NEGEA 2015 Annual Retreat
ABSTRACTS

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WORKSHOPS

Workshop 1: How to evaluate the impact of new programs on learners and faculty? Developing a model for multi-institutional evaluations.

J Amiel[1], M Fischer[2], R Wolfson[3]
[1]Columbia University, [2]University of Massachusetts,[3]University of Chicago

Medical educators often develop new programs to meet time-sensitive curricular needs (i.e., implementing entrustable professional activities, scholarly concentration programs and curricula in interprofessional education) but at times the evaluation of the success of these programs is completed post-hoc, making it difficult to gauge their impact. In this workshop, we propose to build on a model we used at the 2014 AAMC National Medical Education Meeting in which we engage colleagues in a discussion about measuring impact prospectively and using the framework of the Kirkpatrick Model of Training Evaluation.

By the end of this workshop, participants will be able to describe the Kirkpatrick Model of Training Evaluation and to use it to describe outcomes of interest in evaluating innovative programs at their own institutions.

The session is designed to engage participants maximally through facilitated larger group discussion and then smaller group work with a final summarization of outcomes and next steps.

1. Background on the use of the Kirkpatrick Model to evaluate novel programs (15 min) – faculty from three institutions will make the case for the importance of program evaluation and review the Kirkpatrick model.
2. Presentation of data (15 min) – presenters will illustrate the application of the Kirkpatrick Model in three different settings: a program to implement EPAs, a scholarly concentration program and a program in interprofessional education.
3. Selection of programs of interest (15 min) – participants will present new programs at their institutions at table discussions and select one on which they may work as a group.
4. Elucidation of outcomes of interest (15 min) – through facilitated discussion the group will describe outcomes of interest to fit each of the 4 Kirkpatrick categories (reaction, learning, behavior, results). The goal will be to move beyond those areas that have been more routinely assessed, such as satisfaction, and to consider less traditional measures and influence not only on learners but on faculty and professional culture. A second goal will be to identify outcomes of interest across institutions that can then be used to develop collaborative projects.
5. Debriefing (15 min) – each small group will share their program and preliminary thoughts about evaluating it using the Kirkpatrick model.

6. Conclusion (15 min) – Facilitators will elicit reflective comments from participants, and provide a brief summary of how to then engage the academic community at one's own institution and in the region using evaluation data.

References:

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Kern DE, Thomas PA, Hughes MT: Curriculum Development for Medical Education: A Six-Step Approach 2009 Johns Hopkins press

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<u>Workshop 2:</u> Flipped Classroom Efficiency: How to Perform an Effective Residents-as-Teachers (RATs) Workshop in 1 Hour

B. Blatt
George Washington University

Background: Because of duty hour restrictions and intense schedules, residents have very limited time for education sessions. Because of their extensive teaching duties with medical students and other residents, residents need education in how to teach. RATS programs have evolved in many residency programs, but it is difficult to perform the workshops which usually form the basis of such programs within the 1-hour time frame often given to resident education activities. With the flipped class room approach to active learning—an approach never before reported as used in a RATs program-- it is now possible to perform an effective RATS workshop in an hour.

Objectives:

1. to describe how the flipped classroom approach can be integrated into a workshop to make it more efficient without diminishing its effectiveness
2. to practice the flipped classroom approach from the point of view of a resident
3. To recognize how the flipped classroom approach can be used to make workshops more efficient in participants' home institutions

Session Outline:

10' Introduction

20' The 1-hour RATs workshop: our experience integrating the flipped classroom into a RATS workshop with data to support its effectiveness—interactive presentation

30' Experiencing the flipped classroom workshop first hand (from the point of view of a resident)—small groups

--15' read a short article on education from the British Medical Journal Series and take an individual readiness test

--15' take a group readiness test, get correct answers, discuss any discrepancies among groups

10' Debriefing the process—large group

10' Ideas for implementing the flipped classroom in residency education at participants' home institutions—think, pair, share

10' Report out of selected examples of participants ideas; wrap-up

References:

Lecture Halls without Lectures — A Proposal for Medical Education Charles G. Prober, M.D., and Chip Heath, Ph.D. N Engl J Med 366;18, 2012

Workshop 3: The Challenging Learner: Using Simulation in an Evidence Based Approach to Identification and Remediation

T. Kedian, S. Wellman, C.M. Woolf
University of Massachusetts Medical School

Little in medical education demands more time, creativity, skill, and educator acumen than the learner in difficulty. Each medical school class will have members who are struggling academically. While most schools have structured academic support for pre-clinical students, there is very little evidence based support for clinical skills deficiencies. Medical school faculty are increasingly challenged by the complexities of identification, diagnosis, and development of remediation plans for learners struggling with the demands of clinical integration.

It is estimated that 3% of all medical students have a diagnosable learning disability. [1] Medical educators are well aware that this underestimates the numbers of students challenged by specific fund of knowledge, organization, and problem solving deficiencies which the clinical integration years may bring to light. Medical student educators confront daily the challenge of supporting the struggling learner with the limited resources of time and expertise while maintaining programmatic excellence for all.

Resources for identification and remediation are often limited and there is very little national data[2] to guide the educator searching for 'best practices' to approach a challenged learner. Concerns around protecting students' confidentiality, providing appropriate accommodations, fear of litigation when a student fails further complicate the situation.

This workshop will discuss the prevalence of and relevant literature on struggling learners. A structured approach to assessment and remediation will be presented. Participants will receive several useful tools for evaluation and intervention and will experience the role of simulation technology in remediation of clinical skills deficits by using the tools on a sample case.

Educational goals and objectives: As a result of attending this workshop, participants will:

1. Understand the current literature on struggling learners and remedial interventions
2. Receive and practice using tools to identify specific clinical skills deficits in a simulation setting
3. Create a strategy for remediating identified deficiencies in a sample struggling learner

Session Outline:

1. Introduction, overview of workshop, goals (5 min)
2. Group trigger exercise: sample case of a challenged student (15 min)
   - Video of student interviewing standardized patient
   - Facilitated group discussion of performance problems
   - Identification and description
3. Review of current literature on challenged learners and remediation (10 min)
4. Presentation of assessment rubric and tools for participants (15 minutes)
   - Learning History
   - Learning Domains
   - Interventions by Domain
5. Small group struggling learner assessment exercise (20 min)
   - Break into small groups.
   - Volunteer participant interviews presenter who is an "acting student" using the learning history tool
   - Small group discussion of learning needs identified and their domains

6. Large group brainstorm of remediation interventions: (10 min)
   Presenters describe evidence based interventions
7. Volunteer participant uses video to demonstrate deliberate practice in the simulation center with the presenter as “acting student”. (10 min)
8. Q & A (5 minutes)

References:

[1] Rosebraugh CJ. Learning Disabilities and medical schools. Med Educ 2000 Dec;34(12): 994-1000

[2] Hauer KE. Ciccione A. et al; Remediation of the deficiencies of Physicians across the continuum from medical school to practice: A thematic review of the literature. Acad Med 2009 Dec:84(12): 1822-1832

Workshop 4: Simulation in Medical Education – Virtual Patients? Mannequin-based Simulation? What is right for me?

A Doshi, A. Brown, A. Musits, P. Phrampus, J. McGee
University of Pittsburgh

This workshop aims to introduce participants to multiple types of simulation useful in medical education for a variety of learners. Specifically, the panel will discuss the capabilities, limitations, challenges and opportunities associated with different modalities of simulation focusing on computer-based learning, virtual patient encounters and mannequin-based simulation.

Case-based learning and simulation have been shown to be effective methods of medical education. According to Chapman, a primary challenge across the spectrum of healthcare education is when and how to use various simulation and virtual technologies. Many medical educators are familiar with task-trainers and mannequins and use these to teach task-oriented skills. Simulation encompasses a much broader spectrum of learning beyond the traditional mannequin based simulation. However, fewer educators are comfortable developing more complex educational scenarios using high technology mannequins or virtual patient scenarios. Simulation using these modalities can be used to develop clinical reasoning skills, to teach specific medical knowledge, promote professionalism, and develop interpersonal and communication skills.

Objectives: At the completion of this session, participants should be able to:

1. Describe multiple methods of simulation that can be used in medical education.
2. Explain the advantages of different types of simulation for specific medical educational goals and objectives.
3. Integrate needs assessment and goals and objectives with specific strategies for simulation curriculum development leading to creation of medical educational programs.
4. Use multiple modalities of simulation in case design for medical education.

Session Outline:

This session will begin with a brief demonstration of case creation using various modalities of simulation (Step 4 in the standard Kern model - Educational strategies), focusing

on virtual patient case based learning and high technology mannequin simulation by panel faculty (20 min) – done via Power Point.

The panelists will then elicit specific learning goals and objectives from the session participants and use these as a structure to discuss the capabilities, limitations, challenges and opportunities associated with different types of simulation (Step 3 in the standard Kern model – Goals and objectives) (20 min) – Panel Discussion.

Then, in small groups, the session participants will begin to design cases using virtual patient standards and/or high technology mannequin software. The panelists will assist and offer practical, real-world steps to establish, position and administer various simulation programs in order to address specific goals and objectives (45 min) – Hands-on workshop.

The panel will offer sample goals and objectives if needed or the participant groups can design cases based on their own needs. The session will conclude with a wrap-up by the panel (5 min).

Throughout the session, ample time will be available for participants' questions.

Workshop 5: Prelude to a Survey: Pilot Testing Strategies that Improve Response

J.R. Scott[1], E CichoskiKelly[2]
[1]Winthrop University Hospital, [2]University of Vermont

Education surveys are useful and powerful methods to easily identify key aspects of learner knowledge, skill level or attitudes. By careful planning and design you can avoid needless pitfalls by conducting pilot tests that reduce unintended sources of error (e.g., clarity, readability, bias, etc.). Pilot testing is essential when conducting survey research in order to achieve timely and cost-effective results that increase validity, reliability and significant research findings.

Educational research often relies upon survey data when describing characteristics of a population or to determine gaps in learners' knowledge, skills or attitudes. Educational research is a form of scholarship when we collect and analyze survey data to improve practice by interviews (face-to-face), telephone, direct mail or Internet methods.[1] Each of these survey methods has its benefits and limitations. Yet we need to select the method that is appropriate for efficient time lines, budgets, staffing and resources to support the conceptual framework in our research question. Survey designs may be quantitative using rating scales or fixed response items (e.g., Yes-No; multiple choice questions, etc.); qualitative (e.g., open-ended or free form text narratives) or combined, mixed methods. Survey construction is best when we conduct a pilot test to ensure greater response rates, construct reliability and respondents' motivation to participate.[2]

Pilot testing a survey instrument will often reveal important revisions for items that are: difficult to answer/ambiguous; incorrectly ordered; time consuming; irrelevant to the construct under investigation or consistently answered correctly.[3] A revised pilot test will help ensure response rates and reliability of collected data.

In this interactive workshop, participants will review essential features in survey questionnaire design with emphasis on pilot or field test survey instructions, item correlation assessment, and sequencing. Individual experience and dilemmas will be discussed with analysis of a sample pilot test instrument as a Think-Pair-Share collaborative exercise. Feedback will be offered on the advanced survey cover letter; ordered response options; progress to completion; formatting and open – closed ended question items. Valuable resources will be provided for timely and cost-effective web-based survey development. ^{4, 5} A debriefing on 'muddiest' points will be discussed at our conclusion based upon the Pre-Post Session Questionnaire findings that support our educational scholarship.

Learning Objectives:

Identify benefits and pitfalls in survey research
Appraise design strategies in pilot testing that increase validity, useability and response
List constructs and guidelines in questionnaire or survey construction
Evaluate Web-based vs. print surveys
Analyze a sample pilot study (Think-Pair-Share)

Session Outline:

Introduction (10 minutes) Pre-session Questionnaire
Survey research values: needs assessments, understanding phenomena; measuring change in learning (10 minutes)
Survey design methods (5 minutes)
Pilot testing benefits and pitfalls (10 minutes)
Participant success and challenges (5 minutes)
Pilot testing strategies (10 minutes)
Sample pilot test assessment using review criteria (Think-Pair-Share) (20 minutes)
Strategies to increase survey response rates (10 minutes)
Summary and Resources (10 minutes)
One-minute Paper; Post-session Questionnaire

References:

Research Methods in Education. Cohen L, Manion L, Morrison K (2011) Routledge: London

Cook DA, Beckman TJ. Current Concepts in Validity and Reliability for Psychometric Instruments: Theory and Application. Am J Med (2006) 119, 116.e7-e16.

Porter, SR (2004) Overcoming Survey Problems. New Directions for Institutional Research, 121.

Conducting Web-based surveys: ERIC Digest. ED 458291.

Weimiao F, Zheng Y. (2010) Factors affecting response rates of the web survey: A systematic review. Computers in Human Behavior 26 (2): 132-9.

Workshop 6: Educational Innovation and Investigation: Making It Happen, and Making It Count!

S. Canfield[1], R.J. Gordon[1], D. Cabaniss[1,2], B. Richards[1]
[1]Columbia University College of Physicians & Surgeons, [2]New York State Psychiatric Institute

The medical education landscape is changing with the recognition of the importance of educational scholarship.[1,2] The scholarly approach to education, in turn, has prompted a re-examination of the traditional lecture-based pedagogy and an exploration of innovative means to deliver content that is then explored in active learning exercises.[3] Innovation, however, brings a variety of challenges. Educators must learn new skills, both technological and pedagogical, and develop new curricula and teaching materials, typically while supporting their efforts in separate clinical or grant-driven work. The impact of their educational scholarship in the classroom, in the production of novel teaching tools and resources, and even in publications has traditionally been underestimated in the absence of a universal metric by which to evaluate them. Even more problematic, educators themselves may overlook scholarly value in their own ongoing work. Recently, a consensus is emerging regarding an evaluation rubric that focuses on the demonstration of quantity and quality in educational efforts, as well as engagement with

the education community.[4] In this setting it is vital that we, as educators, make intentional efforts toward investigation and innovation as a natural part of career development as educational scholars.

Objectives: Participants will:

1) Discuss the five education activity categories that have been adopted for the evaluation of an educator's contributions, with particular attention to innovation.
2) Identify strengths and weaknesses in their own educational portfolios, recognizing ongoing activities that may not yet be effectively represented in the portfolio.
3) Identify opportunities among ongoing educational activities that invite scholarly investigation and consider first steps toward initiating it.
4) Identify projected outcomes or products resulting from the planned investigation, and the community(ies) in which these outcomes will have the greatest impact.

Session Outline:

Phase I (35 minutes):

We will provide detailed "Educator's Portfolios" representing example faculty members involved in the promotions process. Their strengths and weaknesses will be assessed and specific areas inviting further scholarly activity will be identified. Participants will weigh in using a form of Just in Time Teaching and the audience response system to foster peer-peer dialogue, followed by group discussion. Phase I will inform Phase II.

Phase II (45 minutes)

Participants will identify opportunities in their own careers to "take it to the next level" with an emphasis on innovation and scholarship.

5 min: Participants will reflect on current educational activities and record on cards one area of interest in their current roles that merits investigating an innovative approach.

10 mins: Break into small groups to share card contents.

30 mins: Small group brainstorming (three 10-minute sessions) addressing a practical approach to:

1) Seeking guidance and support for the investigation from within one's own education community(ies).
2) Identifying specific scholarly products (curricula, written or video course materials, publications) that are projected to derive from this project, considering scholarly impact and contribution to one's own portfolio.
3) Arriving at 1 or 2 concrete next steps with low barriers to initiation that could be undertaken on return home.

Summary Remarks (10 minutes)

Workshop 7: Using Curriculum Mapping to Drive Change: Resources and Processes

J.G. Christner[1], T. Cameron[2], J. Amiel[3], LA Gwinn[4]
[1]Upstate Medical University, [2]AAMC, [3]Columbia University College of Physicians and Surgeons, [4]Georgetown University School of Medicine

Medical school faculty and leadership must deal with multiple challenges as they direct curriculum management efforts at their schools such as what terminology to map throughout their curricula for vertical and horizontal integration, benchmarking, and accreditation; what pedagogy should be used to document instructional and assessment methods; how to document innovative curriculum efforts in a manner that can be aggregated in an international benchmarking system, etc. A curriculum management system that matches the needs of the medical school is a vital tool in this process, and the process for choosing a system, using it efficiently, determining the terms to be mapped, and engaging faculty in documentation efforts can take months or years. While curriculum management at the local level is extremely important, taking this process to the national level creates opportunities for benchmarking that contributes to national and international discourse on medical education trends and research, and how medical schools are preparing future physicians to function in the ever-changing health care environment.

This session will use small groups to document existing and potential challenges that face curriculum leaders as they provide direction to faculty and curriculum staff in documenting their curricula and choosing and using their curriculum management systems and benchmarking reports to lead efforts in continuous quality improvement, curriculum review and management, and educational research.

Objectives: By the end of this workshop, participants will be able to:

1) Discuss the issues involved in choosing a curriculum management system and the criteria that should be considered in choosing a system
2) Describe the challenges that educational leaders face in motivating faculty to document curricula in curriculum management systems
3) Provide examples of terminology sets used to map curricula for horizontal and vertical integration, benchmarking, and accreditation and discuss the pros and cons of each
4) Explain how standardized vocabulary is used to facilitate reporting of curriculum content, pedagogy, and competencies

Session Outline:

1) Introduction of Panel Discussion Issues by speakers (30 minutes)
2) Focus group discussions for each of the following questions (30 minutes)
   - What are the best practices for choosing a curriculum management system?
   - What criteria should be considered?
   - What terminology sets are being used and/or considered for mapping curricula?
   - What are the pros and cons of each?
   - How can/should faculty be engaged in the curriculum documentation process?
   - What are other challenges that curriculum leaders face in documenting their curricula in curriculum management systems for local and benchmarking needs?
3) Reports back to the whole group (25 minutes)
4) Questions/Wrap-up/summary (5 minutes)

Workshop 8: Creating and Implementing an Objective Structured Teaching Exercise (OSTE) on Professionalism and Medical Ethics

W. Lu, P. Baldelli, L. Chandran
Stony Brook Medicine

As students are expected to develop competency in professionalism and medical ethics faculty are also expected to facilitate medical student's learning and understanding of these areas. One of the main challenges to success in this domain has been uncertainty of whether or not faculty know the content and the methods to teach and assess these competencies. Consequently, there is a need for effective faculty development in teaching professionalism—training in which teachers can learn to observe, comment, and reflect on the reasoning processes of learners in response to professional and/or medical ethical dilemmas in an constructive and timely way.

The OSTE format has been found to be an effective faculty development training tool for teachers of medical students in that it offers them the opportunity to practice their teaching skills under realistic scenarios and receive immediate feedback.[1] OSTEs are especially appealing because they avoid the barriers of limited time and happenstance that occur in real clinical settings. Faculty are able to effectively point out and address the various aspects of clinical practice and competencies to learners in a standardized and safe environment.[2]

Objectives:

Describe the process and considerations involved in the design, development, and implementation of OSTE cases and its assessment tools
Share our successes and challenges
Present and show actual OSTE cases and performance checklists relat

Session Outline:

The presenters will first draw from their experience and give a short introduction and summary of the steps and considerations in the creating and implementing OSTEs including performance checklists (25 minutes)
Participants will then be divided into small groups and asked to think of a topic that they would like to develop an OSTE case on. (10 minutes)
The presenters will provide two OSTE cases on Professionalism and Medical Ethics and show videos (25 minutes)
Participants will go back to their small groups and utilizing the template that the presenters provide try to create an OSTE case. Groups will present and receive feedback. (20 minutes)
Summary and Closing: Review of the objectives and final questions. (10 minutes)

References:

Stone S, Mazor K, Devaney-O'Neal S, Starr S, Ferguson W, Wellman S, et al. Development and Implementation of an Objective Structured Teaching Exercise (OSTE) to Evaluate Improvement in Feedback Skills Following a Faculty Development Workshop. Teaching and Learning in Medicine 2003; 15(1):7-13.

Lu W-H, Mylona E, Lane S, Wetheim WA, Baldelli P, Williams PC. Faculty development on professionalism and medical ethics: The design, development and implementation of Objective Structured Teaching Exercises (OSTEs). Medical Teacher 2014; 36(10:876-882.

Workshop 9: Preparing Faculty to be Humanistic Mentors across the Continuum of Medical Education

A. Fornari[1], B. Blatt[2], W. Branch[3]
[1]Hofstra North Shore-LIJ School of Medicine, [2]George Washington School of Medicine, [3]Emory University School of Medicine

"Mentors are guides. They lead us along the journey of our lives. We trust them because they have been there before. They embody our hopes, cast light on the way ahead, interpret arcane signs, warn us of lurking dangers and point out unexpected delights along the way[1]."

Mentoring is a learning process and a relationship requiring certain key elements. When developing mentors one must consider developing mentors, rewarding mentors and supporting mentors[2].

The Arnold P Gold Foundation[3] has challenged institutions to plan programs that result in humanistic mentoring across the spectrum of medical education. Developing humanistic skills in students must have a parallel development process with faculty who serve as their role models. There is evidence that this faculty development process can be successfully achieved with a model that is longitudinal and that combines experiential learning of skills and reflective exploration of values in a supportive group context[3,4].

In this workshop participants will discuss and analyze the above evidence-based model of faculty development, our experience with it and its potential for application or adaptation at their home institutions.

Objectives: Participants will be able to:

1. describe the theoretical background and evidence base for humanistic mentoring for their intended audience
2. describe 2 new approaches to prepare faculty for humanistic mentoring
3. apply workshop concepts to preparing programs that support humanistic mentoring at their own institution

Session Outline:

Introduction of workshop leaders and participantsParticipants are given a form to document new ideas which occur to them as they progress through the workshop that they might implement in their home institutions.

15 min: pair and share

Participants in response to the question: what is your personal experience with mentoring at your home institution? Brief report out.

20 min: theoretical background/evidence base large group presentationIntroduction on mentorship as a core value across the continuum of medical education (5 min)Theoretical Framework of humanistic teaching and mentoring (and data from Branch study (15 min)

40 min 2-station rotation:

divide participants in ½: each group spends 20 min at station A (Fornari) and then rotates to station B (Blatt). At each station: 10 min explanation of the model followed by 10 min small group discussion; Q&A with station facilitators: Fornari and Blatt.

Participants will reflect on mentoring at their own institution and questions they have to consider in developing a model for their role and level of learners

15 min large group discussion

Participants review their new ideas form—share with the large group new ideas they might implement in their institutions triggered by this workshop, specific to faculty development focused on humanistic mentoring.

Wrap up-final Q &A

References

1. Daloz, L.A. (1986, 1999). Mentor: guiding the journey of adult learners. San Francisco, Jossey-Bass.
2. Ramani S, Gruppen L, Kachur E. 12 Tips for Developing Effective mentors. Medical Teacher, Vol. 28, No. 5, 2006, pp. 404–408
3. http://humanism-in-medicine.org/eight-grantees-will-create-mentoring-programs-to-promote-humanistic-patient-care
4. Branch WT, Frankel R, Gracey C,Haidet PM, Weissmann P, Cantey, Mitchell GA, Inui TS. A Good Clinician and a Caring Person: Longitudinal Faculty Development and the Enhancement of the Human Dimensions of Care. Academic Medicine, Vol. 84(1): 2009.
5. Branch WT. Teaching Professionalism and Humanistic Values: Suggestions for a practical and theoretical model. Patient Educ Couns. 2014. (in press).

Workshop 10: Student Leadership in the Reflective Practice of Narrative Medicine

S.K. Barrick, S. Singh, C. Bilena, N. Abittan, A. Hinds
Sophie Davis School of Biomedical Education

Medical students report that narrative medicine supports complexity in thought and emotion as well as in perception.[1] This effect was expressed by students enrolled in half semester NM courses taught by faculty members, and is well understood to be one of the substantial benefits of a traditional NM course. We created practices of narrative medicine that include students not only as learners, but also as leaders, both of other students and of faculty. This allowed students enhanced identity formation in that they grew not only in their own reflective practice, but in their ability to lead others in reflective practice.

This workshop will uncover the benefits of narrative medicine sessions led by student facilitators in conjunction with existing courses, and will demonstrate how students and faculty members can collaboratively create a space for reflection, new knowledge of self and other, and how being the leader of such a session expands their professional identify creation to include the identity of leader and educator.

As we explore some of the challenges and dividends of using students in teaching narrative medicine based curriculum, we will discuss logistical issues including the student facilitator selection process, the development of student training methods and accompanying manual. Four of the workshop presenters will be narrative medicine student facilitators who will detail how this level of involvement with narrative medicine has affected their professional and personal identity development both individually as well as collectively. Two will reflect specifically on the benefits of working with first year students in the context of a freshman writing seminar, and two will reflect upon building curriculum and facilitating workshops based on the Abraham Verghese novel Cutting For Stone in a core course in community health and social medicine. The later being specifically designed to teach students about social determinates of health, multiple perspectives on culture and illness, and to foster the skills of self-reflection and narrative competence[2].

Session Outline

1. Introduction to NM as understood practiced at Sophie Davis (5 min)
2. Demonstration of NM as practiced at SD with student facilitators (45 min)
   Participants will break into smaller groups and engage in a brief NM activity centered on the practice of close reading and reflective writing led by student facilitators
3. Reflection on taking part in the NM session debrief (10 min)
   Participants will return to large group to reflect upon their shared and different experiences
4. Discussion of student involvement in creating and leading NM sessions geared towards illustrating how participants could import ideas into their own institutions (15 min)
   Professor Barrick will outline key processes such as criteria for selecting student mentors and the training process. The students will offer insights based on their experience in particular places in curriculum.
5. Debriefing and Q & A (15 min)

References

1. Miller E, Balmer D, Hermann N, Graham G, Charon R. Sounding narrative medicine: studying students' professional identity development at Columbia University College of Physicians and Surgeons. Academic medicine Feb 2014;89(2):335-342.
2. Charon R. Narrative medicine : honoring the stories of illness. Oxford ; New York: Oxford University Press; 2006.

Workshop 11: Innovative ways to use iBooks Author to enhance medical education: creating and distributing a multi-touch e-book from A to Z.

S. Oh, S. Lee, S. Maher
NYU School of Medicine

Today the easy user interface of iBooks Author enables medical educators to create and publish their work without programming skills and expensive technical infrastructure. However, medical educators can still feel lost with this new technology, especially when they want to use it to improve learning. How can we use the e-books to innovate medical education?

Similar to other educational technologies, the efficiency of e-books is deeply linked to effective instructional design strategy, careful application of copyright law and appropriate implementation.

While any faculty member can create and distribute a free e-book within the Apple iBooks Store, the abundant research done in the field of cognitive science and learning theories can help educators design and implement educationally effective e-books. Offering content for a fee via a “paid” account often requires the definition of new procedures at institutions including new legal agreements, financial processes, etc. It is also important that educators understand the fundamentals of intellectual property and U.S. copyright law.

This workshop will present the lessons learned at NYU School of Medicine (SoM) regarding the establishment of a new Digital Press and mechanisms for publishing paid e-books. NYU SoM’s experience may provide an example of how to plan, design, and implement e-books in medical education.

Through an interactive workshop, we aim at providing the participants with possible scenarios to use iBooks Author to support medical education as well as practical skills to design their own e-books.

Objectives: At the end of the session, participants will be able to:

Plan implementation of e-books in their curriculum
Choose effective educational strategies to use e-books
Apply evidence-based instructional design principles
Avoid copyright infringement
Create their own e-books
Engage with appropriate offices at their own schools.

Session Outline:

30 minute of framework

In the 30 minute of framework, Sabrina Lee, director of the Division of Educational Informatics at NYU SoM, will present the the NYU experience of publishing e-books. So-Young Oh, an instructional media designer, will explain the instructional scenarios to incorporate e-books in teaching with practical tips on iBooks Author. Stephen Maher, assistant director of Content Management Services at NYU Health Sciences Libraries, will help participants navigate copyright issues with useful examples.

30 minute small group-based interactive atelier

In interactive atelier activity, participants will work in small groups to simulate an e-book project from beginning to end, including defining a goal, choosing instructional strategies, designing a flowchart, confirming copyright, and defining a publication strategy.

20 minute of presentation

After the group activity, each group will present its plans and receive feedback from other participants.<

10 minute conclusion

The conclusion will consist of a Q&A session and closing comments

References:

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Mayer, R., Mestre, J., & Ross, B. (2011). 3 Applying the Science of Learning to Multimedia Instruction. Psychology of Learning and …, 55, 77–108.

Payne, K. F., Goodson, A. M., Tahim, A., Wharrad, H. J., & Fan, K. (2012). Using the iBook in medical education and healthcare settings--the iBook as a reusable learning object; a report of the author's experience using iBooks Author software. Journal of Visual Communication in Medicine, 35(4), 162–9.

Workshop 12: Restorative remediation: a novel approach to clinical skills remediation

S. Rougas, S. Warrier, R. Fowler, S.A. Gaines, M. Daniel
Warren Alpert Medical School of Brown University

Clinical skills are a vital component of medical education training. Though curricula may vary amongst institutions across the 4-year continuum[1], one constant is the need for educators to work with struggling learners or those that have not met the competencies of a particular course, clerkship, or clinical skills exam. Often labor intensive, remediation of clinical skills can have a significant impact on a learner's trajectory. Despite these high stakes, many educators still lack a familiarity with how to systematically and practically approach these issues. Common remediation strategies described in the literature include repeat clinical activities, independent study, precepted video review of video-recorded encounters, and organized group or peer activities[2]. These common approaches often over-emphasize specific skills and under-emphasize the need for feedback, reflection, and re-building trust after a learner has had a remedial event[3]. This workshop will introduce participants to a novel approach to remediation of clinical skills based on the principles of restorative justice, a process which emphasizes restoring trust with those involved or affected by an incident (or remediation in this case)[4]. This workshop will serve as a practical, hands-on guide for educators by introducing the novel concept of "restorative remediation" and its application to remediation of clinical skills.

Objectives: At the end of this session, participants will be able to:

1) Describe the common clinical skills that require remediation
2) Analyze the context in which deficiencies in clinical skills occur
3) Apply the concept of restorative justice to remediation of clinical skills
4) Integrate a practical framework into daily practice for systematically addressing clinical skills remediation

Session Outline:

Participants will begin the session with a brief introduction (10 minutes). This will include an overview of the current literature, trends in remediation, and a description of the common clinical skills that require remediation.

Participants will then be divided into four small groups to discuss the concept of context and how it is a critical component of understanding deficiencies in clinical skills. Each small group will be assigned a different case and explore the underlying context (15 minutes).

After discussion, small groups will report out their findings to the large group (20 minutes).

The next portion of the workshop will apply the notion of restorative justice to remediation of clinical skills (5 minutes).

In small groups, participants will each be assigned a unique case and asked to develop a remediation plan based on the principles of restorative justice (10 minutes).

Each group will then describe their case to the large group and report their findings (20 minutes).

Participants will conclude the session by reviewing a suggested framework (provided as a hand-out) for "restorative remediation" of clinical skills.

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4. Donaldson C. Restorative justice: linking the law with health. Perspect Public Health 2010;130(6):254-5.

Workshop 13: Approaches to Giving Negative Feedback to Trainees. Is There a Best Practice?

D. Brissette, R. Gonzalez-Colaso
Yale University

Giving negative feedback can be challenging no matter who your audience is. This is a complex and dynamic process influenced by cognitive and affective factors. Different approaches have been described for giving such feedback in clinical and non-clinical settings. Yet, little is known about the best practices used by clinician educators in giving effective negative feedback to health professional trainees. The variability of feedback techniques, perceptions of self-efficacy, and the tensions to balance positive and negative feedback calls for guidelines to deliver effective faculty to trainee feedback when stakes are high. After a short video summarizing different methods, we propose a faculty interactive workshop to identify best practices in communicating with trainees while maintaining a trusting and positive professional relationship.

Objectives:

1. Discuss challenges in faculty-trainee communications
2. Describe approaches for giving negative feedback in clinical and non-clinical settings
3. Identify consensus strategies for effective conversations between faculty and health professional trainees

Session Outline:

1. Share faculty prior experiences providing feedback to trainees.
    a. Activities: use reflective writing and self diagnose communication approach (10 minutes)
2. Utilize a video to describe proven strategies from the business, clinical and educational worlds for difficult conversations (10 minutes)
    a. Activities: discuss what we can learn from others and why this is important.
3. Working in small groups, participants discuss approaches to communicate with health professional trainees (40 minutes)
    a. Activities: using case scenarios, discuss pros and cons of different methods

4. Working with entire audience, identify consensus strategies and summarize (30 minutes)
    a. Activities: outline best practices using an acronym that will allow easy recollection of steps.

References

1. Kogan J. et al. Faculty staff perceptions of feedback to residents after direct observation of clinical skills. Medical Education 2012; 46: 201–215
2. Lucas J. et al: Providing difficult feedback: TIPS for the problem learner. Family Medicine 2003; 35(8): 544-6
3. Rudolph J. et al. There's No Such Thing as "Nonjudgmental" Debriefing: A Theory and Method for Debriefing with Good Judgment. Simulation Healthcare. 2006; 1: 49–55
4. Ronan-Bentle S. et al. Dealing with the difficult student in emergency medicine. International Journal of Emergency Medicine. 2011; 4(39):1-6
5. Plakht Y. et al. Nurse Education Today. 2013 Oct; 33(10): 1264-8

Workshop 14: Teaching for Quality: Living in a CLER World

K. Baum, D. Davis
AAMC

Medical centers nationwide are working to better train and engage learners at all levels in quality improvement and patient safety. This session will review the challenges and opportunities facing organizations in the midst of this crucial effort, especially as they prepare for their CLER visits or work to address opportunities identified during a review. Several best practices in quality improvement and patient safety education will be reviewed. We will also highlight resources AAMC can offer constituents.

The ACGME CLER visits have highlighted the lack of alignment between the educational and care delivery systems where many healthcare professionals train. As a result, faculty members in medical centers nationwide are working to better train and engage learners at all levels in quality improvement and patient safety. This includes undergraduate medical students, residents, clinical faculty and health professionals across the continuum of care. However, there is still a significant lack of clarity with regards to the most effective means of meaningful learner engagement, an unclear picture of how best to integration education into the QI/PS structure, and an unclear picture of 'competencies' in quality and safety that are desirable at each stage.

