicine requires more than excellent medical knowledge and procedural skill, Indiana University School of Medicine (IUSM) was one of the first medical schools in the nation to adopt an innovative competency based curriculum. IUSM students reported that the size, geographical spread, and focus on the informal and formal curricula of our institution made it difficult for some first year students to understand the curricula and to establish a feeling of esprit de corps. One approach to improving the understanding among students of relational medicine has been to innovate the introductory week of medical school.

Methods: The process for bringing over fifty faculty and student leaders from the competency curriculum, the Relationship Centered Care Initiative project, and Continuous Quality Improvement teams to collaboratively develop a week-long case-based developmentally appropriate relational introduction to competencies for first year

students (MS1 WK1) will be described. An emphasis on the clinical care of patients in the context of their relationships with family, physician, culture and community was the theme of the week.

Results: Students' evaluations of the 2005 and 2006 MS1 WK1 indicate both programs were successful. Results will be shared.

Conclusions: Exportable lessons learned include: How to (or not to!) introduce competencies; how to employ a collaborative relational approach to curricular development; using a developmentally-appropriate case-based exercise to introduce a school and/or specific program; and the formal and informal curricula foci. An important parallel between the educational and student team functioning will be described.

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Effectiveness of a National Teacher-Training Program for Fourth-Year Medical Students

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Purpose of innovation: This study examined the efficacy of an intensive, one-week workshop to prepare medical students to become effective educators. It examined four outcomes: knowledge of instructional methods, subjects' perceptions of teaching abilities, incorporation of workshop content into their own teaching modules, and incorporation of this content in evaluations of peers' teaching sessions.

Methods or materials used: 13 medical students from across the country convened at the University of Michigan (UM) in June 2006. The workshop sessions were led by UM faculty and addressed educational psychology, motivation, designing active learning environments, instructional design, teaching techniques, classroom management, assessment and evaluation, program administration, educational research, and educational leadership. During the week, subjects devised and tested an instructional project, which they were expected to implement upon returning to their respective medical schools. Pre- and post-training assessment using identical 46-item questionnaires was conducted to determine the subjects' knowledge and attitudes towards instruction and teaching techniques.

Results: There were large pre- to post-training increases in pedagogical knowledge and self-perceptions of instructional planning, pedagogical approach, knowledge about assessment and evaluation, the teacher's role and responsibilities, and teaching confidence and efficacy. However there were no demonstrated significant improvements in the pedagogical approach, motivational factors, and instructional planning categories. All subjects incorporated the learned instructional content into their own teaching modules and to evaluate their peers' teaching sessions when providing feedback.

Conclusions: An intensive workshop on educational skills for medical students from multiple schools is efficacious in providing skills and knowledge that students can put to immediate use.

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An Introduction to Legal Affairs in Medicine

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From malpractice concerns to the details of informed consent, every physician will encounter legal issues at some point in their practice. While few states require jurisprudence exams for medical licensure, all practitioners should be familiar with the basics of health law. Yet, this is not a universal topic in formal medical curricula. A student-initiative at The Ohio State University College of Medicine was designed to deliver the essentials of health law, from a medical practitioner's standpoint. Two medical students, in collaboration with the members of the College of Medicine administration and the Ohio State University Medical Center Counsel, developed a program entitled, "An Introduction to Legal Affairs in Medicine." Working with suggestions from Mary Beth Herring, JD, at Texas A&M HSC COM, we decided upon 5 fundamentals: Malpractice, Informed Consent, Billing Fraud, Reporting Requirements, and Contracts. All presentations were given on a volunteer basis by attorneys from the Medical Center Counsel, attorneys with whom they regularly consult, attorneys from OSU's College of Law, or physicians from our medical school. One of the challenges is always fitting new programming into an already full curriculum; we feel that, with our legal program, we have devised a creative solution to this age-old problem. This curriculum was offered as a daylong weekend conference in order to avoid conflicts with other classes and to encourage third and fourth year medical students to attend. Overall, this legal programming has served to fill a former curricular deficit and has been extremely well received by all who attend.

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Effectiveness of Using a Mid-Rotation Evaluation Card to Obtain Formative Feedback during a 3rd year Psychiatry Clerkship

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Objective: Providing formative feedback to medical students during their clinical rotations facilitates their successfully meeting educational objectives. To help students initiate and receive formative feedback and to help preceptors structure that feedback, we designed the Instant Feedback Card (IFc). The goal of this pilot study was to examine the degree to which the IFc facilitated the formative feedback process.

Methods: The IFc contains a checklist with 13 clinical competencies. One hundred and sixty-five medical students completing a psychiatry clerkship were given an IFc to present to their preceptor. At the end of the rotation, all students were emailed a brief questionnaire about their formative feedback experience. At the end of 12-months, faculty completed a brief questionnaire about the usefulness of the IFc at facilitating the feedback process.

Results: 138 students (80%) completed 267 questionnaires (1.9/student). Students indicated on 77% of the questionnaires that formative feedback was received and of those, 84% revealed that feedback was helpful. Formative feedback was received by 85% of the students when they used the IFc and by only 69% when they did not ($p=.004$). A majority of the preceptors found the cards useful for getting students to request feedback, stimulating discussions, and reducing the stress of providing feedback.

