

Conference Abstracts

CHM Participation at CGEA 2013 conference



Panel Discussions

1. The Extended Curriculum Program at the College of Human Medicine, Michigan State University

Cindy Arvidson, Ph.D., Michigan State University

Wrenetta Green, M.A., Michigan State University

Renoulte Allen, M.Ed., Michigan State University

John O'Donnell, M.D., Michigan State University

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The College of Human Medicine has a tradition of admitting many "non-traditional" students including students with families and students from academically disadvantaged backgrounds. Sometimes, students will benefit from extending their program for a variety of personal or academic reasons, or a combination of both. Such "decelerated" programs have been shown to provide students with options that can promote their ultimate success in medical school. The "Extended Curriculum Program" (ECP) at the College provides an organized, planned means by which to meet the individual needs of students for extending their program. All CHM preclinical students have their academic performance reviewed periodically.

Students who desire to extend their curriculum, or are obligated to so on the basis of poor academic performance, meet with designated faculty and staff to devise an extended curricular program, including: revised course plan, academic support, student counseling opportunities, and administrative changes and implications. The resulting plan may be reviewed or revised as needed. The goal of this panel discussion is to describe our experience with the ECP and to encourage audience members to share their own experiences addressing the needs of students who need to extend their program. Panel members are all faculty who are closely involved with the ECP. They will address the following topics: (1) The eligibility criteria for student participation in the ECP; (2) The process of engaging individual students in the ECP; (3) Faculty and staff involved in the ECP and their roles; and (4) Outcomes and lessons learned as a result of the ECP. Session attendees will be encouraged to ask questions throughout the panel discussion as well as at the end. A compilation of speakers, presentation slides and additional ECP materials will be provided to session attendees.

2. EMRs in Medical Education: Efforts to Implement and Integrate EMRs to Enhance Medical Education Curriculum

Caer Rohrer Vitek, MS, Mayo Clinic

Gary Ferenchick, MD, Michigan State University

Heeyoung Han, Ph.D., Southern Illinois University

Rahul Patwari, MD, Rush University

Milisa Rizer, MD, The Ohio State University

Adoption of the Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009 committed federal resources to support widespread adoption of electronic medical records (EMRs). As hospitals implement EMRs to comply with federal mandates, some medical schools and teaching hospitals have observed changes in the delivery, quality, or effectiveness of medical education. According to a recent study, approximately 64% of US medical education programs allowed medical students to use EMRs in 2009. However, there are few practical plans guiding EMR use for educational purposes. Presenters will share and discuss multiple medical schools' and teaching hospitals' approaches to challenges and opportunities of implementing education in an EMR, and leveraging the EMR to enhance medical education.

Small Group Discussions

1. Blueprinting Clerkship Practice and Feedback Simulations (PF-SIMs): A Centralized Approach to Obtaining Competency Data

Dianne Wagner MD, College of Human Medicine Michigan State University

Denny Martin MD, College of Human Medicine Michigan State University

Rationale: Consistent with the desire to employ competency-based educational strategies and to assess learners' actual performance of integrated activities, medical educators have used the objective structured clinical evaluation (OSCE) as an assessment method. OSCEs are labor-intensive and the data obtained can be impacted by case specificity limitations. Many clerkships include OSCE stations as a part of their assessment "suite." However, aggregating the information from individual clerkship OSCE stations to enable the analysis of learner, clerkship and overall curricular strengths and weaknesses can be limited by the construction of the stations and by case specificity issues. Strengthening the conclusions that can be drawn from OSCE data is desirable, especially in view of the expense and time necessary to create such examinations.