Objectives: By the end of the session, attendees will be able to:

1) Describe the drivers behind the push to involve learners in QI/PS
2) List at least three exemplars of best educational, engagement and organizational initiatives in this area
3) Explain resources available through AAMC to support this work

Session Outline:

10min Introductions and session overview
15min Review of current pressures on systems to integrate learners into QI/PS
10min Best educational and organizational practices in QI/PS integration

15min Case study and small group discussion
10min AAMC initiatives and strategies: Teaching for Quality (Te4Q) and Aligning and Educating for Quality (ae4Q)
15min Brainstorming of additional needed resources
5min Wrap up; Q&A

Workshop 15: Bridging UME and GME: Operationalizing the Transition from Medical School to Residency Using EPAs and Milestones

J. Amiel[1], M.J. Fink[1], B. Richards[1], S. Quiah[1], W. Pluta[1], L. Chandran[3], R. Fisher[3]
[1]Columbia University, [2]Stony Brook University, [3]Yale University, New Haven, Con

Recently, the use of competencies in graduate medical education (GME) has spread to undergraduate medical education (UME) to replace or complement curriculum objectives, driven in part by the increasing emphasis on competencies in LCME standards and by increasing awareness of the public accountability of the profession. Implementation of competency frameworks has been challenging in both UME and GME due to the loss of the holistic view of skills for effective practice secondary to the granularity required in the assessment of such skills.

Examples of recent competency-oriented initiatives include:

*The AAMC has adopted a set of eight physician competencies to drive curricular emphasis in medical schools.

*The ACGME has introduced the concept of milestones, with a push for residency programs to use milestones to assess individual resident's developmental progression throughout their residency training.

*Thirteen EPAs (entrustable professional activities) have been published by AAMC and delineate basic skills necessary for entering residency.

These activities concretize expectations of learners' abilities to guide assessment and continuous performance improvement.

At the 2014 NEGEA Retreat, we facilitated a session in which over 25 stakeholders collaborated to develop a shared understanding of competencies, milestones, and EPAs. This group identified a range of questions related to these constructs.

One area of inquiry centered on how EPA and milestone data could be exchanged between medical schools and residency programs. The group noted that this exchange could potentially address challenges around match decisions, medical school program improvement, and residency onboarding and remediation. For example, how would match decisions change if residency directors had access to valid and reliable information about students' progress around core EPAs? Would residency directors change orientation activities if they had reliable data on recent graduates?

Objectives: Our session will develop a preliminary framework for sharing EPA or milestone data between UME and GME.

Participants will distinguish between the purpose and typical formats of curricular objectives, competencies, milestones, and EPAs as currently used in medical education.

Participants will collaboratively identify opportunities, challenges, and risks faced by students, schools, and GME programs if processes were identified to share data across programs.

Participants will collaboratively develop an initial framework for sharing data across UME and GME. This may, for example, take the form of an

addendum to the Medical Student Performance Evaluation or the development of survey framework in which GME programs could pass milestone data back to medical schools.

Session Outline:

*Pre-reading: Assignment to establish common understanding of relevant terms to be advertised in advance of the workshop.
*Introduction and formation of working groups [10 minutes]
*TBL-style readiness assurance within working groups regarding a-priori learning materials [15 minutes]
*Four brief presentations from stakeholders working in UME and GME about the opportunities, barriers, and risks of using EPAs to guide the transition from medical school to residency [20 minutes]
*Working group discussion regarding practical implications in applying the concepts in governance of both UME and GME [30 minutes]
*Large group wrap up discussion, framed around setting an agenda of inquiry for the year [15 minutes]

References:

1. ten Cate O. Trusting Graduates to Enter Residency: What Does It Take? J Grad Med Edu. 2014; 6(1):7-10.
2. Association of American Medical Colleges (AAMC). Core Entrustable Activities for Entering Residency (CEPAER). 2014.
3. Englander R, Cameron T, Ballard AJ, et al. Toward a common taxonomy of competency domains for the health professions and competencies for physicians. Acad Med 2013; 88:1088-1094.
4. Norman G, Norcini J, Bordage G. Competency-Based Education: Milestones or Millstones? J Grad Med Edu. 2014; 6(1):1-6.

Workshop 16: Managing Unprofessional Standardized Patients (SPs)

E. Kachur[1], K.A. Henry[2], A. Errichetti[3]
[1]Medical Education Development, [2]Sophie Davis School of Biomedical Education, [3]NYIT - School of Osteopathic Medicine

Standardized Patients (SPs) have become common place in Health Professions Education, and their prevalence in training is continuing to grow. This leaves educators with the task to recruit, train and manage an increasing number of SPs. While this surely raises the number of safe clinical practice opportunities, it also results in growing human resource challenges. What professional behaviors can we expect from SPs who may come from various walks of life and who may view case portrayal as a quick opportunity to earn some extra cash, practice acting skills or vent some frustrations about the healthcare system. Can we expect a commitment to health professions education in individuals whose motivations for participating in our programs are not in sync with ours? Portraying patient cases can be emotionally and physically stressful, not everyone will be able to withstand such pressures while maintaining their best behaviors.

Some SPs are employees and thus fall under the institutional guidelines for professional behavior. Other SPs are short time hires and there the expectations are less clear. This workshop will attempt to develop some general guidelines for expectations educators should have towards SP behavior related to the institution, other SPs and learners. A survey of online policies and expectations will be presented and discussed. Jointly we will develop strategies to categorize incidences of SP unprofessional behaviors and explore management solutions.
Objectives: By the end of the session participants will be able to:

1. Describe and categorize breaches in SPs professionalism affecting the institution, co-workers and/or learners
2. List multiple strategies for managing SP unprofessional behavior with the help of charts
3. Discuss consequences to various management actions

Session Outline:

10 minutes - Welcome & introductions
10 minutes - Review of the literature and online listings of SP behavior expectations and policies
20 minutes - Recall and categorize different incidents of SP unprofessional behaviors (work in pairs using post its and flip charts, small groups review and summarizing of participant contributions)
20 minutes – Analyze management strategies and identify potential consequences (work in pairs using worksheets)
20 minutes – Large group discussion with voting for most effective strategies
10 minutes – Take home points and conclusion

Workshop 17: Teaching Clinical Reasoning to Novices: Aligning Instructional Strategies with Theories of Cognition and Learning

M. Daniel[1], S. Rougas[1], S. Warrier[1], R. Fowler[1], C. MacKuen[1], R.K. Ovitsh[2]
[1]The Warren Alpert Medical School of Brown University, [2]SUNY Downstate

Clinical reasoning is a vital skill in the physician armamentarium. The recently released Core Entrustable Professional Activities (EPAs) by the AAMC outline the clinical reasoning competencies expected of medical students entering residency. EPA #2: the entrustable graduate must be able to integrate patient data to formulate an assessment, a prioritized differential diagnosis leading to the selection of a working diagnosis and treatment plan (1). To ensure graduates achieve EPA #2, educators must carefully look at how to build curriculum to teach this skill. Ideally, instructional strategies should align with the growing body of empiric research on cognition and learning.

Key concepts that will be discussed in this workshop include: 1) the capacity of working and long-term memory, and the importance of facilitating the development of rich cognitive networks to foster rapid retrieval of knowledge, 2) the major types of reasoning, analytic versus non-analytic used by novices and experts, and 3) the impact of cognitive load.

We will introduce an instructional strategy that incorporates “structured reflection” into the didactic approach for solving clinical cases. This approach has been shown to improve future diagnostic accuracy in empiric studies(2,3). We will then apply the principles of 4-component instructional design (4C/ID) to the development of a clinical reasoning curriculum.

4C/ID emphasizes whole task practice, coupled with variability of practice along the dimensions clinical reasoning tasks vary in real life, sequenced in the curriculum from simple to complex. Using 4C/ID we will attempt to overcome the common problems of knowledge *compartmentalization, fragmentation*, and the *transfer paradox* (4). These problems are common in curricula that separate cognitive knowledge (basic science) from psychomotor (clinical skills) domains, and in curricula organized by organ system blocks, where students become proficient at solving problems *within* but not *across* domains. Participants can expect to leave the workshop with an evidence-based process for teaching clinical reasoning and a curriculum map to aid them in instructional design at their home institution.

Objectives:

1) Discuss current theories of cognition and learning that influence how we should teach clinical reasoning
2) Apply a 12-step method for teaching clinical reasoning that incorporates structured reflection to a clinical case
3) Identify the dimensions along which clinical reasoning tasks vary in real life, and use them to develop and sequence task classes using the principles of 4C/ID

Session Outline:

The session will begin by introducing key concepts of cognition and learning that inform teaching clinical reasoning.
A 12-step method that incorporates structured reflection will be presented (20m).
Participants will then break into groups to apply the method to teaching a clinical case (20m).
Next we will introduce the idea of 4C/ID and work together to identify the dimensions along which clinical reasoning tasks vary in clinical practice (20m).
Participants will work in groups again to develop 3-4 task classes (one per group) to be sequenced in the instructional design (20 min).
The final wrap-up (10m) will provide an overview of the curriculum the participants have mapped.

References:

1) Englander R, et al. (2013). Core EPAs for Entering Residency. MedEd Portal iCollaborative.

2) Mamede S, van Gog T, et al. (2012). Reflection as a strategy to foster medical students' acquisition of diagnostic competence. Medical education, 46(5), 464-472.

3) Mamede S, van Gog T, et al. (2014). How Can Students' Diagnostic Competence Benefit Most From Practice With Clinical Cases? The Effects of Structured Reflection on Future Diagnosis of the Same and Novel Diseases. Academic Medicine, 89(1), 121-127.

4) Van Merriënboer J, Kirschner P. (2012). Ten steps to complex learning: A systematic approach to four-component instructional design: Routledge.

Workshop 18: Flipping the Classroom without Flipping out the Faculty

E. Goldman[1], L. Chandran[2]
1George Washington University, [2]Stony Brook University

The flipped classroom has been heralded as a means of fostering student engagement and promoting high-level learning in medicine as well as other areas of higher education.(1) Recently, however, alarm bells have begun to sound that "the rush to flip" may not be in all students' best interests or appropriate at all times.(2) Faculty developers can be caught in the middle, trying to help create significant learning experiences grounded in solid instructional design (3) but not having the benefit of a large body of research on what actually works well in practice. In addition, often-advocated planned models of change do not align well with the complex nature of the medical school learning environment and the need to rapidly revise curriculum. More emergent change processes (4) and concepts such as "simple rules" (5) might be a better fit for the tasks at hand.

Both of us have lead curricular reform over the past year. In sharing our experiences with others, we saw the need to develop this workshop for those leading faculty development related to curriculum revision to discuss, share, and compare various approaches to leading the process of flipping the classroom. This session will help participants formulate faculty development approaches for encouraging effective classroom flipping. The facilitators will share their own experiences, contrast planned vs. emergent approaches to change as applied to flipping, and structure small and large group discussion to elicit "best" practices used by attendees.

Objectives: By the end of the session, the participants will be able to:

Recognize the issues and limitations related to flipping the classroom.
Identify teaching and technology tips to support effective classroom flipping.
Discuss techniques for engaging faculty to teach from a flipped perspective.

Session Outline:

Introductions and Overview: 15 minutes - Introductions of facilitators and rationale behind this session

- Participants' experience with flipping: % curriculum; benefits; problems
- The "Flipometer"
- Cautions about "The Rush to Flip"

Discussion of Student Responses: From Delirium to Disengagement: 30 minutes

- Sample student comments: 1 minute
- Small group discussion: 15 minutes
- how common are these responses; what others have you experienced?
- what would you do/has worked for you in addressing these issues?

Room sharing of tips: 10 minutes
Facilitator's tips: 4 minutes:

- Teaching Tips for Active Learning and for Flipping the Classroom

Faculty Responses: From Overzealous to Under-enthusiastic: 30 minutes
Sample faculty comments: 1 minute
Small group discussion: 15 minutes

- how common are these responses; what others have you experienced?
- what would you do/has worked for you in addressing these issues?

Room sharing of tips: 10 minutes
Facilitator's tips: 4 minutes:
Planned vs. Emergent Faculty Development
Individual Reflection and Action Plan: 10 minutes
Identification of where the participant is now with flipping; what issues they face; and what they want to do to address them
Questions/Wrap-Up: 5 minutes

References:

1 McLaughlin JE, Roth MT, Glatt DEM, Gharkholonarehe N, Davidson CA, Griffin LM, Esserman DA and Mumper RJ. The flipped classroom: A course redesign to foster learning and engagement in a health professions school. Acad Med. 2014;89:236-243.
2 Weimer M. A few concerns about the rush to flip. Faculty Focus. 2014;October 29.
3 Fink LD. Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses. San Francisco, CA: Jossey-Bass; 2003.
4 Eoyang GH. Complexity and the dynamics of organizational change in Allen, Maguire & McKelvey, eds. The Sage Handbook of Complexity and Management. Thousand Oaks, CA: Sage 2011; 317-332.
5 Holladay R. Simple rules: Organizational DNA. OD Pract. 2005; 37(4):14-19.

Workshop 19: A Comprehensive Educational Response to Medical Student Mistreatment: A novel model of a response to elevated rates of mistreatment among medical students.

A.Rich, J. Lewis, N. Feldman, C. Patel, S. Ackerman
University of Vermont

US Medical students report on the annual AAMC graduation questionnaire a significant incidence of mistreatment (e.g., public humiliation, 23%; sexist or ethnically offensive remarks, 14% and 7%, gender bias, 5%). Despite increasing awareness, how to respond and effectively eradicate mistreatment is still unclear. Several studies have suggested that institution-wide education must be done to address this prevalent problem. In this workshop, we will explore ways to provide this education and demonstrate a model we developed to accomplish this task.

Objectives: Participants will

1. Learn about a creative, interactive model for providing institution-wide education to prevent medical student mistreatment;
2. Discuss the advantages and disadvantages of providing a common institutional educational program for attendings, residents and students;
3. Think together about different ways to incorporate educational programs for medical student mistreatment in their home institutions.

Session Outline:

For the first 30 minutes, Judy Lewis will present the University of Vermont's Prevention of Medical Student Mistreatment and Promotion of a Healthy Learning Environment Module and Film.

During the next 20 min, Anne Rich, Judy Lewis and Nathalie Feldman will discuss the development and creation of the film and module.

After this, participants will then break into small groups for 20 minutes to discuss advantages and disadvantages to creating institutional educational programs for medical student mistreatment and how they may incorporate this at their home institutions.

For the final 20 mins, the small groups will then report back to the larger groups about their discussions.

References:

Fnais N, Soobiah C, Chen MH et al. Harassment and discrimination in medical training: a systematic review and meta-analysis. Acad Med. 2014 May 89(5): 817-27.

Mavis B, Sousa A, Lipscomb W, Rappley MD. Learning about medical student mistreatment from responses to the medical school graduation questionnaire. Acad Med. 2014 May 89(5): 705-11.

Bursch B, Fried JM, Wimmers PF et al. Relationship between medical student perceptions of mistreatment and mistreatment sensitivity. Med Teach. 2013: 35(3): e998-1102.

Workshop 20: An effective accessible primer on teaching motivational interviewing in undergraduate medical education

P. Saha, D. Jones
Columbia University College of Physicians & Surgeons

Motivational Interviewing (MI) is a collaborative and strategic communication style that focuses upon behavior change, with a crucial reliance on empathy and acceptance while eliciting from patients their own desires, reasons, goals, and strengths for change (1). It is emerging as one of the best practices in communication skills, and teaching medical students MI represents a significant step forward towards creating a patient centered physician workforce that can better address the public health burden of behavior change that we face today.

The efficient facilitation of learning, especially with regards to relational aspects of patient-provider communication, is a constant challenge in medical education and is poorly imparted by a didactic method. Many faculty are not trained in this and feel unsure of how to teach and give feedback. The incorporation of standardized patient actors in simulation centers or classrooms is effective but expensive. There is still a need for structured, interactive and effective experiential curricular development in the area of behavior change counseling that can be easily implemented by faculty in any setting without being limited by financial considerations (2). This workshop will be helpful for those interested to improve their own MI skills or confidence level in teaching; to obtain new tools for teaching MI in the preclinical or clinic setting; and to consider ways to incorporate MI into their home institution's curriculum.

Objectives: By the end of this session, participants will:

1. Recognize the foundational aspects of MI, including acceptance, collaboration, and evocation.
2. Obtain 2 new tools, for use in faculty development or with learners directly, to effectively teach foundational aspects of MI.

    a. Understand the value of a dyad exercise for use with either learners or faculty.

b. Use an observation tool derived from validated instruments used in MI research to guide feedback to learners

3. Increase pariticpants' skill in observing and giving feedback to a learner on motivational interviewing skills, using filmed patient encounters.

We present a short workshop used in traditional introductory MI training,(3) which we have adapted for use in two ways: with faculty as well as with learners . We currently use the entire workshop to prepare faculty to teach MI to medical students, and use the first half of the workshop with preclinical students as part of their behavior change curriculum. We will conclude the workshop with an outline of the faculty development and didactic components of our medical school's MI curriculum across the four years.

Session Outline:

Introductions: 5 minutes

Dyad Exercises: "Persuasion and Taste of MI": 15 minutes. We will use a dyad exercise to compare two different "scripts" while using real plays as opposed to role plays.

Facilitated group discussion of exercise: 35 minutes. Through facilitated debrief of the exercise, workshop leaders will guide the group to identify foundational aspects of motivational interviewing.

Video Observation: 7 minutes

Group Discussion of Video: 20 minutes. The group will practice observing a student on video using a provided worksheet to guide comments and feedback.

Description of the motivational interviewing curriculum at our medical school: 4 minutes

Conclusion/Take Home commitments: 4 minutes

References:

1. Miller WR and Rollnick S. (2013). Motivational Interviewing: Helping People Change. New York: Guilford Press.

2. Mounsey AL, Bovbjerg V, et al. "Do students develop better motivational interviewing skills through role-play with standardized patients or with students colleagues?", Medical Education 2006; 40: 775-780.

3. Motivational Interviewing Network of Trainers (MINT). Training for New Trainers Manual. Updated November 11, 2008

SIMULATIONS

Simulation 1: Teaching the Musculoskeletal Exam: Innovations for UME and GME

D. Gowda[1], C. Scott[1], C. Bevelaqua[1], S. Holt[2]
[1]Columbia Univesity, [2]Yale, New Haven

A recent paper in Academic Medicine shows that medical students perform the musculoskeletal exam poorly on national standardized examinations(1). This may be partly because medical schools provide students with little training in musculoskeletal physical diagnosis(2). Yet, the clinical need to teach the musculoskeletal exam is strong. Musculoskeletal disorders represent the second most common self-reported chronic conditions among US adults and are very common reasons for outpatient visits(3). In this workshop, we will summarize the literature on musculoskeletal examination pedagogy and will share recent curricular innovations at both Columbia and Yale. Participants will have an opportunity to conceptualize changes they could make at their own institutions.

Objectives: Participants will:

1. Learn about the current literature on teaching the musculoskeletal exam at the UME and GME level
2. Learn about recent curricular approaches to teaching the MSK exam at both Columbia University College of Physicians and Yale University School of Medicine
3. Draft possible musculoskeletal examination curricular innovations for their institutions while addressing possible barriers and resources

Session Outline:

10 min: Present background literature on teaching of the musculoskeletal exam at the UME and GME levels

40 min: Divide participants into two groups. Each group has 20 minutes at each of two stations.

Station 1: Attendees will participate in a sample workshop station that mimics the OSCE-based workshop curriculum in Yale's IM residency program. Participants will discuss the approach and how it might be adopted at their institution.

Station 2: Attendees will participate in a near-peer teaching encounter, as utilized at Columbia. Attendees will discuss this format and how it might be implemented at their institution.

20 min: In small groups, participants consider their own school's musculoskeletal examination of curricula:

What are you currently doing? When is it being taught (1st yr, 2nd yr, etc)? How is it taught (lecture, workshop, clinical sessions, etc)? Which parts are effective? Which parts are not effective? What would you like to develop? What musculoskeletal exam maneuvers are essential to teach? At what point in medical school should they be taught? Do you want to develop a longitudinal musculoskeletal curriculum? Perceived barriers? Resources you already have and those that you need? Who do you want to teach (Attending's, residents,

senior medical students)? How will you evaluate the curriculum after it is implemented?

20 min: In large group discussion, participants will:
Reports from each small group table
Explore opportunities for further collaboration and sharing of resources
Explore opportunities for research

<u>Simulation 2:</u> "I didn't know you could do THAT!" - Using Yesterday's Technology in Unconventional Ways

C.H. Hernon, M. Fahey
University of Massachusetts Medical School

We have witnessed an explosion of teaching technologies over the past several years. It is widely accepted that these technologies can offer unique opportunities for students to learn and apply knowledge.(1) The role of these technologies in medical education specifically has been described.(2) However, many faculty remain reluctant to utilize these tools, largely due to lack of experience or proper training.(3) The *Integrated Case Exercises (ICE)* at UMass Medical School is a case-based course that uses a number of different familiar teaching technologies and platforms to deliver integrated material to first and second year medical students in innovative ways.

Polling, online meetings, video chat, chat rooms, and simulation can all be used in unique ways to push your classroom to the head of the (technology) class. This workshop is an experiential workshop where you will participate in several "Tech-Nouveau" iterations of yesterday's technology. **(Please bring a smart phone, tablet,or laptop to this session.)**

Objectives:

1) Describe some of the existing evidence regarding the use of technology in medical education.
2) Experience first-hand some familiar technologies used in unconventional ways.
    a. Experience bringing live simulation and guided medical decision making to a large audience using live broadcast of a remote, single simulation session.
    b. Easily bring live consultants into the classroom from off-campus.
    c. Sigificantly increase student participation with less than a 30-second set up.
    d. Hold your class as an "online meeting" to avoid having to reschedule when a storm cancels your class time.
3) Prepare and use 2 of these tools yourself, during this workshop.

Session Outline:

Introduction/Brief review of literature pertaining to educational technology (5 minutes)
Live chat room (5 minutes)
Participants will learn how to participate in and set up their own live chat room. We will demonstrate the benefits this technology yields in class participation
Polling technology used for unconventional purposes (10 minutes)
Online meeting (10 minutes)
Watch an excerpt of a "cancelled class" using online meeting technology, that prevented having to reschedule or make up lost time

Bringing consultants into the classroom: FaceTime (5 minutes)
Off-site "consultant" will be brought into the workshop classroom using FaceTime video chatting
Simulation and live broadcast (30 minutes): 2-5 volunteers will participate in a (no-stress!) medical simulation that will be broadcase live to the remaining workshop participants, with planned interruptions and guided medical decision making discussions in both environments
Hands-on practice (15 minutes) – 2 Options:
1. Live consultant via FaceTime
2. Live chat room via TodaysMeet.com
Conclusions/Question & Answer Session (10 minutes)

References:

1. Christensen C. Disruptive innovation and catalytic change in higher education. Forum for the Future of Higher Education. 2008:43–46.
2. Han H, Resch DS, Kovach RA. Educational technology in medical education. Teach Learn Med. 2013;25 Suppl 1:S39-43.
3. Robin BR, McNeil SG, Cook DA, Agarwal KL, Singhal GR. Preparing for the changing role of instructional technologies in medical education. Acad Med. 2011 Apr;86(4):435-9

Simulation 3: A Comprehensive Interprofessional Simulation–based Disclosure and Apology (D&A) Training Program: Improving quality of care through disclosure and apology skills practice and the training of "disclosure coaches".

S. Wellman, A. Larkin, D. Carpenter, S. Tarrant
University of Massachusetts Medical School

Preventable medical error resulting in harm or death is staggeringly high with number of deaths per year ranging from 98,000 to 400,000(1). Notwithstanding the fact that patients, physicians, and ethicists all agree that disclosure of medical error is important, it often does not occur. As a result, many health care organizations are implementing disclosure policies to mitigate malpractice litigation and because it is now framed by the National Quality Forum(2) and others as a core component of high-quality care. Additionally, more states have legislated mandatory disclosure of certain events to patients, as well as laws that protect health care providers for apologizing(3,4).

The NQF established standards for disclosure of unanticipated outcomes in 2007 and reiterated in 2010. These standards require a disclosure and improvement support system that includes among other things, "education and skill building regarding the concepts, tools, and resources that produce optimal results from this practice…"(2)

Given the need to disclose, the complexity of the task, and the many barriers to disclosure, UMass Medical School developed a grant funded* pilot project to train residents in high risk fields. This grant addressed two critical components of the D&A process: the teaching of "content" and perhaps more importantly, the teaching and practice of D&A communication skills. Using high fidelity simulation in the form of highly trained acting patients, the grant program was designed as a hands on, experiential learning program, with an inter-professional model of teaching, that included faculty and trainees across the disciplines of surgery, anesthesia, emergency medicine, radiology. and advanced practice nursing. All learners participated in the same simulation experience and core curriculum offerings. In addition to

training residents and graduate level nursing trainees the program also supported the training of faculty across these diverse disciplines as “disclosure coaches”.

* Project supported by the UMass Memorial Health Care Inc, Risk Management and Loss Prevention Grant Program and the Interprofessional Center for Experiential Learning and Simulation, University of Massachusetts Medical School.

Session Goals: Enable participants to develop an effective disclosure and apology program at their home institution.

Session Objectives:

Demonstrate a best practice model of simulation designed to give residents the skills needed to disclose and apologize for a medical error.
Share our experience implementing this program, including challenges and successes.
Review programmatic and outcomes based data.
Enable participants to develop comparable disclosure and apology programs at their home institutions.

Session Outline:

5 minutes: Introductions
5 minutes: Background - Scope of the medical error problem and barriers to disclosure.
15 minutes: Introduction to the D&A simulation methodology including the inter-professional team, D&A best practices, case development, and a “Just in Time” on-line teaching module
35 minutes: The simulation will be demonstrated with some participants taking part in the D&A simulation. Remaining participants will observe the simulation.
15 minutes: Discuss in the group the observed simulation
5 minutes: Data and outcomes will be presented
10 minutes: Through video and case presentation, the successes and challenges will be discussed.

References:

1. James, JT. A New, Evidence-based Estimate of Patient Harms Associated with Hospital Care. J Patient Safety 2013;9: 122-128

2. National Quality Forum (NQF). Safe Practices for Better Healthcare–2010 Update: A Consensus Report. Washington, DC: NQF; 2010

3. Gallagher, TH. Disclosing Harmful Medical Errors to Patients. NEJM 356;26: 2713-2719

4. Mass Gen. Laws ch. 233 § 79L

Simulation 4: Integrated Simulation Exercises: Using Simulation to Teach Anatomy, Physiology and Imaging

J. Jonassen, K. Markey, J Makris, AM Gilroy
University of Massachusetts Medical School

The transition in medical education to competency-based curricula over the last 15 years has discouraged the passive learning done in large lecture halls and promoted more immersive, experiential learning exercises. This has fostered the development of innovative teaching methodologies and multi-disciplinary collaborations. Simulation technology, arguably one of the most important innovations in medical education, offers a safe environment in which learners have the opportunity to engage in active clinical learning experiences while mastering the complex integration of skills and knowledge. Despite the benefits, however, medical school faculty struggle to integrate these experiences into the medical curriculum. Challenges include decreased course hours, the need for more diversified and clinically trained faculty, and increasingly complex technology with a steep learning curve.

At UMMS first year anatomy, physiology and imaging are taught within an integrated Development, Structure and Function course. Having close ties to the clinical departments of UMMHC and iCELS, the UMMS simulation center, has enabled the faculty to create an innovative program that allows students to integrate these disciplines in three interactive rotating small-group sessions. In these sessions students alternately review selected regional anatomy of specific clinical cases through high resolution scans and 3D imaging, perform ultrasound of the same anatomic region on standardized patients, and participate in a simulated scenario using high fidelity mannequins, in which they diagnose and manage a patient with a specific clinical presentation.

Objectives:

- Participants will be introduced to the Anatomage technology and understand it's potential for teaching anatomy in medical education
- Participants will understand the basics of cardiac ultrasound
- Participants will learn how to incorporate simulated clinical scenarios using a high fidelity mannequin into a medical curriculum
- Participants will learn innovative ways to integrate basic and clinical sciences using simulation technology
- Participants will understand the value of experiential exercises in medical education

Session Outline: Three groups of 10 participants each (the total group will be limited to 30 participants) will rotate through three 25-minute simulation experiences:

1. Review of basic and clinical anatomy using Anatomage technology. This will include high-resolution scans of normal heart and lungs, and a variety of cases of cardiac and pulmonary pathology and congenital anomalies.
2. Introduction to cardiac ultrasound. The students are taught the fundamentals of cardiac image acquisition, and are asked to identify relevant anatomy and predict flow patterns of the normal standardized patient's cardiac anatomy.
3. Participation in a team based exercise using a high-fidelity mannequin, in which learners diagnose and manage a patient experiencing a severe asthma attack.

<u>Simulation 5:</u> The Potato Heads go to medical school: Innovative use of a table top simulation to assess teamwork

C.F. Nicholas, J. Gallant, C. Jewkes, E. McElhinney
University of Vermont

Background: The AAMC's Innovation Lab Working Group (ILWG) and the Admission Initiative, [1] identified 9 personal competencies important to entering medical students' success. They have made recommendations on ways to measure them and the article suggests future research is needed.

Problem statement: The UVM COM Admission Committee reviewed the tools currently used to rate how well each competency is captured. and found that the teamwork competency was not fully captured.

Response: The Director of Simulation Education was asked to design, develop and pilot a reliable, valid and cost effective 90 minutes table top simulation to allow applicants to demonstrate teamwork. A literature review was performed. A table top simulation using the toy Mr. Potato Head created by Eric Dickson, MD and developed at UMass Memorial for use in workshops on Lean Process Management was chosen as the model. The exercise was modified for use in admissions and piloted with different participant groups for 1 year. Pilot revealed a low cost, reliable and valid form for assessing teamwork. The 90 minute simulation exercise was incorporated into the interview day without causing disruption to the flow. Evaluations from Admission, faculty and students who act as teamwork raters are positive and the applicants rate the activity highly for quality and acceptability as part of interview day. This teamwork activity has also been used by COM staff, Medical Center nurse educators, and OB GYN resident interview day.

Goal: through this table top acitivity, faculty will have the chance to experience this simulation & assess if it could be useful to them within their institution.

Objectives:

1.create a process.
2.help each other.
3.create a safe and supported learning environment
4. Learn from successes and failures Individual team members apply lessons learned to real life

Session Outline:

20 minutes for introductions and short briefing to the simulation

> "Burlington is hosting the 10th annual meeting of PHI, Potato Head International©. Each country has sent one family of 16 to the conference. Each family hired a bus to drive to Burlington from JFK or Boston. A quirky weather event took place on I-89, and 3 of the buses went off the road and crashed. Your team has the responsibility to work together to assemble as many family members as possible until EPHS (Emergency Potato Head Services) arrives."

Simulation Timing

2 min Organize your team (3 groups of 4-5). Only 1 team member can insert parts.

7 min Using teamwork and communication skills, correctly assemble as many PH family members as possible, and place on mat for inspection.

2 min One team member from another team will inspect and remove any PH family members that do not match to picture

5 min each- total of 15-20 minutes based on 3 or 4 teams

Reflection: Each team shares their process, what worked and what they will change for next time.

7 min Repeat simulation

20 minutes Final reflection: Individual lessons learned & application to real world and questions

References:

(1) Koenig TW, Parrish SK, Terregino CA, Williams JP, Dunleavy D, Volsch JM. Core Personal Competencies Important to Entering Students' Success in Medical School: What are they and How Could they be Assessed Early in the Admission Process? Acad Med. 2013; 88:603-613.

(2) Murphy EA, Alper EJ, Manchester G. "Think QuIC!" Using Mr. Potato Heads and other innovative techniques to Teach Quality Improvement. Academic Internal Medicine Insight, 2012; 10.2:13-14.

(3) Core Entrustable Professional Activities for Entering Residency (PDF) (2014) retrieved October 29

SHORT COMMUNICATIONS

<u>Short Communication 1:</u> Preclinical medical school lectures – Does content delivery method matter when evaluating faculty performance?

J. Lapin
University of Pennsylvania

Objectives: Determine if preclinical medical students evaluate faculty lecture performance differently for face-to-face lectures versus those same lectures viewed later on video.

Background: Alternative content delivery methods have been available for years. The debate surrounding the effectiveness of alternative delivery versus traditional content delivery is split1. While numerous studies focus on student achievement and satisfaction, few focus on the effect of alternative delivery methods on faculty performance ratings.

Methods: Medical students evaluate faculty performance for all lectures, using an electronic evaluation delivery system. Data from January 2013 to November 2014 were analyzed using a 2 x 2 analysis of variance [delivery (video, In-person), level of content (1st year, 2nd year)]. A matched pair t-test ,controlling for proportion of evaluations completed from each delivery method (n=42), assessed differences in ratings within student across delivery method.

Results: In the 2x2 analysis of variance, using individual evaluation data from 338 unique students, the main effect for content delivery method ($F(1,994) = 8.42$, $p=.004$) indicates higher average ratings for in person delivery ($M=4.16$, $SD =.52$)versus video delivery ($M=4.06$, $sd = .58$). The main effect of event level ($F(1,994) = 12.13$, $p=.001$), indicates a higher average faculty performance rating by second year ($M=4.19$, $SD = .53$) compared to first year ($M=4.07$,

SD=.56) students. There was no significant interaction effect. Similarly, the matched pair t-test revealed statistically higher ratings for lectures viewed in person (t=2.044, df=41, p=.047).
Reflection: While online instruction delivery gains acceptance as an alternative to face-to-face instruction, it appears that student satisfaction with faculty performance is significantly lower when content is delivered via video versus traditionally. Although the differences are small in magnitude, in fact they represent the difference in 'exceeding' versus 'meeting' expectations at our institution. One limitation is that the content is not designed to be delivered solely online, which may impact student ratings.