Conclusion: The IFc did facilitate the process and structure of providing and receiving formative feedback. Future studies are needed to look at whether such feedback improves students' summative evaluations and to assess faculty's perceptions of the efficiency of using a card to provide feedback.

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Medical Informatics Competencies in UME: MSOP Revisited

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With the growing mandate for health care organizations to adopt electronic health records and other forms of medical technology to reduce medical errors, enhance health care quality, and reduce costs, the need for physicians to possess competencies in health information technology has never been greater. However, there is some concern that medical schools are not preparing their graduates adequately to function in an information technology rich environment.

Methods: To determine the extent to which the AAMC's Medical School Objectives Project (MSOP) medical informatics competencies have been incorporated into UME curricula in the United States, a Web-based survey predicated on the objectives was created; medical education deans or their designees were requested to complete the survey. Analysis focused on the clinician, researcher, and manager roles of physicians because these most closely paralleled the knowledge, skills, and attitudes that medical students need to develop.

Results: Seventy usable surveys were returned. While a number of the objectives were stated in the schools' respective curricula and slightly fewer of the competencies were being evaluated, fewer than half of the respondents taught the majority of the competencies. Even fewer schools taught and assessed the medical informatics objectives that required interaction with health information systems.

Conclusion: To insure that physicians can effectively and efficiently interact with today's health information technologies, more medical informatics concepts need to be included and assessed in all undergraduate medical education curricula in the United States.

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Communication and Interpersonal Skills and Clinical Performance During an Emergency Medicine Student Clerkship

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Background: A Communication and Interpersonal Skills (CIPS) curriculum for critical patients was developed and implemented during our emergency medicine student clerkship. We wanted to use the curriculum and associated assessment to identify gaps in student CIPS and to compare student CIPS to their overall clinical performance during the clerkship.

Methods: During the clerkship a communication and interpersonal skills lecture, a real critical patient encounter discussion, and an objective structured clinical examination (OSCE) were given around critical care patient encounters. During the OSCE, a locally written, 20 item CIPS checklist was completed by a standardized patient, and 2 faculty. Students were also evaluated using a 0-4 scale in 10 categories for their performance during clinical care; evaluations were completed by different faculty during their one month rotation.

Results: Complete data was available for 54 students. We looked at the percentage of skills performed on the CIPS checklist by a single faculty observer for all students. The CIPS were categorized into one of five skill sets; Respect/Interpersonal skills were performed 92.1-100%, Efficient/Effective Communication skills were performed 65.8-97.4%, Communication with Patient 63.2%-78.9%, and Communication with Healthcare Team 39.5-47.4%, Empathy skills 28.9-55.3%. A Pearson correlation coefficient indicated a significant relationship between the CIPS checklist scores and the students' clinical performance average, $r = .283$, $p = .038$.

Conclusion: Student performance of CIPS was weakest in the areas of Empathy and Communication with the Healthcare Team. There was a low correlation between the student's performance on the CIPS assessment and their overall clinical evaluation.

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Medical Students' Attitudes about Team-Based Learning in a Pre-Clinical Curriculum

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Purpose: Team-Based Learning was integrated into one medical school's pre-clinical curriculum in 2002. This study compared how medical students' attitudes about the Team-Based Learning process changed between the first and second year of medical school.

Method: 180 students were surveyed regarding their attitudes about Team-Based Learning during their first and second year of medical school. The survey consisted of 19 questions with Likert-type responses ranging from Strongly Disagree to Strongly Agree. Questions were grouped using 5 categories: Overall Satisfaction with Team Experience, Team Impact on Quality of Learning, Satisfaction with Peer Evaluation, Team Impact on Clinical Reasoning Ability, and Professional Development. Data were analyzed using t-tests to determine if changes in attitudes about Team-Based Learning occurred between the first and second year of medical school.

Results: Significant changes in attitudes were noted in the areas of Professional Development, Satisfaction with Team Experience, and Satisfaction with Peer Evaluation. Students reported more positive attitudes during the first year of medical school for the areas of Professional Development and Satisfaction with Peer Evaluation. For Satisfaction with Team Experience, more positive attitudes were noted during the second year of medical school. No significant changes were noted for the areas of Team Impact on Quality of Learning and Team Impact on Clinical Reasoning Ability.

Conclusion: Team-Based Learning is relatively new in medical education. This study demonstrates that this teaching/learning strategy holds promise for enhancing the development of several professional competencies in medical students: interpersonal communication, teamwork, giving and receiving of peer feedback.

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Milestones and Leading Indicators: Preliminary Analyses

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Purpose: Within medical students' careers, a number of discrete events may predict success or failure at meeting various milestones, events that must be completed successfully in order to progress through their education and career. We consider these events leading indicators. Building on the work of Papadakis and colleagues (2005) we undertake a prospective analysis of medical students' records to learn which easily accessible information might help predict future trouble for the medical student. In this pilot of a larger study we report on the ability of first-year leading indicators to predict one milestone of medical education, the USMLE Step 1 exam.

Method: We reviewed medical school admission records, transcripts, and the Student Progress Committee minutes following one class throughout medical school to determine the number times each student experienced delaying events, negative SPC decisions, and SPC discussions for negative reasons. We analyzed first year performance variables using Stepwise Linear Regression (SPSS 2005) to determine which was most predictive of failing USMLE Step 1.