Objectives: We envisioned a "Practice and Feedback Simulation (PF-SIM) Blueprint" to guide the development of a half-day, six-station formative OSCE for each clerkship. Along with basic clinical skills, the stations test cultural and procedural competencies, the use of evidence, team behaviors, receptivity to feedback and the formation of a personal learning plan. Each PF-SIM affords students the chance to practice difficult skills under direct supervision and receive immediate feedback after every station to fuel their personal learning plans. Our blueprint enables performance data to be aggregated in ways that are

more useful than individual stations across multiple clerkships. Our process of determining desired outcomes and blueprinting a set of assessments was not more work but can provide better data. At the end of the first year, we will have a large data set on student, clerkship, and clinical curriculum outcomes. This data will help us to determine the comparability of our students' experiences on different clinical campuses. We are one year into a curricular renewal process, and this data set will provide the "before" and enable us to compare student performance on these competencies within our new curriculum—enabling us to determine if we have accomplished the goals of our revision. At the end of the session, participants will be able to:

1. Identify and discuss several challenges related to the use of OSCE data for evaluating learner and curricular performance.
2. Describe several principles which guide the effective blueprinting of assessments.
3. Utilize a blueprint to improve an existing assessment or create a new one.
4. Share assessment lessons learned with fellow educators.

2. What Keeps Medical Educators Awake at Night?

Brian Mavis Ph.D., Michigan State University

Nicole Borges Ph.D., Wright State University

Susan Labuda Schrop Ph.D., Northeast Ohio Medical University

Anne Gunderson Ed.D., University of Cincinnati

Carol Elam Ed.D., University of Kentucky

Medical school faculty members wear many hats. Each faculty member juggles multiple service and leadership responsibilities that can include teaching, clinical responsibilities, scholarship, administration, service on institutional committees and participation in relevant professional organizations. Over and above this, as faculty we work within a medical school department or administrative unit where we find both synergy and competing demands. All of this takes place in the setting of the medical school, where shared responsibilities of an integrated educational program, local values and educational priorities, and national policy initiatives come together. We wear these many hats against a backdrop of limited resources, expansion pressures, accreditation standards, uncertain research funding, recorded lectures, clinical practice revenues, interprofessional education, electronic health records, resident duty hours and on and on. This is where we live. Concerns like these keep us awake at night. This small group discussion will focus around three main questions: (1) As a faculty member what keeps you awake at night as you think about your own work?; (2) What keeps you awake at night when you think about the forces that bear down on your medical school and the big picture of medical education?; and (3) What can medical education professional associations do, at a national or regional level, to help us sleep better? The intended audience is medical school faculty involved in development, implementation, delivery or evaluation of educational and support programs for learners and faculty across the medical education curriculum. Our goals are to (a) Identify common concerns of faculty involved in multiple aspects of medical education related to their daily work, careers, and the bigger picture of long-range planning; (b) Explore the dimensions of these concerns to discover possible solutions or lessons to be learned, and (c) Identify ways that medical education professional associations can help meet challenges. This session provides an opportunity for medical educators to express important concerns and to learn about the extent to which others share their concerns. This session also provides an opportunity for leaders from four professional organizations to hear the current concerns of medical educators.

Special Interest Group

1. Technology in Medical Education SIG

Geraud Plantegenest, MA, Michigan State University

Workshop

1. Jumping into Social Media and Multimedia for Teaching

(Sponsored by Technology in Medical Education SIG)

Heeyoung Han, Ph.D., Southern Illinois University

Larry Hurtubise, MA, The Ohio State University

Rahul Patwari, M.D., Rush University

Geraud Plantegenest, MA, Michigan State University

Caer Rohrer Vitek, MS, Mayo Clinic

Rationale: Current medical students are often called the Millennial Generation who have lived in the omnipresence of technology, multimedia, and the internet from their birth. Their technology habits tend to lead their ways of learning, which encourages medical educators to integrate educational technology into teaching practice. In order to use technology for teaching, it is essential to understand what pedagogical opportunities and constraints each technology brings in, which is called "Technological and Pedagogical Knowledge (TPK)". However, it is not possible to understand TPK until educators actually use it. Using "micro-lectures", this workshop will provide 100% hands-on activities for participants to engage in the experience of using social media and multimedia resources for their teaching needs.

Objectives: During and after the workshop, participants will be able to: Set up group space for teaching using Facebook and Twitter, Develop a multimedia resource using Camtasia and Adobe Presenter, Utilize Google Docs (form) for course evaluation and survey, Manage files using Dropbox and Google Drive, Identify pedagogical opportunities and constraints of educational technologies.