Short Communication 2: A Multimodal Active Learning Approach to Integrating Biomedical Knowledge with Clinical Knowledge and Skills of the Head and Neck Region

L. Eisner, R.K. Ovitsh
SUNY Downstate College of Medicine

Objectives: Successfully shifting a medical school curriculum from a preclinical - clinical Flexner (1) model to a competency-based curriculum is challenging. This goal is even more challenging if the pre-clerkship curriculum must also be truncated from a two year curriculum to eighteen months or less. Both objectives can be achieved with the integration of biomedical sciences and clinical knowledge and skills development. Our Head and Neck / Upper Respiratory Tract unit demonstrates a highly integrated model.
Background: Integration is best achieved when learners build cognitive associations between the basic and clinical sciences (2). Designing integrated activities at the session-level permits the learner to make causal connections between these sciences and promotes the connection of different domains of knowledge (2,3). Cognitive experts recommend using basic science to help learners understand and organize clinical knowledge and skill into a coherent network of concepts which can then form the basis for clinical reasoning (2). Learner-centered, content-focused, and session-level integration (2) requires intense collaboration between basic science and clinical faculty.
Methods: Our curricular model compels collaborative faculty teams to design multimodal case-based activities that teach biomedical sciences in a clinical context while challenging first year medical students to learn both independently and in teams. Students learn head and neck anatomy by performing hypothesis-driven histories and physical examinations of head and neck complaints, analyzing diagnostic images to identify normal and abnormal structures, recognizing abnormal patterns of gross pathology and developing clinical reasoning skills relating to diseases of the head and neck. Additionally, the unit includes cadaver dissection, a simulated orotracheal intubation session and tag team Anatomic Basis of Disease lectures developed and delivered by anatomists and clinicians together. Radiologic and other team-based patient-oriented problem solving sessions use online resources, texts and videos. A three-session Problem-Based Learning case of a patient that develops meningitis from a contiguous sinusitis further drives integration. Performance-based and written exam assessments were used to evaluate the students' learning. Qualitative and quantitative data demonstrated the effectiveness of this integrated model.
Reflection: Student application of the anatomy, embryology, microbiology and pathophysiology of the head and neck was effectively increased by this integrated approach. Furthermore, hypothesis-driven history taking, physical diagnosis and clinical reasoning skills were strengthened when integrated with a strong basic science curriculum. The success of the approach depends upon: (1) a strong collaboration of basic science and clinical faculty, (2) a clear vision by basic science faculty on the appropriate breadth and depth of knowledge for students at this stage of UME, (3) a rational calendar sequence for learning the medical knowledge and clinical skills content, and (4) equal weighting of clinical skills and basic science assessments to evaluate student achievement of UME competencies. Curriculum integration

fosters cognitive integration in the learner, and has the potential to also decrease curriculum redundancies and classroom hours. At a time when the volume of material students are required to learn has increased exponentially, medical schools are searching for ways to shorten the pre-clerkship curriculum without sacrificing quality of education. Now that summative assessments include performance-based examinations, the relevance of biomedical knowledge to clinical medicine further drives students to learn and integrate the knowledge, attitude and skills needed to be a competent physician. Our approach and results could be applied to all organ and systems-based learning in UME.

Short Communication 3: Designing a Student-Led USMLE Step 1 Board Review Elective for Second Year Medical Students

J. Harrison[1], C. Thatcher[1], K. Higgins[2]
[2]University of Connecticut Health, [2]University of California San Francisco

Objectives: 1) Design and implement a longitudinal USMLE Step 1 preparatory elective for second year medical students; 2) Develop a peer-led model to achieve long-term sustainability; 3) Assess the design and effectiveness of the elective using student surveys and Step 1 scores.
Background: Step 1 exam performance has become a key factor in an increasingly competitive residency placement process. Medical schools now offer Step 1 preparatory assistance, including protected study time, subsidized resources, and review courses. We have designed a peer-driven elective led by rotating teams of enrolled students.
Methods: The elective comprised 17 weekly two-hour sessions. Leadership teams presented content guided by First Aid for the USMLE Step 1 supplemented by session-specific "guidelines". Practice questions from First Aid Q&A for the USMLE Step 1 were administered using an audience-response system, followed by error analysis. Students took an anonymous survey on aspects of elective design, efficacy and sustainability. Step 1 scores were compared between "takers" and "non-takers" before and after normalization to grades or MCAT scores.
Results: Regarding design, 90% of participants supported the general format, although only 79% specifically endorsed the rotating peer-leadership model. Support for audience-response practice questions was unanimous, and students agreed that First Aid books were appropriate resources. The elective reduced student anxiety (79%) and increased confidence (90%). Participants unanimously agreed that this should become a long-term offering. 95% of participants indicated that they would trust senior medical students to mentor the elective. Step 1 scores were not significantly different between takers and non-takers (236.7 ± 3.7 vs. 231.5 ± 2.2, Mean ± SEM, $p = 0.23$); no significant differences emerged after normalization.
Reflection: In conclusion, a longitudinal peer-led elective appears to be an effective and sustainable model for Step 1 board preparation. In response to feedback, fourth year student mentors have been introduced to the current iteration.

Short Communication 4: Using Every Day Experiences to Teach Culture

K. Richardson-Nassif, M. Seagrave, L. Selkirk
University of Vermont College of Medicine

Objectives: The goal of this program is to broaden medical students' perspectives of culture through every day experiences using reflection, discussion and clinical experiences. Objectives: By the end of this session participants will be able to: Define culture Identify ways to highlight culture within their institution, curriculum, and environment Assist learners to identify cultures associated with self, others, and environment.
Background: Medical schools frequently struggle to teach culture.[1] Students are primarily surrounded by highly educated and motivated individuals in the academic environment. Vermont is primarily white and is often viewed as culturally homogenous. We embrace the

Webster's broad definitions of culture.[2] The University of Vermont College of Medicine (UVM COM) Department of Family Medicine defines culture broadly including socioeconomic and ethnic background, vocation, lifestyle, gender identity, and geographic home. The UVM COM has identified multiple "every day" opportunities for learning experiences to highlight culture. These experiences occur within the medical school, University, and outside the walls of the ivory tower.

Methods: The TOPMEd curriculum incorporates new curricula (experiential and reflective) as well as enhances current courses by "tweaking" content. The TOPMEd cultural curriculum is longitudinal, beginning with a fun, every-day reflective experience, evolving into patient experiences (simulated and practice based), reflection and scholarly projects, and culminating in focused experiential opportunities within diverse communities.

Reflection: Providing multiple opportunities for experiential learning and reflection allows for enhanced understanding of cultural diversity and how it impacts patient health and patient/physician interactions. Limitations of this project include: 1) a broad definition of culture; and 2) a single school with its unique set of values and resources. Data is being collected on student outcomes will be correlated to the learning objectives in the final years of this project.

Short Communication 5: Introduction to Clinical Bioethics: A Novel Curriculum for Pre-Clinical Students Utilizing Didactic Lectures and Self-Directed Small-Group Sessions

J. Salik, K. Prager
Columbia University College of Physicians and Surgeons

Objectives: The goals of this new curriculum are to use both didactic lectures and self-directed small-group sessions to promote students': (1) understanding of the ethical and legal principles underlying clinical bioethics; (2) ability to recognize and evaluate these issues during clinical practice; and (3) ability to form a structured approach to the management of these issues.

Background: Though medical ethics is a component of pre-clinical curricula at most North American medical schools (Lehmann et al., 1998; DuBois et al., 2002), it is frequently included without adequate integration into core clinical training. An unintended consequence is that students often lack appropriate instruction in clinical bioethics and may thus perceive bioethics as non-core or incidental to their clinical practice. Given the increasingly prominent role of bioethics in modern clinical medicine, it is essential to better equip students with the ability to understand, evaluate, and manage salient issues in bioethics before beginning their clinical rotations.

Methods: The curriculum is in two parts. The didactic component includes classroom lectures on: (1) introduction to bioethics; (2) capacity determination; (3) advance directives; (4) medical futility; (5) physician-assisted suicide/euthanasia; and (6) organ transplantation ethics. Lectures will be preparatory to the core of the course, which consists of five self-directed small-group sessions in which students will lead case discussions drawn from our institution's ethics consult service in order to explore the bioethical principles discussed in the preceding lecture. Faculty from the consult service will attend as both classroom lecturers and small-group consultants.

Reflection: Future directions may include: (1) a module on research ethics; (2) weekly readings and response essays; (3) "readiness quizzes" prior to each small-group session to gauge comprehension of the preceding didactic lecture; and (4) addition of a final assessment in the form of an examination or written paper.

Short Communication 6: A Training Workshop in Scholarly Writing for Pre-Clerkship Students at Rutgers Robert Wood Johnson Medical School (RWJMS)

J. Stundon, N. Saks
Rutgers Robert Wood Johnson Medical School

Objectives: To develop and implement a writing workshop for pre-clerkship students planning to engage in scholarly work in academic medicine.
Background: Students at RWJMS engage in grant writing and scholarly project proposals and their future careers in academic medicine require writing proficiency. However, practicing physicians often struggle to make time to complete their writing, citing reasons such as lack of time to write, limited protected time for research and insufficient data (Sprague et al., 2003). Few writing training programs exist, but faculty development workshops for physicians that focus on writing have been successful .(Pololi, Knight, & Dunn, 2004; Steinert, McLeod, Liben, & Snell, 2008). Training medical students in scholarly writing will help meet their current academic needs and may provide a useful foundation for successful writing throughout their careers.
Methods: Workshop content and activities were adapted from writing workshops for graduate students and physicians. The 1-hour workshops included (1) an overview of the importance of writing for academic medicine career development (2) exercises to assist in the initiation of writing (3) tools to aid in revisions and (4) information about time management and goal setting. A pre-workshop survey assessed the students' goals and expectations and asked about their past writing experiences. A post-workshop student satisfaction survey was completed.
Reflection: All 17 students who attended the workshop would "recommend" or "strongly recommend" it to a colleague; each stated more confidence in their ability to complete a written proposal. The number of students who participated in this workshop is a clear limitation, as is the fact that our follow up data is limited to the survey administered at the close of the workshop. Future work will focus on recruiting more students and following our students' through the completion of their work, with an aim to determine what additional resources students need to become proficient at academic writing.

Short Communication 7: Readying Students for Clerkship Clinical Skills Assessment: The RIME Model in Pre-Clerkship Self-Assessment

R. Crowe, R. Crowe, M.V. Pusic, S. Yingling
NYU School of Medicine

Objectives: ● familiarize pre-clerkship students with the assessment framework used in clerkship training evaluations ● provide opportunity for student to self-assess core clinical skill acquisition and compare to preceptor evaluations ● identify key areas where students over- or under- estimate their skill levels compared to faculty assessment
Background: The NYU School of Medicine's 18-month pre-clerkship core clinical skills module, the Practice of Medicine (POM), instituted feedback sessions with instructor-student pairs at 12 months that incorporate ratings of professionalism, quality of interviewing and physical examinations, and quality of write-ups. Our PRIMES framework, based on the Reporter-Interpreter-Manager-Educator model (RIME; Pangaro, 1999), is a key part of our mid-clerkship formative feedback (Lee et al., 2014). The framework includes professionalism (P) and procedural skills (S).
Methods: Comparing student self-ratings to instructor ratings encourages feedback conversation that includes specific examples of observed or aspirational skills. Professionalism in pre-clerkship months includes such areas as "welcomes feedback" and "demonstrates active preparation and participation in class". The recurring message to students is: "Professionalism starts Day One, requiring active engagement in learning to further your own readiness and the

readiness of other learners to be members of a clinical team." The Reporter aspect of PRIMES in the POM program sets an expectation to be organized, accurate, and complete when gathering information from clinical interviews, physical examinations, and when writing patient notes. The PRIMES instrument for POM includes three skill levels (beginning, competent, and strong). Each component of Professionalism and Reporting has clear behavioral anchors. Interpretation, a clinical reasoning skill honed in clerkships, is not rated; rather, students review Interpreter expectations for the remaining time in POM, referred to as "forecasting what we strive for next semester."
Reflection: We report data from 160 paired ratings and describe the areas in which students tended to rate themselves higher or lower than instructor ratings.

Short Communication 8: Designing and Implementing a Quality Improvement Curriculum: Tools and Tips

J. Abbott, J. Moses
Boston University School of Medicine

Learning Objectives: (1) Understanding the AAMC and ACGME expectations for experiential learning of quality and safety methods during training, (2) Ability to access online and publically available resources for the didactic engagement of their learners, (3) Timeline for a month long elective to effectively design the steps in achieving a meaningful and measurable outcomes for project design, (4) Template for a project usable by faculty and trainees to implement a quality improvement initiative with an ability to track deliverables.
Background: Medical students are expected to learn to both provide excellence in clinical care and to continually evaluate their practice to improve the care they deliver. The AAMC and WHO have both recommended that students complete their undergraduate medical education with the skills and knowledge to evaluate the process of care and to participate in projects to improve it, yet few publications[1-2] address meaningful QI education for UME. At BUSM we have developed QI electives integrating didactic and experiential education. Curricular goals are to allow development of the tools and knowledge in QI processes and to foster participation in the application of QI methodology.
Instructional Methods and Materials: The QI elective courses are available to fourth year students, they are required to prepare in advance of the elective by securing preceptorship within the clinical department prior to course acceptance. The educational goals for QI1 are to identify a quality problem in a specific area, to assess and systematically analyze the problem using quality improvement tools and to design an intervention.
Strengths, Weaknesses and Future Directions: The immediate impact from these electives has been in the increased number of champions for quality and safety education among the participants. The long-term impact on the participants themselves, by self-report, shows intent to continue QI work into residency, and 12 have presented this work at national meetings. As the students have had a variety of preceptors, not all have had the same experiential content.
Reference:
1. Weeks W, Robinson J, Brooks B, Batalden B. Using early clinical experiences to integrate quality-improvement learning into medical education. Acad Med 2000: (75)1. p81-84.

Short Communication 9: Student-Faculty Partnerships to Enhance Education: A Scholarly Project Investigating the Efficacy of Simulation-Based Medical Education in the Preclinical Curriculum

C. Hamilton, D. Warden, S.N. Chimienti, M.P. Pugnaire, B.M. Walsh, W.Y. Wassef
University of Massachusetts Medical School

Objectives: In an innovative collaboration with faculty, medical students are developing a longitudinal scholarly project to broaden the use of simulation in undergraduate medical education at the University of Massachusetts Medical School (UMMS).
Background: Simulation-based education is a rapidly growing form of active learning that is widely utilized in many medical schools in both clinical and preclinical curricula[1]. This educational method offers unique opportunities to engage students in an interactive manner, connecting basic science concepts with clinical scenarios. There is strong evidence that simulation-based medical education is effective in fostering competence in clinical skills and knowledge[2], but relatively less is known on its efficacy in preclinical curricula. Our interest in simulation has led to the development of a Simulation Interest Group for students, and through this we are pursuing multiple opportunities in collaboration with faculty to increase simulation experiences for students.
Methods: As part of our Capstone project, we will engage in research and scholarship to incorporate simulation into the second year curriculum at UMMS. Along with faculty mentors, we will investigate whether simulation-based education is in fact an effective method to reinforce pathophysiological concepts. Utilizing pre- and post-intervention assessments of topics addressed in the cases, we hope to determine if simulation can improve student understanding of pathophysiological concepts learned in lectures. We will also collect feedback from students to optimize the design of future simulation-based learning exercises.
Reflection: Through this pilot study we hope to add to the small but growing body of research on preclinical simulation-based medical education, and to foster the development of its effective use at UMMS. In addition, we hope that our use of a longitudinal scholarly project as a mechanism for advancing curriculum innovation in collaboration with faculty may serve as a model for other students interested in having a role in influencing the future of medical education.

Short Communication 10: Developing a Medical Education Research Fellowship (MERF) for post-residency graduates

S. Rougas, B. Clyne, R. Dollase
Warren Alpert Medical School of Brown University

Objectives: To understand the factors that influence and drive the creation of a post-graduate fellowship in medical education. Specific objectives of this innovation in medical education are to: 1) Define the need for post-graduate training in medical education 2) Describe a novel post-graduate program for emergency medicine residents 3) Assess the factors that measure success of a medical education research fellowship
Background: Leaders in medical education have recently called for the development of post-graduate training programs to develop a cadre of medical educators equipped with the skills required of an academic physician[1]. Though a few such programs exist in emergency medicine currently, it is not until recently that a consensus on what such fellowships should entail was developed[2-3]. Recognizing a rich educational milieu ripe for a post-graduate fellowship at our institution, we developed an innovative 2-year mentored fellowship in medical education research.
Methods: The Medical Education Research Fellowship (MERF) is a non-ACGME postgraduate training program sponsored by Rhode Island Hospital and the Department of Emergency

Medicine (DEM) at The Warren Alpert Medical School (AMS) of Brown University. It was developed as a two year mentored fellowship that provides advanced training in classroom and bedside teaching, curriculum design, and medical education research for a graduate of an accredited residency program. Fellows have protected time and structured guidance to develop expertise in an area of medical education research through the completion of a master's degree. Mentorship is provided by a multi-disciplinary faculty of educational experts at AMS and within the DEM. To date, the program has graduated one fellow and successfully recruited another for the upcoming academic year. The development of the fellowship was informed by national standards set forth by experts and leaders in the field of educational training in Emergency Medicine[2-3].

Reflection: The fellowship has provided increased visibility to medical education efforts within the DEM as well as AMS. Success of the program is most adequately measured by the accomplishments of the program's graduates. The first MERF graduate completed a master's in medical education, secured an academic position post-fellowship, completed 4 peer-reviewed publications, and gave over 10 regional and national presentations related to medical education. In addition, a quarterly medical education journal club was established through the MERF in the DEM. Future directions include: 1) expanding recruitment of fellows to residents outside of emergency medicine (a current limitation of the program), 2) coordinating additional teaching and leadership opportunities at the regional and national level, and 3) understanding the feasibility of implementing such a program in other academic departments.

Short Communication 11: Are students learning what educators intend them to learn: A mixed-methods comparative analysis of lessons reported on student case logs from live vs. Computer-assisted Learning in Pediatrics Program (CLIPP) Cases

T. Jirasevijinda[1], I. Harwayne-Gidansk[2]
[1]Weill Cornell Medical College, [2]New York Presbyterian Hospital

Objectives: This study aims to 1) compare lessons learned by students from live patient encounters and those from CLIPP cases; 2) examine types and scope of lessons learned that are not matched to stated objectives of corresponding CLIPP cases.

Background: Experiential learning, essential to Adult Learning Theory & Practice1, is an important component of undergraduate medical education. Learning from real patients provides authenticity; however, ensuring a diverse caseload is not always feasible at all clinical sites. Online, virtual cases such as CLIPP2,3 have been designed to fill this gap. While online cases are designed to cover core objectives, it is unclear if students learn the intended lessons. Nor is it known if lessons from live encounters align with corresponding CLIPP case objectives.

Methods: In addition to submitting an online case log for live encounters and CLIPP cases, students at our institutions were asked to respond to this prompt: List 3 things you learn from this case. Investigators extracted data from the 2010-2012 academic years and examined them for degree of overlap with corresponding CLIPP case objectives. Degree of overlap was examined using frequency analysis. For lessons that did not match the stated objectives, investigators analyzed them using Grounded Theory to identify emerging themes. This pilot study examined four of the 19 required cases: Well Child (Newborn), Fever, Jaundice and Developmental Delay.

Results: Of the 191 medical students rotating through the clerkship during the study period, a mean of 154 or 80.6% (range = 149-160) made complete entries for each of the four cases. Almost all students (mean = 92.9%, range = 90-98.8%) relied on live encounters to satisfy the case log requirement. Students logging CLIPP cases reported lessons that overlap corresponding CLIPP case objectives by a mean of 87.5% (mean = 50-100%); whereas those logging live encounters reported overlap by 33.3% (mean = 0-100%). Ongoing qualitative analysis of lessons from live encounters not overlapping with CLIPP case objectives identified

the following preliminary themes: medical knowledge and skills, professional responsibilities, approach to learning, communication, psychosocial dimensions, and system-based issues.
Reflection: Lessons students reported to have learned from live patient encounters overlapped with only one-third of those stated in corresponding CLIPP cases. Many of these unique lessons were related to the psychosocial aspects of care and students' personal growth/professional development. The findings can potentially help educators enhance existing CLIPP cases.

Short Communication 12: Measure Your Research Impact Before Publishing?: A New Method to Encourage the Scholarly Activity of Residents

Y. Lee
Howard University

Objectives: This study will explore an innovative approach to encouraging resident scholarly activity by demonstrating ways to enhance research impact.
Background: Accreditation Council for Graduate Medical Education (ACGME) guidelines have mandated scholarly activityfor residents. While residents are motivated at the institutional level in a variety of ways, as a Clinical Librarian, the author seeks to encourage resident research via workshops on enhancing research impact.
Methods: The workshop consists of three main components. The first is a visual presentation of citation metrics usinga map that compares publication patterns for three similar medical colleges. The goal is to use this to introduce residents to a bibliometric database, and its superior ability to analyze relationships between articles which ties into research metrics and impact. The second part teaches the importance of the research community including how to determine the best audience, how to hone in on specific topics of interest, how to find journals to which they can submit, and how to use social media to find future collaborators. Finally, the author will discuss strategies for finding "hot" or "ignored" topics within a research community as well as strategies for making the research more interesting to specific audiences (e.g. funding agencies, editors, etc.)
Reflection: The strength of this method lies in that it teaches residents that science is a communal activity, a concept that may be lost to them without scientific or research training. It encourages greater involvement in their research instead of merely fulfilling a requirement, and it teaches them to use bibliometric databases beyond PubMed. The primary limitation is the difficulty of measuring whether this approach can truly increase the research output of residents. Therefore, the next step would be to determine the correlation between teaching bibliometric analysis to residents and any increase in their research outcomes.

Short Communication 13: A Clinical and Basic Science Partnership for teaching Biochemistry, Histology and Cell Physiology

M.C. O'Brien, W.E. Royer, M.C. O'Brien
University of Massachusetts Medical School

Objectives: Our first-year medical school course seeks to enhance the understanding of important basic scientific principles and their application to medicine through partnerships both among different scientific disciplines and between clinicians and basic scientists.
Background: Historically at UMMS, basic science courses were largely organized by traditional disciplines. In redesigning our curriculum we sought exploit interdisciplinary approaches in scientific research to develop courses whose foundations rely on integration of multiple scientific disciplines with clinical perspectives. In the case of our course, we sought to integrate biochemistry, histology and cell physiology with clinical perspectives.
Methods: We designed "Building Working Cells and Tissues" with input from biochemists, cell biologists, physiologists and physicians taking advantage of this diversity of expertise and

perspective. We use clinical vignettes that are given in nearly every lecture along with conferences, both small and large group, to provide students with an opportunity to work through clinical cases and apply basic science principles. In all these activities, our partnerships between basic scientists and clinicians provide unique perspectives that help our students to appreciate and comprehend basic scientific principles.
Reflection: Since designing this course and teaching it for the last five years, we have gained a renewed appreciation of the benefits of an integrated approach that exploits diverse perspectives. An important contributor of success in the course has been the nearly constant presence of our clinical course co-leader (an internist) to emphasize the medical relevance of each topic. This has resulted in a richer understanding of clinical aspects by the basic scientists and greater scientific understanding by clinicians.

Short Communication 14: An interactive session to discuss advanced human anatomy using various clinical scenarios

H. Cardona Lopez, E. Goldman, S. Phadtare
Cooper Medical School of Rowan University

Objectives: The goal of this interactive session was to help students understand challenging advanced anatomical principles by correlating the anatomy with symptoms, diagnosis and treatments associated with various clinical scenarios.
Background: The Cooper School of Rowan University is a new medical school that utilizes lectures, laboratories, and active learning (problem-based-solving) exercises through the preclinical years. One of our goals was to incorporate new active learning methods, which focus on teamwork as well as individual accountability (1-3). Anatomy is typically taught in a laboratory setting using conventional lectures, computer simulations and cadavers. We aimed to get the students to understand concepts of anatomy by instigating thinking about human structure and function within the altered context of a diseased or traumatized state. We thus converted one of the thoracic anatomy lectures to an active learning format.
Methods: Students were randomly assigned into groups of four. They took pre and post quizzes as a group. Both quizzes included fact-based and comprehension-based questions. Each student was assigned a clinical scenario and received a two page document describing the case along with explanations of the underlying anatomy, pathology and treatment options. After reading the materials, each student presented his/her case to the group and led a thought-provoking discussion using the hints provided in the document. Faculty provided help during the session as needed.
Reflection: The students' evaluations of the session were overwhelmingly positive. Their comments included that the session was "great, very useful and engaging" and that they "loved the peer-teaching aspect". The competency assessment, as measured by differences between pre and post-quiz scores, demonstrated that the session was effective (Figure 1). In addition, for questions based on the session material, the overall class performance in the course summative exam improved compared to the previous year. Such interactive sessions may prove to be effective for discussing difficult anatomy concepts.

Short Communication 15: Lessons Learned from "Flipping" Biochemistry Lectures

S. Rollins, E. Ercikan Abali
Rutgers Robert Wood Johnson Medical School

Objectives: The objective of this study was to actively engage first year medical students in their learning to promoteself-directed learning skills and critical thinking by using flipped classroom model in biochemistry lectures.

Background: In a traditional hour-long lecture, students do not have enough time to absorb the material to apply their knowledge to clinically related scenarios; therefore these clinical cases are didactically presented to them. In Flipped classroom, students come to class prepared, therefore class time can be dedicated to inquiry based and collaborative learning. This type of learning moves students to from surface to deep approach of learning.
Methods: In 2013, two biochemistry lectures namely, Hexose Monophosphote Pathway and Fatty Acid Metabolism in Rutgers RWJMS M1 GI, Metabolism & Nutrition course were flipped. Student satisfaction and examinations scores pertinent to these two lectures were compared to the previous years. Upon completion of the course, a focus group run comprised of thirteen students was established to improve student satisfaction. Based on these and other suggestions, the in 2014, two other biochemistry lectures in M1 Biomedical Sciences were flipped. Data about student satisfaction and examination scores were analyzed and compared to previous years.
Reflection: Although flipped classroom resulted in improved learning in the first round of flipped classrooms of biochemistry lectures, it drastically reduced student satisfaction compared to the previous year. After the recommendations of the focus group, student attitudes and satisfaction was drastically improved. However, with this cohort there was no significant change is examination scores pertinent to these flipped classrooms. The same two Flipped Classrooms in M1 GI, Metabolism and Nutrition will be repeated this year with the modifications installed and data for student performance and data will be analyzed. In this presentation, we will discuss the lessons learned from flipping the biochemistry lectures at our school.

Short Communication 16: Martial Arts as a Novel Tool for Reviewing Anatomy

S.J. Mennona, R. Lebeau, D. Woodbury
Robert Wood Johnson Medical School

Objectives: To use martial arts instruction as an innovative tool to help students review key muscles and nerves of the extremities previously encountered in an integrated pre-clerkship curriculum.
Background: Recent changes to basic science instruction in medical education are driven, in part, by two principles: a) basic science should be encountered recursively during medical school and b) participatory, contextualized learning is more durable and accessible(1). Questions remain about how to create contexts for active review of material which does not recur as often in an integrated curriculum(2). Prior investigations of physical activity as a context for anatomical study found that students enjoy and consider it relevant to their study goals(3). We designed a martial arts and upper/lower limb review clinic for M1 and M2 students using three complementary modalities: hands-on instruction in self-defense techniques, multimedia, and lecture.
Methods: The clinic consisted of one hour of instruction in martial arts techniques and a one-hour lecture that reviewed relevant gross anatomy using animations demonstrating the kinetic components of each technique at the level of individual muscle groups. A podcast was posted so students could revisit the slides and animations. 21 students (7 M1, 14 M2) participated in the clinic, which was held months after course instruction (6 months/M1; 18 months/M2). Students completed recall measures (pre/posttest (16 items) of relevant anatomical knowledge) and surveys (5-point Likert scales assessing pre/post attitudes toward review; post-clinic satisfaction).
Results: The immediate impact of the clinic was positive. Student recall for relevant anatomical knowledge improved (38% to 74% correct, $t(20)=-8.6$, $p<.01$) and students expressed greater confidence in their ability to independently review the anatomy of the extremities and greater enthusiasm for doing so ($p<.05$, Wilcoxon signed-rank tests). Participant satisfaction was high

(an average rating of 4.7 for “usefulness of animations”; 4.6 “usefulness of techniques for anatomy review”).
Reflection: A limitation of the project is the absence of data on longer-term impact of the clinic. In addition to collecting more follow-up data, we aim to improve the clinic by making the didactic lecture more interactive (more opportunities to question and discuss) and are experimenting with different ways to integrate anatomical instruction during the martial arts component.

Short Communication 17: Medical Student Resource Utilization and Resource Trust Among MS1-MS4 Students at a Large Urban Medical School

D. Daniel, N. Gabbur
SUNY Downstate College of Medicine

Objectives: To assess learning resources used by students, the degree of confidence students have in these resources, and the impact of medical school year on these resources.
Background: Medical students use a variety of resources from which to learn[1]. It has also been documented that medical students have unique preferences in learning resources as compared to other clinicians[2]. Furthermore, residents and interns have been shown to have questionable trust in the resources commonly used[3].
Methods: An email survey was sent to all SUNY Downstate medical students. Students were asked to state the resource they rely on most, as well as their trust in the reference. Trust was measured using a five point Likert scale, with values 4 or greater classified as trustworthy. Results were analyzed with Chi-Square tests.
Results: Overall response rate was 44% (n=347). Response rate for each year was: MS1 64% (n=118), MS2 41%(n=76), MS3 30% (n=56), MS4 26% (n=47). Resources most relied on were UpToDate, Google, and Wikipedia. MS1 rely most on Google (49.4%), compared to only 14.9% in other classes ($p<0.001$). MS2 and MS4 have similar rates of resource utilization with UpToDate (50% and 47%), and Wikipedia (29% and 30%) being most relied on. MS3 most rely on UpToDate (68%) and least on Wikipedia (14%), significantly differing from other classes ($p<0.001$). Of students who rely on Wikipedia, only 73% consider the resource as trustworthy compared to a 97% trustworthiness rating of UpToDate and textbooks ($p<0.001$).
Reflection: Student learning resource utilization varies with year of medical school. MS1, are most similar to laypeople relying almost exclusively on Google and Wikipedia. MS3, who spend the most time in the hospital, was the only group that overwhelmingly relied on a non-layperson resource, UpToDate. MS2 and MS4 have most similar resource utilization, with about 30% of each class relying on Wikipedia. It is possible that resource utilization is impacted by access to campus computers. Finally, students rely on resources they do not consider to be trustworthy. The study is limited by the small sample size, and differences in curriculum between classes. Moreover, the survey was distributed before the start of classes in August 2014 and responses could have changed once students started the school year.

Short Communication 18: A Pilot Curriculum in Patient Safety for Early Medical Students

E.O Nestler[2], D.S. Shapiro[1,2], S. Ellner[1,2],
[1]St. Francis Hospital and Medical Center, [2]University of Connecticut School of Medicine

Objectives: To establish a vertically integrated curriculum about patient safety and to evaluate the effect on student’s knowledge, skills and attitudes.
Background: The University of Connecticut School of Medicine agreed in principle to join with the AAMC in its Best Practices for Better Care Initiative to "teach quality and patient safety to the next generation of doctors". Curricular goals, knowledge and performance requirements, educational format and evaluation were established for four content areas. As recommended by Lucian Leape Institute's report² the goal was a "coordinated, longitudinal curricula".

Methods/Results: In November 2013, first year and second year medical students were required to attend a 2 1/2 hour interactive session. Instructors used lecture, case examples and team exercises using Legos®, paper airplanes and other tools. Students completed a pre-session survey prior to accessing the online required readings. The 31-item survey asked students to rate: their current knowledge about thirteen patient safety terms and concepts, the comfort level with their skill in six areas and how important it is to include twelve individual topics in their training. We used the unpaired t-test to compare each item for two cohorts of second year students: class of 2016, control, n= 80 and class of 2017(n=95), intervention group. Most knowledge and all skill item comparisons were statistically significant ($p < 0.03$). Though the means increased in all items in the last cluster, only one reached statistical significance. A post session evaluation survey was administered and this data will be analyzed.
Reflection: The curriculum significantly improved students' reported knowledge and skills. Their attitudes toward the importance of the topics being included in medical school training did not change; this might be due to their relative inexperience in a clinical setting and will be reevaluated. In the future we will increase the use of clinical vignettes and link learning to student's continuity practices and clerkships.

Short Communication 19: Do gender and ethnicity influence standardized patients' assessment of students' empathy?

K. Berg[1,2], M. Hojat[2], B. Blatt[3], J. Lopreiato[4], T. Owens[5]
[1]Jefferson University, [2]Sidney Kimmel Medical College, [3]George Washington, [4]Uniform Services, [5]Howard University

Objectives: Describe the current understanding of the effect of gender/ethnicity on SP evaluation of medical students' interpersonal skills. Discuss the results of our study and its implications for SP training with the purpose of our study being to examine the effects of ethnicity and gender on simulated patient (SP) assessments of medical students' empathy which could introduce bias into how the students are scored.
Background: Since 1992, the Consensus Conference on the Use of SPs has recommended the need for studies evaluating how racial, ethnic, and cultural factors affect SP ratings of students' performances during clinical skills testing. The possibility of a significant interaction between the SPs and the students' ethnicity/ gender could threaten the validity of high-stakes licensure examinations and of the SP assessment approach in general. Studies thus far have yielded mixed results.
Methods: Participants in our study included 577 students from four medical schools in 2012: 373 (64.6%) White, 79 (13.7%) Black/African American and 125 (21.7%) Asian/Pacific Islander who were assessed by 84 SPs, 62 (74) White and 22 (26%) Black/African American. SPs completed the Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE) and Global Ratings of Empathy (GRE). Students completed the Jefferson Scale of Empathy (JSE) and two subscales of the Interpersonal Reactivity Index (IRI). There were 2,882 student-patient encounters.
Results: Analyses of SPs' assessments of students' empathy indicated significant interaction effects on gender and ethnicity. Female students, regardless of ethnicity, obtained significantly higher mean scores than men. Female Black/African American, female White and female Asian/Pacific Islander students scored significantly higher than their male counter parts. Male Black/African American students obtained the lowest SP's assessment of empathy regardless of SP ethnicity. Black/African American students obtained the highest mean scores on self-reported empathy.
Reflection: The significant interaction effects of ethnicity and gender in clinical encounters and the inconsistencies observed between SPs' assessments of students' empathy, and students' self-reported empathy raise questions about possible ethnicity and gender biases in the SPs'

assessments of students' clinical skills.In this just published multi-institution study we found troubling interaction effects between SP and student gender/ethnicity that may unfairly affect SP evaluation of students. They need to be discussed to search for further understanding and to develop strategies to addressthem in SP training.

Short Communication 20: Reflections on a Technology-Supported Mid-Clerkship Feedback Process

S.W. Lee, S. Yingling, W.J. Holloway, M. Marin, R.G. Acholonu, M.V. Pusic
NYU School of Medicine

Objectives: The Liaison Committee on Medical Education requires that medical students be assessed and provided with formal feedback sufficiently early in a course or clerkship to allow for remediation. At NYU School of Medicine, we implemented a unified, technology-supported mid-clerkship feedback process across core clerkships. The new process prompts reflection and self-assessment, facilitates structured feedback, and allows for near real-time monitoring of progress by individual learners and educational program leadership.
Background: Prior to 2014, each NYU School of Medicine clerkship had its own, largely paper-based mid-clerkship feedback procedures. The lack of electronic documentation presented challenges for centralized monitoring of the process by departments and the Office of Medical Education, and limited ability for both students and faculty to follow up on goals discussed at feedback meetings. Additionally, the lack of a shared approach across clerkships prevented learners from clearly visualizing their progressive clinical mastery. To improve this process, NYU School of Medicine established new standard procedures for mid-clerkship feedback meetings, including a custom-designed iPad application to capture student self-assessments and preceptor ratings using the Reporter-Interpreter-Manager-Educator evaluation framework plus Professionalism and Skills (P-RIME-S). PRIMES provides students and faculty with a consistent vocabulary for discussing clinical skills development.
Methods: In the new mid-clerkship feedback process, each student: accesses a dynamic, personalized report summarizing progress of logged clinical experiences against clerkship requirements; completes an ePortfolio reflection; and self-assesses using PRIMES, then hands the iPad to the preceptor to complete a rating. The app then displays areas of concordance and discordance for discussion.
Reflection: Core clerkships implemented this feedback process in April 2014. As of December 2014, over 685 pairs of student self-ratings and preceptor ratings have been captured using the PRIMES application. Technology enables rich formative conversations to take place and centralizes the collection of data related to this process, allowing for monitoring and visualization over time.