Results: The best within-school predictor of Step 1 failure was number of times discussed at SPC for negative reasons. Students who were discussed four or more times were more likely to fail than pass USMLE Step 1 the first time.

Conclusion: Discussions at SPC may be a viable leading indicator for failure to attain milestones in medical school. References Papadakis MA, Teherani A, Banach MA, et al. Disciplinary action by medical boards and prior behavior in medical school. *N Engl J Med.* Dec 22 2005;353(25):2673-2682.

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Evaluation of a Geriatrics-Oriented Observed Structured Teaching Exercise for Non-Geriatrics Faculty

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Background: The OSTE is a performance-based teaching exercise, using standardized learners, designed to provide formative or summative assessment of teaching skills. This project is the first description of a Geriatrics-OSTE (G-OSTE) Module designed to improve the clinical teaching skills of non-geriatrician faculty.

Purpose: To assess the performance of a G-OSTE module, focusing on inpatient geriatric teaching skills, as part of a faculty development program at the University of Chicago.

Methods: Participants (general internists and hospitalists) completed a 4 station G-OSTE module which included the following geriatrics topics: 1) Screening for Dementia, 2) The Appropriate Use of Foley Catheters, 3) Recognizing and Responding to Delirium and 4) Good Transitions of Care. A retrospective pre-post survey was then administered to the 7 faculty participating in the 2005 CHAMP G-OSTE Module. The question stem read, "Please rate your confidence (1) before participating in this teaching practice session (as viewed retrospectively) and (2) currently." A 5 point Likert Scale was used (5= highest confidence.) Global ratings and qualitative comments were also collected. The Wilcoxon Signed-Rank Test was used for statistical analysis ($p \leq 0.05$).

Results: All participants completed the survey. The median and mean values for the global statement, "I would recommend this experience to my colleagues," were 5 and 4.71, respectively. All comparisons of the retrospective pre-post medians were statistically significant and will be presented.

Conclusions: These results provide preliminary evidence for the acceptability and effectiveness of this G-OSTE module with faculty participants. The next step is to assess this methodology employing a control group.

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Promoting Medical Professionalism through Narratives: The Students' Perspective

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Background: Appreciative inquiry can contribute to a school environment more supportive of professionalism.(1) Thus, this project adopted appreciative inquiry to promote faculty teaching and student learning of professionalism. Project outcomes suggest that appreciative inquiry can teach professionalism, but whether and how appreciative inquiry promotes learning of professionalism from the students' perspective is unknown.

Methods: Students' reflections on the narratives they wrote about faculty's stories of positive experiences with professionalism are one source of evidence for student learning. Using open coding, the authors qualitatively analyzed every other reflection to generate initial codes and coding structures, which will be verified by analysis of the remaining reflections.

Preliminary Results: Most often, professionalism themes students explored in their reflections partially or fully matched those in the faculty narratives. Humanism themes exhibited the greatest number of matches and were the most popular. Frequently, students elaborated upon the narrative themes by applying them to a new context or exploring connections with other professionalism principles. The narratives typically sparked for students new ideas about the principles of professionalism, reinforced previously held concepts, and/or provided guidance to issues students might face in the future. By empathizing with characters in the narratives, students sometimes constructed a personal meaning of a narrative. A few reflections parroted key words in the narratives and had no discernible function.

Conclusions: Reflection upon narratives based on faculty stories of positive experiences with professionalism fosters student learning of professionalism. A few students could benefit from feedback on their reflections to prompt deeper exploration of professionalism.

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Using Q-methodology for needs assessment in a longitudinal faculty development program.

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Purpose: We describe a needs assessment for a longitudinal faculty development program for general internists. Program goals include enhancing teaching skills and self-efficacy. Q-methodology was selected because it yields groups of faculty with similar viewpoints (factors).

Methodology: 27 faculty completed two Q-sorts on satisfaction with ability to perform specific teaching activities and interest in improving ability to perform the same activities. For each Q-sort, participants sorted 14 items that reflect a range of clinical teaching activities.

Results: Analysis of satisfaction with current teaching ability yielded two factors. In the "Probing Learners' Thinking" factor, faculty are most satisfied with brief clinical teaching and questioning skills, and least satisfied with teaching procedures or morning report. Faculty in the "One-on-one Clinical Teaching" factor are most satisfied with integrating learners into a busy clinic, but least satisfied with their group teaching skills. Four factors resulted from analysis of interest in teaching skill improvement. In the first factor, faculty are most interested in improving feedback and evaluation skills. Faculty in "Teaching in the Clinic" are most interested in improving feedback skills and integrating the learner into a busy clinic. "Teaching by Example" is characterized by interest in teaching procedures and one-on-one teaching. The fourth factor is characterized by interest in improving small group teaching.

Conclusions: Workshops on brief clinical teaching and giving feedback were planned prior to the needs assessment. Results will be used to develop additional longitudinal components, some focused on different groups of faculty. Q-sorts will be repeated to monitor the program's impact.

