Objective: This study aims to develop an instrument for use by genetic counseling students to evaluate their clinical education, as well as their overall clinical experience. Implementation of the instrument will contribute to the future training of clinical instructors, enhance the learning experience of students, and promote research in clinical supervision.

Methods: Items for the evaluation instrument were drawn from similar instruments used in medical education and from the primary investigators’ expertise in clinical supervision. A cohort of experts in the genetic counselor supervision was selected on the basis of: years of experience as a clinical supervisor, number of students supervised per year, area of specialization, and willingness to participate in the process of reviewing the content of the instrument. These experts rated: 1.) each item’s importance; and 2.) how well the item measures the intended construct. Ratings will then be analyzed. Items with discrepant ratings will be vetted during a facilitated conference call to develop consensus regarding that item’s inclusion in the final instrument.

Results: The instrument is being developed to measure four important domains that contribute to constructive learning environments for genetic counseling trainees: educational climate, relationships, ethics/professionalism, and facilities. There is also an open-ended question allowing the content experts to suggest additional items they think are important for measuring these domains.

Conclusions: Validity of content is currently being assessed by the expert cohort. Once content has been validated, the tool’s utility will be assessed and validated in an actual clinical setting with genetic counselor graduate students.
Use of Articulate Modules to Improve Student Learning Outcomes in an Undergraduate Neuroscience Class
R. Thomas Boyd, PhD
Department of Neuroscience, Wexner Medical Center at The Ohio State University

Objective: I have been teaching an introductory undergraduate neuroscience course since 2004 at Ohio State (Neuroscience 300/3000). Since the beginning of the course, students have repeatedly had the most difficulty understanding concepts related to action potentials and electrophysiology and consistently scored lower on these questions than on others about other basic neuroscience topics. The previous method of presentation has been lecture using PowerPoint slides which are also made available on Carmen. Online and web-based instruction has not been widely employed to replace didactic presentation in the teaching of undergraduate neuroscience. We tested the hypothesis that teaching this difficult material using Articulate presentation of the material on Carmen along with self assessment questions will improve student learning outcomes.

Methods: Material covering two chapters of the textbook (Neuroscience Understanding the Brain, Bear, Connors, and Paradiso, 2007, LWW) were prepared as four Articulate e-learning modules and placed on the class Carmen website. A 20 question self-assessment quiz was also available on the Carmen site. Students had free access to the Articulate presentation and were encouraged to use this as the primary learning resource. Scores on a test covering the Articulate presented material were compared to scores of a test on the same material from last year’s class which received lectures.

Results: Students in the 2012 class using the Articulate did worse than 2011 class on key content questions. This possibly indicates that students need a more structured didactic presentation of difficult material and might benefit from enhanced Articulate with more online discussion, questions, and is more interactive. It is also possible that the 2011 class had a different profile (not a good control).

Conclusions: In contrast to test results, the survey results indicated that students thought the Articulate modules should be added to all parts of the course, were satisfied or very satisfied with the quality of the modules, and over 60% thought they were of great or considerable value. Thus there appears to be a logical disconnect between the perceived value of the Articulate modules and the test scores. This needs to be explored further. One possible explanation is that they did not do as well on the test as the class of 2011, because they were actually a class with much lower aptitude or more variable abilities. It is possible that the modules helped them a great deal, but not enough to score higher than a class of higher academic talent.
A Brief Educational Intervention Designed to Impact Emotional Intelligence Score in Emergency Medicine Residents
Diane L. Gorgas, MD
Department of Emergency Medicine, Wexner Medical Center at The Ohio State University

**Objective:** To measure the effects of a brief emotional intelligence (EI) intervention on Emergency Medicine (EM) residents.

**Methods:** EM residents were assigned randomly to two groups, each group was stratified to have equal representation of PGY levels and gender. Both groups completed a 10 minute pre-intervention survey to assess EI. Half of the residents then underwent a brief educational intervention on EI. It consisted of an introductory lecture on compassion, empathy, and emotional perspective taking and was followed by a series of case scenarios to reflect clinical situations. The intervention group was tested immediately post-intervention, and both groups were tested again for at the end of 6 months. A 3-Way Analysis of Variance (ANOVA) was used to test for the intervention effect: Group x PGY Training level x Gender.

**Results:** Comparison of the two groups showed no statistical main effects or difference in EI scores at pre intervention for group assignment (control vs. intervention; p=0.316); PGY level of training (PGY1-3;p=0.643), or gender (p=0.964). There was a trend towards improvement immediate post intervention in the group exposed to the EI intervention. (p=0.337), but a statistically significant improvement in EI scores at 6 months in the intervention group (p= 0.012). This compared to a slight negative but not significant trend in the control group for their EI scores.

**Conclusions:** A brief educational intervention was helpful in improving EI scores in a cohort of EM residents, however the improvement was only observed after a 6 month delay. There is no reason to assume that these results would be specialty specific in training, nor limited only to physicians in a post-graduate training environment. Further work should be done to assess the benefit of this intervention among other residency training programs, medical students, and faculty.
Live Patient Panel to Supplement Neurological Trainees’ Physical Examination and Clinical Diagnosis Skills in Patients with Neuromuscular Disorders