Short Communication 21: An Analysis of Themes Present in 3rd Year Medical Student Clinical Self-Evaluations

N. Voutsinas, N. Gabbur, M. Haughton
SUNY Downstate Medical Center College of Medicine

Objectives: Self-evaluations are a common tool used in the medical profession at the student and practitioner level so individuals may better assess their own abilities in an honest manner (3). There is little research is available discussing what students mention within these evaluations. The purpose of this study is to examine what students discuss when evaluating themselves in written format.
Background: The ACGME Core Competencies are standards that regulate all residency programs, regardless of specialty, in order to ensure adequate training amongst all residents (1). These criteria have significant overlap with the themes selected for this project, such as

Professionalism, Medical Knowledge, and Interpersonal and Communication Skills (1). Correlating what medical students think is important with what regulatory bodies deem to be important is a valuable exercise to see if there is a gap between these ideas. Multiple meta-analyses have demonstrated a correlation between student self-evaluations and performance, so this area is well studied, but more information can still be gleamed from these self-evaluations (2).

Methods: At the end of each 6-week OB/GYN clerkship at SUNY Downstate, students complete written self-evaluations as if they were grading themselves. These evaluations were then examined for common themes. These themes were based on discussions in literature, the ACGME core competencies, the standardized topics from the evaluations forms the students used, and other common topics that emerged during review of the self-evaluations. Each evaluation was reviewed for the following themes: Professionalism, Clinical Knowledge, Procedural Skills and Physical Exam, Presentation Ability, History Taking and Patient Communication Skills, Integration with Team, Learning Enthusiasm, and Empathy. Multiple themes could be recorded for each evaluation. Raw percentages of themes present, as well as trends across different rotation blocs were recorded in the data. When trends were examined the first rotation (JULY-AUG) was excluded because it included both third and fourth year students, a finding not present in the other clerkship periods.

Results: From July 7, 2013 through June 20, 2014, 200 students completed the clerkship and submitted evaluations. 9 were excluded due to being improperly completed. Integration with Team (58.64%) was the most common theme present in the evaluations. History Taking and Patient Communication Skills (52.88%), Professionalism (49.74%), and Procedure Skills and Physical Exam (45.03%) were also common themes. Presentation Ability (13.09%) and Empathy (24.08%) were the least present themes. The only noticeable trend was the increase in students mentioning Integration with Team as the year progressed (32% in AUG-SEPT vs 76% in MAY-JUNE). Most of the other themes stayed consistent, except for Learning Enthusiasm and Clinical Knowledge which fluctuated from bloc to bloc.

Reflection: Overall, the study was successful in determining what topics medical students think are important when evaluating themselves in a free-form setting. This data can be used by medical educators to better understand what their students are focusing on during their clerkship rotations and can be looked at to see if this correlates with evaluation standards for medical students and residents. Of note, none of the sections were written about by more than 60% of the respondents, indicating some variability amongst the students. An unfortunate limitation of this research is that it does not assess the reasoning behind why these themes were picked, which could range from what the students think is important, what was noted in previous faculty evaluations of the student, ease of writing in paragraph form, or randomness. A future study design could include a survey after the self-evaluations in order to examine the reasons a respondent picked certain themes. Furthermore, examining these themes and trends over multiple years and seeing if they are consistent would be an area of future research.

<u>Short Communication 22:</u> Validity Evidence For Differences in Psychiatric Patient Assessment Skills Between First and Third-Year Medical Students

S.M. Arnesen[1], W. Pluta[1], J. Cutler[1], C. Weiner[2]
[1]Columbia University, [2]University of Michigan

Objectives: To evaluate the validity of a video-based examination (VE) of psychiatric assessment skills by examining performance differences between first-year and third-year students.

Background: Standardized examinations are frequently used to assess students' psychiatric knowledge[1]; objective methods to evaluate students' clinical skills are less available[2]. We developed a VE to assess students' competencies in synthesizing the patient history (PH),

mental status examination (MSE), and formulation. Our research indicates that the VE uniquely and objectively assesses components of clinical competency that are not evaluated by the NBME Psychiatry subject exam[3]. We report new validity evidence supporting the use of the VE. Our validity argument posits that third-year students should outperform first-years.
Methods: The VE was administered to first-year (N= 157) students after completing their classroom-based psychiatry course and third-years (N=37) completing their psychiatry clerkship. Students viewed a videotaped patient interview and completed a write-up consisting of a PH, MSE, and formulation. Write-ups were scored using a grading rubric created by faculty consensus.
Results: A one-way MANOVA revealed a multivariate main effect for Year, Pillai's Trace =.22, $F(3,190)=18.422, p<.0001$, indicating that scores improved between Year1 and Year3. Given the significance of the overall test, univariate main effects were examined. Significant main effects for Year were obtained for PH, $F(1,190)=8.8311, p<.01$ and Formulation, $F(1,190)=50.511, p<.001$.
Reflection: Our prediction that third-years would outperform first-years was supported. In conjunction with previous research[3], these results provide additional evidence that the VE is a valid instrument for evaluating clinical skills. A surprising finding was that students did not significantly improve on the MSE subscale. One possibility is that our instrument doesn't capture growth in MSE learning, pointing to an area for refinement. Another possibility is that our instrument captures an interesting learning trajectory—first-years show rapid gains in MSE after a single psychiatry course–which would have important implications for instruction.

Short Communication 23: Student perceptions of surgical cases via qualitative analysis of comments from operative case log entries

R. Martinez, A. Fingeret, C. Hsieh, R. Nowygrod
Columbia University

Objectives: Determine which elements students identify as important information in documenting surgical cases.
Background: Case logs are important components of documenting sufficient exposure to clinical cases(1) and offer opportunities for reflection, an increasingly recognized component of learning(2). Quantitative analysis of case-logs abound, however the role of qualitative analysis of comments is not established.
Methods: We conducted a retrospective review of 231 general surgery clerkship students' self-reported record of operations observed between January 2013-June 2014. Using a constructivist grounded theory approach, iterative data collection and analysis was used to code contents of optional free-text comments based on thematic content. Periodic adaptive analysis furthered the evolving model.
Results: Of the 5775 total case logs, 2156 entries (37%) included a comment. Average comment length was 7.9 words (median 5). Common thematic elements included: procedure (77.9%), indication for surgery (28.8%), technique employed (ex. laparoscopic – 21.6%), surgeon (18.5%), and laterality of the procedure (15.4%). Less common themes included patient's age or sex (9.4%), medical or surgical history (7.1%), intraoperative findings (6.8%), and description of the student's role in the case (5.8%). Ninety percent of comments include data reporting while 46.9% include data interpretation.
Reflection: Students repeat details documented in other pre-designated areas of case logs, stressing their understanding of these elements' importance. Through their comments, students identify procedural technique, laterality, and indications as important. Students do not document subjective case difficulty or evaluation of the operative team. Optional comments from self-reported cases by students at one large academic medical institution limits study generalizability. Although methodological rigor of validated qualitative research was employed,

the subjective nature of grounded theory provides interpretation in identifying unifying themes. Nonetheless, qualitative comment analysis suggests students could benefit from instruction for effective use of narrative commentary as a component of their professional portfolio.

Short Communication 24: Student Designed Experience: Additional Opportunities for Inter-professional Integration in Sports Medicine in Medical Education

C. Motzkus-Feagans
University of Massachusetts Medical School

Objectives: -Describe a student designed elective that integrates Inter-professionalism -Reflect on student experience

Background: Medical practice is a team sport with many players who serve in different roles and positions. Flexible clinical experiences allow third year medical students to design curricular opportunities to interact with a variety of professionals while also experiencing a field they might otherwise not be exposed to during their core clerkships. Sports medicine, a field that is not traditionally included in core curricula, is one such field where physicians routinely refer patients to other professionals such as physical therapists and nutritionists.

Methods: Students are encouraged to design one week clinical experiences with clear learning objectives. Students take the lead, identifying clinical faculty and other health professionals with whom to spend clinical time. Working with the named professional(s), students outline specific objectives for their clinical time, such as furthering physical exam skills and learning about the common diagnoses in that field, that are used for the performance evaluation.

Reflection: Sports medicine is a field that lends itself to inter-professional integration in a flexible setting. This self-designed clinical experience embedded time spent in a physical therapy setting that focused on athletic recovery with the more traditional clinic time. Time spent with the physical therapists was invaluable as they were able to provide insight into the incremental progress that they see with patients in between doctor's appointments. Unfortunately, further inter-professional integration was limited due to the short amount of time available during the elective. Future directions include further integration, hopefully with professionals such as nutritionists.

Short Communication 25: Competency Assessment in Small Group Learning and Clinical Skills in Pre-Clinical Undergraduate Medical School Education

S. Ginzburg, J. Brenner
Hofstra-North Shore LIJ School of Medicine

Objectives: By the end of this session, participants will: Become familiar with competency-based assessment in Hofstra's problem/case-based learning curriculum, become familiar with competency-based assessment in Hofstra's clinical skills curriculum, consider potential use of integrating competency-based assessments to generate competency reports and evaluate EPA's

Background: Many schools struggle with incorporation of competencies into their assessment frameworks. Some key questions are: how can we evaluate more challenging competencies like SBP and PBL&I and what constitutes a meaningful competency report for students? At Hofstra NS-LIJ School of Medicine, small group and clinical skills learning comprise a large portion of faculty-student interactions and are potential sources of meaningful assessment data in competencies outside of medical knowledge, the results of which can be integrated to build competency reports and assess EPAs.

Methods: Students are directly observed by faculty in small group and clinical skills for intense periods of time; 60 hours for small group and 30 hours for clinical skills/12 week course. Competency is assessed formatively and summatively using behaviorally-anchored rubrics and

includes assessment of: professionalism (e.g. Ready to participate at start of sessions; demonstrates respect and sincerity with patients); PBL&I (e.g. Creates and comments upon an action plan from group to group; reflects upon most difficult part of patient encounters); and, SBP (e.g. Every time when leader, demonstrates the ability to manage the team and coordinate the activities of team members). At the end of each year, students receive a competency report that aggregates data from these sources and identifies areas for improvement.
Reflection: Competency assessment is evolving in all aspects of medical education. At the pre-clinical level, competency assessment in PBL&I and SBP is particularly challenging. We are developing innovative ways to assess and aggregate data for these competencies through a case based and clinical skills curriculum that provides meaningful learner feedback and can ultimately assess EPAs.

Short Communication 26: Promoting Success for the Learner in Difficulty: Individualized Academic Support in a Group Setting

C.M. Woolf, T. Kedian, S. Wellman
University of Massachusetts Medical School

Objectives: The goal of this session is to present an innovative approach to support pre-clinical medical students having academic difficulty utilizing evidence based modalities promoting improved retention of content, problem solving, and test taking skills which students can implement throughout their academic careers. Presenters will describe the curriculum and its evidence base.
Background: It is estimated that 3% of all medical students have a diagnosable learning disability, [1] which likely underestimates the numbers of students challenged by specific learning, organization, and performance problems. There is very little national data[2] to guide the educator searching for 'best practices' to approach a challenged learner. In response to these challenges an independent study course was developed.
Methods: Students experiencing academic difficulty during the preclinical years may extend the duration of their medical studies in order to decrease their workload. To increase their chance of academic success, these students are enrolled in an independent study course where they work in a group under the supervision of faculty with expertise in study skills and academic remediation. Curriculum is individualized and includes creating study schedules, organization systems, and other tasks. Active learning and peer teaching techniques are emphasized. The approach reflects Guerrasio's [3] in which remediation is "tailored to individual learners, closely supervised and includes deliberate practice" (p.51).
Reflection: Students reported gaining skills that they will implement as they continue in medical school and benefiting academically and emotionally from the support of their peers. Students accessed professional support in group and individual format throughout the semester and these services remain open to them. Longitudinal outcome data are not yet available to show the impact of the services provided. Students may benefit from the skills learned, but are likely to continue to face challenges during their medical education. The course curriculum will be modified in order to support the individual students enrolled.

Short Communication 27: Developing Knowledgeable Advocates through an Exploration of Correctional Health

R. Aziz-Bose, J. Randall
University of Massachusetts Medical School

Objectives: The CH Elective was designed to achieve the following objectives: 1. Impart fundamental principles of CH and care of underserved populations. 2. Facilitate mutual learning between health professions students and incarcerated individuals. 3. Strengthen community for

medical and nursing students interested in prison health. 4. Supplement medical school "Determinants of Health" curriculum.
Background: Correctional health (CH) is a crucial public health issue.[1] In 2012, nearly seven million Americans were under correctional system supervision.[2] Increased medical trainee awareness of prison health better prepares future providers to work with these medically and psychosocially complex patients, and strengthens students' sense of social responsibility.[3]
Methods: - Developed interactive lecture series for medical and nursing students, inviting CH experts to present on their specialties: Correctional System Overview, Geriatrics, Adolescents, Mental Health, Research, and Prisoner Reentry. - Coordinated a program for elective participants to shadow healthcare providers at a local men's prison.
Reflection: - In reflections after course completion, approximately 90% of participants reported increased comfort with the correctional population, greater understanding of the unique concerns of CH, and increased confidence in their ability to advocate for patients with a history of incarceration; 100% of students would recommend the experience to others. - Future initiatives include: inviting prior offenders to speak; expanding the shadowing program; and incorporating tenets of service learning, in partnership with the UMass initiative teaching health workshops at MA Department of Youth Services juvenile corrections facilities.

<u>Short Communication 28:</u> The Nth Dimensions Sawbones Bio-skills Workshop: A Hands-on Short-term Exposure to Increase Diverse Medical Student Interest in Orthopaedic Surgery and Improve Clinical Musculoskeletal Fund of Knowledge

C.A. Pean[1,2], S. Fong[1], M. Hausman[1], G. Butts[1], H. Murphy[2,3], B.S. Mason[4]
[1]Icahn School of Medicine at Mount Sinai, [2]NYU Hospital for Joint Diseases, [3]University of Cincinnati College of Medicine, [4]Nth Dimensions Educational Solutions Inc.

Objectives: 1. Improve medical student interest in orthopaedic surgery as a career through short hands-on surgical skills activities led by attending physicians. 2. Increase medical student knowledge of musculoskeletal medicine including disparities in musculoskeletal health and clinical topics. 3. Assess the impact of a structured one day exposure to orthopaedic surgery and musculoskeletal topics on medical student self-rated clinical confidence. 4. Increase the number of medical students from underrepresented backgrounds in orthopaedic surgery through early exposure to the field and mentorship. 5. Track longitudinal outcomes for medical student participants compared to assess long-term impact of this program.
Background: Orthopaedic surgery continues to lag other medical fields with regards to gender and ethnic makeup of its residents and attending physicians[1,2]. Nth Dimensions is a physician-founded non-profit organization whose mission is to increase the number of women and underrepresented minorities (URMs) in Orthopaedic Surgery. This study sought to assess the impact of the Sawbones Bio-skills Workshop (SBW), a one-day exposure program to address documented deficits in medical student musculoskeletal (MSK) knowledge and increase the diversity of orthopaedic surgery through early mentoring[3,4].
Methods: An eight-hour workshop consisting of didactic sessions, a mentoring panel, and 4 sawbone surgical skills stations was conducted for a group 35 medical students. Demographics were recorded for all participants. A 40 item pre and post workshop survey questionnaire assessing student MSK confidence using a 5-point Likert scale was distributed. A 10- question subset of the previously validated Freedman and Bernstein MSK knowledge assessment was included as well 3. Paired student t-tests were used to assess continuous variables. Pearson's Chi-square and Odd's ratios were used for categorical variables. A p-value threshold of 0.05 was used to determine statistical significance of associations.
Results: Twenty-one students completed the pre and post-workshop questionnaires for paired analysis. 43.4% were URM students and 65.2% were first year medical students. Significant increases in MSK physical exam confidence (1.67±0.97 vs 2.81±0.93, p-value<0.001), and

percent correct questions on musculoskeletal clinical knowledge (24% vs 54%,p-value<0.001) were observed. 100% of participants responded that they would attend a similar workshop in the future and 94% agreed the workshop increased their interest in orthopaedic surgery.
Reflection: Initial results suggest the SBW is a successful platform for increasing medical student musculoskeletal knowledge as well as interest in orthopaedics. Despite improvements, MSK clinical confidence and knowledge among medical students who participated in this module remained low. This may be accounted for by the large proportion of pre-clinical medical students in this cohort. Further analysis to discern the longitudinal impact of this program on medical student MSK knowledge retention and eventual career choice is necessary.

Short Communication 29: Personal Information Management for Early Clinical Experiences: Digital Footprints, Medical Apps, and the Law

T. Murray, J. Kilham, T. Cassese, M. Wilcox, J. Herbst, B. Kelly
Frank Netter MD School of Medicine Quinnipiac University

Objectives: By the end of this sessions, students will be able to: 1) Define their digital footprint and create a professional virtual self. 2) Describe medical student and clinical preceptor use of social media and technology on the web and mobile devices. 3) Demonstrate a personal information management plan, its components and relevance to clinical practice. 4) Articulate appropriate strategies for the use of social media and mobile technology in healthcare and describe the current legal view of medical liability in the age of medical apps.
Background: Social media and mobile medical applications are increasingly used by physicians to communicate with patients and inform medical decision making. This session brings the expertise of an information security expert, a lawyer with healthcare expertise, medical librarians and physicians to formally educate students in the appropriate and professional use of social media and mobile medical apps while developing their own personal information plan.
Methods: Students rotate through three 30 minute interactive sessions. Session 1- Lawyer and physician discuss legal implications of mobile apps in medical decision making. Session 2 - Librarians review vetting and the use of common mobile apps. Session 3 - Information security expert discusses digital footprint and social media in healthcare.
Reflection: Strengths: This is an interdisciplinary approach to teach the use of social media and mobile medical applications, two increasingly common technologies encountered in clinical practice. Limitations: Lack of data on the impact on practice. Future directions include developing assessment tools to determine how this event impacts student use of mobile medical applications and social media in Y3-Y4.

Short Communication 30: Close to Home: High School Students Engaging in Community Health Assessment as Part of a Pipeline Program

N. Sohler, H. Avdovic
Sophie Davis School of Biomedical Education

Objectives: Our course, Community-Oriented Primary Care (COPC), is the introductory part of a two-year pipeline program, TITLE, which aims to recruit high school students with talent in the sciences to pursue a college education in the medical field. In addition to traditional strategies used by medical school pipeline programs throughout the country, including mentorship and coaching in writing, science, and the college application process, TITLE has added a novel component, COPC, which will give students an opportunity to engage with their local community, learn about social determinants of health, and develop enthusiasm for community-based health care.

Background: COPC was adapted from a course at Sophie Davis, a 7-year medical school that emphasizes primary care and health care for underserved populations. The course teaches a strategy for community-oriented primary care that was initially described by Wright.[1]
Methods: COPC is a student-led course. Graduates of previous years are coached to mentor participants by a PhD-level Epidemiologist. Student mentors offer small group discussion of readings from the peer review literature and newspapers. Most of the course is centered on a community health assessment of the participants' home neighborhood, using internet research, analysis of NYC Department of Health and Mental Hygiene databases developed specifically for this class, structured neighborhood explorations, and key informant interviews. Participants are taught to present their work in posters and oral presentations at the end of the summer.
Reflection: The strengths of COPC include student-mentorship, focus on local communities, and introduction to strategies for health care professionals to make a positive impact on entire communities. Limitations include the brevity of the project and lack of time to design and implement interventions. In the future, we hope to link the work done by students over time to allow students to participate in larger projects that are longitudinal in nature.

Short Communication 31: Teaching IPEP (Interprofessional Education and Practice) in graduate level health professions education through spaced-delivered mini online learning modules

S. Oh, S. zabar, J. Adams, L. Altshuler, S. Greenberg, T. Cortes
NYU School of Medicine

Objectives: To address the need for sustainable interprofessional education and practice (IPEP) at the graduate level health professions education, the NYU School of Medicine (SoM) and College of Nursing (NYUCN) designed mini online primary care (PC) learning modules. By implementing the mini-online spaced learning modules, we aimed to: - Improve the interprofessional practice of residents and nurses - Design a more accessible and sustainable IPEP curriculum - Optimize learning efficiency and effectiveness - Effect attitudes towards IPEP.
Background: How can we enhance the interprofessional skills at the graduate level healthcare professionals across schools? To overcome the barriers like limited learning space, lack of qualified faculty, and heterogeneous curricula, NYU SoM and NYUCN decided to reuse the undergraduate online IPE modules, NYU3T: Teaching, Technology, and Teamwork. Although this solution enabled to save efforts in the module production, it remained challenging to ensure the effectiveness and efficiency for the graduate level learners. Therefore, we redesigned the NYU3T modules based on multimedia design principles and cognitive learning theories.
Methods: Based on the authentic learning and cognitive flexibility theories, the graduate level IPEP modules focused on realistic examples of interprofessional skills and virtual patient cases. The reflective questions, instead of multiple-choice questions, were asked to encourage critical thinking and attitude shift. To improve learners' information processing, the long modules were segmented into "bite-sized" 10-minute modules. The segmented design of the new IPEP modules also facilitate spaced learning distributed by emails with links and ntegration into any curriculum. NYU SoM's PC residents and NYUCN's post master's program nurse practitioners completed the eight IPEP modules prior to their geriatric clinical intensive course. Educators could include the learners' responses in the course.
Reflection: The qualtitative data from the pilot study is under analysis. So far, 15 learners all rated the IPEP modules very positively (4.5 out of 5) on the built-in rating system. The pilot study result will help us: - Update the modules - Disseminate the modules to larger GME and NP program. To evolve the current design, we will create more virtual patient cases, measure changes in attitudes toward inter-professional health care teams and the team approach to care, and review optimal spacing of the modules and analyze the log data to capture learning behaviors.

Short Communication 32: The TED toolbox: Using TED to Enhance Graduate Medical Education

N. Fiacco, J. Cheringal, L. Byars, J. Hartzell
Walter Reed National Military Medical Center

Background: Graduate Medical Education (GME) presents unique challenges for both teachers and learners. Apart from developing medical knowledge, there are innumerable topics that must be addressed in medical education to include, but not limited to medical ethics, leadership, cost conscious care, mindfulness and mentorship.

Objective: TED (Technology, Entertainment, Design) is a free, online resource that provides short presentations on a variety of topics. Speakers at TED are often leaders in their field and present novel ideas regarding such topics in their area of interest. The topics are vast; many of which are very important to developing young leaders in medicine. This communication will provide a process for using TED as a conversation starter among members in GME programs.

While guiding young medical professionals, leaders in GME may often find it difficult to initiate discussion on certain topics. On the other hand, ideas on such topics presented by a group of like-minded individuals may lead to stagnant discussion. TED offers a unique portal through which new ideas for discussion on important topics can be introduced.

Reflection: This communication will address utilization of TED as a tool to start conversations in GME. The session will begin with a first-hand demonstration of our TED toolbox within a mentor/mentee relationship complete with a short TED talk. This demonstration will be followed by an introduction to TED and why TED is a valuable and underutilized resource for leaders in GME. Included in our discussion will be a description of our own successes with starting important conversations within our program. The session will conclude with an in-depth discussion of the toolbox and how it may be utilized. Interested parties will have the opportunity to signup to receive the TED toolbox to take to their home institutions.

References:

1. www.ted.com

Short Communication 33: Nursing and Medical Student Reflections on Patient Care and Advocacy -- a qualitative comparison

M. Biswas, A. Poisson-Irani, D. Hatem, M. Fischer,
University of Massachusetts Medical School

Objectives: To identify and compare the themes of reflective essays written by nursing and medical students as part of an inter-professional curriculum.

Background: Reflection has become an increasingly accepted component of experiential medical education. Perceived benefits include encouraging learners to consider their experiences more deeply and engage in discourse which may lie outside the formal curriculum or for which there may be limited time on busy clinical services. We offer an inter-professional curriculum for students from our Graduate Nursing and Medical Schools, incorporating reflective writing and discussion into one session. This work is designed to identify themes about which students write and consider whether those differ between students of each profession, in order to inform ongoing curricular development.

Methods: Approximately 150 students from the Graduate School of Nursing and Medicine at the University of Massachusetts were asked to reflectively write about an experience related to advocacy during their clinical experiences. Nursing students had varying levels of clinical exposure, while medical students were in their core clerkship year. Reflections were de-identified and coded using an iterative process with codes previously identified in the literature and generated by experienced faculty, including major themes, tone, and level of reflection.

Writings were coded by 2 authors to achieve consistency and then were coded to saturation of new codes. Ultimately all writings were coded to determine relative frequency of themes.
Results: We will present data regarding major themes identified, and similarities and differences between theme, tone and level of reflection in writings of nursing and medical students.
Reflection: A potential limitation is that although students and nurses rotate through multiple different hospital systems, the study includes students from one medical school and one nursing school. Conclusions will be based on data as reported and authors will identify potential next steps to incorporate findings into curricula.

Short Communication 34: Improving longitudinal medical education for MD/PhD students
N. Theodosakis, K.P. White, J.A. Encandela
Yale School of Medicine

Objectives: Our goal is to evaluate characteristics of longitudinal education sites that best promote enhancement of learning and preservation of clinical skills, allowing MD/PhD students to better thrive in their roles as physician-scientists. Findings may also inform creation of LCE's within traditional MD curricula, reflecting growing acknowledgment in medical education of the need for instruction of students in the nuances of outpatient care.
Background: Historically, medical schools have better prepared students for delivering inpatient care than outpatient disease management. While several schools have instituted longitudinal clinical experiences (LCE's) as part of their curricula1, 2, there is still considerable variability in students' exposure to long-term outpatient care. Preparation of MD/PhD students has been additionally complicated by possible deterioration of existing clinical skills during laboratory research years.
Methods: Our institution attempts to address both issues by allowing MD/PhD trainees to attend clinic half a day per week during research years at multiple adult primary care centers. Several years after program commencement, we are using student interviews and focus groups to learn how experiences: (1) strengthened clinical knowledge and skills; (2) informed patient interaction style; (3) provided interprofessional education on team roles; and (4) reinforced scientific research. Interviews have been one-on-one, with focus groups to include 4-6 students per site. Grounded Theory3 is used to analyze narrative data.
Reflection: Our primary strength is the wealth of data generated by our open-ended approach, facilitating broad identification of themes and actionable critiques. This may simultaneously prove limiting, however, as divergent responses may necessitate followup questioning. Future studies may expand investigation to MD students participating in LCE's, as well fields beyond primary care.

Short Communication 35: Introducing Senior Medical Students to Collaboration with International Thought Leaders using Web-based Online Meetings
A.Doshi, F. Guyette, J. Rittenberger, C. Callaway
University of Pittsburgh

Objectives: Integrate international experts in the field of Resuscitation to a local senior medical student seminar course in a cost-effective and interactive forum.
Background: Resuscitation experts, as those in other medical fields, live in geographically diverse regions. The development of both clinical care protocols and novel research in Resuscitation requires collaboration with multiple experts, as their knowledge may be contextual and affected by local social, ethical, and legal constraints. Medical students learning about cutting edge research and treatment in the field of Resuscitation may benefit from interaction with these thought leaders. Direct, face-to-face interaction is impossible due to cost constraints.

Methods: The Science of Resuscitation is a pre-existing Integrated Life Sciences selective at the University of Pittsburgh School of Medicine. The course is limited to 10 Senior students per session. Enrolled students match in variety of specialties. The course focuses on the reading and evaluation (using GRADE methodology1) of primary articles about diverse topics in the field of Resuscitation. Other elements of the course include laboratory sessions, simulation sessions, and direct patient interaction. To further discussion of Resuscitation topics, authors of primary articles unable to be physically present at the course were invited to 'attend' using web-based meeting tools (ex: GoToMeeting). Invitees included scientists from North America, Europe, Asia, and Australia. Both individual meetings and panel discussions were held using local and remote authors. Students prepared for these experiences by reading the authors' relevant articles and preparing specific questions for the authors.
Reflection: Students enjoyed using web-based meetings to interact with primary Resuscitation thought leaders, rating experiences as comparable to other, face-to-face methods of instruction. Limitations include: need to plan for time differences and technical challenges with hardware and software. The scalability of this method of instruction for large group settings or for longer courses was not assessed.

Short Communication 36: A Structured Mentoring Experience to Build Global Health Leadership Skills

C.J. Dresser, M. Bisanzo
University of Massachusetts Medical School

Objectives: The goal of this training module was to familiarize a medical student with the principles of global health leadership and the practical implementation of these principles as applied to the case study of a field leadership position in a non-governmental organization (NGO) that trains advanced-practice emergency nurses in rural Uganda.
Background: Most doctors receive minimal leadership or management training during their education.[1] This education gap can be especially problematic in the context of global health, where unproductive projects implemented by well-intentioned but untrained or inexperienced individuals abound.[2] Professionalization of the practice of global healthcare delivery will require improved training of medical students and physicians in the non-clinical skill set necessary for the successful execution of future leadership roles in global health.[3]
Methods: This training module consisted of one week of mentoring and self-study projects. Self-study projects included assigned readings, interviews with NGO staff, and creation of a Leadership Plan that integrated theoretical and practical concepts taught in the module into a structured approach to assuming a field leadership role in the case study organization. Mentoring consisted of meetings and other communication to discuss concepts and practical issues covered in the course and to provide formative feedback on the student's Leadership Plan.
Reflection: The combination of self-study and mentoring promoted individual examination of concepts and management approaches within a framework that allowed for iterative feedback drawing on the mentor's practical experience with the case study organization. This training provided critical orientation and allowed effective benchmarking during the student's transition into the role of Uganda Program Director with the case study organization two months later. The principal limitation was difficulty distributing mentoring sessions and self-study time within the one-week timeframe. Future students may benefit from longer timeframes allowing for a additional mentoring sessions separated by time to complete self-study projects.

Short Communication 37: Measuring an organization's culture of feedback; can it be done?

S. Rougas, B. Clyne
Warren Alpert Medical School of Brown University

Objectives: To develop a modified organizational culture (OC) tool based on the competing values framework (CVF) to measure formative feedback culture. Specific objectives are to: 1) Define OC and its relation to formative feedback culture 2) Examine the application of the CVF to formative feedback culture in the ED 3) Assess the feasibility of applying a novel tool based on the CVF to a cohort of residents in a major academic ED

Background: New regulations have forced academic organizations to implement wide-ranging changes to accommodate new milestones and their assessment[1]. This poses a challenge to residencies that depend upon formative feedback from faculty as a major source of data for determination of advancement in training level. As assessment has shifted towards competency-based milestones, the quality and richness of this formative feedback has become even more critical than before. One model that has potential to measure the success of necessary changes in an organization's approach to feedback is organizational culture (OC), which is commonly used to assess organizational success in the business sector[2]. Though various measures have been implemented across institutions to improve formative feedback to residents, there currently exists no tool that can objectively measure the organizational culture that surrounds this process. One commonly used tool to quantitatively measure OC that is based on the CVF (see supplemental data) is the Organizational Culture Assessment Instrument (OCAI). Given its widespread use, multiple validation studies, and applicability to survey research, the OCAI was chosen as the model tool. This study postulates that formative feedback is related to an organization's culture—that a unique organizational culture of feedback exists within academic departments that can be measured[3].

Methods: This was a single-site, mixed-methods survey design study which was completed in three phases: 1) application of an existing OC tool to formative feedback, 2) pilot testing, and 3) data collection. The primary outcome in this study was the mean score of each of the 16 questions in the formative feedback culture tool (FFCT), measured from 0 to 100. The FFCT (see supplemental data) is a modified version of the OCAI which originally contained six content dimensions based on each dimension's ability to reflect key values and assumptions within an organization. Convergent and divergent properties were assessed using a multitrait-multimethod matrix.

Results: A total of 26 residents (55%) participated in the study. The overall archetype of this cohort based on the CVF was the Market archetype (externally focused with control). The Clan and Adhocracy archetypes had the strongest and weakest convergent validity, respectively. The Hierarchy and Adhocracy archetypes had the strongest and weakest discriminant validity, respectively (see supplemental data).

Reflection: Based on our results, a modified OC tool can feasibly be utilized to identify the primary formative feedback archetype of a cohort of residents, despite the overall small sample size. Future studies should examine the generalizability of the FFCT outside of one institution as well as address the weak validity evidence of the Adhocracy archetype in the FFCT.

Short Communication 38: Academic Half Day: An Old Bottle, With A New Wine

R. Belforti, L. Meade, M. Rosenblum
Baystate Medical Center

Objectives: The Baystate Medical Center Internal Medicine Residency Academic Half day is an educational innovation that transformed resident education from a daily lecture to an weekly 4-

hour interactive educational experience that utilizes active learning techniques such as the flipped classroom and team based learning.

Background: In an era of duty-hour restrictions and increasing demands on patient throughput, internal medicine residency programs are looking for new, more effective ways to meet the ACGME requirement of providing residents a didactic series on core medical knowledge. Many internal medicine residency programs have abandoned the traditional noontime lecture for an academic half day, in which all residents come together once weekly for longer designated periods of time, providing the opportunity for deliberate sequenced curricular content, protected learning time for residents, and encouragement of resident preparation and accountability for learning1. In September 2013, the Baystate Medical Center Internal Medicine Residency implemented an academic half day (AHD) to replace noontime lectures.

Methods: The Baystate AHD is a mandatory conference for all medicine and medicine-pediatric residents on Tuesdays 1-5pm, comprised of four 50-minute sessions. This conference provides residents with protected learning time in which attendings cover all patient care responsibilities. Principles from team based learning and the "flipped classroom" have been incorporated into each session to provide an interactive learning experience. Each academic half day is focused on one main topic, residents are provided with mandatory pre and post-reading articles, complete multiple-choice tests based on these readings, participate in small groups working through patient cases with questions focused on highlighting pathophysiology, clinical presentation, diagnosis, management, and up-to-date evidence based medicine. Each small group learning activity is coupled with an interactive didactic overview by a designated subspecialist. The small group learning activities are developed by a senior resident in conjunction with an AHD course director and subspecialist. Each subspecialist is provided with literature on interactive didactic techniques and feedback on their presentations to provide a faculty development experience. Other AHD sessions include Evidence Based Medicine, Physical Diagnosis, Board Review, Doctor-Patient Communication, Intern Intake, Quality Improvement, Morbidity and Mortality, Pathology, and Residency Committee.