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A Pilot Study on Medical Students' Attitudes and Perceptions of Medical Genetics Before and After a Medical Genetics Course

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Purpose of the study: Relatively little is known about medical students' attitudes toward genetics. This project will survey two years of second-year medical students prior to and following a required course in medical genetics. Students and faculty will gain insights into students' attitudes toward genetics and if their attitudes change following a formal course.

Methodology: Approximately 280 students will be asked to complete a web-based survey during the first week of the medical genetics course at the Indianapolis campus of the IU School of Medicine. Students will then be asked to complete the same survey during the last week of class. A third party will maintain the survey website and link the pre- and post-survey data using a coded identifier unknown to the principal investigator. Attitudes about genetic testing, stem cells, and cloning will be analyzed. The most significant and least significant changes in attitudes about topics in genetics will be identified.

Summary of results: A preliminary review of data after the first year of the project (n=117) demonstrated that students' perceptions changed in the following areas: presymptomatic testing of children, directive vs. nondirective counseling, knowledge, and cloning. Students' attitudes regarding the use of stem cells did not change with approximately 66% supporting the use of stem cells in research and medical treatment, and 33% opposed.

Conclusions: This knowledge may lead to modifications in curricular development and a national discussion of medical students' perceptions of genetics that may result in physicians being better prepared to discuss genetics with their patients.

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Longitudinal Survey of Student Attitudes towards a Competency-Based Curriculum

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In 1998, the Indiana University School of Medicine instituted a competency-based curriculum that routinely assesses nine areas of general medical competencies. These

areas include Communication Skills, Basic Clinical Skills, Basic Science Knowledge, Lifelong Learning Skills, Self-awareness and Self-Care, Social and Community Context of medicine, Ethical Thinking and Moral Reasoning, Problem-solving and Professionalism. Students were administered a survey at the end of the second year of the curriculum, and again in the middle of the fourth year of the curriculum. In the first year of the survey, students who have experienced two years of the curriculum were compared to students who had not experienced the curriculum. In the first two years of the survey, students were asked to rate their opinion on the importance of each competency area to their career choice and how prominent the competency area was in the curriculum they were experiencing. In the final three years, two additional questions were added regarding the effectiveness of the curriculum in teaching these skills and a self-assessment of the student's mastery of these skills. Responses were compared between nine different educational sites and among different cohorts. Students universally valued all nine competency areas, but prominence and effectiveness differed between instructional sites. Mastery of all areas improved between years 2 and 4, except basic science knowledge. Effectiveness and prominence assessments varied among the different competencies, but the patterns remained relatively constant from year to year. The results of this survey suggest several areas for curricular improvement.

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Impact of a Preclinical Emergency Medicine Elective on Student Performance

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Objective: We investigated the impact of a preclinical emergency medicine elective course on various clinical and academic performance outcomes from participating students.

Methods: Using a retrospective cohort design, we analyzed performance data from participants in the Evidence Based Learning elective (EBL) in the graduating classes of 2004-2007. (n = 109) We compared performance data from EBL participants to all other students who graduated in the same timeframe who did not participate in the EBL elective (n = 706). Performance data analyzed included all third-year clerkship grades, NBME subject exam scores for every rotation in which the NBME subject exam was offered (surgery, obstetrics and gynecology, internal medicine, psychiatry), and USMLE Step I and Step II (CK/CS) exams. We used MCAT scores to control for any inherent differences that might exist between groups due to self-selection of the EBL participants.

Results: EBL participants achieved significantly higher grades than their non-participant controls on the internal medicine clerkship ($p < .014$). Participants also attained higher grades on the obstetrics and gynecology clerkship, but this result was not statistically significant ($p < .086$). USMLE step I scores approached a significant increase in the EBL group ($p < .056$).

Conclusion: EBL offered opportunities for presenting patients and participating in mock grand-rounds, which may have enhanced student performance on the internal medicine clerkship. Other aspects of the elective, such as ED shadowing and participation in clinical skills workshops were available to all students through other elective and non-elective opportunities, which may have blunted the effect these activities have on performance enhancement.

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The Student-Driven Group: Ten-Year Summary

John M. Stang, MD, The Ohio State University College of Medicine

If one considers the second "R" (Review") in the [SQ3R] acronym of Robinson, the optimum application may be the Student-Driven Group [SDG]. We have completed the tenth year of this activity, focused within the Medicine-II year wherein as many as 35 groups and 89% of the Class elect participation. Each SDG has a President who speaks in behalf of the others. Each group consists ideally of six students [6] [range: 2 → 12] and meets at their own prerogative throughout the year for discussion of chosen topics. All sessions are facilitated by a single committed Faculty mentor. Eight [8] innovative teaching modalities have been developed; each will be demonstrated for the audience, the participants serving as surrogate SDG members. Success is ensured by the following principles: 1. Students select one another based on tacit assumption of trust. 2. Students feel the freedom to speak freely, the discussion made "safe." 3. The activity is not "required," hence assuming elements of self-determinism. 4. There are no performance measures. 5. There is no "official status" or appearance in the academic record. The power of this activity is use of comfort zones wherein students are able and willing to push to the limits of their abilities. This solves the perennial dilemma of every student who fears such interaction, concerned of feeling "less than" (the other). In the SDG, the participants have decided in advance to push past that barrier of academic social closeness with the common goal of being The Best That They Can Be.