J. Chad Hoyle, MD; Bakri Elsheikh, MBBS
Department of Neurology, Wexner Medical Center at The Ohio State University

It is hypothesized that neurology trainees have suboptimal familiarity with and exposure to the range of physical examination findings and bedside features that help characterize neuromuscular diagnoses. Medical education literature has demonstrated medical students and residents in general might have a deficiency in physical examination skills. Also, there is a discrepancy between measuring neurological knowledge on standardized written examinations and the ability to perform an oral examination, suggesting clinical bedside diagnostic ability might not be well represented by written examinations. Simulation and standardized patients provide benefit for supplementing clinical knowledge. Given the above and also trends of work hour restrictions, documentation time confounds, and decreased faculty bedside teaching time for neurology residents/trainees overall, a live patient clinical skills lab setting would provide a streamlined and efficient supplement of experience for the trainees. 10 key neuromuscular conditions with a multitude of hallmark physical exam findings will be represented. The intervention will be a hands-on demonstrative clinical skills session with neuromuscular faculty guiding the learning. 2 groups of trainees will be randomized into an intervention group and a control group (randomized at each year level of training). Both groups will take a baseline test, as well as a 6 month follow up test, reflecting an assessment of their ability to accurately identify pertinent examination findings and the associated clinical diagnoses of the study patients. Study is in progress.
Knowledge and Perceived Skill In Concussion Education Among Novice Healthcare Professionals
Tamerah Hunt, PhD; Laura Harris, PhD; David P. Way, MEd

1SHRS/Athletic Training, Wexner Medical Center at The Ohio State University
2Center for Education and Scholarship, The Ohio State University College of Medicine

New legislation mandates that health care providers of athletes have experience in concussion management. Currently, the best methods for teaching these skills are ambiguous.

Purpose: This study aimed to: 1) determine if an educational intervention would increase knowledge and student self-perceived expertise and 2) examine the correlations between measures of experience, knowledge and self-perceived expertise.

Methods: Two groups of health care students participated. The first was athletic training students (n=16) and the second medical dieticians, who served as a control (n=19). Both groups took a 37 item concussion education pretest and a follow up test 3 months later. The athletic training group completed a course on concussion management followed by a posttest. The tests measured three domains: knowledge, self-perceived expertise, and experience. Repeated measures Analyses of Variance (2x2 ANOVAs) with post-hoc tests were used to compare differences between groups on the three measures. Pearson Correlation Coefficients were also calculated.

Results: Significant interactions were observed between groups over time on 2 of 3 measures: experience and self-perceived expertise. A significant group main effect was observed on knowledge scores. Post-hoc tests revealed that the difference between group knowledge existed at time point 1, but not at time point 3. Finally, a significant, modest positive correlation was observed between the experience and perceived expertise scores. (r=0.630, p<0.001).

Conclusions: Athletic training students scored high on the knowledge pre-test, demonstrating that they knew a lot about concussions before taking the class. The experience with actual concussions during their clinical experience contributed to a higher self-perception of expertise. Educators need to implement the best educational practices possible to maximize knowledge and expertise. While it appears that clinical experience may supersede didactic education, a combination of both will encourage deeper learning and confidence.
Patient Attitudes Toward Resident Participation in Cosmetic Versus Reconstructive Outpatient Consultations

Ergun Kocak, MD, MS; Katherine H. Carruthers, MS; James D. McMahan, MD; Anne Taylor, MD; Zach Barnes, MD; Gregory Pearson, MD
Department of Plastic Surgery, Wexner Medical Center at The Ohio State University

**Objective:** The goal of plastic surgical residency is to provide trainees with exposure to all aspects of the field so that they exit the program ready to be independent practitioners. However, in some teaching institutions it is common practice to exclude residents from participation in consultations with patients who are seeking cosmetic surgery. The goal of this study was to determine whether cosmetic patients had a different view about resident involvement than reconstructive patients and to evaluate what factors might be linked to patient attitudes on this topic.

**Methods:** All new patients were asked to complete a voluntary survey at their initial consultation. This survey asked patients to identify themselves as either cosmetic or reconstructive and to indicate the location on their body where they were having surgery. Additionally, a series of statements regarding resident involvement was present with a 5-point Likert-type rating system to assess each patient’s attitudes about a range of factors, such as resident gender and seniority.

**Results:** 110 patients participated in the study by completing the survey. Of this population, 56.4% (n=62) were classified as reconstructive patients, 43.6% (n=48) were classified as cosmetic patients. Based on responses, it was determined that reconstructive patients were more approving of resident involvement in their care when compared to cosmetic patients. When factors were analyzed, the body part being examined appeared to have a more significant effect on cosmetic patients compared to reconstructive ones.

**Conclusions:** Although there are some differences in the way resident participation is perceived by cosmetic and reconstructive patient populations, neither group is strongly opposed to having residents assist their primary physicians. Based on these findings, plastic surgery training programs should begin to allow residents to become more involved in the care of cosmetic patients.
A Comparison of Three Models to Teach Geriatric Cognitive Vitality
Donald Mack, MD
Department of Family Medicine, Wexner Medical Center at The Ohio State University

Objective: The Geriatric Cognitive Assessment curriculum was written as a Small Group, e-Learning, and Direct Experiential format with the objective to determine which method was superior or inferior. The Small Group was similar to the standard CAPS curriculum method, while the e-learning was done via an Articulate module with no patient, faculty, or peer interaction. The Direct Experiential model involved the students using the same module as the e-learners, followed by a one on one practice session with a standardized patient without peer or faculty interaction.

Methods: The method involved randomizing the students to the various groups, and then evaluating them via the UCLA Geriatric Knowledge Test, a Content Test based on the session information, and via a Student Survey.

Results: The results indicated that all students had significant learning on the Geriatric Knowledge Test, but that no method was superior to the others on either of the tests. The Student Satisfaction Survey indicated that the students assigned to the Small Group and Direct Experiential Model, preferred their model compared to the e-Learning model.