Method and Session Format: This session is 100% hands-on activities so participants will bring their own laptop and follow the specific activities in the session. Hands-on Activities: Each speaker will discuss pedagogical opportunities and constraints of each technology and guide the participants to create social media space and multimedia resources. We will ask participants to rank their interests and provide hands-on activities in the order they ranked.

Discussion: Pedagogical opportunities and constraints of each technology.

Research Presentations

1. Are Students Ready for Meaningful Use?

Gary Ferenchick, M.D., Michigan State University

David Solomon, Ph.D., Michigan State University

Jami Foreback, M.D., Ph.D., Michigan State University

Basim Towfiq, M.D., Michigan State University

Kevin Kavanaugh, M.D., Michigan State University

Larry Warbasse, M.D., Michigan State University

James Addison, M.D., Michigan State University

Frances Chames, M.D., Michigan State University

Background: The meaningful use (MU) of electronic health records (EHRs) is being implemented in 3 stages over several years. A major principle underlying stage one is the electronic measurement of care provided to patients. This measurement requires providers to use structured fields for data entry. Other stage one objectives require providers to use decision support tools (e.g. checking drug-drug interactions) and to capably exchange clinical information electronically. In subsequent stages providers will be faced with increasingly complex MU requirements (e.g. improving processes of care and improving outcomes), which will require stage one competencies. Given the importance of stage one competencies, we assessed medical student performance on 9 specific MU tasks.

Methods: From July 2010 through February 2012, 222 students rotating on our 8-week internal medicine clerkship viewed an online tutorial covering basic EHR competencies. We subsequently measured their performance on 9 specific MU tasks using a virtual patient. The MU tasks included adding the following using structured data fields: a new problem, a new medication, an advanced directive, the patient's smoking status and the results of a recent screening colonoscopy; running a drug-drug interaction (in which a major interaction was possible, e.g. atorvastatin and fenofibrate); and electronically communicating a plan of action for this interaction. Finally, we measured the association between the student's EHR performance and other subsequent assessments (NBME subject exam, clerkship professionalism assessments and end-of-year gateway clinical skills scores). This project was deemed exempt by the IRB.

Results: There were a total of 130 MU errors among the 222 students. Sixty-eight students (30.6%) had at least one MU error, and 30 (13.5%) had more than one (range 2 – 6). Of the 130 total errors, 90 (69.2%) were associated with inadequate structured data entry. Among the 9 specified tasks, most errors occurred in medication dosing and instructions (18%), identifying the drug-drug interaction (12%), documenting smoking status (15%) and documenting the preventive care results (23%). Student with MU errors demonstrated poorer performance on the NBME subject exam ($r = -.191$, $p=.009$), lower end-of-clerkship professionalism assessments ($r = -.124$, $p=.035$) and lower gateway history taking skills ($r = -.205$, $p=.025$).

Conclusions: Errors in relatively easy and non-complex tasks (e.g. structured data entry) occurred in a substantial minority of students. Such errors might be predictive for subsequent performance in multiple clinical domains.

2. Evaluating the Outcomes of the Extended Curriculum Program at the Michigan State University College of Human Medicine

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Cindy Arvidson, Ph.D., Michigan State University
Wrenetta Green, MA, Michigan State University
Renoulte Allen, MA, Michigan State University
Louis Marks, M.D., Michigan State University
John O'Donnell, M.D., Michigan State University
Janet Osuch, M.D., Michigan State University
Patricia Brewer, Ph.D., Michigan State University

Purpose: Our medical school has supported a decompressed curricular option for students requiring extra time for graduation. As part of a review of this extended curriculum program (ECP), prior graduates of this program were surveyed. This study describes the experiences of graduates who participated in the ECP.

Methods: ECP participants (N=190) matriculating between 1991 and 2003 and who have graduated were surveyed. All had extended during their preclinical curriculum. Three mailings of both paper and web-based questionnaires were used. The questionnaire asked about reasons for curricular extension, feelings then and now about the decision to extend, and the impact of extension.