Results: Ninety percent of the residents completed an AHD mid-year evaluation. 100% of interns, 88% of second year residents, and 77% of senior residents rated the AHD as a better educational experience compared to the traditional noontime lecture. Qualitative analysis results showed that interns felt the AHD is a clear, organized curriculum that provides focused learning for both inpatient and outpatient settings. Second year residents focused on AHD providing an opportunity for topics to be covered more thoroughly and in a practical manner that allows knowledge to be applied to the clinical setting. Senior residents highlighted the protected time for education in which they are reading more and spending more time in education.

Reflection: The Baystate Medical Center Internal Medicine Residency AHD has proven to be a positive educational change, utilizing the format of a traditional classroom setting but altering the content to be focused on case based, small group learning coupled with interactive subspecialist didactic lectures to provide an experience to promote life-long learning. An unexpected outcome from our AHD has also been an enhanced sense of community within our residency program with residents, attendings, and subspecialists learning and teaching together.

Short Communication 39: Evaluation of Visual Acuity and Refractive Error After Implementation of Advanced Resident Training

B.Y. Hong, T. Chou, A. Abazari, R. Honkanen, K. Kaplowitz
Stony Brook University School of Medicine

Objectives: To use outcomes-based measures to determine if a change in the ophthalmology resident curriculum impacted visual outcomes after cataract surgery.

Background: To improve resident cataract surgery outcomes as measured by visual acuity, a new structured curriculum was instituted focusing on biometry. In order to measure if the new curriculum contributed to improved patient outcomes, we used continuous outcome measures by having the residents track their refractive outcomes. We hypothesize that surgeries done after the new curriculum result in less refractive error.
Methods: 242 cataract surgeries performed by residents after the curriculum change(Group A) were compared to 223 cases performed by 4 residents before the new curriculum(Group B). The target refractive error was compared to the actual postoperative refractive error. The mean absolute difference(MAD) between the target and final refraction was compared with a student's t-test.
Results: The mean axial length and age were similar in both groups. In Group A, 36.8% of patients had a MAD<0.25 diopters, vs 18.4% in Group B. The MAD was<0.5 diopters in 71.1% of Group A vs 42.6% of Group B. The MAD was<1 diopter in 94.2% of Group A vs 74.4% of Group B, all with $p<0.05$. The best corrected visual acuities were similar in both groups, with 83% in Group A vs 80% in Group B finishing with 20/25 or better, $p>0.05$.
Reflection: Residents' refractive predictions significantly improved after initiating a formal cataract curriculum, demonstrating that improvements in resident surgical outcomes are possible with a structured curriculum reinforcing outcome measures. The refractive results of our residents were similar to other residency programs[1] as well as to a large study of practicing ophthalmologists.[2] Shortcomings include it being retrospective and not controlling for the variety of surgical cases (including risk factors for poor refractive outcome) and the starting skill level of different residents.
References: 1. Gale, R. P., Saldana, M., Johnston, R. L., Zuberbuhler, B., & McKibbin, M. (2009). Benchmark standards for refractive outcomes after NHS cataract surgery. Eye, 23(1), 149-152. 2. Behndig, A., Montan, P., Stenevi, U., Kugelberg, M., Zetterström, C., & Lundström, M. (2012). Aiming for emmetropia after cataract surgery: Swedish National Cataract Register study. Journal of Cataract & Refractive Surgery, 38(7), 1181-1186.

<u>Short Communication 40:</u> Noontime Medicine Chief's Case: A Model for Resident Active Learning

J.R. Scott, N. Berberi
Winthrop Univeristy Hospital

Objectives: We investigated our noontime Chief's Case as an innovative instructional method in active learning and retention of clinical reasoning.
Background: Although well-established, medical resident case conferences lack sufficient active learning to impart knowledge and self-efficacy applied to routine patient care.[1] We conducted a longitudinal study (2014) as an interactive instructional model for follow-up application to clinical practice at our regional medical center.[2] We assessed the one-hour weekly Chief's Case for resident competency and facilitation using active learning strategies that reinforce and retain clinical decision-making concepts (e.g., team-based learning; audience response technologies, etc.). Outcomes answer whether an innovative, active learning Chief's Case Conference improves resident knowledge, skills and attitudes in clinical decision-making.[3] Findings may also support resident ACGME competency and Milestone assessments.
Methods: Our validated Chief's Case Assessment Scale identifies medical residents' knowledge and self-efficacy. Variables: diagnostic guidelines and resources; clinical decision-making strategies; and team communications. The curricular intervention includes: small group (by PGY level) team identification of prioritized differential diagnoses; refined large group discussion facilitated by the Chief Resident with faculty expert guidance and audience response system Board-type (MKSAP) quiz related to the unique case.

Results: Residents completed (n=51) the anonymous Assessment Scale (5 pt. Likert scale) as a Pre-Post intervention at each of 8 selected PGY-2 presentation cases. Outcomes, to date, use a paired group t-test (Wilcoxon signed-rank) for mean response differences. We'll present mean differences for variables to include open-ended responses of perceived benefits in our instructional model.
Reflection: Our active learning model can improve resident knowledge and skills retained to routine practice creating changes in clinical decision-making; team communications; and teaching/facilitation strategies measured at six months. Limitations: single institution; sample size/power. Our Chief's Case model provides evidence for knowledge and decision-making retention to patient care.

Short Communication 41: Integrating Integrative Medicine into residency curricula: We CAM do it!

M.H. Stump, S. Warrier
Warren Alpert Medical School of Brown University

Objectives: We assessed the attitudes of internal medicine residents towards the inclusion of an Integrative Medicine curriculum at one institution. We describe the results of this initial assessment, and discuss the future design, implementation, and evaluation of an Integrative Medicine curriculum.
Background: With more than half of the American population seeking the use of complementary and alternative medicine (CAM) along with conventional medicine, the Institute of Medicine now recommends that CAM be incorporated into graduate medical education (1). During internal medicine residency training, our program currently offers two lectures on Integrative Medicine (defined as the appropriate usage of both conventional and alternative methods to promote health and healing). These lectures are limited in scope and reach, and lack standardized learning objectives.
Methods: Using an online survey, we assessed internal medicine resident attitudes towards including Integrative Medicine in the curriculum. This was followed by the creation of a 1.5 hour team-based learning session on Integrative Medicine that will be included as required curriculum during ambulatory months for second- and third-year residents.
Reflection: 60 residents responded to the survey (response rate of 45%). Of residents surveyed, 45% felt either unprepared or somewhat unprepared to discuss evidence based alternative therapies with their patients, and 63% felt unknowledgeable regarding current literature on CAM. 84% of residents surveyed felt that Integrative Medicine should be incorporated into the curriculum, and 85% of residents felt that bolstering their knowledge of CAM would be beneficial to their careers. While the results of the survey are limited by a low response rate, it suggests interest in learning more about Integrative Medicine. We are in the process of creating an evidence-based, sustainable curriculum with defined learning objectives, and plan to evaluate the effect of the curriculum on resident knowledge about, skills in, and attitudes towards Integrative Medicine.

Short Communication 42: Drawing Lessons May Benefit First-Year Medical Students Studying Anatomy or Practicing Surgical Tasks

J. Koskey, P. Bernd
Columbia University College of Physicians and Surgeons

Objectives: Our study explores whether practicing drawing among first-year medical students studying gross anatomy has a cumulative effect on mental rotational ability (MRA) and anatomy-specific tasks such as gross anatomy exam scores and laparoscopy simulation skills.

Background: Both practicing drawing (Winner and Casey 1992) and studying anatomy (Vostenbosch et al. 2013) are correlated with increased MRA. Inversely, MRA correlates with drawing ability (Samsudin et al. 2011) and performance on functional anatomy exams (Guillot et al. 2006), as well as surgical skills (Risucci et al. 2001).
Methods: 67 volunteers completed an initial standardized test of MRA and were distributed into drawing (DG) and non-drawing (NDG) groups with similar n and score range and mean. Both groups concurrently began first-year gross anatomy; the DG was exposed to 10 weekly extracurricular 2-hour drawing lessons following a traditional Western drawing curriculum and employing cadaveric and skeletal drawing subjects. Lessons consisted of 20-minute lectures/demonstrations, followed by drawing with individualized feedback.
Results: Follow-up t-tests reveal greater increases in MRA among the DG, as well as faster laparoscopy simulator peg transfer times. Exam scores during the study period were also higher in DG for the first 2 exams respectively. In addition, the DG demonstrated more increased self-reported confidence in mental rotations, visual-spatial manipulations, and confidence learning anatomy compared with the NDG. Results were not statistically signficant. We controlled for factors known to influence MRA (age, sex, histories of visual arts, target sports, videogames, chess, and other mental rotational tasks). (Please see table #1.)
Reflection: These results, though not significant and obtained from volunteers, encourage further investigation into the efficacy of drawing lessons as a supplement to first-year medical student anatomy or surgery curricula, and suggest that the hypothesis that drawing and anatomy study have additive effects upon MRA also warrants further testing.

Short Communication 43: Creating Faculty and Student Dialogues for Course Enhancement

J.A. Encandela, M Than, F. Galerneau
Yale School of Medicine

Objectives: (1) Learn about an advisory group model for encouraging faculty reflection and student feedback on courses, leading to open communication about ways of enhancing courses in the future; (2) Hear results and perspectives about this process from advisory group participants.
Background: The period just after a medical school course is completed is ideal for faculty and students to discuss what worked and what could be improved. Typically, courses are evaluated through written, anonymous surveys completed by students. Without incentives, student response rates are often low. Even with incentives, (e.g., a final exam or grade cannot be accessed until a course evaluation is submitted), the content of feedback from students may be brief and unconstructive. With opportunities for feedback through discussions at the end of courses, students may hesitate if they do not feel a safe environment is provided or because they are not sure about how to offer feedback appropriately. Also, in these discussions, faculty sometimes dismiss feedback points by explaining why student suggestions cannot work. We have adopted an approach that uses facilitated advisory groups of students that meet with course directors to discuss courses. Course directors are given guidance on ways of reflecting on courses, and students are trained to solicit constructive feedback about courses from their peers and deliver this feedback to faculty in a conversational, collaborative manner.
Methods: Educational materials to train faculty and students include: Overview of what constitutes constructive feedback. Guidelines for faculty reflection on the quality of course delivery. Guidelines for student solicitation of course feedback from peers and for selecting key feedback points to offer to faculty. An interactive training in a model for giving constructive feedback that includes a video demonstration of “less” and “more” effective feedback and role plays for participants to practice giving feedback. We will provide more details about these materials and will discuss our experiences with implementing this innovative program.

Reflection: Strength of our model has been a ready acceptance from students and faculty of the model creating dialogues for course enhancement. We have documented improvements in our advisory group processes when both faculty and students are trained in this model. A drawback is that it is time intensive to provide training to all course directors and students. However, when training has been "framed" as development of skills that will be used in many contexts in one's career beyond just the context of course evaluation, the time dedicated to training has been acceptable to participants.

Short Communication 44: Creating a Culture of Service: A Student Led Program during First Year Orientation

C. Thatcher, A. Brancato, M. Fleming
University of Connecticut

Objectives: To provide a volunteer opportunity promoting a culture of service while introducing students to the community To promote student interaction during first year orientation To develop a model service learning program

Background: Service to the community is an integral component of the educational experience at the UConn School of Medicine. Students in the class of 2017 approached the administrative team at the SOM and SODM with concern that their class did not seem engaged in service opportunities, and looked to provide an early experience to emphasize its importance to the incoming class. The idea of using orientation as an opportunity came out of joint discussions with students and faculty.

Methods: Students and faculty worked together to adapt orientation to highlight a new service activity. The activity was designed to introduce students to the community, foster service, and provide students organized time with each other outside of school. All incoming students in the Schools of Medicine and Dental Medicine were assigned in teams to various locations in the surrounding communities in non-medical settings. The activity was followed by a social event to allow students to share their experiences.

Reflection: Strengths: Feedback was very positive. Students especially appreciated working in teams and serving the community.

Limitations: Limitations included a) assignment of sites rather than student selection; b) communication of logistics; c) site preparedness. Site switching by students could be a potential problem although it did not significantly impact the activity.

Future Direction: The program will be overseen by a student committee with rising second year dental and medical students assuming co-leadership. Students will build relationships with community partners. The activity will be linked to ongoing curricular elements such as student reflection. A follow-up service activity in January will reinforce a culture of service and provide additional results.

Short Communication 45: Adding Value to the Assessment of SOM Applicants: A Roadmap to Successful Implementation of the Multiple Mini Interview

M. Manno
University of Massachusetts School of Medicine

Objectives: This presentation will review the process used at University of Massachusetts School of Medicine (SOM) to implement the Multiple Mini Interview (MMI) for all MD and MD/PhD applicants. An outline of the necessary elements and suggested order of steps will be reviewed and serve as a roadmap for successful implementation of the MMI process by a SOM Admissions Office. Results of a follow up survey of applicants who participated in the MMI during the first year of implementation will be reviewed.

Background: Selecting applicants who are best aligned with the SOM's core mission and vision from a large pool of highly qualified applicants is the essential challenge of the admission process. Admissions Officers and Committees use metrics (GPA, MCAT) predict academic success and narrative (personal statement, secondary application, experiences cited) to learn about individual aspects of the applicant's story (motivation, opportunities sought, challenges met). Since neither metrics nor narratives assess the applicant's actual competency in areas essential to effective patient interaction (verbal and nonverbal communication, problem solving, critical thinking), a face-to-face interaction is universally required of every applicant before an admission decision is made. Ideally, this interaction is standardized, unbiased and yields information about the individual which cannot be gleaned from the application.
Methods: The UMass SOM experience with MMI implementation followed a stepwise approach in two phases. Phase one which occurred in Year One (2012-13) involved self assessment, planning and a pilot (steps 1-5). Phase Two, which occurred the following admissions cycle (2013-15), was the first full implementation of the MMI (steps 5-8). 1) Information gathering, education of core staff 2) Buy-in from key stakeholders (leadership, faculty, medical students, SOM Admissions Committee, SOM applicant interviewers) 3) Assessment of physical space and resources (room availability, information technology) 4) Development of a rater pool (faculty, medical students, administrative staff, community, patients) 5) Pilot and failure mode analysis (trial run of IT, space, flow of raters and applicants, data collection mechanism) 6) Logistics of full implementation (applicant and rater sign up, applicant and rater flow, student data collection, IT) 7) Analysis and secondary analysis of data (z-scores are used to compare applicants, raters, scenarios) 8) Feedback from applicants (responding to results of follow up survey of applicants who participated in the MMI) and raters
Reflection: The primary motivation to change to the MMI from the well established traditional interview is to improve the standardization of the face-to-face interaction and produce reliable data that adds value to the process of discerning among similar highly qualified applicants. UMass SOM has had a successful two-year experience with the MMI. Year One (2012-2013) was spent planning and developing infrastructure. It culminated with a successful pilot with students in a SOM pre-matriculation program. A critical first step is faculty, student and staff engagement to ensure that the advantages of the MMI over the traditional interview are discussed and understood. A careful resource assessment and a successful pilot should be undertaken before full implementation is considered. Year Two (2013-2014) was the full implementation of MMI for all MD and MD/PhD applicants, completely replacing the traditional SOM interview. Year Two culminated with MMI participant feedback. Overall student feedback was highly favorable and provided information that informed improvements incorporated into the MMI going forward.

Short Communication 46: A "Near-Peer" Workshop to Facilitate Discussion of Medical Student Wellness and Prevent Burnout

M.L. Chiu, L. Karp, S. Warrier
Alpert Medical School, Providence

Objectives: We created a workshop for first-year medical students to discuss wellness and self-care, and to educate students about available resources.
Background: Medical students experience a higher prevalence of depression and mental illness and higher rates of burnout than the general population; over the course of medical training, mental health tends to deteriorate (1). Suicidal ideation among medical trainees is higher as well, and student burnout is associated with increased risk of suicidal ideation (2). Depressed medical students are likely to be undertreated, in part due to stigma associated with mental illness and lack of self-diagnosis (3). To address student wellness at our institution, we

created a workshop to discuss self-care techniques and educate students about available resources.
Methods: The workshop was conducted for 128 medical students using 1 “near-peer” second-year facilitator for small groups of 2 faculty members and 8 first-year students. This 50-minute session included a written exercise; a burnout survey; discussion of self-care techniques, obstacles to self-care, and challenges facing medical students; and education about available resources. Students completed a pre- and post-workshop survey using a Likert scale, with 5 representing "strongly agree."
Reflection: Of 128 students, 110 completed both the pre- and post-surveys (response rate of 86%). Students agreed that taking time for self-care was important before (98% agree/strongly agree) and after (100%) the workshop. After the workshop, 98% of students agreed/strongly agreed they were familiar with available resources, an increase from 78% pre-workshop. Preliminary qualitative analysis of open-ended questions about workshop strengths identified the following themes: using second-year students as facilitators, appropriate discussion questions, and space for an open and candid discussion. Challenges in implementing this workshop include recruiting and training facilitators, and finding curricular time. Future directions could include tracking utilization of resources and measuring the extent of students practicing self-care throughout their education.

Short Communication 47: Look at What Our Seeds Have Grown

M. Picchioni
Baystate Medical Center/Tufts University

Objectives: 1) Report the proportion of successful outcomes from seed grants suppoting innovation in medical education 2) Report the types of successful outcomes from seed grants suppoting innovation in medical education
Background: While there are many decades of experience to draw from, medical education is a fledgling science. Much room exists for the growth and advance of educational content and techniques. Unfortunately, there is little in the way of available support in terms of resources such as time and money to develop these. In 2004, the Dean of Tufts University School of Medicine committed to funding seed grants for innovation in education. The program has been sustained ever since largely due to what is perceived as a good return on investment.
Methods: Each year proposals are sought from all medical school faculty. Typically 4-6 grants are awarded in amounts between $10-20,000. One of the school's clinical affiliates has received a large proportion of these grants. Of the 16 grants awarded to this institution 10 remain an active and vital part of the current curriculum for medical students in their clinical training. We share these as examples of sustainable advances in education that have been internally funded.
Results: Examples: (full list to be included in presentation) Ethics Curriculum - Case based workshops Feedback Training - for Residents as Teachers Simulation - Simulation cases for students in Medicine and Surgery Longitudinal Clinical Experience - for students that runs parallel to core clerkships Pre-Internship Boot Camp - training to prepare students for additional clinical skills needed to begin residency
Reflection: We believe that modest seed grants can have great outcomes as evidenced by our experience. Certainly not all projects succeed but for over 50% of these projects have a lasting impact is quite encouraging. Much of the value of these educational advances stems from the depth of development and refinement that went into each of them. Without support some of them may have been spawned anyway but it is unlikely that they would be nearly as robust.

Short Communication 48: Medical Students' Preferences Regarding Preclinical Exam Scheduling: Implications for Improving Student Well-being

K.L. Jayakumar, J.R. Kogan
Perelman School of Medicine at the University of Pennsylvania

Objectives: To determine the impact of preclinical exam scheduling on medical student well-being.

Background: Burnout among medical students is prevalent and can be severe[1]. Burnout has been associated with adverse psychological symptoms and professional manifestations. Interventions to reduce medical student burnout have preferentially focused on reactive wellness and stress management programs rather than on changes in the learning environment and curriculum[2]. Recently there have been calls for research evaluating whether institutional and curricular interventions can improve student wellness[3]. Though exam-related stress in medical students is prevalent, the impact of exam scheduling on medical student well-being has not been studied.

Methods: We administered a 36-item web-based survey to all first-year and second-year medical students attending the University of Pennsylvania Perelman School of Medicine in October and November 2014. Survey items asked about demographics, exam scheduling preferences (preferred days of the week to take exams), and attitudes about how exam day scheduling influenced ten burnout-associated or educationally relevant factors.

Results: The survey response rate was 56% (190/339). The majority of respondents preferred Friday exams (73%, n = 139) and least preferred Monday exams (58%, n = 112). Students selected Friday as the exam day most likely to result in increased quality of life (74%, n = 134); improved work-life balance (79%, n = 137); increased ability to pursue leisure activities/outside interests (79%, n = 137); improved mental health (62%, n = 108); decreased stress level (47%, n = 81); increased ability to visit significant others, friends, and family (81%, n = 139); and increased ability to promptly engage with material in the subsequent course (84%, n = 146).

Reflection: Scheduling preclinical exams on Fridays and avoiding Mondays may be a curricular intervention that improves medical student well-being. Research is needed to determine generalizability of findings and influence of exam scheduling on knowledge acquisition and exam performance.

Short Communication 49: Teaching of the student, by the student, for the student: a palliative care curriculum based in experiential learning and medical humanities

S. Miranda, M. Brennan, S.E. Peyre, S. Brown Clark, T. Quill,
University of Rochester School of Medicine & Dentistry

Objectives: The goal of this curricular innovation is to offer medical students more comprehensive education in palliative and end-of-life care by means of experiential learning and structured reflection.

Background: Undergraduate medical education on end-of-life, palliative, and hospice care is inadequate, despite the fact that training and competency in this area is crucial as our elderly population continues to grow (1, 2). Most curricula fall short in two domains: integration of clinical experiences and formal learner self-reflection (3). Both are essential elements of medical education (4). Here we present recent extracurricular offerings designed to supplement these two components within the University of Rochester's Double Helix Curriculum (DHC).

Methods: Based on third-year medical student responses regarding palliative care in the DHC, learner self-reflection is currently limited to lecture-based conferences scattered throughout the preclinical years, and required clinical exposure consists of only one three-session home visit experience in the second year. To address this gap, a third-year medical student initiated an elective volunteer program through Visiting Nurse Service, comprised of online didactic

modules, one-on-one visits with hospice patients in inpatient and comfort care settings, and meetings for reflection on volunteer experiences. The same student will also be teaching a medical humanities seminar entitled “Death and Dying in Modern Medicine” to first-year students, to allow them to formulate their perspectives on end-of-life care through dialogues on: death denial in healthcare, origins of hospice, mindfulness practice, grief and bereavement, death and dignity, and compassionate care-giving. This seminar will consist of twelve students, and will be co-taught by a Family Nurse Practitioner with experience in hospice and palliative care. Instructional methods will include a field trip to a comfort care home, discussions run by visiting nurses and clinicians in palliative care, as well as student-directed group reflections on a variety of assigned readings—written by philosophers, physicians, nurses, and the students themselves.

Reflection: The strength of this approach is that it is student-driven on many levels. A third-year student created both the volunteer experience and the humanities seminar, in response to curricular deficiencies perceived by fellow students. Moreover, the seminar itself will be led by the same student and will allow each participant to serve as a discussion leader. The small class size also facilitates experiential learning through field trips and deeper self-reflection through group bonding. Current student volunteers who were eager to learn more about this domain have subsequently enrolled in the seminar, suggesting that perhaps these pilot initiatives could lay the foundation for a longitudinal, “selective pathway” curriculum in palliative care that would be sustainable in future years. This pathway might include a follow-up medical humanities seminar in second year and formal clinical electives in palliative care and hospice in third year. Finally, the inter-professional instruction featured in the seminar represents another innovation, as early exposure to the nursing skill set can encourage medical students to seek interdisciplinary collaboration in end-of-life care. However, while the elective nature of these experiences frees this program from logistical constraints, it cannot reach all students. Broader, compulsory exposure for all medical students would certainly be preferable, but further administrative involvement would be required for incorporation of this initiative into the core curriculum. Nevertheless, timing these activities in preclinical years allows students to build competency before they are confronted by end-of-life issues on the wards, and permits more sophisticated reflection during clerkship experiences.

Short Communication 50: Path Week!: A Novel Elective for Third-Year Medical Students

D. Kandil, V. Vanguri
University of Massachusetts Medical School

Objectives: The goal of this project was to design an elective for third year medical students to better understand the clinical practice of pathology.

Background: Although medical students are exposed to pathology as a foundational discipline in the preclinical years, the inner workings of the clinical practice of pathology are generally not revisited in their clinical education, despite physicians using pathology services for nearly all their patients.

Methods: At the University of Massachusetts Medical School, we have addressed this void in practical clinical knowledge through the establishment of a highly innovative week-long pathology elective for 3rd year students, dubbed “Path Week!” During this 5–day rotation, students are paired up with resident-attending teams and rotate through various subspecialties of pathology, including surgical and clinical pathology, cytology, and autopsy. Each student follows multiple patients’ specimens through the laboratory, reviewing gross and microscopic features and processes leading to finalized reports. Students also attend didactic sessions, clinicopathologic conferences, and tumor boards to understand the role of pathologists in the multidisciplinary approach involved in the care of patients.

Reflection: The number of students enrolling in the elective has increased steadily over three academic years, exceeding 20% of the class size. Due to limited capacity on any given week, more students requested the elective than were able to be enrolled, and student evaluations have been overwhelmingly positive. Although the rotation is designed to provide each student with a better understanding of the field regardless of the eventual subspecialty choice, Path Week! has sparked the interest of several students who decided to pursue their careers in pathology. Future aims are to assess the value of this rotation as part of the core clinical years, and to account for specific career interests by adding focused subspecialty experiences.

Short Communication 51: A proposed curriculum for developing and evaluating motivational interviewing skills for medical students and primary care faculty.

R.S. Avasare, P. Saha, D. Jones
Columbia University College of Physicians and Surgeons

Objectives: --Faculty will report greater confidence in their ability to teach about, observe, and give feedback on MI skills --Medical students will complete an observed counseling session by faculty during the primary care clerkship. --Medical students will demonstrate satisfactory competency in counseling skills during the primary care clerkship.
Background: Motivational Interviewing (MI) is a collaborative, patient-centered and evidence-based style of communication designed to strengthen motivation for behavior change1,2. Prior to our curricular intervention, our school's MI curriculum consisted of 4 hours of classroom training, without the requirement to demonstrate competency; our faculty reported minimal training and variable confidence in motivational interviewing. In 2014 we introduced a new curriculum to improve student competency in counseling skills, enhanced by faculty development.
Participants: 1) Second and third year medical students in the 5-week required primary care clerkship 2) Clerkship faculty.
Methods: --Online tutorials on MI (nationally available) required for students. --Annual 2-hour MI faculty workshop. --Observed behavior change counseling during the clerkship, with feedback from faculty guided by a novel worksheet.
Evaluation: --Measurable outcomes include: faculty ratings on student competency; faculty satisfaction with workshop; and increase in post-workshop faculty confidence.
Reflection: Communication skills taught in the first years of medical school will be forgotten or perceived as irrelevant if they are not reinforced as competencies during clinical training. We found with brief training and a specially designed worksheet to guide observation, clerkship faculty can teach students about MI3. Challenges include faculty time and buy-in for observation in a busy outpatient setting; faculty development at distant sites; and the requirement for a trained MI expert. By engaging faculty through practical and accessible workshops and tools, we can emphasize and reinforce counseling skills that often lose priority in the clinical years.

Short Communication 52: Enhancing the Utility of 4th Year Electives Through Curricular Mapping to the Physician Competencies Reference Set

A.Jasek, S. Quiah, B. Rawson, J. Iyasere, P. Lee
Columbia University Medical Center

Objectives: The Physician Competencies Reference Set (PCRS) was published by the AAMC in 2013 to provide a taxonomy of common learner expectations across eight competency domains.[1] Columbia University College of Physicians and Surgeons has developed a process to create a searchable curriculum database by mapping fourth year elective course learning objectives to the PCRS. This database will be built with goal of helping fourth year students

better select courses that will help them address learning gaps prior to graduation and in preparation for internship.
Background: Curricular mapping allows institutions to build a forest view of knowledge, skills, and attitudes that are being taught across their curriculum.[2] It also aids in articulating course content to be taught and assessed in each elective for students, faculty, and school administration. While curricular mapping is not required by the Liaison Committee on Medical Education (LCME); it can serve as a tool to address several curricular accreditation standards outlined under LCME Standard 8.3
Methods: Learning objectives for each elective available for 2014 were coded and mapped to the PCRS domains by evaluation specialists in June 2014. This information was then shared with inter-departmental representatives at our July 2014 Electives Committee meeting to introduce the mapping initiative and obtain faculty buy-in. Subsequently, an elective course catalogue update survey was developed and disseminated in September 2014 to all elective course directors with instructions to update their learning objectives and map them to the PCRS for 2015.
Reflection: Our analysis of learning objectives in 2014 elective offerings (100) indicated deficiencies in addressing PCRS domains: Professionalism (25%), Systems-Based Practice (29%), Interprofessional Collaboration (21%) and Personal and Professional Development (19%). As of November 24, 2014, 60 of 180 (33%) elective course directors have completed the survey. Preliminary survey results for 2015 show an increase in courses that have mapped learning objectives to Professionalism (92%), Systems-Based Practice (85%), Interprofessional Collaboration (93%), and Personal and Professional Development (90%). One of our key next steps is to inspect that all faculty are accurately mapping their learning objectives to PCRS competencies.Updated learning objectives that are mapped to PCRS domains, will be visible for students in the electives catalogue during the next course enrollment period.

Short Communication 53: Flexible elective time during medical school year three for exploring career opportunities including surgical specialties

D. Perry
University of Massachusetts Medical School

Objectives: Describe a unique career exploration opportunity offered during the third year of medical school at the University of Massachusetts Medical School.
Background: In 2012, the University of Massachusetts Medical School third-year curriculum incorporated four separate weeks as a Flexible Clinical Experience (FCEs) designed to promote career exploration beyond required core third year clerkships. A curriculum of multiple, short elective experiences is relatively rare among U.S. medical schools; a UMass survey found greater than 50% of schools offer no electives during the third year.[1] Since surgical specialty residency positions are highly competitive and many require matching directly from medical school, early exposure to facilitate career decisions and fourth year planning is paramount. Furthermore, 10% of physicians are surgical specialists,[2] yet only 5% of third year time is devoted to surgical specialty rotations.[3]
Methods: Third year students at UMass are required to take FCEs; they can design their own or choose preexisting ones. For self-designed electives, access to alma mater or medical school alumni physicians is a highly valuable resource. For instance, I established an elective in community otolaryngology by reaching out to ENTs from my alma mater via an online alumni database.
Reflection: The strengths of the UMMS FCE program are many, especially for students interested in surgical specialties or fields they have little prior exposure to. Limitations include subtracting time from core clerkships and the short length of electives (1 week). Access to alumni networks, especially medical school alumni, is highly valuable for experiences outside of

academic and tertiary care medicine. Future directions include surveying other medical schools on third year electives and introducing year two pre-clinical students to the FCE model to spark their interest in exploring medical fields outside core clerkships. The vast majority of UMMS students highly rank their FCE experiences,[1] therefore this model will continue to be part of the UMMS curriculum.

Short Communication 54: The Academic Teaching Longitudinal: 4th Year Medical Students as Teachers and Scholars in a Year Long Doctoring Course

A.M. Alerte, K. Hook, T. Sapieha-Yanchak, L.C. Caines
University of Connecticut School of Medicine

Objectives: The Principles of Clinical Medicine is the "Doctoring Course" at the University of Connecticut School of Medicine (UCSOM) and spans the first two years of the medical school curriculum. Fourth year medical students (MSIV) have been utilized as co-preceptors for a number of years, but their role and curriculum has been revised this past year. The objectives have always been to offer senior students specific training as teachers, allow for personal growth, and solidification of skills. The new objectives were to enhance the students' academic development with the introduction of teaching portfolios and focused teaching regarding scholarship and scholarship opportunities.cs of academeic medical education.

Background: The importance of the physician's role as educator has been reaffirmed over the past few years and the role of the medical student in education of peers continues to undergo expansion and refinement. There are many Student as Teacher (SAT) programs (Soriano et al 2010) in existence in medical schools and the role that students take in education are truly diverse. There are many programs geared toward skills development Some use boot-camp formats to streamline skills development early, while others create a longitudinal experience for students as teachers, with frequent, specific educational objectives. The UCSOM program marries the "educator" aspects of the near-peer role (small group mentoring, feedback and evaluation, bedside teaching) over a yearlong course, but adds aspects of scholarship training as part of the course requirements.

Methods: The Principles of Clinical Medicine (PCM) is a Doctoring Course, which combines small group teaching, lectures, and both simulation and real patient interactions. MSIVs participate in all course activities including small group seminars, Clinical Skills /OSCE simulations and in the grading and evaluation of students at the midterm and end of year.Each of the twenty students recruited had a one-on-one interview with the faculty director of the program. This meeting covered individual goals, objectives, weaknesses, and strengths. There was a pre-course academic retreat covering teaching portfolios, educational opportunities and the expectations of the course. There were a number of pre-course seminars covering Adult Learning Theory, Small Group Facilitation, Giving Feedback, Course Evaluations, Fostering Professionalism and a Physical Exam Skills Night. Students are expected to maintain a teaching portfolio, which contains their own goals and objectives and peer/co-preceptor evaluations of their write-up grading, small group facilitation and one-on-one feedback skills. Students were also given instruction on academic matters such as The Scholarly Approach to Scholarship. Additionally there was small group work on "How to Write an Abstract" and "How to Create a Good Poster Presentation". Continuous course and student performance feedback was elicited from both faculty and MSIVs.

Reflection: The role of the MSIV has been evolving and the transition between 4th year and intern is a crucial one. Many programs look at 4th year transition as a time for preparation of procedural and critical thinking skills vital to interns. Teaching is also a vital skill that has always been an expectation at the UCSOM. Fostering that teaching has been a challenge taken up by many schools, but the next step is also promoting the skills of scholarship to early leaners. The limitations are that this is a course in a single medical school. Barriers include a lack of

confidence in own abilities to teach, limited time and student conflicts with other course work or interviews. Future goals include extending this curriculum into other programs at the UCSOM including the residency programs.

Short Communication 55: SOAP-V: Teaching High Value Care During Patient Care

E.M. Moser[1], S. Glod[1], G. Huang[2], S. Fazio[2], C.D. Packer[3]
[1]Penn State College of Medicine, [2]Harvard Medical School, [3]Case Western Reserve

Objectives: Promote the practice of High Value Care among third year medical students using a novel framework called "SOAP-V"

Background: Several educational products support high value care (HVC), defined by the American College of Physicians as "care that balances clinical benefit with cost and harms with the goal of improving patient outcomes",[1] yet an opportunity exists to teach future physicians how to practice HVC at the point of care.[2,3] By modifying the traditional "SOAP" presentation to include a discussion of value ("SOAP-V"), we developed a cognitive forcing function designed to promote discussion of HVC during patient care delivery. The SOAP-V model prompts students to consider: 1) Before choosing an intervention, have I considered whether the result would change management? 2) Have I incorporated the patient's goals and values, and considered the potential harm of the intervention compared to alternatives? 3) What is the known and potential cost of the intervention, both immediate and downstream?