Conclusions: My conclusions are that in this intervention, no method was superior based on the test results. Also, students preferred to have patient and faculty involvement in learning this curriculum. Finally, the LSI Curriculum has potential to enhance learning by incorporating e-modules, longitudinal small groups, and experiential learning in the longitudinal preceptorship, which should satisfy student interest in multiple learning models.
Medical Research and Primary Care: Making Sense of the Sordid Affair
Ismail Nabeel, MBBS, MPH
Department of Internal Medicine/Occupational & Environmental, Wexner Medical Center at The Ohio State University

Objective: This is a retrospective cohort study of primary and specialist physician researchers in 2 major medical divisions at a major metropolitan academic health center (AHC). The purpose of the study is to compare the administrative profile of these divisions and the research productivity of their faculty, as measured by the number of research papers published in peer-reviewed medical journals over a 3 year period. The goal of the research is to formulate strategies to overcome impediments to research activity that leads to publications among primary care physicians at AHCs.

Methods: We collected the names of physicians from the 2 divisions of the medicine department and then collected a list of each of their published research studies between the years 2009-2011. Publication data collection was done by using SciVal software Suite. Physician names and demographics were provided by the Office of Faculty Affairs. Univariate Analysis of Variance (ANOVA) will be used to compare researchers from the specialty and primary care divisions. Descriptive statistics of the departmental demographics and qualitative analysis of administrative policies and practices will be used to profile the two divisions.

Results: Publication data is currently being collected and is expected to be completed by the end of October. Administrative profiles of the two divisions will also be completed at about the same time.

Conclusions: Conclusions and generalizability to other departments and AHCs will be discussed once data is analyzed.
The Role of Guided Practice in Training a New Generation of Robotic Surgeons

Ritu Salani, MD, MBA; Margaret Liang, MD; Catherine Cansino, MD, MPH; Georgia McCann, MD
Department of Obstetrics and Gynecology, Wexner Medical Center at The Ohio State University

Objective: Robotic assisted gynecologic surgery, first introduced in 2005, has been steadily increasing in clinical use. However, there is not a standardized training curriculum and resident education in robotic surgery remains inconsistent. Therefore, the primary objective of this study was to assess the efficacy of guided practice with immediate feedback with an experienced mentor to improve inexperienced trainees’ robotic skills.

Methods: Fifty junior medical students and gynecology residents are enrolled in this prospective, blinded, randomized controlled trial. Each participant underwent an introductory educational robotic session and a baseline evaluation. We then randomized students into an intervention group, who received an additional session with expert guidance after 4 weeks, and a control group. After an additional four weeks, a final assessment was performed. The primary outcome was time to task completion and skills score.

Results: Fifty participants have enrolled in the study and to date, we have completed the introductory lecture and the baseline assessment for all participants. Participants have been randomized and the intervention group will undergo the guided session in the upcoming weeks. The final assessment for the entire cohort will then be conducted.

Conclusions: Though we have not concluded the assessment, we hypothesize that the trainees in the intervention group will have significantly faster times and better expert scores at the final assessment compared to those who do not undergo this intervention. Regardless, the development of standardized curriculum for robotic surgery is imperative.
The Development of a Valid and Reliable Measurement Tool for the Evaluation of Technical Skills in Fiberoptic Bronchoscopy and Assessment of e-learning in Teaching those Skills to Anesthesiology Residents

Erica Stein, MD; Larry Hurtubise, MA; Rollin Nagel, PhD

1Department of Anesthesiology, Wexner Medical Center at The Ohio State University
2Center for Education and Scholarship, The Ohio State University College of Medicine

Objective: Mastery of fiberoptic bronchoscopy (FOB) is necessary for anesthesiology residents; however, teaching these skills to novices can be very challenging. Currently, no objective, reliable, and valid tool exists to assess clinical fiberoptic airway management skills. Simple and complex simulator experience has been shown to improve performance in FOB and intubation among trainees. However, the use of e-learning has not been explored in this capacity. Given budget constraints, many residency programs are unable to offer simulator experience to trainees. Therefore, e-learning could be a possible educational resource to teach these skills without the expense of simulation practice. Goals of this study include: 1) development and validation of an evaluation tool for FOB and intubation 2) evaluation of the effect of e-learning on teaching these skills to residents.

Methods: Part 1 is a validation study: senior anesthesiology residents/fellows and attending anesthesiologists will be observed performing FOB and intubation in an uncomplicated anesthetized patient. Two anesthesiologists expert in FOB and intubation will evaluate participants.

Part 2 is an observational study: junior anesthesiology residents will be observed performing a FOB and intubation (described in Part 1). Participants will complete an e-learning module on FOB and intubation. Then participants will be evaluated in the clinical setting (described in Part 1).

Results: The study is currently in the enrollment phase.

Conclusions: We hope to validate the evaluation tool. Secondly, we hope to show that e-learning will be a cost- and time-effective method to teach FOB and intubation skills to trainees.
Pediatric Hypertension: Defining the Educational Needs of Primary Care Pediatricians
Stephen Cha, MD; Deena Chisolm, PhD; Hiren Patel MD; John D Mahan, MD
Department of Pediatrics/Nephrology, Nationwide Children’s Hospital

Objective: To identify the educational needs and to develop effective teaching methods to educate and influence practice behaviors of PCP regarding appropriate recognition, diagnostic evaluation, and therapeutic intervention in pediatric essential HTN.