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Medical Students and the General Population: A Comparison of Personality Factors between Men and Women

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Purpose: This study compared personality factors of male and female medical students with males and females in the general population.

Method: 2177 first-year medical students (1021 females, 1156 males) at four medical schools completed the Sixteen Personality Factor Questionnaire (16PF) between 1995 and 2003. The normative sample (1255 females, 1245 males) for the 16PF served as the comparison group. A t-test was conducted to compare mean scores by gender for the medical schools students with those of the general population (i.e., normative sample) to determine differences in personality.

Results: Personality differences existed on 9 of 16 factors for men and 11 of 16 factors for women. Both male and female students presented as being significantly livelier, more adaptive, more abstract, more self-doubting, more disclosing, and more group oriented than males and females in the general population. Male students compared to males in the general population were less perfectionistic, whereas female students were more perfectionistic than the general population females. Male students presented as being significantly more attentive to others and more patient than general population males, whereas female students appeared to be less timid and less sensitive, but more rule-conscious and open to change than general population females.

Conclusions: Based on the normative sample used in this study, males and females entering the field of medicine appear to have distinct personality differences from the general population. Whether these differences are based on students with these factors choosing medicine or vice versa requires further exploration.

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Impact of Online Learning Modules on Medical Student Microbiology Examination Scores

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Medical students at Indiana University School of Medicine are taught microbiology at nine regional campuses across the state, using a core curriculum set by a committee of statewide course directors. This committee also writes a board-style final examination that is referenced to the core and used at all campuses. The purpose of the present study was to determine whether students who train using web-based quiz modules score differently as a group on this statewide examination than students who do not complete the learning modules online. The study included 57 learners from two different campuses who were taught using a traditional didactic method by the same instructor. Results were aggregated for two consecutive years. A standard medical microbiology textbook was used to assign the same suggested readings for all students and similar supplemental laboratory sessions were also provided. The independent variable was use of the web-based modules by students to prepare before examinations, although quiz scores did not count towards the course grade. The dependent variable was score on the statewide final examination. Results support the hypothesis that students who use modules online (75.5 average quiz score; n=30) score higher on the final examination than students who do not (48.05 average quiz score; n=27). Students who had low quiz scores also spent less time online overall as indicated by web usage logs. The significant difference in final examination outcome ($p=0.0009$ using one-tailed Mann-Whitney test, $z=3.12$) indicates that online quiz modules used in preparation for high-stakes examinations could improve medical student performance.

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A Transformational Integrative Team-Based Learning (TBL) Curricular Reform for the First Two Years of Medical Education: The Indiana University School of Medicine – South Bend Model

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Purpose of Study: The purpose of this study is to evaluate the effectiveness of the team-based learning methodology in a small group learning format.

Methodology: Sixteen students were purposefully assigned to three teams using defined criteria by the course director. Students were formally trained in the principles of team-based learning and given a workshop evaluation on their experience. Throughout each course students completed Individual Readiness Assessment Tests (IRAT) and Group Readiness Assessment Tests (GRAT) to evaluate if they have studied and comprehended the pre-assigned content for each session. In groups students then completed application exercise that integrated the basic science content in clinical cases. Students were asked to complete satisfaction surveys after the first and last exams of each TBL-integrated course. Additionally students participated in a self and peer evaluation process (of teammates) at the end of each class using TBL. Lastly, student performance outcomes were compared for the past several years of previous graduating classes versus the current class experiencing TBL.

Summary of Results: IRAT/GRAT results showed basic understanding of core materials. Application exercise scores demonstrated student's ability to apply higher order concepts in real clinical cases. Results of student workshop and course satisfactory surveys were positive. Students preferred more self-directed learning as opposed to didactic time spent in class. Student outcome performances on section and final exams were consistent with previous data from classes not exposed to TBL. Student performed at or above the class average.

Conclusions: Team-based learning is an effective strategy to deliver large volumes of curriculum through a self-directed learning approach. It ensures that students can stay current with coursework yet practice the competency skills of working effectively in a team environment.

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Medical Student Interests in Health Disparity: Results from an Online Survey on Knowledge and Need for Education

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Recent interest and initiatives addressing health disparity and its reduction have been increasing at both the public policy and educational policy levels. Population based policies such as Healthy People 2010 and the National Institute of Health's Health Disparity Reduction Initiatives (Roadmap) as well as the AAMC's Medical School Objectives project focusing on the incorporation of population perspectives into the medical curriculum are examples of such policies. To better understand current medical student interests in the field of health disparity, we conducted an online survey (n = 424) of current medical students who are subscribed to any of the American Medical Student Association's (AMSA) listservs. The survey consisted of 28 questions related to health disparities. Content of the questions focused on current knowledge about health disparity topics, its causes and suggestions for how to address health disparity in general. Findings indicate a general level of self reported understanding of health disparities but some inconsistency and wide variation in the causes and consequences of health disparities among different population subgroupings. These findings have implications for the development of curricula related to health disparity and population health and medicine. Participants will be provided with results of the survey and will discuss if, how and what content areas might be added to population focused curricula.