Methods: In summer 2014, we launched a multi-institutional study to implement SOAP-V at Penn State, Harvard Medical School, and Case Western Reserve for third-year medical students during their internal medicine clerkships. Following an interactive workshop on SOAP-V with video and role-play, students received a "SOAP-V" card and used the tool during inpatient rounds. A pre-intervention survey of student HVC attitudes (n=226) demonstrated that although 90% agree on the importance of considering costs of treatments, only 60% felt comfortable bringing up cost considerations with their team, and 50% consider costs to the health care systems in clinical decisions.

Reflection: To date, biweekly surveys and direct observation of rounds verify student use of SOAP-V. Post-intervention surveys will evaluate whether use of SOAP-V impacts the frequency and quality of value discussions on rounds, students' attitudes about cost-consciousness, and residents' and faculty attitudes about cost-consciousness.

Short Communication 56: e-Learning Cookbook: an e-book to support medical educators with practical tips to create effective e-Learning materials

S. Oh
NYU School of Medicine

Objectives: To help medical educators innovate learning via technologies, we provide practical instructional design tips through an e-book. The hands-on e-book will enable medical educators to: - reflect on how educational technologies can enhance learning - choose the appropriate instructional strategies for specific projects - plan and implement e-learning materials in their curricula - write meaningful educational learning objectives - apply evidence-based multimedia learning design principles - obtain available e-learning materials and authoring tools - design and distribute their own pedagogically sound e-learning materials.

Background: Like evidence-based medicine, evidence-based instructional design uses empirical data derived from research. E-learning materials should be informed by evidence-based instructional design principles that are grounded in learning theories and evidence of effectiveness. The very large body of existing research in the field of instructional design can help educators develop stronger e-learning materials. A hands-on e-book will enable faculty to

apply the empirically derived theories of cognitive science and multimedia learning to innovate their teaching.
Methods: First, the readers are invited to think about some questions before creating any e-learning materials: what are my goals?; who are my learners?; how will this be integrated in our curriculum?; which instructional strategies will be useful?; how can technology help? Then the e-book presents a series of "how-to": - Write educationally effective learning objectives and assessment questions, - Plan data analysis - Organize content, - Choose relevant media, - Produce, implement, evaluate e-learning material. Each section of the e-book includes audiovisual examples, useful resources and checklists.
Reflection: The interactive features of the e-book enables to include various media as well as review questions. The e-book format also facilitates an easy distribution of the content beyond our institution. To better respond faculty's needs, we plan to update the content based on the feedback. The first version is in process of internal review. We also should work on the marketing strategy to let a broader public know about the book.

Short Communication 57: Making Faculty Development Accessible Through a Learning Management System

L. Coplit, D. Farber, L. Erardi
Frank H. Netter MD School of Medicine

Objectives: To provide a large cadre of medical school faculty with a centralized repository for faculty development information and resources.
Background: Medical schools face the common challenge to provide all teaching faculty, usually in geographically diverse sites, with educator skills instruction. At the Frank H. Netter MD School of Medicine, a new medical school, we also have an annual faculty development requirement for faculty to maintain their teaching appointments. In 2013, a needs assessment demonstrated that most faculty prefer to fulfill their requirement through online coursework. To meet these needs, we developed a program of live and online educator courses and a centralized faculty development repository within our learning management system.
Methods: All faculty development activities, requirements, and resources are described and organized in a dedicated Blackboard® faculty development organization. The site is designed to guide faculty through the requirements and options by providing an interactive menu that helps them choose sessions based upon the types of activities they teach. The site also houses 10 high quality online educator faculty development courses. A video tutorial to help faculty understand the requirement and navigate the Blackboard site is included on the landing page and the faculty development public website[1]. The Blackboard site includes a "resources" page that links to useful websites, references, presentations and tutorials. Using the site, faculty complete an annual attestation confirming they have reviewed all key school of medicine documents, including the learning objectives for their courses. Each faculty can also view his/her student teaching evaluations via a confidential Blackboard® evaluation and assessment organization that contains additional resources to help faculty improve assessment of students. All faculty teaching and assessment resources are cross-referenced in the faculty development organization and on the public website to provide multiple points of access. [1] Video tutorial http://youtube/V6JjFHfvcQk
Reflection: In the 2013/2014 academic year, 98% of teaching faculty completed their faculty development requirement. While most faculty completed their requirement via live sessions, this high completion rate was likely due to online opportunities and clear expectations detailed on the site. In the future we are planning additional opportunities for remote learning, such as webinars, that can be implemented on the site. We expect greater challenges to maintaining a high completion rate for the requirement once large numbers of clinical faculty begin teaching in the 2015/2016 academic year, and therefore plan to survey faculty regarding the utility of the

site after the next academic year. Given our experience to date, this resource will be essential to meeting ours and the faculty's professional development goals.

Short Communication 58: Stop Look Listen – An Online Program to Learn How to Manage Potential Physical Child Abuse

E. Kachur[1,2], M. Rojas[2], D. Laraque[2], L. Bruell[3]
[1]Medical Education Development, [2]Maimonides Medical Center, [3]L.A. Bruell, Inc

Objectives: Stop Look and Listen (SLL) is an interactive online educational tool designed to increase confidence and comfort among primary care clinicians in recognizing and reporting physical child abuse. It allows healthcare providers to work through clinical challenges in a simulated environment that is safe and that enhances their ability to address this critical public health issue.
Background: Child abuse continues to be a major concern nationwide. Clinicians are "mandated" to report suspected child abuse, but unfortunately often fail to do so. Barriers that result in underreporting include: fear of negative outcomes for the patient or the physician; uncertainty about the likelihood of abuse or the details of the investigative process; and unfamiliarity with reporting procedures. (Flaherty et al., 2008) SLL responds to a national need for more training in this area.
Methods: The six "virtual cases" are organized into two units: Basic and Advanced. They were developed by an interdisciplinary team of child abuse experts and instructional designers. The cases reflect a series of clinical encounters and concomitant investigative processes. At multiple points, clinicians are encouraged to explore alternate pathways. A pre- and post-test allows learners to see how well their choices match those of child abuse experts. Up to eight Category I CME credits are provided.
Reflection: In testing the SLL prototype, learners responded positively to the realistic nature of the vignettes, and to their relevance to actual practice. They identified the portrayal of the investigation process as a particularly valuable aspect of the tool. Preliminary data indicate increased confidence in recognizing and reporting physical child abuse. Limitations noted include the need to practice the modeled interactions in a simulated setting (e.g. OSCEs or remote standardized patients). An application for Maintenance of Certification (MOC, part 2) is in progress.

Short Communication 59: MedEd Talks: Using Small Presentations to Convey Big Ideas in Medical Education

E. Green, B. Clyne
Warren Alpert Medical School of Brown University

Objectives: The goals of MedEd Talks are to 1) showcase the educational innovations of our faculty, 2) generate excitement around the educational mission of our institution[1], and 3) create a community of faculty dedicated to teaching and educational excellence.
Background: MedEd Talks is an event hosted by the Program in Educational Faculty Development (PEFD) at the Alpert Medical School of Brown University. It is modeled on the popular TED Talks format, and grounded in the TED Talks philosophy about the power of ideas to affect change.[2] This event was offered for the first time in October 2014.
Methods: The event consisted of eight 10-minute presentations selected for innovation and potential appeal to a wide audience. The presentations were loosely grouped by theme (humanities- and clinical teaching-focus), and panel discussions followed each group of four presentations. In order to maximize the impact of the presentations, the event included an interactive workshop in which participants discussed their own medical education projects, consulting with a group of peers about ideas, challenges and potential collaborations.3

Reflection: A limitation of an event of this kind lies in the diversity of proposals and the potentially narrow interests of audience members. We attempted to address this by encouraging presenters to include broad "take-home" messages that educators who practice in various areas would find applicable, and by addressing the issue of applicability during the panel discussions. The strengths of the program lay in both the presentations themselves, and in the interaction between faculty during the two panel discussions and during the "Idea Incubation Workshop" that followed. These conversations were rich, thoughtful and energetic, and exceeded our expectations about the event's ability to create excitement and community. Formal evaluations of the program are still being collected and plans are underway to make the program an annual event.

Short Communication 60: Breaking Out of the Castle: Cross-Continuum Teaching of Diabetes Self-Management to Vulnerable People, and the Role of Inter-Sectoral Coalitions

R.W. Morrow
Albert Einstein College of Medicine

Background: Diabetes self-management coaching with peer educators is an effective method to stem the tide of diabetes complications. The CDC reported recently that only 6.8% of recently diagnosed people with diabetes receive such training in their first year of diagnosis.[1] The responsibility for closing this gap crosses sectors, and includes professional training at the undergraduate and residency level of health professionals, education at the continuing professional development level, public health initiatives, and the work of community organizations and diabetes peers, and is most likely to succeed through coalitions for peer education outside the walls of institutions, in the communities where most care occurs. This project aims to implement diabetes self-management in the Bronx as a way to prevent hospitalizations and limb amputations.

Theory: The study of the intersection of related but different networks examines the effect of different cultural worlds communicating at some intersections, but having impact at many other non-intersecting points in those networks. The use of peer education is highly successful in both community education [2] and in Academic Detailing in healthcare offices. [3] Our project teaches the skills and attitudes of prevention based on community activation to health professionals and students, extending medical education to include patient initiated and led efforts to achieve outcomes that matter to patients and stakeholders.

Methods: We will train and field:

12 detailers, who will visit 30 practices and work with public health projects to implement referral and feedback from coaches through a shared portal.

20 coaches, trained with the Stanford Diabetes Self-Care Program to reach 300 patients with diabetes. Lower Extremity Amputation Prevention Education will be provided for 100 patients with diabetic neuropathy

Measures include quantitative data on recruitment, retention, and biometric changes of patients, and qualitative assessment of enablers and challenges of implementation.

Reflection and conclusions: Coaches and detailers can provide education that supports inter-sectoral collaboration to improve patient self-management

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Short Communication 61: Implementing and Evaluating a Four-Year Integrated End-of-Life Care Curriculum for Medical Students

M.S. EllmanA. Fortin, A. Putnam, M. Bia
Yale School of Medicine

Objectives: Our goal was to develop, implement, and evaluate a longitudinal, integrated four-year curriculum to teach basic competencies in End-of-Life (EoL) care.
Background: Despite mandates for end-of-life (EoL) care education, graduating medical students do not consistently feel prepared to provide this care. Diverse factors contributing to this deficiency, include ineffective teaching strategies, curricula with inadequate content or time, and the effects of the hidden curriculum.
Methods: Developmental learning objectives informed our teaching strategies which included: interactive lectures; observations of patient interviews; role plays exercises; online interactive learning modules; problem based and simulation workshops; standardized patient experiences; patient care experiences with written reflections and case conferences. We emphasized experiential, skill building activities, self-reflection and interprofessional learning. We created a dedicated and utilized blended learning combining interactive online modules with live workshops. We used a mixed method evaluation of the curriculum.
Results: Analyses of student written reflections demonstrate a high level of meaningful learning engagement. Our graduating student surveys demonstrated that enhanced self-reported preparedness in many domains of EoL care. Results from the AAMC questionnaire of 2013 graduates demonstrates favorable student perceptions of the EoL and Palliative Care curricula at our school compared with the composite of other schools, e.g., 92% of Yale and 79% of other medical school graduates felt that their instruction was adequate in palliative care and pain management, while 4% of Yale and 19% other graduates felt it was inadequate. The 95 third year students who completed the palliative care OSCE in 2014 had a mean score of 75% on the 16 palliative care history items indicating overall competency in history and communication for the class.
Reflection: A 4-year longitudinal integrated curriculum enhances students' skills and preparedness in EoL care. As faculty resources, clinical sites and curricular structure vary by institution, proven and adaptable educational strategies will be useful to address the mandate to improve EoL care education. Teaching strategies and components of this curriculum can be adapted to other programs.

Short Communication 62: A Competency-based Capstone Curriculum: Emergency Clinical Problem Solver (ECPS)

P.A. Zgurzynski
University of Massachusetts

Objectives: It was hypothesized that implementation of a mandatory four week capstone curriculum for senior medical students using didactic sessions, clinical experiences in the emergency department, and high fidelity simulation would be highly valued by students. The objective of educators was to provide a curriculum to increase senior medical student's competency in advanced diagnostic reasoning and acute care in order to prepare learners for internship. Primary endpoint measured was learner satifaction.
Background: The key role of developing competency-based capstone courses designed to prepare senior student for internship is becoming increasingly recognized. It has been

suggested that "intern transition courses be a standard part of the medical school curriculum." [1] Furthermore, the AAMC has developed a curricular framework for clustering milestones and competencies into twelve core entrustable professional activities(EPAs) that may be assessed by this curriculum[2]. Based on a need assessment a consensus group of educators and student representatives designed the curriculum to focus on hands on experiences in simulation, clinical experience, and interactive teaching sessions. Primary course objectives were: 1. Identify an emergency across clinical settings 2. Evaluate high risk undifferentiated patients and generate a differential diagnosis using advanced clinical reasoning methods 3. Perform patient management: assess acuity, stabilize, and treat. Secondary objectives were to understand the multidisciplinary team approach, best practices in communication and re-integrate basic science material.

Methods: ECPS was implemented as a 4 week required pass/fail course at the University of Massachusetts School of Medicine beginning in May 2013. The course begins by teaching the approach to the undifferentiated patient, the approach to eight high risk chief complaints, and finishing with high fidelity arrest scenarios that integrate procedures. After TEAMSTEPPS team training nine high fidelity scenarios are performed at the Integrated Center for Experiential Learning iCELS. Hands on procedural sessions on resuscitation, airway management, wound care, and vascular access are given. Lectures on advanced diagnostic reasoning focus on dual process theory, use of cognitive checks, clinical decision rules, and treatment algorithms. All students' also complete eight shifts in the emergency department with ACGME milestone based end-of-shift assessments and one ICU session. All course materials, quizzes, and links to learning modules on CDEM curriculum.org, were made available on a learning management system BBL Learn 9.

Results: Selected results of the quality of the curriculum were taken from E*Value reports. Cumulative 05/13-11/14 n=172 learners Simualtion=3.92/4.00 DDX =3.72/4.00 Overall= 3.67/4.00 Recent Tends 05/14-11/14 n=62 learners Simulation = 3.94/4.00 DDX= 3.79/4.00 Overall=3.89/4.00

Reflection: Overall, learners were highly satisfied with the curricula. Identified areas of strength were simulation, differential diagnosis, and procedures. Clinically, the high decison density, acuity, and availability of procedures in the ED made the clinical experience highly valued. A major limitation of evaluation was primarily measuring learner satisfaction. Difficulties in implementing the curriculum have been faculty development and resources in simulation, need for a clinical coordinator, and engaging learners in the lectures. Future directions will be to assess directly if the curriculum increases objective competency in milestones and EPAs. Goals and objectives of the course map to the majority of the entrustable professional activities, but distinctly focus on developing entrustable skills in differential diagnosis (EPA2) recognizing a patient requiring urgent or emergent care (EPA10), performance of necessary procedures (EPA12) and collaborating as a member of an interprofessional team (EPA 9).

Short Communication 63: Implementing a curriculum in cancer screening and shared decision making.

S. Pilla
Johns Hopkins

Objectives: This project seeks to identify the need for educational reform in cancer screening, and design a medical education curriculum that empowers providers to apply screening in an evidence-based and patient centered way.

Background: In approaching cancer screening decisions, experts advocate for a nuanced approach that balances mortality benefits with the harms of false positives and overdiagnosis[1]. In practice these conversations are complex and patients are not being well informed[2]. To provide the best care, medical providers must engage patients in shared decision making in

which they are empowered to make decisions that align with their values[3]. Techniques to inform and involve patients in screening decisions are being developed, but are not widely taught, creating a need for advancement in medical education.
Methods: This project involves a targeted needs assessment and curriculum in cancer screening. The target audience is medical residents. A survey will be administered to housestaff in the Hopkins Bayview Internal Medicine residency program to illicit their educational needs. The results of the survey will be used in curriculum design. The planned curriculum has four goals: 1) improved understanding of screening methodology, 2) improved communication with patients, 3) ability to apply personalized risk assessment to screening decisions, and 4) ability to incorporate patient values in screening decisions. The venue will be small group sessions as part of an established Evidence Based Medicine curriculum for Hopkins Bayview residents. Teaching methods will include group discussion, rehearsal, and interviews with standardized patients.
Reflection: Outcomes in the project will be limited to audience feedback and performance on a test before and after the intervention. The initial phase will not include measures of patient oriented outcomes. Strengths of this project include its novelty and applicability to learners at various levels of training. Future directions will include exploring new venues for the curriculum such as online modules, adapting the curriculum for audiences such as medical students and practicing physicians, and studying whether it modifies practice patterns.

Short Communication 64: Nordic Larp: A Novel Narrative Medicine Teaching Tool

D.S. Eison
Columbia University College of Physicians and Surgeons

Objectives: This communication seeks to introduce the theatrical roleplaying techniques of Nordic Larp as a novel method of engaging students in Narrative Medicine and reflective education.
Background: Nordic Larp is an artistic tradition of improvisational roleplaying popular in Scandinavia but largely unknown in the United States. Akin to established techniques of both simulation-based medical education (McGaghie et al 2009) and reflection, larps emphasize immersion, realism, artistic vision, character growth, and emotional intensity (Harviainen 2008). Despite their use in primary education and corporate training, larps have not yet been introduced to medical curricula. Unlike standard approaches, larps allow students to explore uncertainty, vulnerability, and failure outside of an evaluative framework and foster reflection-in-learning while avoiding many pitfalls such as intellectualizing and recipe-following (Mann, Gordon & McLeod 2007).
Methods: I propose that Nordic Larp may be used to augment existing reflective, narrative, and simulation-based methods of medical education. I have designed a 6-week larp curriculum, appropriate for medical students at any stage of their training, based on principles of Narrative Medicine. This course utilizes larps devised by myself and others that address ethically and emotionally challenging issues in healthcare such as conflicts of interest in industry, patient decision-making in oncology, and infectious and emotional vulnerability. These exercises, incorporating reflective discussion and debriefing, seek to draw medical students into engagement with the challenges they face in their clinical duties during training and beyond.
Reflection: The strength of this work is its foundation in established principles of Narrative Medicine and academic larp scholarship. Limitations include the difficulty of assessing efficacy and impact of narrative practices by quantitative measures. Further investigation must be made into the impact of such a course on medical students, as implementation is pending at this time but is scheduled to occur during the upcoming semester.

Short Communication 65: Using Technology to Integrate Clinical Medicine and Narrative Medicine

A.Williams
Frank H. Netter MD School of Medicine at Quinnipiac

Goal: To introduce an innovative, technologically savvy approach to integrate teaching of clinical medicine and narrative medicine.
Objectives: 1. recognize the link between clinical medicine and narrative medicine; 2. describe use of podcasts in education; 3. share student feedback about the technology and pedagogy.
Background: Narrative Medicine curricula in many medical schools intends to cultivate empathy and provide opportunity for self-reflection.[1] A subset of medical students, for a host of reasons, resist participation in narrative medicine curricula. Adult Learning Theory purports one way of engaging resistant learners is to overtly declare the applicability of the content.[2] At Frank H. Netter MD School of Medicine we developed a 2-year narrative medicine curriculum that uses podcasts in advance of class time to 1. deliver information about clinical medicine topics, such as unconscious bias, witnessing suffering, and listening for emotional subtext; 2. help students focus on the clinical relevance of narrative medicine activities; 3. standardize content across multiple small groups; 4. contextualize narrative analyses and reflective writing as opportunities to enhance clinical skills.
Methods: Each narrative medicine session focuses on a unique topic/objective; the podcasts include behavioral and social science content, scholarly evidence from within and beyond medicine, and explicit connections between the topic and clinical care. Podcasts are recorded and imported to MP3 files using AudacityTM.[3] Narrative Medicine is delivered in small groups (8 students and 1 facilitator). In class we discuss a short literary piece/video, complete a writing assignment, and share our writing. Students provide anonymous evaluations of the course content and facilitators each semester.
Reflection: Our curriculum provides an innovative approach to teaching important though often marginalized topics; and a means to standardize content across multiple small groups. Student feedback, while positive, is derived from only two years at one medical school. In the future the curriculum will expand to encompass ethically and morally challenging topics.

Short Communication 66: EmergentMD: A Semantic Web-based Medical Education Tool

M. Blechner
University of Connecticut School of Medicine

Objectives: Develop a web-based tool to help students efficiently construct a more integrated medical knowledgebase.
Background: Research suggests that development of expertise in medicine involves restructuring knowledge into cognitive representations that encapsulate complex interrelated concepts[1]. Although medical school provides students with ample raw information, the responsibility for building a structured understanding of medicine remains with the student. The process of restructuring and integrating knowledge is complicated by the rapidly increasing body of knowledge and by the inherent difficulty in integrating concepts taught by numerous faculty over an extended time. EmergentMD is a web-based tool which leverages semantic web technology to help students discover concept relationships and construct a more integrated medical knowledgebase.
Methods: EmergentMD contains educational content in the form of flash cards containing a question, answer and unlimited images. Concept tags are also assigned to each card. These concepts are organized within an ontology which is stored in rdf format (Resource Description

Framework)[2] and uses the SKOS (Simple Knowledge Organization System)[3] semantic web standard to specify concept interrelationships. Content is consumed via a web application. Users can search for content based on concept tags, enabling intelligent retrieval using the SKOS ontology. Clicking on a tag assigned to a card retrieves other cards containing that tag or related tags, allowing users to easily explore concept relationships. Cards can be saved to personalized virtual stacks and users can post comments/questions to a card. Faculty can also create and distribute course specific stacks.
Reflection: Although student feedback has been very positive, the benefits of EmergentMD are largely theoretical. The primary future goal is to use the application in a controlled study. The current ontology is also limited in the number of concepts and expanding the ontology is very time consuming.

Short Communication 67: Blending Digital Learning and Standardized Patient-Based Assessment to Ensure Readiness for Internship

T.S. Riles, A.L. Kalet, S.D. Yavner, D. Szyld, H.S.Song, M.V. Pusic, M.W. Nick, G. Ng, K. Uquillas
New York University Medical School

Background/Purpose/Theoretical Framework: Medical educators must ensure that new residents demonstrate competence in 13 core Entrustable Professional Activities (EPAs) recently defined by the AAMC[1]. However, there is no consensus on how this should be addressed, assessed, and documented. We developed *MD on Call*; a series of multimedia modules based on common clinical coverage issues, and paired the modules with related live simulations. Our theoretical framework is *Cognitive Apprenticeship*[2], where an expert guides an apprentice through modeling, coaching, scaffolding, and fading.
Objectives:

1. Maximize the readiness for residency of graduating medical students
2. Develop and benchmark high quality and clinically meaningful measures to assess core EPAs
3. Pilot and evaluate an efficient and scalable blended digital learning and performance based assessment strategy to address gaps in readiness for internship

Methods: 52 MS4s were recruited. Subjects were given a pretest -- a blank paper with the following prompt: “In the next 5 minutes, write or draw how you think about oliguria.” Subjects completed two simulations with a Standardized Patient (SP) and a Standardized Nurse (SN). Subjects completed one case before the MDOC module (a “pre-sim”) and one case after the module (a “post-sim”). Subjects were given up to an hour to interact with the module between the simulations. Student EPA assessment data was captured from the simulations through SN checklists, SP checklists, and the subject’s “coverage note.”
Results: Pre-test results showed 59% of subjects presented organized, and sophisticated schema for oliguria; 21% presented a basic set of diagnostic categories; and 17% could not convey an organized structured approach. We observed moderate to large pre/post module gains in communication (with patient and nurse), physical exam, and clinical reasoning.
Conclusion: These data support the immediate educational impact of MDOC on performance and our measures provide a reasonably reliable framework to address, assess, and document competence in 10 of the 13 EPAs.
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Short Communication 68: Peak Experience Narratives: Standardization versus Diversity in Identify Formation

B. Richards, M.J. Fink
Columbia University

Objectives: Students come to medical school with identities that reflect the diversity of their life experiences; yet they enter curricula which promot common standards (competencies) for what every physician should be able to do(1). Frost and Regher(2) recently exposed this tension between discourses of diversity and standardization that influence medical students' identity formation.
Background: Students come to medical school with identities that reflect the diversity of their life experiences; yet they enter curricula which promot common standards (competencies) for what every physician should be able to do(1). Frost and Regher(2) recently exposed this tension between discourses of diversity and standardization that influence medical students' identity formation.
Methods: 9/10 student in the Columbia-Bassett track and 13/150 in the Columbia-NYC track, all from the graduating class of 2014, agreed to be interviewed 5 times throughout medical school. Students had similar curricula except during their major clinical year in which Bassett students participated in a longitudinal curriculum whereas the NYC had a rotation-based curriculum. Interviews were audio-taped, transcribed, and coded using constant comparative methods.
Results: Analysis of peak experience stories revealed diversity in how students responded to common challenges. We summarize that diversity with the narratives of 4 students, one who used an internal standard to gain insight about her growth; another who repeatedly talked of doing things with his hands; a third who consistently emphasized her growing knowledge, and a fourth who focused on "stepping up" to the next level of expectations.
Reflection: Collected over time, medical students' peak experience narratives reveal unique aspects of students' identify formation. They are evocative, singular accounts of becoming a doctor and imparted a sense of self.

Short Communications 69: Pediatric Sick Visits: Evaluating the Caregiver's Main Concern, Length of Visit, and Satisfaction in a Resident-Based Acute Care Clinic

K. Schmitz[1,2], M. Mehta[2], Z. Kendrick[2], L. Greenberg[2], M.K. Shimony[2]
Children's National Health System, George Washington University School of Medicine and Health Sciences

Objectives: 1) To assess if residents determined the caregiver's main concern during a sick visit 2) To assess caregivers' satisfaction with the visit
Background: In Barbara Korsch's seminal research on gaps in doctor-patient communication 50 years ago, she noted that parents' major concern was not determined by residents in 25% of sick visits, potentially creating unnecessary parental anxiety.
Methods: A case-based intervention using Korsch 's data was provided to residents in their continuity clinics. We conducted anonymous, pre-and post-intervention (PPI) exit-interviews following sick visits that included Korsch's questions and others assessing families satisfaction. We used Chi-square and Fisher s exact tests to estimate differences in responses PPI and between length of visit (minutes) and time spent without the doctor (minutes) with satisfaction score.
Results: 206 parents were surveyed (pre-intervention [n = 106 (51%)], post-intervention [n = 100 (49%)]). 95% (n = 196) of caregivers indicated that they were satisfied or very satisfied with

the visit. There were no significant differences in frequency of physicians determining the caregiver s' concern as well as the reason for that concern PPI groups (p = 0.33 and 0.98, respectively). There was a significant difference in median time spent with the doctor, increasing from 15 minutes, IQR: (10, 25 minutes) to 20 minutes, IQR: (15, 25) after the intervention (p = 0.008). A significant negative correlation was found between satisfaction and length of the total visit in minutes (Á = -0.37, p < 0.0001) and between satisfaction and time spent without the doctor in minutes (Á = -0.43, p < 0.0001).
Reflection: Caregivers were significantly satisfied with resident interactions, but we did not demonstrate differences in identifying caregiver's main concern post-intervention. Unlike the Korsch study, we did not audiotape interactions to assess accuracy of reporting. A longer total length of visit (pre and post-doctor interaction) was negatively correlated with caregiver satisfaction. Our study demonstrated that residents performed well in identifying caregiver's main concerns about their child's illness. The length of the physician visit is an important factor in determining caregiver's satisfaction.

Short Communication 70: Clinical Correlates: A Novel Student-Run Course Designed to Augment the Clinical Acumen of Pre-Clinical Students and Foster the Development of Fourth-Year Students as Clinician Educators

D. Eison, J. Salik, E. Jang
Columbia University College of Physicians and Surgeons

Objectives: Daniel Eison and Jonathan Salik are co-first authors and contributed equally to this study. The primary goals of this innovative course are both to augment the clinical acumen of pre-clinical students and to foster the development of fourth-year students as clinician educators.
Background: Traditional pre-clinical medical school curricula focus primarily on building student comprehension in the areas of physiology, pathophysiology, and molecular mechanisms. Though small-group sessions promoting patient communication and physical examination skills are often incorporated into this pedagogical framework (Swamy et al., 2014), not enough time is devoted to cultivating the more general clinical skills that students will be expected to demonstrate during their clinical rotations and beyond. In addition, medical school curricula during the clinical years rarely focus on fostering the growth of fourth-year medical students as clinician educators, an essential set of competencies to master prior to the beginning of internship. Such curricular deficits in both the pre-clinical and clinical years may contribute to students feeling unprepared to face the challenges presented by the next level of their training (O'Brien et al., 2007; Moss et al., 1992).
Methods: Clinical Correlates is an innovative, student-led extracurricular course in which fourth-year medical students teach small-group sessions to their pre-clinical peers. Each two-hour session includes both classroom didactics and bedside instruction in order to teach students how to construct a differential diagnosis and conduct a focused physical examination for a given chief complaint. Surveys of students before and after our sessions using a nine-point Likert scale demonstrate significant increases in mean self-reported confidence in several domains, including: forming a differential diagnosis for the covered chief complaint (3.97 points, p<0.001), performing a physical examination on a patient with that complaint (3.43 points, p<0.001), and readiness to care for such patients on clinical rotations (3.47 points, p<0.001).
Reflection: Future areas of focus may include: (1) improving teacher self-assessment and feedback, and (2) formally comparing the efficacy of Clinical Correlates to that of a traditional curriculum.

Short Communication 71: Development of a Standardized Graduate Medical Education Curriculum for Arthroscopic Shoulder Surgery

K. Lyons
University of Massachusetts Medical School

Objectives: Arthroscopy is a common procedure in orthopedic surgery and historically has been taught as an apprenticeship; this remains to be an extremely variable teaching process, as various factors can heavily influence this training. In 2013, the American Academy of Orthopedic Surgery (AAOS) created educational milestones in order to evaluate the proficiency and experience of residents. Therefore, the goal of this study is to develop a formal curriculum or set of "milestones" for arthroscopic shoulder surgery, such as simulation modules, and then actual parameters measured or assessed in the operating room.
Background: Simulators are being increasingly used to help learn surgical skills and arthroscopic techniques. Studies demonstrate the correlation between simulator training and the time to complete tasks using cadaveric shoulder arthroscopy models. While practice on arthroscopic simulators results in improvement on simulators, it is still unclear how to determine the relation to actual skills in the operating room. Therefore, this study will examine how to best evaluate the effect of simulation on skills in the operating room.
Methods: Various levels of residents and medical students will use a Fundamentals of Arthroscopic Surgery Training (FAST) program. The FAST program consists of modules for basic arthroscopy, including skills such as basic triangulation skills, suturing, and knot tying.
Results: Information will be gathered based on simulation tasks, such as time to completion, errors, or number of tasks completed. Further information will be gathered in the operating room over the following months, and compared with the FAST data.
Reflection: The purpose of this study, and future direction in this research, will be to establish or identify what objective parameters can be used to predict how simulation training translates into actual operative skill improvement, and to then use this to help establish a standardized curriculum.

Short Communication 72: Advanced Projects in Anatomy: A Modification of the 4th Year Elective

A.M. Gilroy
University of Massachusetts Medical School

Objectives: This program offers 4th year medical students the opportunity to revisit the study of anatomy with respect to their specific clinical interests, and to acquire teaching experience in the dissection laboratory.
Background: Since 1990, a four-week elective in Clinical Anatomy has been offered to UMMS 4th year students. The course included basic and clinical lectures, mentoring by clinical faculty and specialized cadaver dissections. Although it was highly reviewed by participants, enrollment decreased in recent years due to scheduling conflicts with new 4th year curriculum requirements and an increase in off-campus study opportunities. A new more flexible program, designed as a 2-week independent study elective, offers students an opportunity to work with clinical mentors to investigate advanced anatomy topics in their preferred clinical specialty. In addition, the elective is coordinated with the 1st year Development, Structure and Function (DSF) course during which the 4th year students participate as instructors in the cadaver dissection laboratory.
Methods: Students can select any 2-week period from October through February. Requirements focus on teaching and the development of clinically related educational materials.

They include: 1. Teaching in anatomy laboratory sessions of the DSF course that coincide with the 2-week elective period. 2. Creation of anatomy-based teaching modules related to a clinical specialty of their choosing. Modules, based on clinical experiences during the 2-week period, may consist of power point presentations, prosection quality cadaver dissections or assessments of clinical cases using Anatomage technology. 3. Presentation of the teaching module to supportive faculty.
Reflection: The opportunity to teach in the dissection lab, while designing their own learning experience and working within a flexible schedule, has attracted many students who want to rediscover anatomy before moving forward to a residency program. Now in its second year, this elective has become a popular alternative to other less flexible 4th year programs.

Short Communication 73: Internal Medicine Follow-Up Rounds: A Novel Intern Rotation and Direct Observational & Instructional Tool

S.A. Gaines, J. Smith
Warren Alpert Medical School of Brown University

Goals and Objectives: Emergency medicine (EM) residents rotate off service to build a foundation for independent practice. Exposure to internal medicine (IM) is often through wards months, which may be less desirable for EM residents. Internal Medicine Follow-Up (IMFU) provides a novel, structured learning environment for resident exposure to the fundamentals of IM wards in an alternative experience. Objectives include the following: structured review of the inpatient work-up and final diagnosis after the emergency department (ED) encounter; direct observation and feedback on inpatient rounds; individualized instruction of IM core content; improved resident professionalism and communication skills; and, improved evidence-based presentation skills.
Background/Theoretical Framework: EM residents are directly observed in the ED more often than on off-service rotations.[1] Forming a professional identity is a career-long process, and, adopting this objective early creates physicians skilled in the "being" of a professional from the start of training.[2] Teaching IM core content through ED rotations utilizing direct observation may optimize the knowledge, communication, and professionalism skills expected of trainees.
Instructional Methods and Materials: IMFU is a 4-week rotation, which replaces IM wards. EM interns work a reduced ED shift par, log admitted patients, and weekly choose an IM core content topic related to an admission. The IMFU attending reviews the current literature and teaches a session based on that content. Together, they round on inpatients. The capstone resident project is an evidence-based presentation answering a proposed clinical question.
Reflective critique: Strengths include individualized instruction and observation, opportunities for continuity of care, and high EM resident satisfaction. Limitations include difficulty aligning EM/IM faculty and resident schedules and an unpredictable inpatient census. Future directions include expanding direct observation sessions into other clinical environments, coaching programs to emphasize early adoption of a professional identity, outcomes analysis, or expansion of this model to other specialties.