Results: Seventy-eight graduates (41%) responded, indicating academic (39%), family (26%) and health (21%) concerns as reasons for ECP. At the time, many (44%) were uncertain about the wisdom of extending their curriculum and most (61%) perceived a stigma associated with the ECP. Nonetheless respondents reported that the ECP provided more time to enhance learning (80%) and improve study skills (76%). The ECP provided students (93%) an opportunity to address the challenges that led to extension. Looking back almost all graduates agreed (92%) that the ECP was the right decision. Most extended graduates (94%) completed their clinical phase of training in two years. A majority of respondents thought the ECP had no impact (59%) or a positive impact (30%) on securing a residency position; 95% felt able to secure a residency position in their desired specialty. Almost all (98%) were satisfied with their undergraduate medical education.

Discussion: The ECP provides flexibility for students facing personal, family and academic challenges.

This investment of resources enhances the diversity of our graduates. Although the study is limited by a less-than-ideal response rate, the findings describe the range of situations that challenge students and the ultimate success of the program in meeting students' needs.

3. Facilitating the Direct Observation of Student Performance with Mobile Technology

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David Solomon, Ph.D., Michigan State University

Jami Foreback, M.D., Ph.D., Michigan State University

Basim Towfiq, M.D., Michigan State University

Kevin Kavanaugh, M.D., Michigan State University

Larry Warbasse M.D., Michigan State University

James Addison, M.D., Michigan State University

Frances Chames, M.D., Michigan State University

Background: The direct observation of students' performance in clinical settings remains challenging. A number of barriers to direct observation exist, including the lack of effective implementation strategies and the absence of transparent standards for judging competence. In the absence of explicit standards, the discriminating ability of evaluators judging the exact same clinical performance is poor. The delivery of checklists for specific clinical problems for use by observers during student-patient encounters offers a potential solution to this problem; and one of the few feasible ways to efficiently distribute such checklists at the point of assessment is with mobile technology. We developed, implemented and assessed a web-based clinical evaluation application (i.e. CEX app) for internet-enabled mobile devices, including mobile phones. The app displays problem-specific checklists corresponding to Clerkship Directors in Internal Medicine (CDIM) training problems. We hypothesized that use of the CEX app for directly observing students' clinical skills would be feasible and acceptable, and would demonstrate adequate reliability and validity.

Methods: Between July 2010 and February 2012, 266 third year medical students at Michigan State University completed 5 to 10 formative CEXs during their medicine clerkship. The observers (attendings and residents), who performed the CEX, used the app to guide and document their observations, record their time observing and giving feedback to the students, and their overall satisfaction with the CEX app. Interrater reliability and validity were assessed with 17 observers who viewed 6 videotaped student-patient encounters, and by measuring the correlation between student CEX scores and their scores on subsequent standardized-patient OSCE exams.

Results: A total of 2523 CEXs were completed by 411 observers. The average number of evaluations per student was 9.8 (± 1.8 SD) and the average number of CEXs completed per observer was 6 (± 11.8 SD). Observers spent less than 10 minutes on 45.3% of the CEXs and 68.6% of the feedback sessions. An overwhelming majority of observers (90.6%) reported satisfaction with the CEX. Inter-rater reliability was measured at 0.69 among the observers viewing the videotapes, and their ratings discriminated between competent and non-competent performances. Student CEX grades, however, did not correlate with their subsequent OSCE scores.

Conclusions: The use of this CEX app is feasible and it captures students' clinical performance data with a high rate of user satisfaction. Our embedded checklists had adequate inter-rater reliability and concurrent validity. The grades measured on this app, however, were not predictive of subsequent student performance.

Poster Presentations

1. On-Demand Research Basics Training Program: Education Online Training

Geraud Plantegenest MA, Michigan State University - College of Human Medicine

Joan Ilardo, Ph.D., Michigan State University - College of Human Medicine

Objective or purpose of innovation: The College of Human Medicine (CHM) at MSU developed a Research Basics Training Program (RBT) to provide training on core research skills and to increase productivity of early investigators such as medical students, residents, faculty, clinicians and community practitioners. RBT was originally offered as a train-the-trainer model delivered on-site at various CHM campuses. This approach proved not to be feasible in the campus community settings since most residency program faculty do not have the time or background to add conducting research training seminars to their schedules.