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An Effective Curriculum for Teaching 3rd Year Medical Students About Unanticipated Outcomes and Disclosure

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The Joint Commission on Accreditation of Healthcare Organizations requires disclosure of unanticipated outcomes related to sentinel events. When to disclose, who should disclose, what to disclose, and how to disclose are challenges that need to be addressed when teaching this topic. A critical challenge has been getting consensus on the teaching objectives from various hospital officials representing different departments with different agendas who participate in the program. We have developed an effective curriculum for teaching 3rd year medical students this content. The instructional program lasts one half day and consists of large group lectures combined with small group exercises. Consistent, non-conflicting information is provided in didactic formats by representatives from patient relations, by hospital administration and by hospital defense attorneys. Definitions of unanticipated outcomes, sentinel events, and all aspects of disclosure are given. The importance of “no blame” is emphasized. In small groups, the students are given two realistic clinical case scenarios on disclosure and are asked to role play being a provider doing the disclosure and being a patient receiving the disclosure. The efficacy of the disclosures are then discussed and reviewed by the students and small group facilitator teams consisting of a physician and a legal representative. Student evaluations show they feel it is an important and timely topic in their training.

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Residency Selection Criteria in 2006: Results from a Program Director's Survey

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In early 2006, a questionnaire with 51 different items was sent to approximately 2200 residency program directors in different specialties in both university and community hospital settings throughout the US to learn about changes in residency selection criteria that had occurred during the last 10 years since a similar study was completed. Completed forms were obtained from approximately 1200 residency program directors in a variety of specialties. This report will focus on the pooled data from 20 specialties regarding specific academic criteria and how they were rated from unimportant to critical using a 1-5 scale. Criteria Mean Rank Grades in required clerkships 3.97 1 USMLE Step 1 Score 3.80 2 Senior elective grades in specialty 3.74 3 Number of honor grades 3.72 4 USMLE Step 2 CK Score 3.64 5 USMLE Step 2 CS 3.56 6 Class rank 3.47 7 Leadership roles 3.43 8 Membership in AOA 3.38 9 Medical school reputation 3.27 10 Medical school academic awards 3.19 11 Grades in other senior electives 3.08 12 Grades in preclinical courses 3.07 13 Published medical school research 3.03 14 Research experience in medical school 2.99 15 For the pooled data, required clerkship grades were ranked significantly greater than any of the other criteria. There were numerous statistically significant differences among the rankings. Data from individual specialties will be presented. Of note, a passing score on USMLE Step 2 CS is ranked significantly higher than some of the more established criteria in several specialties.

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Using Standardized Patient Encounters to Improve Basic Science Understanding and Integrate Professional Behavior and Clinical Skills Assessment within Two Medical School Basic Sciences Courses

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Objectives: We developed a series of 7 sets of 17 Standardized Patient (SP) encounters to integrate basic and clinical science and professional objectives in clinical scenarios summarizing each content block in our 2 medical microbiology courses. This involved covering medical knowledge and skills objectives from these courses as well as from 3

clinical courses (complete doctor, osteopathic theory and methods, and pathology). The goal was to integrate and assess patient-centered care, interpersonal and communication skills, and professionalism, and the application of clinical skills and basic and clinical science knowledge.

Methods: All organ systems were included in developing 119 cases for 1st and 2nd year medical students in the 2 microbiology course-sequence. Overall, 167 students performed 7 encounters as physician and observed the physician in another 7 encounters. Following an encounter, each student wrote a Subject-Objective-Assessment-Plan (SOAP) Note for the case that he/she performed, provided peer assessment as observer and began an etiologic agent identification process, all of which took 1 hour of student contact time. Over the next few days, students received diagnostic results for their case, and wrote a SOAP Note addendum and a microbiology report.

Results: Students received feedback from the SP and peer observer, audiovisual files of the encounter, and graded SOAP Notes/addenda and microbiology reports. Weaker performing students received physician counseling.

Conclusions: Improved final exam and course grades, and student self reflections and comments suggest that these exercises were valuable and appreciated in improving basic science knowledge, clinical skills, professional attributes, and osteopathic principles and practice.

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An SP Encounter with One Chief Complaint Ends with Multiple Diagnoses

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Purpose and Methods: Simulated patients (SP) have become useful educational tools in the medical curriculum. At Southern Illinois University School of Medicine (SIUSOM) this approach is frequently used throughout the four years of medical school as a training and assessment tool. During the second year, there are eight SP teaching encounters for the students. The typical encounter involves 12 groups of 6-7 students simultaneously assessing individual SPs with the same presenting situation, symptoms, and physical exams. During the gastroenterology curriculum, a variation on this is used. While twelve groups of 6-7 students still simultaneously assess assigned SPs with the same presenting chief complaint and vitals, the history of the present illness varies among these 6 SPs. The variances are the distinguishing factors for the differential diagnoses (DDXs) for the presenting situation. The rationale for this unique encounter was to show a symptom related to one system can have multiple DDXs and that to distinguish among these DDXs, detailed and appropriate history and physical examinations related to the presenting symptom must be obtained.

Results and Conclusions: The presenters have successfully developed and implemented this session for the past 2 years to MS 2's during the Endocrine, Reproduction, and GI unit. Student feedback has been very positive. This activity can be implemented at other institutions for various chief complaints.