Short Communication 74: The Stroke Lab: A Self-Directed Approach that Engages Students and Supports Integration of Clinically Important Information

T. Smith, E. Giannaris, S.B. Gagliardi
University of Massachusetts Medical School

Objectives: Provide second year medical students with a self-directed laboratory experience designed to help them acquire a more advanced understanding of stroke.
Background: Self-directed learning using primary materials such as gross specimens and imaging is an integral and currently required component of medical education [1]. The recent

trend toward shorter preclerkship curricula has made it increasingly difficult to schedule such learning opportunities. Additionally, students may choose not to participate, sometimes describing such class activities as “inefficient” [2]. To address these concerns, we developed and piloted a self-guided stroke lab that was timed and organized to facilitate collaborative review and case analysis.
Methods: In the second-year BRAIN course, lectures, interactive atlases and case discussions introduced cerebral blood supply, stroke pathophysiology, etiology, prevention, treatment, imaging, and syndromes. The 1-hour Stroke Lab that followed was organized in stations that groups of 2-4 students navigated as they chose. At hands-on stations, students examined normal brain specimens to review vascular territories and their functional correlates. Other stations included abnormal specimens that demonstrated ischemic and hemorrhagic strokes, often with imaging and short patient histories. Diagrams, brief text or questions were sometimes provided to trigger discussion. Faculty were present, but only as consultants.
Reflection: Students taught each other and interacted directly with specimens and cases in the lab to consolidate stroke information and to expand upon what they had learned previously in the classroom. We were pleased by the high attendance, collaborative student interactions, and thoughtful questions. Many students utilized this opportunity to consult and interact informally with clinical faculty from neurology, neuropathology, and radiology. The objectives of the stroke lab were later reflected in examination questions that included identification of stroke syndromes and imaging.

Short Communication 75: Statistical/Graphic Tools to Enhance Analysis of Student Course Evaluations

D.A. Risucci, R.L. Dornbush, J. Koestler
New York Medical College

Objectives: To illustrate the application of statistical/graphic tools often used in marketing research and statistical quality control, to analysis of student course evaluations.
Background: Previous studies have demonstrated the reliability and validity of medical student evaluations of courses (1,2) and reported considerable stability in these evaluations over time (3). However, there is a paucity of literature describing analytic methods for extracting meaningful, actionable information from these evaluations.
Methods: Medical students (MS-I and II) independently completed anonymous on-line evaluations of 7 basic science courses. Clarity of objectives, concordance between course content and stated objectives, organization of course materials, rate at which content was covered, amount of required reading, concordance between examinations and material emphasized in the course, effectiveness of lectures, and overall quality of the course were rated using separate 5-point Likert scales. Data were analyzed by Quadrant Analysis (Figure 1) and Pareto Charts. In Quadrant Analysis, a scatter-plot displays the relationship between mean ratings of each course component and percentage of shared variance between these ratings and mean ratings of overall course quality. The latter is used as an indicator of perceptions of the importance of each component. The scatter-plot is partitioned into four quadrants to identify relatively important strengths and weaknesses, and relatively unimportant strengths and weaknesses. Pareto charts rank order and plot the frequency and cumulative percentage of students indicating dissatisfaction with each course component.
Reflection: Quadrant Analyses and Pareto Charts demonstrated different patterns of relative strengths and relative importance of course components and identified different sources and relative frequencies of student dissatisfaction across courses. These kinds of analyses and graphic displays may help course directors prioritize and assess course modifications aimed at improving student perceptions. Future efforts will explore alternative measures of importance

and quality of course components and evaluate reactions to, and utilization of these analyses by course directors.

Short Communication 76: Appraisal of a Patient Safety Module For A Doctoring Course

E.R. Schottland, I. Granek, C. Messina
Stony Brook University

Objectives: To critically evaluate a novel curriculum on patient safety that teaches principles and increases awareness to preclinical medical students.

Background: It is important to expose medical students to patient safety education early in their medical career so they can identify pitfalls, avert incidents, and understand their de facto leadership responsibility as stewards of a culture of safety. [1] Increasing awareness of the initiatives presently in action may facilitate better integration into the medical culture during student's clinical activities and prepare them for practicing safe medicine. [2] In 2013, first-year students at our institution participated in a novel threefold module on patient safety. The sessions reinforced the importance of communication using "The Domino Exercise", allowed students to observe actual projects in action during "The Site Visit", and facilitated group learning through shared testimonials in a large group, interactive lecture. [3] The curriculum was repeated in 2014 for a new cohort of first-year students.

Methods: The Domino Exercise challenged students to complete a task that required communication with minimal errors (simulating an emergency room experience). Errors were recorded during each iteration of the task while the parameters for communication changed (i.e., improved). After the session, students assessed this experience using a Likert-type survey. Results from the performance of the task and the survey were compared for the 2013 and 2014 cohorts. In the Site Visit, students visited clinical facilities (hospitals and outpatient offices) and completed a survey that quantified what observations they made regarding patient safety and provided the opportunity to describe anecdotes from the experience. A quiz consisting of 20 questions was administered to assess competence in current topics in patient safety. Responses from students exposed to the new curriculum were compared to responses of a control cohort not exposed to the patient safety curriculum.

Results: In the Domino Exercise, there were very little variations between the performance of the Class of 2016 and the Class of 2017-performance for both cohorts improved with the increasing level of communication. When asked if the students felt the activity was worthwhile and demonstrated the efficacy of improved communication, 77% of the Class of 2016 and 88% of the Class of 2017 agreed/strongly agreed. Regarding the quiz on patient safety, students exposed to the patient safety curriculum scored higher than the controls in many categories. Most notably, exposed students were more adept at recognizing that communication errors are frequently cited as a root cause for patient safety sentinel events. Additionally, they were better at recognizing that adverse drug events are the most common complications for patients after discharge from hospitals. Both groups scored well in recognizing the need for 2 way communication in high pressure situations.

Reflection: Limitations include the relatively small but equal number of students who participated in the quiz portion of the assessment. In The Domino Exercise, the reduced number of errors as the rounds progressed may have partially been influenced by practice effects. Given the positive feedback, exposure to unique clinical experiences, and encouraging data from the quiz, we plan to continue the curricula with minor adaptations.

Short Communication 77: Efficacy of a Training Program in Clinical Observation Skills for Pre-clerkship Students at Rutgers-Robert Wood Johnson Medical School (RWJMS)

M. Nahass, N. Saks
Rutgers Robert Wood Johnson Medical School

Objectives: To determine if clinical observation skills are enhanced by pre-clerkship students participation in instructional sessions with a physician, and whether additional instruction with an art educator further enhances skills.

Background: The importance of observation in physical diagnosis has long been acknowledged. Several medical schools, including Harvard and Yale, developed programs utilizing art training to improve observation skills (Naghshineh et al, 2008, Dolev JC, 2001). RWJMS previously implemented art training for 3rd year students to positive review (Jasani & Saks, 2013). This study implemented multiple intervention groups and an innovative evaluation method to determine if clinical observation training plus additional art instruction enhanced clinical observation skills in pre-clerkship students.

Methods: 32 M1 and M2 student volunteers were divided into 3 groups. Groups A (n=7) and B (n=17) attended three clinical observation sessions taught by a physician. Group B also attended three sessions at a museum taught by an art educator. Group C (n=8) had no intervention. Observation skills were evaluated with image descriptions on pre and post surveys. Two physicians and one art educator holistically scored responses from 0-4 to determine "Clinical Image Score" and "Art Image Score." Wilcoxon Signed-Rank test was used to determine if improvement was significant. Participants in Groups A and B completed a program satisfaction survey.

Results: The Wilcoxon signed rank test showed Groups A and B had significantly higher post survey "Clinical Image" scores ($p<0.05$, two-tailed). Group C did not show significant improvement. Of note, stronger statistical improvement was found for Group B ($p<0.01$, two-tailed). Students stated they enjoyed both types of training sessions, and noted the slow pace and interactive nature of sessions was beneficial. Student ratings of each session (format, content, and facilitator) and overall were positive: for art instruction, 4.85/5 and for physician sessions 4.60/5.

Reflection: In this relatively small study, both clinical and art instruction improved clinical observation skills significantly when compared to students who received no intervention. Stronger statistically significant improvement was associated with the addition of art training. Students liked the program, indicating this could be a well-received segment of a medical school curriculum. The program is currently being repeated and expanded to determine optimum type and length of intervention.

Short Communication 78: Empowering Physicians to Analyze EHR Data

W. KoT.R. Young,
University of Massachusetts Medical School

Objectives: To train physicians at any stage of their education to analyze big data (e.g. their EHR data) in order to evaluate and improve existing standards of clinical care. Empowering physicians in this way has the potential to impact health outcomes both locally and nationally.

Background: The widespread adoption of electronic health records (EHR) has provided physicians at both small practices and large institutions access to unprecedented amounts of clinical data yet few clinicians have the computational skills that will allow them to benefit from these data. Using existing free technologies, however, it is possible to provide training to

physicians in basic computational and visualization skills through online learning modules that focus on analyzing EHR data.
Methods: The widespread adoption of electronic health records (EHR) has provided physicians at both small practices and large institutions access to unprecedented amounts of clinical data. Few clinicians, however, have the computational skills that will allow them to benefit from these data. We are developing a series of online learning modules that provide a gentle, introductory training in the analysis and visualization of clinical data that will empower physicians to utilize EHR data in order to evaluate and improve existing standards of clinical care. These modules utilize two key technologies. The R Project for Statistical Computing is a powerful, free programming environment that has become a mainstay in the fields of biomedicine, epidemiology, computational biology, and bioinformatics. Piazza is a free, online Q&A platform being used by top universities to enhance interactions between students and instructors. By combining these technologies, we have created an interactive community centered on self contained learning modules that allows students to work at their own pace, ask questions to both the community and instructors, and quickly learn the programming skills necessary to analyze their own data. We believe that by tailoring these lessons to clinicians, we can facilitate the use of EHR data and accelerate improvements in health outcomes both locally and nationally.
Reflection: We have developed 7 learning modules that are currently being tested on a mix of medical and graduate students. We have recently (as of Dec 2014) completed the first iteration of our course. The feedback, which has so far been very positive, will be used to improve the learning modules and tailor them to residents, fellows, and faculty who will then test the modules. We have included a screen capture of one of our learning modules.

POSTERS

Poster 1: NEGEA Leadership Education and Development (LEAD) Certificate Program: A AAMC nation-wide program for NEGEA Members
P.A. Weissinger, Y.S. Jarris
Georgetown University Medical Center

Objectives: To inform NEGEA population of the upcoming opportunities in the AAMC Leadership Education and Development (LEAD) Certificate Program, created to address a professional development gap in educational leadership development for early to midcareer educators and professionals in academic medicine. The 2014 NEGEA cohort is half-way through their experience. This session is to alert NEGEA of the 2016 cohort opportunities.
Background: Program was informed by formal academic preparation and prior educational leadership experiences, and designed to foster practical knowledge from recognized theoretical models and best practices in leadership effectiveness1, 2, 3. Program piloted in SGEA and expanded to the NEGEA for the first time in 2014. LEAD addresses the following major themes: Setting Direction and Vision; Developing and Maintaining Organizational Efficiency (i.e., administration and management); Leading by Developing Others; and Leading by Developing the Organization. The LEAD program is multi-faceted and includes: - 16-hours of face-to-face sessions targeting each major theme, delivered at two consecutive NEGEA conferences as preconference sessions - Mentoring by LEAD Faculty and coaching by a Fellow-identified Local Coach - Independent learning and reflective practice through structured learning activities, Learning Portfolio, and 360-degree assessment profile - Real-life application through an Applied Leadership Focus - Engagement in a professional learning community through formal and informal LEAD activities

Methods: The session is primarily a Q & A with information dissemination and opportunity for questions answered by the NEGEA LEAD regional director and a NEGEA LEAD Faculty member about the program and the next NEGEA Calls for Fellows and for Faculty (Fall 2015).
Reflection: National AAMC LEAD Steering Committee has NEGEA representation and with the regional feedback from both faculty and fellows, program is being improved as we look forward to the future. The 2016NEGEA LEAD cohort will benefit from these improvements.

Poster 2: Breaking Ground with a Digital Badge Program in Medical Education
G. March
Boston University School of Medicine

Objectives: The purpose of BUSM+ Medical Education Digital Badge Program (BUSM+) is to provide an online teaching course for healthcare professionals and three digital badges to confirm their achievements. The objectives are for the badge team to research and design an online course in teaching and learning, develop and offer the course globally, analyze the outcomes, and set a process for other digital badge courses.
Background: The 2010 Carnegie Foundation Report asked for a reform in medical education.1 Healthcare education is now shifting to learner-centered pedagogies with an explosion of new content and educational technologies. Can a busy healthcare professional follow these changes when asked to teach? Journal articles provide new teaching ideas without readers applying the knowledge. Advanced degree programs and teaching seminars require attendees to leave their practices. BUSM+ is online 24/7 for users to select their time, pacing, and badge. A digital badge is an electronic symbol embedded with the user's name and achievements for display in signature lines, CVs, and social networking. Will healthcare professionals proudly display a digital badge in medical education is the research question.
Methods: BUSM+ begins January 5, 2015. Each Blackboard Learn session has interactive videos, BUSM faculty teaching tips, zipinars on educational technologies, relevant assignments, peer-review assessments, an exam, and user feedback. The mixed-method study collects both quantitative and qualitative data on the users to analyze.
Reflection: Breaking the ground with any new concept is challenging and some reject the open-access, asynchronous digital badge program while others jump at the idea because they need it. The significance of this first Boston University digital badge program in medical education is to open the opportunity for healthcare professionals to enhance their teaching skills. Future expectations are users with reformed medical education practices, expanded job opportunities, satisfied learners, and improved patient care. Three new courses are in development.

Poster 3: Promoting Educational Scholarship: Corroboration with and Mentoring of Trainees and Faculty Over Five Years
L. Greenberg
George Washington University School of Medicine

Objectives: to identify projects that have been collaboratively studied by the senior author and a variety of trainees and faculty over the last 5 years, focusing on the outcomes of those projects.
Background: Educational scholarship as defined by Boyer and Glassick from the Carnegie Foundation for the Advancement of Teaching has been a major impetus for clinician-educators and trainees to enhance their educator portfolios. What is difficult for some is to develop an answerable research question, initiate a rigorous methodology and evaluation, and present clear results. Mentorship is critical in helping faculty and trainees in getting started with doable projects in addition to providing constant oversight on projects.

Methods: This is a descriptive analysis of scholarly activities and their current status over the last 5 years at the GWU institution and affiliated programs. The data is categorized into 1) the level of mentee and 2) the essence of the scholarship.
Results: Medical students (MS): academic career choice, residents as teachers (RATS), empathy in MS, empathy in pediatric residents, communication skills in residents, rapport-building skills in MS, peer mentoring, F/U to students as teachers, peer coaching in residency, activating students, interdisciplinary teaching, incivility in medicine, time-motion study in PGY-1s. These have resulted in 23 nationally peer reviewed abstracts, one book chapter, 6 manuscripts and one letter to the editor to date. Residents: RATS study, with 2 abstracts submitted to PAS, APPD Faculty: Diabetes inpatient errors, resident learning styles, empathy in PLs, breast feeding and PLs, reinforcing teaching skills, RATS programs, students as teachers self-assessment, PAS mentoring award, handoffs in IM clerkship, orientation for ED residents, communication and referral skills for PLs. There have been 14 peer-reviewed abstracts, 7 publications and 2 letters to the editor.
Reflection: Characteristics of trainees and faculty inherent to success in publishing scholarly activities: 1) interest in participating in a project, 2) willingness to see the project to conclusion, 3) being proactive and setting attainable deadlines based on their work load, 4) feeling empowered to provide their input into aspects of the project, 5) developing a professional and trusting relationship with the mentor Characteristics of the mentor: 1) being available, 2) having knowledge about educational methodology and evaluation, 3) developing a connectedness to the mentee, 4) insuring projects are doable within a short time period; i.e., the research question is of limited scope, 5) being flexible but holding mentees to deadlines, 6) advising about abstract submission and journal choice.

<u>Poster 4:</u> The 80-Hour Workweek, the Flipped Classromm and an Innovative Residents as Teachers (RATS) Curriculum

B. Chokshi[1], H. Schumacher[1], K. Reese[1], L. Greenberg[2]
[1]Children's National Health System, [2]George Washington University School of Medicine

Objectives: To determine if the flipped classroom approach could be successfully implemented in a RATS program as an efficient and effective way to teach educational skills within an environment of work hour restrictions.
Background: The flipped classroom can be defined as the interface between a learner's preparatory work outside the classroom and the face-to-face meeting with the teacher. This technique has been integrated into many levels of education but has never been reported in a RATS program.
Methods: Second-year residents (N=29) were selected using a convenience sample and participated in one of four daylong RATS sessions throughout the academic year. The curriculum consisted of a set of four 1-hour workshops focusing on adult learning principles, giving feedback, teaching a skill and orienting a learner. Each workshop included the following: 1) dedicated time in advance of the workshop for the residents to read key articles; 2) a 10-item quiz on the topic, first completed by the individual residents and then in groups to reach consensus on the answers; 3) time for groups to teach one another when disparities arose among answers; 4) a 10-minute overview on the topic by faculty; 5) 30-40 minutes of discussion and application of principles learned. Each topic included a pre- and post-workshop Objective Structured Teaching Examination (OSTE) targeting the skills and behaviors highlighted in the curriculum and utilizing trained medical students as "standardized learners." Mean changes in pre- and post-workshop performance on the OSTEs were analyzed using paired t-tests.
Results: Residents completed pre- and post-workshop OSTEs on 1) giving feedback, 2) teaching a skill, and 3) orientating a learner. Resident performance on all stations showed statistically significant increases in pre and post-intervention mean scores ($p<0.005$). Mean

performance improved most significantly for teaching a skill (preworkshop mean= 43.55, post-workshop mean= 53.24, pre-post difference= 9.69), followed by orienting a learner and giving feedback.
Reflection: We demonstrated that a flipped classroom approach is an efficient and effective method for training residents to become better teachers, and that the flipped classroom technique is compatible with intensive one-hour sessions.

Poster 5: Resident Teaching Attitudes and Self-Efficacy after a Flipped Classroom Curriculum on Residents as Teachers (RATS)
B. Chokshi[1], H. Schumacher[1], K. Reese[1], L. Greenberg[2]
[1]Children's National Health System, [2]George Washington University School of Medicine

Objectives: To assess second year pediatric resident (PL-2) teaching attitudes and self-efficacy after a day-long RATS program using a novel flipped classroom curriculum.
Background: Accrediting bodies such as the Accreditation Council for Graduate Medical Education (ACGME) and Liaison Committee on Medical Education (LCME) require residency training programs to teach their residents how to teach. Whereas numerous publications have introduced Residents as Teachers (RATS) curricula, none to our knowledge have incorporated the use of a flipped classroom model which is the interface between a learner's preparatory work outside the classroom and the face-to-face meeting with a teacher.
Methods: The authors developed a flipped classroom curriculum in which four convenience samples of PL-2s (n=29) spent a full day in one-hour workshops targeting four core teaching skills, adult learning theory, teaching a skill, orienting a learner, and giving feedback. Each workshop included the following: 1) dedicated time in advance of the workshop for the residents to read key articles; 2) a 10-item quiz on the topic; 3) time for groups to teach one another when disparities arose among answers; 4) a 10-minute overview on the topic by faculty; 5) 30-40 minutes of discussion and application of principles learned. In addition to a pre-post intervention objective structured teaching examination (OSTE), residents completed two instruments using a retrospective pre-post technique (Skeff). One instrument examined resident attitudes (Greenberg) and the other measured their self-efficacy (Baker) for each of the skills addressed in the workshops. The questionnaires consisted of 41 Likert 5-point items.
Results: Using paired t-test analysis, residents attitudes towards teaching demonstrated an increase from a mean of 92.7 (SD=11) pre-workshops to a mean of 103.4 (SD=1) post-workshops ($p<0.0001$). Residents also indicated an increase in the self-efficacy of their clinical teaching skills from a mean 41.5 (SD=7) pre-workshops to a mean of 51.9 (SD=6) post-workshops ($p<0.0001$).
Reflection: The flipped classroom model represents a paradigm shift in learning. Activation of the learners enabled facilitators to focus on application of theory and co-teaching, while the majority of each workshop was devoted to practice. Residents had increased confidence in their teaching skills after participating in this novel curriculum.

Poster 6: The Murmur Library: A Novel Bank of Recorded Heart Sounds from Children for Teaching and Research Purposes
RW Doroshow[1,2], J Sestokas[1], RA Domer[3]
[1]Children's National Health System, [2]George Washington University School of Medicine,
[3]Northwestern University School of Medicine

Objectives: To establish a readily accessible repository of teaching cases of infants and children with and without heart disease, with actual recordings of heart sounds validated echocardiographically, for use in (1) teaching pediatric cardiac auscultation to learners at multiple levels and (2) research on methods of teaching this skill.

Background: Heart disease in infants and children often presents with heart murmurs, which are poorly distinguished by primary practitioners from the much more common innocent murmurs of childhood. Children are frequently referred unnecessarily for cardiology consultation, wasting healthcare dollars and medical resources, and causing patient and parent anxiety. Teaching of cardiac auscultation is usually accomplished by bedside experience, and has been well shown to be an ineffective method of imparting this skill. New technologies now allow easy, realistic recording and playback of heart sounds and accurate diagnostic validation which can be harnessed for use in pediatric teaching.
Methods: Using digital stethoscopes and commercially available software (LittmannTM), high-fidelity recordings of the heart sounds of pediatric cardiology patients were made with parental consent. Clinical and echocardiographic data were obtained and correlated with the sound recordings. To date, 1800 anonymized recordings have been catalogued, with accompanying information enabling access to clinical data and echocardiographic images. All can be played back on a computer using ordinary earbuds, with synchronous visualization of a real-time cursor passing through the phonocardiogram, supporting multisensory learning. Recordings can be easily compared with one another.
Reflection: We have utilized newly available technology to create a unique large library of pediatric heart sounds from actual patients, with correlated clinical and anatomic data. These files have been used to develop (1) instruments for measurement of auscultatory skill, (2) programs to teach pediatric practitioners the basic skill of distinguishing innocent from pathological murmurs, and (3) programs to teach cardiologists the more advanced skill of diagnostic auscultation. Strengths of this approach are the ready availability of these physical exam findings to learners in multiple settings, and the opportunity to utilize these findings to apply principles of adult learning for deliberate practice in a self-paced, learner-directed approach which minimizes cognitive overload and maximizes efficient acquisition of auscultatory skill. It is free of the limitations of common to bedside teaching such as random access to certain types of pathology, small numbers of cases, and time constraints and distractions . Limitations thus far appear to be focused on acceptance of this fairly radical addition to cardiology teaching methods, compared with a status quo approach of very long standing. Teachers utilizing this method may object to the removal of extraneous information such as pathophysiologic correlations, which are not helpful in acquisition of this skill and may actually impede it. These correlations are better applied in a different setting with different objectives. In addition,our approach is less personal than face-to-face teaching; therefore a combination of the two is recommended. Future directions include randomized controlled trials of 6 10-minute teaching modules developed from the Murmur Library, with assessments using tests developed from these recordings. These trials are currently underway with pediatric residents and with third-year medical students; preliminary data suggest a major improvement in both skill acquisition and confidence using these modules, compared with minimal improvement using traditional methods, and a high degree of acceptability to learners.

Poster 7: Development of a Web-based, User-friendly, Physician Community Mentor Database

J.E. Noguchi, J.. DiChiara, S. Warrier, M. Daniel
Warren Alpert Medical School of Brown University

Objectives: We aimed to develop a database management system that would facilitate matching pre-clinical medical students to physician preceptors, or “community mentors,” as part of a clinical skills course at one institution.
Background: Each year, for the first two years of medical school, ~250 students are paired with physicians for a longitudinal 14-week experience. Previous methods used for matching students

to mentors were time-consuming and prone to administrative error because they required doing much of the work by hand.
Methods: We developed a web-based, relational database that is editable, user friendly, and facilitates the matching process. Students and mentors indicate through an online survey certain characteristics that they desire in a mentor or mentee. These data are then imported into the database. Matches can be made directly in the website by pairing students to mentors who meet certain criteria, i.e. location, clinical specialty, schedule, etc. Once the matching process is complete, students view their mentor's profile on the website.
Reflection: This system greatly improved the ease of tracking mentors since their data are accessible and editable online. Administrative time spent on matching was halved and use of the system resulted in more successful placements, i.e. 100% of second-year students were given their top choice for a mentor site as indicated by their survey responses. Fewer logistical problems related to students' mentor placements arose during the academic year. The major limitation of the system is that data must be inputted manually if mentors do not fill out the online survey. Modifications to the system require an administrator with expertise in HTML, CSS, MYSQL, PHP, and Javascript. Further developments will include functions that allow for filtering certain criteria, running customizable reports, and storing legacy data on the website. Next steps may include adapting the website for use at other medical schools.

Poster 8: Medicine in Psychiatry: Outcomes of a Resident-Initiated Teaching Program
V. Rao[1], R.A. Dugger[1], E. Grudnikoff[2], J. Young[1,2], P. Manu[1,2,3]
[1]Zucker Hillside Hospital, [2]Hofstra North Shore-LIJ School of Medicine, [3]Albert Einstein College of Medicine

Objectives: To identify topics chosen for focused learning/teaching by psychiatry residents during a mandatory 4-week medicine rotation.
Background: Although training in internal medicine is required for psychiatry residents, the curriculum is not specified. Resident-centered learning/teaching are valuable educational innovations that may help define curricular needs for medicine in psychiatry.
Methods: First-year psychiatry residents rotating through the medical consultation service of a free-standing psychiatric hospital participated in the study between July 1st, 2014 – March 23rd, 2015. Each day, residents selected, learned, and presented to a faculty preceptor a topic from among the medical problems evaluated by them that day. Data collected included topic chosen, reason for choosing the topic, source(s) used to learn about the topic, and reasons for choosing source(s).
Results: The learning/teaching activity took place on 113 of 213 working days. The selected topics addressed cardiovascular (18.6%), hematological (16.8%), endocrinology (15%), toxic/metabolic (11.5%), pulmonary (7.1%), gastrointestinal (5.3%), neurological, musculoskeletal, and genitourinary (all 4.4%) with skin/soft tissue and infectious (3.5%). Issues related to electroconvulsive therapy (ECT) was discussed in 5.3% of sessions. Clinical importance was more commonly invoked than self-disclosed knowledge gap (61.1% vs. 20.4%, $p<0.0001$). The subscription-only online site UpToDate was used in 22.1% of the learning/teaching sessions ($p<0.0001$ compared with all other online or print resources). Conciseness was valued greater than ease of access and thoroughness ($p<0.008$).
Reflection: Psychiatry residents chose a wide variety of topics for learning medicine is psychiatry. The selection was based on perceived clinical importance and learning used the most concise information resources.

Poster 9: When Role Models Themselves Lack Training: Gaps in Residency Curriculum in Cultural Competence (CC)

T. Jirasevijinda, J. Rosenberg
Weill Cornell Medical College

Objectives: This study aims to assess cultural competence (CC) curriculum in the residency programs that administer core clinical rotations to medical students at a medium-size urban medical school.

Background: With increasing diversity of patient populations in the US, cultlural competence (CC) is a crucial component of medical education. Both the LCME and the ACGME mandate CC curriculua[1,2]. Undergraduate medical education curriculum routinely includes CC in pre-clinical years. However, during clinical rotations, students are often left to rely on the hidden curriculum, including role-modeling, by residents with whom they work closely. Despite the ACGME mandate, it is unclear if residency curriculum routinely incorporates CC.

Methods: An online, anonymous survey based on the AAMC's Tool for Assessing Cultural Competence Training (TACCT)[3] was administered to directors of 19 residency programs through which medical students from our institution rotate for their core clerkships. Co-authors adapted the online survey by shortening the length of the original TACCT while maintaining its scope. The survey also includes demographic data about the programs and directors. Reponses were dichotomized to "Yes" or "No." Survey items were then classified as "knowledge," "attitude," or "skills." Aggregate data were examined using frequency analysis. Number of subjects was too small for statistical correlation.

Results: Sixteen residency program directors representing every core specialty field responded to the survey (84%). Mean length of directorship was 10 years (range 1-18). The revised instrument contained 3 attitude (A), 17 (K) knowledge, and 12 skills (S) questions. Topics most frequently covered (>75%) include: importance of self reflection/assessment (A), value of curiosity, empathy, and respect (A), diversity of patient values, cultures, and beliefs (K), unique institutional culture (K), how to practice shared decision making (S), and how to practice patient/familycentered care (S). Topics least frequently addressed (<40%) include: collaborating with community (S), dealing with cultural conflicts/misunderstanding (S), history/impact of healthcare discrimination (K), recognizing bias in healthcare (S), impact of physician characteristics on healthcare (K), and skills for overcoming health disparities (S).

Reflection: Residents who teach medical students at our institution received formal training on many components of CC, but gaps exist in their curriculum. Areas demonstrating gaps are in the knowledge and skills domains. Further study is needed to determine if a national pattern exists.

Poster 10: Assessing the Diagnoses Encountered by Pathology Residents during their First Exposure to Surgical Pathology

C. Mehr, L. Schwartz
Hospital of the University of Pennsylvania

Objectives: Our goal was to identify & characterize diagnoses encountered by first time surgical pathology rotators (FTSPR) at a tertiary care academic center

Background: Advances in the field of medicine have highlighted the need for reevaluation of medical education[1]. The field of pathology continues to evolve[2] with the NEXT accreditation system establishing milestones in resident education[3]. However, little is known about early resident experiences that serve as a foundation for milestone achievement.

Methods: From July 2013-June 2014, 9 first year residents & 2 pathology student fellows completed their first rotations in surgical pathology. Each rotator's first month on two services

covering all surgical sub-specialties was determined. A database search established the number & kinds of diagnoses encountered in each sub-specialty as well as exposure to specific diagnoses.
Results: FTSPR saw a variety of cases in all sub-specialties with the most exposure being in gastrointestinal & gynecologic pathology and the least exposure in soft tissue, pulmonary & dermatopathology (Table1). Many organ systems had diagnoses with an average encounter rate less than one (Table2).
Reflection: Our data provides insight into the diagnoses encountered by FTSPR early in residency. While residents get ample exposure to certain sub-specialties, other areas are not as well represented. Therefore, didactic & resident-driven learning should address potential gaps. Sub-specialties with high & low volumes have specific diagnoses with average encounter rates less than one. Emphasis must be placed on how to approach the diagnostic process & consider diagnoses that have yet to be encountered clinically.

Poster 11: A Leadership Curriculum: Transitioning Residents from "Accidental" Leaders to "Intentional" Leaders

D.M. LaPaglia
Yale School of Medicine

Goals: To expose participants to: ●Principles of effective leadership ●Self-reflection exercises aimed at leadership knowledge, values, beliefs, and personal leadership style
Objectives: Participants in the class will be able to: ●Articulate principles of effective leadership ●Develop skills in self-reflection around personal leadership styles ●Discuss effective leadership styles as applied to leadership case dilemmas
Background: Currently there is a call to educate healthcare providers to effectively lead healthcare teams in the service of providing better treatment to their patients. However, formalized leadership coursework is absent from most medical schools and from graduate medical education, and yet most residents and fellows will likely find themselves in a leadership position (e.g., delivering patient care, managing teams, and teaching and mentoring other residents). In addition, evidence suggests that formal leadership coursework increases physician confidence, job satisfaction, improves leadership skills and team functioning, and leads to better patient outcomes. This innovative course was piloted with fellows from Yale's Addiction Psychiatry Fellowship program to advance leadership ability through engaging in self-reflection and by cultivating self-awareness. Results: Through this process, the fellows shifted from being "accidental" leaders (learning leadership on the "fly") to becoming "intentional" leaders by developing leadership identities, increasing confidence and overall leadership ability.
Curriculum Design: The course is a case based curriculum and was designed to better prepare participants for leadership positions across medical settings. Session 1: ● Introduction to principles of effective leadership ● Peer feedback on observed leadership behaviors ● Reflection exercise: identifying leadership dilemmas ● Homework assignment of 10 minutes of reflective writing regarding personal reactions to class material Session 2, 3, and 4 are Case Based Sessions Each of the participants submitted a short case based on a real dilemma. The faculty edited the case and the cases were used to frame a case based discussion in the curriculum. ● Participants will work with peers to apply leadership principles to case study examples ● Participants will practice giving feedback to peers regarding leadership approach ● Homework assignment of 10 minutes of reflective writing after each session focused on personal struggles with leadership, personal triumphs, future challenges Teaching Principles: "Learner Driven Class" ●Creation of safe learning environment ●Use of student input to drive the case examples ●Reflection Review opens each session ●Use of peer interaction and peer feedback ●Reflection Journaling follows each session

Reflection: Future directions include: expanding the leadership curriculum beyond psychiatry, to other departments in medicine

Poster 12: Initiation of ACE Tracker on Teaching Rounds: Assessment of Reliability and Validity

L.A. Roberts
SUNY at Stony Brook

Objectives: To determine the reliability and validity of ACE Tracker geriatric risk assessment tool.

Background: We are currently participating in a pilot program using a novel tool called ACE Tracker, developed by Aurora Health Care in Wisconsin, with the goal of improving geriatric care. The program generates a daily report from the electronic medical record that lists key risk factors in elderly patients that will impact their hospital course and discharge. Our teaching attendings have extended the use of the ACE Tracker to education of our residents in terms of vital geriatric issues. Ultimately, we would like to develop an objective assessment of the effectiveness of ACE Tracker as a teaching tool, but as a first step we needed to determine the reliability and validity as a geriatric risk assessment tool.

Methods: Five providers performed the validation study in October 2013 at our institution for patients admitted to the general medicine service on one unit. They compared the generated report with visual patient observations (for presence of urinary catheter and physical restraints) and EMR documentation(physical therapy and/or occupational therapy orders, nurses' recorded Morse and Braden scores, and recorded number of scheduled medications, including Beers medications ordered and/or administered). Each reviewer compared observed "true" data for each of the 74 patients with the respective data in ACE Tracker.