Need for innovation: The alternative online RBT program provides optimal educational value and flexibility for the learning needs of medical students and professionals who have time and schedule constraints or lack of research experience. Instructional methods and materials used eight RBT core modules were developed. An eLearning software (Articulate) was used for designing and publishing the modules. Modules integrate a variety of multimedia such as, narrated PowerPoint, images and animations, assessments, and articles. Modules are accessible online through MSU's learning system, and can be downloaded to a hard drive, or other portable media. Modules may be used individually, or as a group in a class guided by an instructor. Educational outcomes: The online RBT program is being used in the Pediatric Residency program to provide foundational research training for conducting scholarly activities. So far, anecdotal data provided by about 46 users (students and program directors) has been very positive about content quality and ease of access to the modules. The developers will send an assessment survey to users in spring and summer 2013 to request feedback on accessibility, content, and suggestions for improvement.

Innovations strengths and areas for improvement: The online modules provide standardization of instruction, flexible scheduling, and reduced cost of program delivery. The delivery format provides learners with greater access to content, deliberate practice and more control of the educational experience. Additional modules will be designed in specialized areas such as evidence-based practice and quality improvement to enhance the offerings of the RBT program.

Feasibility of maintaining program, and transfer to other schools or programs: RBT is a core element of research training in the CHM. It is part of the Responsible Conduct of Research curriculum and is a requirement for all CHM students who are matched to research projects in 2013. RBT modules can also be exported and integrated with other medical school systems.

2. Michigan Consortium Challenges Barriers to Medical School Nutrition Education

Virginia Uhley, Ph.D., RD, University of Michigan

Mary Noel MPH, Ph.D., RD, Michigan State University

Laryssa Kaufman MD, Michigan State University

Karen Lienhart MA, Michigan State University

Mary Width MS, RD, Wayne State University

Anita Sandrett, Ph.D., University of Michigan

Medical education reform to address the integration of clinical nutrition into the curriculum has remained elusive. Barriers were first identified in the 1994 Report to Congress on Assuring Access by Medical Students, Residents, and Practicing Physicians to Adequate Training in Nutrition. In 1997, the Michigan the Michigan State Medical Society (MSMS) established the Michigan Medical Nutrition Education Consortium (MMNEC) to support and advance nutrition education in the medical school curriculum. The MMNEC's mission is to collaborate by sharing instructional and research nutrition resources, and to promote visibility and enhance the recognition of nutrition in medical training and practice.

The members of the MMNEC are designated nutrition faculty appointed by the Dean of each medical school and representatives from state and community health agencies. The MMNEC is the first known collaboration of Michigan's medical schools around a common curriculum and public health concern. As prescribed by Jordan Cohen, president of the AAMC, the consortium has found a way to "coordinate their efforts, give up just a little of their independence, and join forces

to achieve goals beyond their individual reach." In 1999, the MMNEC was able to make a nationwide impact on the visibility of nutrition in medical practice by initiating the first formal application to the National Board of Medical Examiners Step 1 Committee, which established nutrition as the first integrated topic to be considered, and the Step 1 nutrition sub-score was first reported in 2002. In 2003, the MMNEC developed two medical student nutrition training resources: a standardized patient cardiovascular (overweight/obese) case and computerized modules to help students integrate and apply basic science knowledge of diabetes and hyperlipidemias to patient care.

The MMNEC continues to meet on a quarterly basis and share information. It has also become recognized as a resource for expert opinions regarding nutrition issues for Michigan's community health programs. One of the most important outcomes from the MMNEC efforts has been the shift in the onus for medical nutrition training to come from single faculty in basic sciences or clinical departments to multi-disciplinary, cross-institution collaborations. Nutrition experts from a variety of curricular and health care perspectives have built strength from the sharing of resources, the breadth of nutrition knowledge they can access, and the ability to garner outside resources not available to one medical school alone. Regional collaborations may potentially benefit other medical schools in their efforts to integrate nutrition into their curriculum.

3. A Positive Approach to Teaching Professionalism: A Longitudinal Course for Pre-Clinical Medical Students

Churlsun Han M.D., Michigan State University College of Human Medicine

Objective: Students will be able to demonstrate attributes of professionalism through active, positive behaviors.