Methods: We conducted 4 separate focus group (FG) discussions with pediatric residents, Adolescent Medicine physicians and 2 outpatient pediatric groups associated with Nationwide Children’s Hospital in Columbus, OH. Six to 9 participants in each group discussed approaches to 3 common pediatric HTN scenarios. Sessions were recorded and transcribed for review. Themes were elucidated amongst the focus groups by 4 reviewers.

Results: Five major themes emerged from the focus group sessions (utilization of resources to obtain BP, BP measurement method, co-morbidities, barriers to care, and experience level of training) and 6 minor themes also emerged (differences in BP measurement, accuracy of BP, recognition, practice pattern, education, and differences in level of training). Most participants in each FG wanted further education on pediatric HTN but different groups defined varied needs and identified multiple preferences for how to learn this material.

Conclusions: These results support the need to develop programs to increase PCP knowledge of specific aspects of pediatric HTN. Based on the varied stated preferences of these PCP, education modules and methods will need to employ multiple presentation methods (e-learning, small group sessions, self-study, large group presentations) to be useful and ultimately improve outcomes in pediatric HTN.
Student Perceptions of the Learning Environment on Labor and Delivery at the Ohio State University
Kara Markham, MD; David Way, MEd
1Department of Obstetrics and Gynecology, Maternal Fetal, Wexner Medical Center at The Ohio State University
2Center for Education and Scholarship, The Ohio State University College of Medicine

Objective: Our objective was to outline student perceptions regarding the learning environment on labor and delivery (L&D) at OSU compared to students rotating at community hospitals nearby.

Methods: This was a correlational research project involving dissemination of a questionnaire to all outgoing third year medical students in the Class of 2013 at OSU. The primary questionnaire tool was the Dundee Ready Education Measure (DREEM), but additional questions were added specifically related to student experiences on L&D. The questionnaire was distributed via the website http://www.surveymonkey.com, and data was analyzed using a factor matrix.

Results: Of 213 students in the Class of 2013, 123 (58.3%) usable responses were obtained. The biggest difference between sites was identified in analysis of Factor 1, with Grant noted to have a significantly better learning climate than OSU (p<.01). In addition, student/attending relationships were better at Grant than St Ann’s, facilities at OSU and St Ann’s were better than those at MCW and Riverside, didactic education was better at Riverside than the other sites, and sleeping facilities at MCW were better than those elsewhere.

Conclusions: Our overall goal is to improve the learning environment on L&D at OSU. When compared to community hospitals, OSU primarily performed poorly on questions that assessed the learning climate and student support on L&D. Many of these questions specifically involved relationships between residents and students. In fact, OSU, MCW, and St Ann’s had the three lowest scores on analysis of Factor 1, which is interesting since these 3 locations are all staffed by the same residents from the OSU OB/GYN residency program. The adjectives used to describe L&D at OSU suggest that students find the rotation educational, exciting, interesting, and fun, but they also feel ignored. To improve the L&D experience at OSU, additional data will need to be collected specifically about interactions with the residents, but it appears that the rotation may be enriched by making students feel more involved and welcomed.
Breaking Bad News the Right Way: A Look at Pediatric Resident Communication Skills
Suzanne Reed, MD;¹ Rollin Nagel, PhD;² Richard Shell, MD;¹ Karyn Kassis, MD;¹ John D Mahan, MD¹
¹Department of Pediatrics/Hematology & Oncology, Nationwide Children’s Hospital
²Center for Education and Scholarship, The Ohio State University College of Medicine

Objective: Our objective was to determine if practice-based training improves objective performance of first-year pediatric residents in the delivery of bad news. Additionally, we investigated the relevance of inherent personality traits (interpersonal reactivity and emotional intelligence) as they relate to baseline communication skills and potential for improvement in the delivery of bad news.

Methods: A total of 44 first-year residents participated, and 38 residents were able to complete all phases of the study. There were no specific selection criteria, only availability and willingness to participate. We assessed trainees’ communication skills via standardized patient (SP) encounter at three separate time points: before teaching intervention, immediately post-intervention, and three months post-intervention. Self-assessments were also obtained both before and after teaching intervention. We selected a previously published (Hobgood, et al) teaching intervention called “The GRIEV_ING Death Notification Protocol,” a two-hour educational experience including didactics, small group discussion, and role-play.

Results: Complete data analysis is still ongoing. Currently, data from pre-test encounters is undergoing analysis, and encounters from the second and third time points are being reviewed by the research team. At this point, scores among raters demonstrated moderate inter-rater agreement. Residents’ baseline scores for breaking bad news skills were low, and emotional intelligence behavior scores were high.

Conclusions: As of current data analysis, one conclusion is that first-year pediatric residents have low baseline skills in breaking bad news, even though emotional intelligence is consistently high. This suggests that emotional intelligence alone is not sufficient to effectively deliver death news. Further conclusions are forthcoming with complete data analysis.
Microsurgery Instruction in an Orthopaedic Surgery Residency
Julie Balch Samora MD, PhD; Michael Ruff, MD; Hisham Awan, MD; and Ryan Klinefelter, MD
Department of Orthopedics, Wexner Medical Center at The Ohio State University

Objective: Our objective is to create a proficiency-based training curriculum in microvascular surgery for orthopaedic residents that is cost-effective, maintainable, reliable and valid.

Methods: Participants will be orthopaedic residents rotating on the hand service. At the start of the rotation, each resident will be provided a questionnaire and will be asked to perform an initial skills exam. They will then be provided with training sessions and have unlimited access to the micro lab for practice. At the end of the intervention, three assessment tools will be used to evaluate the performance of each subject: time on task, a task-specific checklist and a six domain GRS. Statistical analysis will be performed with primary endpoints being total time, the scores on the task-specific checklists, and the scores on the GRS. All scores will be analyzed parametrically using a MANOVA. Intraclass correlation coefficients will be calculated to assess the inter-rater reliability of assessments provided by the two examiners. Pearson correlation coefficients will be calculated to ascertain a relationship between all three outcome measures, and to establish the concurrent validity of our test criteria.