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**Implementation of an Inter-Professional Care and Education (IPC/IPE)
Into the Institutional Culture- a case study with the Schwartz Center Rounds**

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Over the past three decades, healthcare has become increasingly complex, largely due to advanced technology and the partition to numerous specialty areas. While these advances have been beneficial in treating disease, the human aspect of care as well as the importance of the healthcare team has been de-emphasized. Many healthcare professionals have only minimal knowledge of each other's role in the care of patients, and inter-professional communication is far from optimal. Integration of inter-professional care and education (IPC/IPE) within Medicine, Allied Health, and Nursing, could build the foundation for respectful relationships between disciplines and individuals, and support outcomes such as: employee and patient satisfaction and reduction in medical errors. With IPE, a more relational model of care can be understood and applied, facilitating effective working relationships with peers, colleagues, and patients. However, education in it self will not ensure that students will retain knowledge and practice. It is critical that the environment, i.e. faculty, staff and preceptors, practice in a manner respectful to other disciplines and, most importantly, their patients, thus addressing the 'hidden curriculum'. In this presentation we will describe the integration process of IPC/E at our institution. We will present one case study, the Schwartz Center Rounds, as an ongoing IPC/E activity that has been successful in bringing caregivers together. The Rounds provide a unique forum where inter-professional teams come together to discuss patient care, and understand each other's role. Participants will actively engage in individual, small, and large group discussions eliciting values, principals, and experiences regarding IPC/E.

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Applications of Geographic Information Systems for Academic Medicine

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Jeff Wilson, PhD, Indiana University School of Medicine

Terry Zollinger, DrPH, Indiana University School of Medicine, Bowen Research Center

Amy Hatfield, MLS, Indiana University School of Medicine

Geographical Information Systems can be powerful contributors to effective decision making in medical education. Our panel will describe our experiences using GIS in Academic Medicine. The session includes multi-disciplinary presentations in the areas of medical education, admissions, geography, and workforce analysis. Mutual themes, logistics of GIS use, and overcoming challenges will be addressed in prepared presentations. Panelists will respond to audience questions and encourage networking among attendees at the session, to share and elaborate on experiences and best practices. The panelists will model the advantages of assembling a multidisciplinary team to address issues across the continuum of medical education domains.

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Team Development in Teaching Hospitals: The Business Model Doesn't Fit

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Faculty, residents and medical students are required to function in multiple teams as leaders or members. Additionally, accreditation organizations address the need for medical students and physicians to be able to function within a team environment. However, medical professionals receive very little, if any, formal training in team development and how to function as a team. What little training is received is based on common business models. Unfortunately, the business model has limited applicability to a teaching hospital. This lecture-discussion will explore a different model for team development within medical education institutions.

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Filling the gaps: Integrating Simulated Patient Scenarios Into An Existing Emergency Medicine Rotation

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Purpose: In support of the basic course structure, human patient simulation (HPS) was integrated into our existing emergency medicine (EM) rotation to fill certain critical gaps in clinical experience. Participants were given a brief questionnaire to assess their attitudes toward this integration process.

Methods: After identifying several critical cases not routinely experienced during our 4 week EM rotation, 3 supplemental HPS scenarios were developed. Small group formats and observation through a one-way mirror were utilized. After the simulation, there was a performance debriefing followed by a brief interactive discussion and survey completion. Additional gap analysis was performed by a retrospective survey reviewing clinical exposure to several emergent scenarios.

Results: Thirty-two people (12 fourth year medical students and 20 residents) participated in HPS and 100% completed the follow-up surveys. Using a 5-point Likert scale (5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree), 94% “strongly agree” (mean 4.9) they enjoyed the simulation exercise, 84% felt the scenarios were believable enough to simulate actual patient encounters (mean 4.2), and 91% “strongly agree” (mean 4.9) that they would prefer more HPS in the future. Ninety one percent would prefer HPS scenarios to fill gaps in clinical exposure over lecture (mean 4.6), while 97% (mean 4.8) believe HPS will help them remember information into the future better than lecture.

Conclusion: Gaps in medical education can be filled by integrating HPS into existing clinical rotations without redesigning rotations or developing new courses. Students and residents received this approach positively. This pilot study paves the way to possibly incorporate HPS into all existing clerkships.

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Simulated Nurse Call as a Feedback and Assessment Tool for PGY-1 Surgical Curriculum

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Purpose: Simulated nurse calls (SNCs) have been demonstrated to increase PGY1 surgical resident confidence. SNCs were incorporated into our PGY 1 protected block curriculum to identify intern deficiencies and provide feedback.

Methods: Seven clinical call scenarios focusing on common situations facing PGY1 surgical residents were reviewed and discussed during 3.5 hours of faculty-led sessions during 1st month of training. Ten weeks later, during curriculum time, the nurse educator paged each intern, presented 2 new SNC scenarios developed by faculty and nurse educator, with a 15 minute limit, and then rated intern's responses using a checklist of expected responses and Likert scale for behaviors associated with ACGME competencies. A feedback session, using aggregate results, was conducted at the conclusion of the SNCs with the PGY1 group.