Need for innovation: Unprofessional behavior is observed in medical students as early as the start of medical school, and this correlates with future negative outcomes including disciplinary action. Many organizations including the ACGME recognize the need for professionalism education, and current professionalism curricula focus on self-reflection or on curbing negative behavior, but do not offer prospective or prescriptive action.

Methods & Materials: I created a pilot study for a longitudinal, positive professionalism curriculum encouraging active, positive behaviors, and reinforcing an institutional standard of "The Virtuous Student Physician." This process included discussion with administration, creating coarse goals and structure, developing a pilot unit, and obtaining IRB approval. The full curriculum will be integrated into an existing course that includes faculty mentorship during their pre-clinical years. The curriculum is an online module series, with each module focusing on one attribute of "The Virtuous Student Physician" including a definition of the attribute, common issues, a self-assessment, and significant achievements. At the end of the module, students submit a self-assessment to course faculty for review. The pilot unit focused on social responsibility. The unit objective was for students to create a self-assessment describing their understanding of social responsibility, providing examples of relevant prior behavior, and creating a plan for future professional activity that demonstrates social responsibility.

Outcomes: The pilot study assessed attitudes, understanding, and acceptability by Likert scale and ability to pass pre-defined grading criteria for the self-assessment. Five students participated and four students passed. The number who could identify positive professional actions increased, and the number who could identify the attributes of "The Virtuous Student Physician" increased. The module was rated generally acceptable. The total time was less than 90 minutes.

Strengths & Areas for Improvement: The online module format allowed for self-pacing, and provided a uniform, consistent message. Self-assessment allowed for reflection, alignment of professionalism concepts with real world behaviors, and recording of student professionalism. Areas for improvement include future observation of behavior and determination of the effect on negative behavior.

Feasibility for Maintenance and Transfer: Given the online format, its ability to be implemented and

maintained is highly achievable. Transfer to other institutions, whether in concept or direct use, is easily possible. However, institutional standards and support of student professionalism are necessary.

4. Creation of a Practice Problem Based Assessment Using Students as Simulated Patients

David Raffo M.D., Michigan State University College of Human Medicine

Robin DeMuth M.D., Michigan State University College of Human Medicine

John O'Donnell M.D., Michigan State University College of Human Medicine

Objective: Create a formative experience for students to practice focused interviewing, physical exam, and diagnostic skills in an environment simulating a Performance-Based Assessment (PBA).

Need for innovation: PBAs allow students an opportunity to practice putting all clinical skills together in formulating a patient history, performing a physical examination, integrating basic science knowledge, and writing a health record while formulating appropriate differential diagnoses and medical plans. However, they can also create anxiety for students, especially early on. We wanted to create a "low-stakes" learning session to give students practice with PBAs, yet needed to do this without a significant increase in use of faculty or simulated patient (SP) resources.

Instructional Methods: We created a neurologic PBA practice session where the students learned a brief case, then performed an interview and examination in pairs, each taking a turn as examiner and as patient. After initial training in the cases and the process, students entered exam rooms. Student A conducted a problem-focused interview and completed a neurologic exam on Student B, meanwhile Student B monitored for completeness of the exam and history. The students then spent 15 minutes in review of the exam checklist and feedback. Roles were then reversed. Afterwards, students completed a health record note and received formative feedback, all prior to their initial formal PBA.

Educational Outcomes: Immediate verbal student feedback often included relief they had experienced this prior to the formal PBA. On evaluations, compositely in our two medical school campuses, N=207, 80% of students agreed this PBA practice session provided valuable insight into the format of the PBA, and 77% of students agreed this PBA practice session gave them more confidence and skill to perform a PBA.

Innovation's strengths and areas of improvement: This practice PBA allowed students to practice skills with fellow classmates in a more relaxed environment, while simulating the PBA experience. For resources it required only a single faculty and staff person to introduce the cases and run the sessions. Further tutorial instruction prior to the PBA practice on what to expect in PBAs might help prepare students. In addition, with further data, analysis of performance on the Neurologic PBA will be helpful to assess the specific skill assessment as well as student perception.

Feasibility of maintaining program: Given the design to allow robust student practice with limited faculty and SP resources, this session can easily be maintained or implemented in any program that is introducing the PBA experience to early learners.