Conclusions: Our ultimate aim is to enhance the overall surgical education of orthopaedic surgery residents and improve performance in the operating room.
An Educational Model for Teaching Fast to Surgical Residents
Ashley Zielinski, M4; Eliza W. Beal, Sereana Dresbach, PhD; David Bahner, MD; Daniel Eiferman, MD
1College of Medicine; 2Department of Pulmonary, Allergy, Critical Care and Sleep Medicine, 3Department of Emergency Medicine; 4Department of Surgery, Division of Critical Care, Trauma, and Burn, Wexner Medical Center at The Ohio State University

Objective: Focused Assessment with Sonography in Trauma (FAST) has become indispensable in the evaluation of trauma patients. Few surgical residencies have courses on this skill. The Wexner Medical Center has established a program to teach surgery residents to accurately obtain and interpret FAST scan images.

Methods: 13 PGY-1 level residents were evaluated, which included 10 confidence questions, 12 ultrasound knowledge questions, and a practical exam where they performed the FAST exam and the LAX rescue cardiac view. Participants answered confidence questions on a spectrum from 1 to 8 (1= strongly disagree, 7= strongly agree, 8= no experience with the skill). The practical exam was evaluated by two attending physicians. The images were graded on a 1 to 5 scale (1= no image obtained, 5=image perfectly obtained with proper settings and labeling). The residents will undergo hands-on training and will be re-evaluated.

Results: Residents responded with low overall confidence in skills (mean=2.08). Participants generally rated their confidence in acquiring views in the “disagree” portion of the continuum, but the means on the confidence questions ranged from slightly to strongly disagree (3.94 to 1.92). Practical skills showed a tendency of not being able to attain the image or missing relevant anatomy with the means ranging from 1.38 to 2.46.

Conclusions: Confidence, knowledge, and practical skills show an inability to adequately perform FAST scans among PGY-1 level surgical residents. Training in the FAST exam is necessary for these residents to obtain images used for clinical decision making.
Going Away: Investigating Student Perspectives on Away Rotations in Emergency Medicine
Rebekah Zaiser, M3; ¹ Matthew Blickendorf, MD; ¹ Aaron Bernard, MD; ¹ Diane Gorgas, MD; ¹ Sorabh Khandelwal, MD; ² Nicholas Kman, MD; ¹ David Way, MEd
¹Department of Emergency Medicine, Wexner Medical Center at The Ohio State University
²Center for Education and Scholarship, The Ohio State University College of Medicine

Objective: This study investigates students’ motives for completing or not completing EM away rotations.

Methods: Fourth-year medical students from The Ohio State University College of Medicine (OSU COM) who had matched in an EM residency were invited to participate in the IRB-approved study. Electronic, confidential surveys were completed, and the results were analyzed using basic descriptive statistics.

Results: Sixteen of the eighteen students invited to participate completed the survey. Seven of the respondents had completed an EM away rotation. Ten of the sixteen students were advised by EM faculty members to complete or not to complete an away rotation, and all of the students followed the faculty recommendation. Students’ top motives for completing an away rotation were 1) to gain additional experience in EM, 2) advised to complete an away rotation, and 3) to increase the chance of matching at a specific program. The most common reasons for deciding not to complete an away rotation were 1) did not think it would significantly benefit residency application, 2) advised against completing an away rotation, and 3) family responsibilities.

Conclusions: OSU students weighed many factors in their decision to complete or not to complete an away rotation. No single factor stood out as the most influential. In the future, we plan to refine our survey instrument, administer the survey to future OSU graduating classes, and potentially expand the project to a multi-site study.
The Summer Scholars Program  
Thomas E. Williams, Jr., MD; Corey Ferguson  
Department of Surgery, Wexner Medical Center at The Ohio State University

**Objective:** Cardiothoracic Surgery has endured a considerable decline in residency applicants within the past fifteen years. Coupled with an increase in our nation’s aging population, the United States is at tremendous risk of being deficient in cardiothoracic surgeons to fulfill the immense need foreseen in the future.

**Methods:** In effort to introduce and engage medical students in this field of surgery the Divisions of Cardiac and Thoracic Surgery coordinate an annual Summer Scholars Program. Three to five medical students who have completed their first year of medical school at OSU are engaged in eight weeks of cardiac surgery, thoracic surgery, congenital surgery, and cardiac research. During their experience, scholars participate in case presentations, education conferences, wet labs, a suturing session, clinics, patient rounds and operative procedures. The Summer Scholars Program concludes with a series of case presentations made by the Scholars on a case they were involved in.

**Results:** Although it is too soon to determine if Scholars pursue cardiothoracic surgery, the immediate results are conclusive. Written and verbal feedback from Scholars is tremendously encouraging and encompasses sincere desires to pursue cardiothoracic surgery. Previous Scholars also have initiated a Cardiothoracic Surgery Interest Group arousing more interest by medical students in cardiothoracic surgery.