Results: Ten surgical interns and 2 physician assistant interns completed the SNCs. Approximately 50% sought additional information on the H&P, with nearly all verbalizing the correct management plan for both scenarios. ACGME competency ratings revealed deficiencies in professionalism, communication and medical knowledge in 2 learners. The use of aggregated feedback allowed a frank discussion of group deficiencies regarding case management, which were targeted in subsequent curriculum sessions. The simulated calls and feedback sessions were rated 4.5 and 4.8/5.0 (5=excellent) for session content and 3.8 and 3.7/4.0 for teaching (average 4.5 and 3.5, respectively).

Conclusion: SNCs with group feedback is an effective and well-received instructional strategy and yields needs assessment data to inform subsequent residency education sessions.

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Medical Students and the Electronic Medical Record- Which Way is Up?

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Medical Schools across the United States are currently struggling with what role the medical students will play in using the electronic medical record as well as what role the EMR will play in educating our medical students. Inter-departmental teams at the Loyola University Chicago Stritch School of Medicine have taken some unique approaches in attempting to answer these questions by incorporating the EMR into medical student

education at multiple levels. This session will start with a presentation of Loyola's current use of the EMR in medical student education, and then will become a discussion session for participants to share their current uses of the EMR in medical students education as well as to share their thoughts and ideas with each other in an open dialogue to help answer these difficult questions.

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Who are the Millennials and What Do They Mean for Medical Education?

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Each generation of students presents its own set of expectations, challenges, and ideals. Just as medical school faculty grew accustomed to the edgy cynicism of Generation X, up come the Millennial students with a sunnier outlook and an absolute expectation that the world will bend to their will, as it always has. Compounding the issue is the fact that while medical students and residents are in a transition between Generation X and the Millennial generation, faculty span three generations, the Silent generation, the Baby Boomers, and Generation X. To assist in understanding the impact of these four generations working together, we will provide an overview of Neil Howe and William Strauss's conceptualization of the generations currently in medical school, with a special focus on the Millennial generation. Howe and Strauss make the case that these students are members of a "hero" generation. Their sense of community, interest in teamwork, and their by-and-large collegial approach to one another portend positive things for their future. The focus of our discussion will be on providing an understanding of the overall characteristics of each of the generations, and on envisioning how they might work productively together in the medical education enterprise.

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Cross-cultural Issues Affecting International Medical Students

Carol Packard, PhD, University of Illinois College of Medicine at Urbana Champaign

As medical teams become more demographically international, various cultural influences are affecting team dynamics and health care delivery. This workshop will first present empirical findings from cross-cultural research, which examined specific cultural issues affecting multinational team performance. Issues involve performance evaluations, decision-making, communication and conflict management specific to the health care environment. Interactive activities will serve to demonstrate some of these cultural concepts and concerns. Practical learning activities will then be presented and discussed for their usefulness in decreasing conflict and increasing team effectiveness.

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Assessing Competencies with Standardized Patients

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Objective: Develop methods of assessing and teaching curricular competencies through the use of standardized patients (SPs) and/or Objective Structured Clinical Examinations (OSCEs).

Methods or materials used: Indiana University School of Medicine has a competency-based curriculum for undergraduate medical education that has been in place since 1999. The curriculum is based on nine competencies. SPs have been used to both teach and assess the competencies. How the teaching and assessment tools are being developed is the topic of this discussion.

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House Officer Ratings for Third-Year Clerkship Students: What Do We Value?

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Michael Hosokawa, EdD, University of Missouri School of Medicine

Joe Donaldson, PhD, University of Missouri College of Education

An analysis of the narrative comments on the clerkship evaluations of students who were rated "1" (highest score on a scale of 1-5) for house officer potential was conducted using 25 randomly selected grade reports for each clerkship during the 2004-5 academic year. A qualitative analysis of grade reports from pediatrics, internal medicine, surgery, family medicine, obstetrics and gynecology and psychiatry yielded groupings of descriptors used by faculty and resident preceptors. While this qualitative analysis of the descriptors provides only a rough measure of the characteristics valued in each specialty clerkship, interesting patterns were noted.

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You Can't Measure What You Can't See: Practical Approaches to the Assessment of Elusory Competencies

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Residency program directors and faculty members struggle with the quality of evidence used to assess ACGME Competencies: hearsay, rather than direct observation, forms a substantial component of the evaluation of a resident's performance. In an effort to minimize second-hand attestation, we have created a series of instruments designed to provide direct observation of each of the competencies. Professionalism, patient care, practice-based learning, and communication skills are evaluated in both standardized patient exams and in structured, directly-supervised, resident-patient interaction in outpatient clinical settings. In addition, patient care is further evaluated through a

simultaneously formative and summative, intra-operative, decision-making tool, developed using an audience response system to stimulate discussion. To assist residents in the understanding of systems-based practice, the residents participate on hospital quality improvement and patient safety subcommittees. Knowledge-based assessments include standardized exams, mock orals, and oral presentations. Skills training begins in a formalized skills lab, followed by verification of proficiency for each module and a yearly skills exam. Intra-operative performance is assessed formally for 9 sentinel cases until proficiency is established. Monthly summative assessments, in addition to a biannual meeting with the resident's advisor, ensure that the resident is aware of his or her progress and is given timely, directed feedback. In the spring, a roundtable discussion of all residents is held and decisions are made regarding promotion or remediation of each individual. Using these tools, we are able to comprehensively and reliably assess each aspect of trainee performance, directly observing the more elusive competencies.