**Conclusions:** Providing alluring, hands on, summer experiences for medical students is engaging medical students with Cardiothoracic surgery. There is greater interest in peers of participating medical students as well. Through participation in a Summer Scholars Program medical students may choose to pursue a career path they may have not considered otherwise.
Development of a Curriculum on Cost-Conscious Care for Undergraduate Medical Education
Kim Tartaglia, MD; Curt Walker, PhD
Department of Hospital Medicine, Wexner Medical Center at The Ohio State University

Objective: Although physicians direct as much as 87% of all health care spending, studies demonstrate that physicians have poor knowledge regarding the costs of medical care. Data from our institution reveal that less than 45% of medical students are exposed to teaching on cost-awareness. The purpose of our project was to develop an integrated clinical curriculum that provides medical students foundational knowledge in health economics and cost-effectiveness principles.

Methods: In March 2012, our curriculum was piloted as an interactive case conference during an integrated 8-week subinternship-emergency medicine clerkship. Starting July 2012, the curriculum was expanded to also include a lecture on operative costs, a discussion on the impact of the patient-centered medical home on cost, a guided learning primer on cost effectiveness principles combined with a reflective exercise, and a podcast on Medicaid and the uninsured.

Results: Student perceptions of the case conference were assessed using a five question survey. Thirty-two of 35 students (91%) completed the survey. The results showed that 97% of students felt the material was presented at an appropriate level. 100% of students felt that the case conference was an effective way to teach about the financial cost of diagnostic testing. Eighty-eight percent felt the case-conference would change their future practice patterns.

Conclusions: Our initial survey results confirm that students value discussions on cost conscious care when applied to patients. Our next steps are to expand the curriculum to Part I of the Lead.Serve.Inspire curriculum and to develop more robust curriculum evaluation methods.
The Meaning of Interdisciplinary Service Learning: Students’ Perspectives
Melinda Rybski, PhD, OTR/L; Anne Kiloos, PhD, PT
School of Health and Rehabilitation Sciences, Occupational Therapy Division, Wexner Medical Center at The Ohio State University

Objective: Service learning is a form of pedagogy that enhances abstract academic classroom knowledge through the combination of engagement in meaningful community service with reflection (Huisman, 2010). The different types of learning that occurs can be organized in a typography that may include skill set practice and reflexivity, civic values and critical citizenship, and awareness of social justice and development of activism (Britt, 2012). Service learning has been used in occupational and physical therapy curricula in geriatric settings (Beling et al, 2003, 2004; Lohman & Aitken, 2002), diverse settings for adults and children (Hoppes et al., 2004), free clinics (Flinn & Kloos), and in intergenerational multidisciplinary settings (Karasik et al., 2004). While previous studies have examined how student attitudes changed (Karasik, 2004; Beling, 2004; Lohman, 2002) this study analyzed the student perspective about their learning and their experiences and how similar or different these perspectives are based on interdisciplinary groups.

Methods: This study is uses a multi-method assessment matrix of focus groups, student reflection journals, student reflective papers, comments from student course evaluation forms, and survey results to identify themes reflected in these multiple data sources from 27 occupational therapy and physical therapy students and faculty.

Results: Data suggests that students find benefit in reflecting on their experiences in service learning, that service learning experiences prepares students for the complexities of practice, and that working in the community has the potential to enhance their awareness of environmental and societal conditions which enable engagement and social participation.
Medical Student Participation in a Full Scale, City-wide Disaster Exercise: An Emergency Preparedness Curriculum for Medical Students
Katherine A. Pollard, M4;† Daniel J. Bachmann, MD;‡ Marek T. Greer, MD, MPH;§,¶ Nicholas E. Kman, MD
†The Ohio State University College of Medicine
‡Department of Emergency Medicine, Wexner Medical Center at The Ohio State University.
§Ohio Task Force 1: FEMA Urban Search and Rescue, Dayton, OH, USA;
¶Battelle Memorial Institute, Columbus, OH, USA

Objective: To assess the utility of an elective emergency preparedness curriculum for medical students. To assess and augment medical student ability to provide care in disaster scenarios.

Methods: We developed an emergency preparedness curriculum for current medical students that consists of informational lectures, hands-on didactic sessions, simulations, and student participation in a disaster exercise. Outcomes are measured by student performance on a pre- and post-curriculum assessment and by evaluation of each component of the curriculum.

Results: 28 medical students completed the twenty question pre-curriculum assessment (average score of 10). 27 students attended the first two lectures of the curriculum, which covered becoming an emergency responder and radiologic emergencies. 25 nursing students served as volunteer victims for the OSU response to the drill. 9 medical students participated as victims at the plane crash scene at Bolton Field. The curriculum is ongoing, with additional lectures, hands-on sessions, and drills planned for throughout the year, and will conclude with a post-curriculum assessment.

Conclusions: Our project will improve our medical center’s readiness for a disaster through improved medical student training and can be utilized to provide emergency preparedness training for medical students nationwide. We hope to add this elective experience to the L.S.I. Curriculum.
Surgical Clinical Correlates in Anatomy: A Link to Medical Students’ Residency Matching Choices
Susan Moffat-Bruce, MD, PhD; Tyler Spata, MD
Department of Surgery, Wexner Medical Center at The Ohio State University

Objective: With the shortage of surgeons anticipated in the future, surgical educators are finding ways to improve medical student interest in a surgical career. In 2008, The Ohio State University College of Medicine (OSUCOM) implemented the Surgical Clinical Correlates in Anatomy (SCCA) program to expose first-year medical students to surgical specialties during their first-year anatomy course. In 2012, the first group in the SCCA program participated in the residency match. This study compares whether the SCCA influenced medical students into a surgical residency.

Methods: In 2008, 25 first-year medical student volunteers were randomly selected. During their anatomy course, they dissected two cadavers while interacting with attending surgeons in various surgical specialties (General, Plastic, Orthopedic, Urology, Cardiothoracic, Vascular, Otolaryngology). The entire class completed a survey to evaluate opinions of a surgical career. The 2012 OSUCOM graduating class was statistically compared to previous classes to evaluate a change in surgical interest after the SCCA’s implementation.

Results: In 2012, 21% of the graduates matched to a surgical residency compared to 18% of the graduates before 2012 [Chi-Square=0.876, P=0.3292]. Of those who matched into surgical residencies, 36% of the 2012 graduates matched to a general surgery residency compared to 43% before 2012 [Chi-Square=0.659, P=0.41656]. Comparing participants in the SCCA program to non-participants, more SCCA participants matched into surgical residencies than expected when compared to non-participants [Chi-Square=4.595, P=0.032]. Graphically, there is a rising interest in surgical subspecialties.

Conclusions: In the OSUCOM 2012 graduating class, more SCCA participants matched into surgical residencies than expected when compared to non-participants with a predicted rise in surgical interest.
Exploring Medical Students Study Patterns Via a Study App
John D. Mahan, MD;1 Rollin Nagel, PhD;2 Larry Hurtubise, MA;2 and Dan Clinchot, MD3
1Department of Pediatrics, Nationwide Children’s Hospital
2Center for Education and Scholarship, The Ohio State University College of Medicine
3Department of Physical Medicine and Rehabilitation, Wexner Medical Center at The Ohio State University

Objective: Only a few studies have detailed medical student study patterns via diaries to define the nature of their learning activities over time. Ericsson and colleagues have demonstrated the impact of deliberate practice (DP) on the development of expertise in a variety of professionals. We developed an OSU COM medical student study app (App) to allow students to define their study times/patterns so that we could better understand the beginning development of expertise in medical students.

Methods: 16 first year OSU medical students logged all activities (study alone, study in groups, scheduled class time, time alone and with friends and family, and exercise time) for 5 weeks in spring 2012 to assess the functionality of the App. Data were organized by student and activity for initial estimates of time allocations by first year students.

Results: 10 of the 16 students provided > 80% completion of 4-5 weeks of study. The students slept on average 8.4 hr/day (35% time). Study/class time averaged 6.7 hr/day (28%) with greatest variability around study efforts with others. Time spent with friends/family (18%) was 5 times that spent in exercise).

Conclusions: This initial trial demonstrated the functionality of the App. While not all students completed the desired number of weeks, interviews established that the App was efficient and interested students found the process a reasonable effort. This App can provide data that will allow us to define the relationships between medical student activities and subsequent DP outcomes, such as knowledge acquisition and performance.
Validation of an Assessment Instrument for Evidence-Based Medicine Education in Pediatric Residency Programs

Jamie R. Macklin, MD; 1 David P. Way, MEd; 2 Elise D. Berlan, MD, MPH

1 Department of Pediatrics, Nationwide Children’s Hospital
2 Center for Education and Scholarship, The Ohio State University College of Medicine

Objective: Our objective was to validate an EBM assessment instrument, originally developed by Chernick, et. al. to see if it could successfully be adapted to our pediatric residency program.

Methods: We adapted a the Chernick instrument to assess our pediatric resident’s experience and comfort with EBM, self-reported EBM-related behaviors, and EBM knowledge. The knowledge section required residents to: construct clinical questions, locate and identify best practices from the research literature, and apply EBM concepts to patient care. Residents from 3 training programs completed the assessment. We evaluated the scale properties of the instrument using factor analysis and Chronbach’s Alpha reliability analysis. We validated the scoring rubric using multiple judges to score the knowledge portion of the test. We also assessed the instrument’s validity by comparing knowledge scores to experience and level of training.

Results: Of 132 residents surveyed, we received 113 fully completed (85.6%) and 9 partially completed assessments (6.8%). The factor and reliability analyses confirmed 3 hypothesized scales (Comfort, Behavior, and Knowledge). Inter-rater reliability between judges was high (ICC 2,2=.974). Items were free of floor or ceiling effects. We found that self-reported EBM behaviors increased with comfort level (p<0.01) and that comfort level increased with EBM experience (p<0.05). EBM knowledge scores increased with prior EBM experiences (p≤0.05); but not different across levels of training.

Conclusions: We were able to verify the hypothesized structure of the EBM assessment instrument developed by Chernick, et. al. The instrument worked well in our environment and possesses the psychometric properties to be used by a broader audience. We were unable to show discriminate validity, i.e. that knowledge increases with years of residency training and experience. We believe this may be due increasing amounts of time devoted to EBM education at the undergraduate medical education level.
Understanding the Factors That Underlie Burnout in Today’s Pediatric Residents

Jennifer Kusma, M2; Scott Holliday, MD; Raj Donthi, MD; John D Mahan, MD
Department of Pediatrics, Nationwide Children’s Hospital

Objective: Current research suggests that there are high levels of burnout in residents in many disciplines. In recent studies of pediatric residents at Nationwide Children’s Hospital, significant burnout characterized by high emotional exhaustion, high depersonalization and decreased sense of personal accomplishment has been defined. With recent ACGME mandates that restrict residents to less consecutive hours and place more reliance on shift work schedules, we sought to define the factors underlying burnout in senior pediatric residents.

Methods: 11 pediatric and medicine pediatric residents near graduation participated in a focus group session. Transcripts were analyzed for major and minor themes related to burnout by 3 academic pediatricians employing standard qualitative techniques.

Results: The residents identified 3 major (work schedules, work life balance, and relationships with patients) and 3 minor themes (career doubts and uncertainties, apathy, and lost sense of personal accomplishment) that impacted their levels of burnout. Residents particularly expressed concerns about the impact of work hours on family life and difficulties in establishing relationships with patients.

Conclusions: Our focus group data suggests that further restrictions in work duty hours and emphasis on supervision may have paradoxically led to greater burnout among pediatric residents. In particular they describe less of sense of personal accomplishment, more difficulties in establishing relationships with patients/families and challenges in aligning work schedules with life outside of training. Further understanding of the factors underlying burnout will be important in efforts to design training experiences that promote positive professional attitudes and build resilience in your physicians.
Analysis of Student Attitudes About Learning Community Structure and Efficacy
Alan E. Harzman, MD; 1 Rollin Nagel, PhD; 2 Jennifer Burgoon, PhD; 3 Joanne Lynn, MD; 5
Daniel Clinchot, MD; 5 David Way, MEd; 2 Catherine Lucey, MD; 4 Robert Ruberg, MD 1
1 Department of Surgery, Wexner Medical Center, The Ohio State University
2 Center for Education and Scholarship, The Ohio State University College of Medicine
3 School of Biomedical Science, Division of Anatomy, The Ohio State University College of Medicine
4 The University of California San Francisco
5 The Ohio State University College of Medicine

Objective: In 2007, The Ohio State University College of Medicine created Learning Communities (LC’s). Since their inception, we have conducted an IRB-approved analysis of the impact of the LC’s. In addition, since 2009, we have collected specific feedback on the LC meetings themselves.

Methods: We combined the LC-specific survey from 2009-2010 and 2010-2011 and compared responses between Med 1, Med 2, and Med 3 classes. (At the 2009-2010 data collection point, the Med 4 class did not have LC’s, so Med 4 data was excluded.) The overall response rate was 55.1%. For continuous dependent variables we used one-way ANOVA (plus post hoc analysis for significant F’s.) We used Chi-square for discrete variables.

Results: Overall, 96% of students felt the size of the groups was “about right”. On a 1 (low) to 5 (high) Likert scale, students rated the “meetings as a learning experience” at a mean(SD) of 3.4(1.2) and “quality of content discussed” at a mean of 3.6(1.1). On the same scale, students rated the "quality of the faculty leader" at 4.35(0.98) and the "quality of interaction with classmates" at 4.12(0.92).

Conclusions: In conclusion, the structure of our Learning Communities program is working well, with appropriately sized groups meeting at a good frequency. Students prefer to meet off-campus and are doing so much of the time. The students value the learning experience and the quality of the faculty.
Assessment of Pediatric Resident Handovers
Rajesh Donthi, MD; Sarada Eleswarpu; John D. Mahan, MD; Heather Miller; Emily Patterson
Department of Pediatrics, Nationwide Children’s Hospital

Objective: This study describes handover communication patterns by Pediatric residents at Nationwide Children’s Hospital.

Methods: A Handover assessment tool was developed to describe specific components of a handover in a 5P + 3-Way format. The 5P broad categories are Patient, Problem, Pertinent past medical history, Plan, and Precautions, including the specific components: correct identification of the patient, emphasis of ill patients, code status, general hospital course with review of active problems, new events including updates on new data (results, consultant recommendations, procedures), known physical exam findings, upcoming tasks with rationale, and contingency planning and rationale for anticipated problems. 3-Way communication includes reviewing clinical concerns by the outgoing provider and the opportunity for questions from the incoming provider to clarify important details. This tool was then used to analyze video recordings of actual patient handovers.

Results: In 105 assessments, average item completion ranged from 99 to 1%. The categories with the highest rates of completion included patient identification (99%), medications/allergies (87%), details of current hospital stay (86%), review of diagnoses (85%), and listing of tasks (70%). The categories with the lowest rate of completion categories included rationale for contingencies (1%), outgoing trainee requests review (3%), rationale for tasks (4%), and list of contingencies (19%).

Conclusions: This study describes handover communication behaviors by Pediatric residents and will inform future education and interventions to improve the quality and safety of patient care for all medical providers.
Effectiveness of a Quality Improvement (QI) Module within an Internal Medicine Honor’s Elective
Kim Tartaglia, MD; Curt Walker, PhD
Department of Hospital Medicine, Wexner Medical Center at The Ohio State University

Objective: The purpose of our project was to develop a QI curriculum for the Honor’s Elective in Internal Medicine (IM), a 9-month course consisting of 5 modules. For the QI module, independent work includes readings by Atul Gawande. Foundational knowledge is accomplished through completion of the Institute for Healthcare Improvement (IHI) Open School and two small-group discussions. Students then participate in a QI project with a faculty mentor.

Methods: The impact of the curriculum was assessed using the Quality Improvement Knowledge Assessment Tool (QIKAT), a validated tool that examines student comfort in 12 domains and assesses knowledge through 3 scenarios (each scored 0-5). Students who received the curriculum were administered the QIKAT at the end of the module. Fourth year students who matched in IM but did not receive the curriculum served as controls.

Results: Data were collected from 14 intervention and 11 control students. There was no difference between groups in prior exposure to QI principles. Results of independent samples T-test analyses suggested that students in the intervention group were significantly more comfortable with their skills in quality improvement and assessment in eight of the twelve domains (p<0.05). Additionally, intervention students scored significantly higher in each of the case scenarios (Case 1, M_I=4.2, M_C=2.0; Case 2, M_I=3.9, M_C=2.0; Case 3, M_I=4.1, M_C=2.0; p<0.05).

Conclusions: A 9-month curriculum in QI can effectively increase student comfort and knowledge on QI principles. An experiential component that builds on independent preparation is the hallmark of the curriculum. With a faculty champion, this curriculum is highly portable to other settings.