Reflection: Discussion The results show good inter-observer reliability among the five reviewers. Validity ("Accuracy") was excellent for Morse Falls Score, Braden Score, PT consult, Use of Restraints, and Use of Urinary Catheter. Validity ("Accuracy") was less than optimal for Number of Scheduled Medications and Beers List Medications (Ordered and Administered). These results were a consequence of how certain prescription and Beers medications were coded in the program (notably insulin, heparin, and aspirin) and this has since been rectified. Significance: Since the results are reasonably reliable and valid, it can be used as both a tool to improve geriatric patient care both during the course of hospitalization and at the time of discharge, and also as a valuable teaching tool with residents and students. Limitations:Sample was only from one medicine unit. As ACE Tracker is expanded to other hospital units, differences in nursing assessment and reporting may alter validity. . Next Steps Residents and faculty will complete a pre and post intervention Needs Assessment questionnaire for evaluation of effectiveness of this new educational curricula (ACE tracker) in improving knowledge of geriatric principles among housestaff. If our results demonstrate this to be an effective teaching tool for our institution, this has far-reaching implications for other residency programs. It is a novel method of improving the discharge process while teaching geriatric clinical competencies to housestaff in a "real-time" environment. Since it is used as a residents guidepost during discharge rounds, it is fostering interdisciplinary team-building. Conclusion This initial study demonstrates that ACE Tracker has acceptable reliability and validity for our institution. It is therefore appropriate for us to move on to the next step of assessing its effectiveness as a geriatric teaching tool.

Poster 13: Librarian/Physician Collaboration to Create Focused Resource Guides for Students, Residents and Faculty

N. Calabretta, S. Whitfield, B.P. Gable, D. Meislich, B. Miller
Cooper Medical School of Rowan University

Objectives: To measure impact of librarian-clinician collaboration on creating pathfinders to library resources using LibGuides technology.
Background: LibGuides have been used to lead medical students away from Wikipedia and Google (Littleford 2012) as well as to support case-based problem solving (Neves 2011) and responsible literature searching (Gerberi 2012). As Cooper Medical School of Rowan University(CMSRU) entered its second year in 2013, CMSRU librarians began creating LibGuides to promote resources and guide patrons to selected resources; however, they were underutilized. In 2014, Internal Medicine residents contacted the librarians for assistance in encouraging efficient use of information resources by residents. Consequently, a librarian worked with the IM program director to create the first discipline-specific LibGuide.
Methods: The librarian and the program director met to discuss purpose, design and selections. Next, the program director submitted a list of resources that was enhanced by librarian suggestions including an rss feed for NEJM and links to library apps. The LibGuide was jointly presented to residents at noon conference, emphasizing the need for continued collaboration to ensure best outcomes. After this initial success, librarians suggested collaborative LibGuides to meet specific needs of other groups groups beginning with the clerkship director for Pediatrics. As CMSRU's charter class entered their longitudinal integrated clerkship year, the librarian and clerkship director worked on a guide to support students and their preceptors, especially in the outpatient offices. Pediatric residents provided feedback as well once the guide was published. After several months, the guide was revised to reflect student requests for access to more case-based resources. Additional guides have been created in collaboration with Surgery residents; ObGyn faculty and residents; Pathology faculty and staff. Librarians reviewed usage data for all LibGuides; this poster will compare results from guides created collaboratively vs guides created by librarians alone.
Reflection: Librarians sought to compare usage data of our librarian created and our clinician-librarian collaborative LibGuides. Three questions were posed: 1) What is the purpose of the guide from the clinician's point of view? 2) Did guides created with clinician input receive more use? 3) Would collaboration with clinicians, residents, fellows and students continue after the guide was launched? Although research has been going on for only a few months, there is already sizable evidence indicating that the success of LibGuides requires collaboration between librarians and clinicians. Librarians have quantitative data regarding usage of LibGuides created for patrons at CMSRU and Cooper University Hospital. In the future, the CMSRU Librarians would like to collect qualitative data to ensure continued patron satisfaction.

Poster 14: UMass Memorial Children's Medical Center Pediatric Residency Block Curriculum

C.R. Hermos, W. Bortcosh
University of Massachusetts Medical School

Objectives: 1) To provide additional protected curricular time for residents during 3-hour monthly "block conferences". 2) To facilitate practical, memorable, interactive teaching. 3) To provide efficient and measurable feedback to educators.
Background: The UMass pediatric residency core curriculum (1.5 hours per week) met ACGME educational guidelines with respects to content. However, residents and faculty wanted

more protected time for teaching and simulation. Faculty requested improved feedback about their teaching.
Methods: We reviewed the standing core curriculum by 1) administering surveys to residents and 2) comparing its content to ABP board content (figure 1). Based on the results we designed a 3-year block conference curriculum. Key components of block conference include (figure not included): 1) Two 3-hour monthly sessions, one for interns and one for seniors (2-4th years). 2) Trainee specific curricula. An intern core curriculum, a senior inpatient curriculum, and a senior outpatient curriculum. 3) Simulation. Most sessions include an integrated high fidelity simulation session related to the conference theme. 4) Feedback. With Polleverywhere, we gather feedback from residents immediately following block conference and forward to the teaching faculty (table).
Reflection: Strengths of the block curriculum include: 1) Longer, theme-based protected teaching time; 2) Integrated simulation; 3) The opportunity to target residents at similar levels; and 4) A means to deliver and track feedback to educators. Potential limitations include service constraints that limit participation. Success of the block curriculum and the Polleverywhere feedback tool will be measured by: 1) Resident satisfaction surveys; 2) Faculty satisfaction surveys; 3) Pre- and post-tests to measure new knowledge. Future directions include: 1) Refining the content of the block curriculum based on residents' feedback and future needs assessments; 2) Improving the quality of teaching through timely feedback; 3) "Reverse mentorship" as a means of faculty development; 4) Enhancing theme-based activities between scheduled conferences; and 5) Adding objective measures to quantify new knowledge such as observed simulation.

Poster 15: The influence of Spanish language exposure on medical education: the student perspective.

K.A. Nash, M.E. Steinhaus, L.R. Mundy, M. Krause, E.Y. Wang
Columbia University College of Physicians and Surgeons

Objectives: The purpose of the study is to explore medical students' perspectives on how Spanish language exposure influences their education.
Background: The growing Latino population receives poorer healthcare in comparison to white Americans secondary to language and cultural discordance. Many medical schools have implemented language and cultural competency curricula to better train future physicians to communicate with patients of low English proficiency (LEP). However, how students value Spanish proficiency in the context of their medical education remains unknown. This perspective would provide evidence to support and shape new training interventions.
Methods: A survey was distributed to all students enrolled at Columbia University College of Physicians and Surgeons in September 2012. Responses were collected in Survey Monkey. SPSS was used for quantitative and NVivo will be used for qualitative analysis.
Results: Of the 286 respondents (37% response rate), 46.9% of students report being "dissatisfied" with their ability to communicate with LEP Latino patients, while 19.6% report being "satisfied." Students with lower Spanish proficiency were more likely to believe that clinical interactions with LEP patients had a negative impact on their education, while students with high language proficiency were more likely to view interactions with LEP patients as having a positive impact ($R=0.702$, $p<0.01$). Further quantitative analysis describes rates of interpreter use, how students learn Spanish, and student involvement in the community. Qualitative analysis explores why students choose particular methods of communication in different clinical settings.
Reflection: Despite an effort and desire to improve communication, P&S medical students are dissatisfied with their ability to connect with Spanish-speaking LEP patients. The study has several limitations: the results only represent one institution and the study questions are broad, which limits our ability to recommend specific interventions. However this study represents a

first step in developing informed interventions to improve medical student interactions with underserved Latino patients.

Poster 16: Benefits of early opportunities for student-driven elective experiences

C.J. Burnham, S. Malkani
University of Massachusetts Medical School

Objectives: Analyze the merits of a program that provides opportunity for third year medical students to explore career options and encourages self-directed learning Assess advantages of offering medical students early opportunities to design their own learning experiences
Background: The traditional medical curriculum allows students to explore individual interests by offering month-long electives in the final year of medical school, by which time career choice has often been made, and residency selections have been submitted. The advantage of providing multiple opportunities for self-directed learning earlier in the medical school career contributes positively to the trajectory of their subsequent medical education, and provides greater satisfaction with career choices.
Methods: We implemented a new mandatory program which requires rising third year medical students to choose four, one-week experiences, from a diverse offering of pre-designed electives, or to design their own experiences. These are interspersed with the core clerkships. Self-directed learning is an integral aspect of the program. For all experiences, specific learning objectives are required, which are approved by program leadership. Experiences can be in any area of health care, including clinical medicine, global-health, community health, research, medical education, and service electives. Success of the program is assessed in terms of 1) student satisfaction based on ratings of experience and individual comments, and 2) student participation in designing their own unique experiences vs. choosing standard faculty designed experiences.
Reflection: Student participation in designing their own curricular experiences increased significantly from 17% to 23% within one year of implementing the program; the trend continues for the current academic year. Satisfaction scores are higher for student designed experiences versus faculty designed experiences (3.96 v. 3.72, on a scale of 4). Student comments are highly positive for self-designed experiences. When given the opportunity, students prefer to design their own elective experiences to meet self-perceived educational needs, and are more satisfied when they do so.

Poster 17: Behaviorally Anchored Communication Skills Checklist for Medical Student OSCE Demonstrates Reliability Utilizing Generalizability Theory Analysis

FB Milan[1], J Grochowalski[2], S Parish[3]
[1]Albert Einstein School of Medicine, [2]Fordham University, [3]Weill Cornell School of Medicine

Objectives: Reliability analysis of a behaviorally anchored communication skills checklist based on the three function model for a medical school OSCE using classical item and generalizability theory analyses.
Background: Communication skills checklists are an integral component of medical student OSCEs that assess overall clinical competency. Cronbach's alpha, a standard reliability assessment for such instruments, cannot account for complex sources of error in measurement and is not generalizable. Generalizability theory, a method of psychometric analysis, estimates reliability with greater precision, as it accounts for the multiple sources of error variance in complex designs (1,2). Communication skills checklists in the literature differ more on format than content, and we have not encountered many that use behaviorally anchored scales and have been evaluated using the generalizability theory analysis (2).

Methods: We developed a 12-item, 3-point, behaviorally anchored communication skills checklist for use with our end of 3rd year medical student 8-station OSCE based on the Three Function Approach (3). The checklist has items on opening, information gathering, facilitation, relationship building and patient education skills. SPs are trained for one hour using frame of reference training with video clips. Using data from our 2014 OSCE we used classical item and multi-facet generalizability analyses to evaluate the items and reliability of the scores and the resulting scoring decisions.
Results: There were 182 examinees. The items are fairly uniform in difficulty with most item-total correlations around .70. The relative reliability for scores at each station ranged from .586 to .870, the estimated composite reliability of the checklist score was .820 and the reliability of passing score decision to be .904.
Reflection: With minimal SP training and moderate number of items, when used with a medical student OSCE, the communication skills checklist, based on a well established communication skills model, demonstrated acceptable item statistics and produced scores with high reliability.

Poster 18: The Borderline Regression Method produces a reliable passing standard using standardized patients as sole raters in a medical student OSCE

F.B. Milan[1], J. Grochowalski[2]
[1]Albert Einstein School of Medicine, [2]Fordham University

Objectives: The purpose of this study was to investigate whether SPs could be reliably used as sole raters in an OSCE using the borderline regression standard setting method.
Background: In a competency-based educational system, finding a reliable, practical and low cost criterion-referenced standard setting method for performance-based assessments has proved challenging. The borderline regression method of standard setting for OSCEs has been shown to estimate reliable scores with low error rates (1,2) in studies using faculty as raters completing both skills checklists and a global rating for each student. However, this requires substantial time investment from faculty. SPs have been shown to be reliable OSCE raters (3) but have not been evaluated using global ratings for use with the borderline regression standard setting method.
Methods: A group of experienced SPs were trained for an hour on a five-point global rating scale using frame of reference training with videoclips. In an 8-station OSCE for 182 third-year students at our institution, SPs completed both skills checklists (history, physical, communication skills) and the global rating scale. The borderline regression method was used to create case passing scores. We used the spearman-brown prophesy formula to estimate the dependability of the final pass or fail decisions and generalizability theory to estimate absolute dependability coefficients for global ratings, checklist scores, and case pass-score decisions.
Results: The spearman-brown estimate is .95 for pass or fail decisions for the complete OSCE. Dependability coefficients of individual case passing scores range from .70 to .86, meaning pass decisions have high dependability.
Reflection: Based on our findings, the borderline regression method of standard setting can be used with SPs as sole raters in a medical student OSCE to produce a dependable passing score. For those already using SPs as raters, this can provide a practical criterion-referenced standard setting method for no additional cost or faculty time.

Poster 19: Difficult Conversations: A Geriatric Medicine/Palliative Care Formative Objective Structured Clinical Examination (OSCE) for Medicine Sub-Interns

S. McGee, J. Reidy, M. Yazdani, J. Gallagher, C. Donahue, R. Morse, S. Barrett
University of Massachusetts Medical School

Objectives: The purpose of this project was to help students learn to initiate and navigate difficult discussions about goals of care (GOC) and treatment preferences.
Background: A formative OSCE for MS4 medicine sub-interns was developed as part of the Donald W Reynolds sponsored University of Massachusetts Medical School (UMMS) Advancing Geriatrics Education (AGE) initiatives.
Methods: Medicine sub-interns work in pairs with a standardized patient (SP) and spouse. The SP portrays an older adult with advanced chronic obstructive pulmonary disease presenting to the ED with moderate respiratory distress. Students are asked to interview and examine the SP and explore treatment options. Successive pairs of students participate in this exercise with similar, but increasingly challenging scenarios. Student pairs receive feedback from peers and faculty, discuss medical management, and deconstruct the components of GOC discussions. After all sub-interns complete the scenario, they debrief with faculty (geriatric medicine, hospital medicine, palliative care) and SPs, then complete an evaluation.
Results: To date, 108 MS4 medicine sub-interns have participated in this pilot experience. Nearly all students (98%-99%) agreed/strongly agreed that the session helped them recognize when GOC conversations were needed, helped them learn how to initiate and understand how to conduct GOC conversations, and feel more confident with them. Selected comments included: “This was one of the more useful simulation experiences and helped me clarify and improve my skills in these difficult conversations” and “It was helpful to learn techniques to help in conducting goals of care discussions.”
Reflection: Sub-interns view this formative Geriatric Medicine/Palliative Care OSCE as a valuable experience. The OSCE afforded sub-interns an opportunity to practice initiating and conducting GOC conversations, resulting in improved confidence in leading these discussions. Based on this OSCE’s success, authors are now piloting a similar GOC simulation with more senior trainees and faculty.

Poster 20: Assessing the short-term and long-term efficacy of disaster medicine training and education at the University of Massachusetts.

M. Smith, M. Philbin, A. Dinh, P. Zgurzynski, J. Jonassen, M. Fischer
University of Massachusetts Medical School

Objectives: To analyze evaluation data from a novel interprofessional disaster management curriculum to inform ongoing curriculum improvement and explore differences in satisfaction and learning based on participants’ professional training. To assess durability of learning from this experience by comparison of student responses to pre-post knowledge-based questions and retesting using the same questions for school of medicine students in a subsequent course.
Background: Increasingly health professions schools are incorporating high fidelity simulation exercises to support learner professional development. Simulation is appropriate for many skills, particularly those that pose high risk or discomfort to patients, rely on teamwork or are low frequency events. Disaster management is one such skill and a limited number of professionals receive formal training in this topic.[1] The University of Massachusetts developed a day-long disaster management curriculum, based on nationally-recognized core competencies, for School of Medicine and Nursing School students.[2,3]
Methods: Approximately 150 students from the Graduate School of Nursing and Medical School at the University of Massachusetts participated in the disaster management curriculum. Students completed program evaluations and were surveyed regarding their comfort with and

specific knowledge of key disaster management concepts. School of Medicine students completed the same post-experience assessments as part of a subsequent required course. Data were analyzed confidentially to determine similarities and differences in learning based on students' professional training, as well as longevity of that response for medical students.
Results: We will present data described above, as well as descriptive information regarding the curriculum.
Reflection: Potential limitations include the fact that this work has been done at a single university. Student participants likely also had a wide range of prior experiences in disaster management. Conclusions will be based on data as reported and authors will identify potential next steps to incorporate findings into curricula.

Poster 21: Academic Enrichment Programs: Services students seek
C.M. Woolf, M. Mazzawi, R. Wells
University of Massachusetts Medical School

Objectives: The UMMS supports learners throughout their educational program. University staff is aware that medical school is challenging and therefore provides Academic Enrichment Programs (AEP) through the Center for Academic Achievement (CAA).
Background: The AEP personnel work closely with students to assist them in preparing for course and Board exams, and developing time management, organization, and study skills, which are essential for academic success (Paul, Hinman, Dottl, & Passon, 2009).
Methods: AEP are offered for students in all years through large group lectures, individual sessions, small group sessions, and an online course focused on preparing for Step 1. Sessions addressing Boards preparation involve developing calendars to determine how to cover test content, reviewing resources to assess appropriateness and ways to best study from the material, and practicing procedures for completing questions. Meetings on test taking skills include analyzing a recent exam to identify types of errors made, processing of item information, and prioritization of material covered on the exam. Time management sessions comprise making hourly plans to schedule tasks essential for success, while study skills and organization meetings include planning how to design notes, study tools, and systems to learn and remember vast amounts of information. Students leave sessions with concrete suggestions to implement.
Reflection: Students attend programs on a voluntary basis and the numbers of students seeking services has increased. Mentors, administrators, course faculty, and other students provide referrals. By the end of the second year of medical school over 80% of the class has visited the CAA and most attend more than one session. At times it may be beneficial for students to attend sessions more frequently, but since meetings are voluntary students visit when they desire. The AEP is developing materials to provide to all students through an online classroom to support the ideas shared and skills practiced during individual meetings.

Poster 22: Does Moving from a 12-week Medicine Clerkship to a 10-week Medicine Clerkship Affect Student Academic Performance?
S. Lappin, J.G. Christner, L.A. Phelan, L. Germain
SUNY Upstate Medical University

Objectives: The goal of this study was to compare student performance before and after a Medicine Clerkship was shortened from 12 to 10 weeks.
Background: In 2011, Upstate Medical University shortened six of the required clerkships in order to allow 4th year medical students additional time for electives prior to applying to the National Residency Match Program. This study examines outcomes of the shift in the domains of medical knowledge and clinical competency.

Methods: Student performance data from the classes of 2011 and 2012 (12-week clerkship) and the classes of 2013 and 2014 (10-week clerkship) were collected and compared using T-tests.
Results: First, we examined pre-clerkship performance indicators and found no statistically significant differences between the cohorts on undergraduate science GPA (p = .665), pre-clerkship GPA (p = .635), or MCAT average (p = .463). However, we found a statistically significant difference in mean Step 1 scores between the cohorts (p = .002) with students in the 10-week clerkship cohort scoring higher (Table 1). After controlling for Step 1 scores, we found that the 10 week clerkship cohort performed better on the NBME Subject Exam (p = .007) and there were no significant differences in Step 2 scores (p = .108) or on final scores for the standardized patient exam (p =.66) between the cohorts (Table 2).
Reflection: Student performance was similar for students in both the 10-week and 12-week cohorts. Students who completed the 10-week clerkship performed better on the NBME Subject exam. Reducing time in the required clerkships allows more time for medical students to explore specialty areas of interest without adversely affecting their academic performance.

Poster 23: The impact of technology and tablet devices in clinical years of medical education.

P. Chilakamarri, J. Jemison
University of Vermont College of Medicine

Objectives: Tablet device use in medical education is a recent idea very few schools have evaluated. In the recent 2012 AAMC Medical School Tablet Device Survey results, it was noted that 63% of medical schools do not require or provide tablets for their students. As a result, there is a paucity of data evaluating structured use of tablets in the curriculum.
Background: UVM has been on the forefront of technology integration in the medical school curriculum for several years. Unique to UVM's approach is that tablets were deployed to students as part of a comprehensive program that includes laptops, software, support and training. Technology literacy and professionalism are taught as part of the Vermont Integrated Curriculum. The technology program and approach was singled out as a strength of the institution during its recent LCME accreditation. Building on the success of this technology program makes UVM Android tablet program unique and noteworthy among medical schools.
Methods: Since 2013 a new initiative was launched where Android-based tablets were provided for all the third year medical students starting their clinical years. Surveys were administered at the start of the year when the tablets were given and again towards the end of the students' third year. Information gathered includes how often tablets were used in a clinical setting, how the technology was utilized and the general response from clinicians to tablet use on the wards or preceptor office. Data has been collected for two years regarding the effectiveness of the resource and how it is incorporated to aid education.
Results: A preliminary analysis of the data yields an interesting insight into the culture of technology in clinical education. Of the respondents, 62.1% bring their tablet to their rotation every day. About 43.1% report finding having the tablet in a clinical setting very useful while 12.1% do not find that they utilized this resource. Although only about 29.31% of clinicians (preceptors, residents, attendings) have encouraged use, students have reported that preceptors are often impressed with the idea of the new tablet program. Many have stated that clinician perspectives on the tablets were often established early in the rotation when students introduced the tablet and used it actively as a reference during the rotation.
Reflection: As information becomes increasingly available and accessible through technology in medicine, educators must understand how it can be incorporated into the curriculum. Harnessing the value of tablets in medical education has potent value as it trains students to use resources efficiently. Technology has been reported to create a potential barrier in the

patient-physician interaction and care but by introducing technology earlier in medical student education, I believe we will initiate a cultural change as medicine evolves.

Poster 24: Creating a Positive Learning Environment Using Novel Education Tools

C. Patel, A. Rich, S. Ackerman, N. Feldman, J. Lewis
University of Vermont College of Medicine

Objectives: The aim of this project was to ascertain what constitutes mistreatment from the perspective of medical students and to optimally portray that experience in a curriculum for all participants in the learning environment.
Background: On the 2012 and 2013 Association of American Medical Colleges (AAMC) Graduation Questionnaire, UVM medical students reported higher than average rates of mistreatment in multiple categories, including public embarrassment/humiliation and the request to perform personal services. Several institution-wide measures have since been instituted, including policy revisions, the creation of professionalism tenets, the establishment of an ombudsperson, and the formation of a learning environment and professionalism (LEAP) committee. However, to fully address this problem, a curriculum is needed that reflects an accurate and nuanced understanding of what occurs within our own institution.
Methods: Medical student focus groups provided us with information on common scenarios perceived as mistreatment by UVM-COM medical students. This data was used to create a short film portraying these identified themes. The film was then integrated into an educational module for medical students, and used as a topic of discussion for residents and faculty.
Results: This module has been well received by the UVM-FAHC community, and has garnered interest from outside institutions.
Reflection: Our film and module provides an innovative and interactive method to address and reduce the incidence of learner mistreatment. Future directions involve the study of these methods and the development of two additional films to portray the perspectives of faculty, residents, and staff. It is our hope that this trilogy of films will provide a “360 degree” perspective on the problem of student mistreatment and will serve as a stimulus for the important interdisciplinary and interprofessional conversations necessary to develop a culture of respect in our learning environment.

Poster 25: Third year flexible clinical experience (FCE) in reflective writing

N. Mushero, D. Hatem
University of Massachusetts Medical School

Objectives: To create an opportunity for students to spend time during the third year of undergraduate medical education to reflect on their experiences using reflective writing. This FCE is a one week experience that focuses on three of the six medical school competencies: physician as communicator, patient and community advocate, and person.
Background: Group reflective learning during third year medical education has been shown to prevent a decline in empathy among physicians in training, however reflection has traditionally been limited. Writing opportunities in the UMass Medical School curriculum have included an elective in Creative Writing for second year medical students where students learn to reflect on and share their medical experiences in a written format of their choosing. There is also a self-designed fourth year writing elective in which a minority of students write reflections. There has not been the opportunity to reflect in writing during the rigorous third year curriculum. This FCE was designed as a bridge to create a longitudinal experience in reflective writing for students at UMASS Medical School or to function as a stand-alone experience.
Methods: Currently, participating students select a mentor to oversee their work and self-design a project. This allows students the freedom to pursue their passion with oversight to provide

guidance and accountability. This is a course for those with any level of writing experience and the self-design allows students with any background to create appropriate course objectives. The project must then be approved by the director of the FCE program and final grading is performed by the mentor chosen by the student.
Reflection: This one week course has successfully allowed students the opportunity to reflect on their medical experiences. Current limitations include the small size of the program. Future directions include reflection in a group setting as that has been shown to improve retention of empathy.

Poster 26: Cooper Longitudinal Integrated Clerkship: An Innovative Model at an Urban Academic Medical Center Affiliated with a New Medical School in Camden, New Jersey
J.B. AlexanderS.M. Perlis, L. Weisberg, R. O'Neal, A. Reboli
Cooper Medical School of Rowan University

Objectives: Adapt the longitudinal integrated clerkship (LIC) model to an urban, academic medical center.
Background: LIC's have been used for over two decades in rural settings with primary care preceptors. Our school is situated in an urban environment. Our teaching hospital is a tertiary care facility emphasizing specialty care. Our challenge is to develop an LIC in this urban, specialty-rich environment.
Methods: We have implemented an LIC for the entire charter M3 class (n=45). After orientation, students rotate through one week "Immersions" on inpatient services in Internal Medicine, Neurology, Obstetrics-Gynecology, Pediatrics, Psychiatry, and Surgery. Students then enter the ambulatory component of the clerkship, going to offices for half-day sessions with their preceptors Adult Primary Care (Internal Medicine/Family Medicine), Neurology, Obstetrics-Gynecology, Pediatrics, Psychiatry, and Surgery. Students also have designated time for longitudinal Service Learning Projects as well as Capstone Research Projects. Unassigned ("Self-Directed Learning") time is used to follow patients and pursue individual interests. Additional inpatient experience is provided in "Burst" weeks in Internal Medicine, Obstetrics-Gynecology, Pediatrics, and Surgery. Students take "Call" in 12 hour weekend hospital shifts on Internal Medicine, Obstetrics-Gynecology, Pediatrics, and Surgery. Students receive formative and summative assessments in all experiences.
Reflection: We expect that the students will demonstrate the acquisition of fundamental clinical competencies over the M3 year while immersed in a model that aligns with the practice of medicine in the 21st century. They are forming meaningful relationships both with continuity patients and faculty preceptors. They are establishing a foundational professional identity characterized by a patient-centered perspective and a commitment to life-long learning. Pre- and post-experience data are being collected to validate these observations. We believe the Cooper Longitudinal Integrated Clerkship provides a template for other urban academic medical centers to adopt for the clinical education of their M3 students.

Poster 27: Medical students as instructors: a near-peer workshop to teach the musculoskeletal physical examination
C. Scott, A. Bevelaqua, D. Gowda
Columbia University College of Physicians and Surgeons

Objectives: In an effort to enhance medical students' musculoskeletal (MSK) physical examination (PE) skills, we devised a case-based workshop wherein fourth-year medical students (MS4s) instructed third-year medical students (MS3s) in a case-based workshop setting.

Background: Despite the fact that MSK disorders are among of the most commonly self-reported chronic conditions, medical schools provide relatively little training in MSK physical diagnosis, as demonstrated by poorer student performance on MSK PE than in other domains on the USMLE Step 2 exam1,3. Medical students nation-wide have expressed low self-confidence in this area of their learning2. A near-peer education model may be an effective adjunct to traditional methods of teaching the PE.
Methods: MS4s with prior training in MSK PE skills conducted a workshop to teach MSK PE skills to MS3s while acting as standardized patients using four clinical cases. Resident physicians in rehabilitation medicine supervised to ensure accurate demonstration of PE technique. All students were asked to complete an online survey before and after the workshop in order to assess knowledge acquisition and subjective learning experience.
Results: Eighteen medical students (twelve MS3s and six MS4s) participated in this workshop, of which twelve completed both surveys (nine MS3s and three MS4s). Students' performance on a ten-question multiple-choice knowledge assessment quiz improved significantly after participation (mean pre-workshop score: 0.625, mean post-workshop score: 0.758, pre-to-post improvement of 0.133, p=0.002). Participants also subjectively reported improvement in comfort performing the MSK physical examination, as assessed using a seven-point Likert scale, where a score of 1 represented 'very comfortable' (mean pre-workshop score: 4.750, mean post-workshop score: 2.667, pre-to-post improvement of 2.083, p=0.0001). All participants responding to the surveys stated that they would recommend the workshop to their peers.
Reflection: This study shows that a near-peer-led workshop, when used as an adjunct to a traditional curriculum, can enhance medical students' knowledge related to the MSK PE, and can positively impact their confidence with performing MSK PE skills.

Poster 28: Innovations in Medical Education: A Student Designed Flexible Clinical Elective in Pediatric and Adolescent Gynecology

G.L. Wilkie
University of Massachusetts Medical School

Objectives: The objective of student-designed flexible clinical electives (FCE) is to allow medical students the opportunity to gain insight into particular medical fields with limited exposure in the traditional curriculum; therefore, a weeklong student-designed FCE was created in pediatric and adolescent gynecology.
Background: It has been shown that exposure to clinical experiences and mentors are influential on medical students and their future career decisions[1]. The University of Massachusetts Medical School has created a program that allows third year medical students to create up to four weeklong electives that encourage exploration in new fields of medicine[2]. During the obstetrics and gynecology rotation, there is limited exposure to working with the pediatric and adolescent population regarding sensitive topics such as contraception, teen pregnancy, and congenital anomalies of the female reproductive tract. As a student interested in obstetrics and gynecology, I wanted more experience working with this specific population.
Methods: A weeklong elective can be created with the help of a faculty sponsor who oversees the clinical experience. The director of the division of pediatric and adolescent gynecology and an adolescent medicine physician were the faculty sponsors for my experience. The elective's objectives and their relationships to our clinical competencies were submitted for approval prior to the elective. The elective combines time in outpatient clinics focused on pediatric and adolescent gynecology.
Reflection: FCEs enable students the opportunity to pause from structured clinical days to reflect on career development, and to develop mentor relationships with experts in a subspecialized field. This particular FCE afforded me knowledge and skills in a subspecialty that I never would have seen in the traditional curriculum. The main limitation of this experience is

the brief length of each elective, and thus extending the length of FCEs would allow students to gather a more complete experience.

Poster 29: Medical students' observation of technical versus non-technical skills teaching during the general surgery clerkship

C. Hsieh[1], R. Nowygrod[1], R. Henry[2]
[1]Columbia University College of Physicians and Surgeons, [2]Michigan State University

Objectives: The purpose of this study is to clarify what teaching moments students observe during their surgical clerkship, and to quantify the relative frequency of non-technical versus technical skills being observed. We hypothesize that students are more likely to observe technical skills teaching and information known to be evaluated on end-of-clerkship exams, rather than the non-technical skills that are nevertheless still critical to the development of competent surgeons.
Background: Traditional surgical education focuses on developing technical skills, medical knowledge, and clinical applications of those skills. While attaining technical proficiency is an explicit goal of surgical training, many nontechnical skills (i.e. cognitive and interpersonal) are acknowledged as important[1] but not explicitly addressed or taught[2]. This creates a significant learning gap for trainee surgeons. In turn, the importance of these skills is not always transmitted to students on their surgical rotations, who must juggle patient care responsibilities and education obligations while adjusting to new professional expectations[3].
Methods: Data will be collected via pre- and post-clerkship surveys, and weekly questionnaires. Students participation will have no impact on their clerkship grade. Subject confidentiality will be maintained with assistance from an education research group not involved with clerkship grading. Data will be collected for 1 year.
Reflection: As a single-institution study taking place at a large, academic medical center, the results may not be broadly applicable. Variation in student reporting of learning experiences may also alter results. However, this study may potentially impact the general surgery clerkship curriculum. Because well-developed non-technical skills are essential for the safe practice of surgery, identifying these skills, learning how to assess and evaluate for proficiency in these areas, and teaching them early on in clinical development, may contribute to our understanding of how healthcare professionals communicate, solve problems, and work together efficiently and effectively in the operating room and surgical units.

Poster 30: Transforming medical students into adult learners for residency

A.G. Dorfman, J. Rosen, L. Newman, K. Hundt
Albany Medical College

Objectives: 1. To reframe medical students' perspective on "learning" and "teaching" as they transition into residency by introducing principles of adult learning. 2. To familiarize medical students with the Kolb Learning Cycle and Bloom's Taxonomy. 3. To apply the above principles in a bedside teaching project.
Background: All 4th year students participate in a required four-week clerkship, "Learning to Teach, Teaching to Learn", to develop teaching skills in anticipation of residency. The curriculum includes a series of workshops followed by opportunities to instruct pre-clinical students in the Clinical Skills Course. In a final project, each student is expected to develop and carry-out a bedside teaching project utilizing the educational principles introduced in the workshops.
Methods: The students receive guidelines in the principles of adult learning with emphasis on the Kolb Learning Cycle and Bloom's Taxonomy, and are expected to use these in a final teaching project. All goals and objectives are shared and reviewed by peers, with individualized

feedback given by faculty members. The projects are carried out before the final week of the clerkship and presented to classmates and faculty in a small group setting. Students receive feedback from peers and faculty, as well as their learners.
Reflection: The strengths of this project are that the students are expected to apply adult learning principles, are encouraged to be innovative, to demonstrate mastery of an area of expertise, and to participate in active feedback. The course evaluations have been overwhelmingly positive. The final project could be improved by the recruitment of additional faculty with medical education backrounds. Future endeavors include developement of a tool to measure the effectiveness of this project on both the teaching and learning of students.

Poster 31: Examining a multi-modal curriculum to expose medical students to complementary and alternative medicine.
L.C. Caines, Z.H. Wu, C. Farag, M. Guerrera
University of Connecticut School of Medicine

Objectives: This study aims to identify whether familiarity with complementary and alternative medicine (CAM) practices improves after exposing first year medical students to a multi-modal curriculum.
Background: A significant portion of the U.S. population uses CAM: 38% of adults and 12% of children (1). With increasing CAM use, Integrative Medicine (IM) has emerged combining the best of conventional and CAM practices (2). Despite these clinical advances medical education has been lagging, leaving gaps in learners' knowledge (3). As medical educators, it is imperative that we keep pace with these developments, educate students, and expand our view of inter-professional care.
Methods: 101 first year medical students at the University of Connecticut participated in a multi-modal CAM curriculum. This included 1) an online research assignment for a continuity patient, 2) a lecture, and 3) two of four activities: acupuncture, hypnotherapy, Reiki or pet therapy. A pre-test and post-test to assess familiarity of CAM practices, safety and efficacy of each modality were administered one week apart. The familiarity was rated on a scale of 0 (not familiar) and 10 (very familiar). Paired Student t-tests assessed changes from pre- to post-tests at significant levels $p<0.01$.
Results: Overall, a mean percentage of students who were able to identify one of the top 8 CAM modalities increased from 38% to 49%. The average familiarity rating of CAM significantly increased from 4.7 pre-test to 6.6 post-test ($p<0.01$). The top 8 CAM modalities students listed included acupuncture, meditation, yoga, massage, Reiki, chiropractic, hypnosis, and pet therapy (See Figure 1). Overall, the familiarity ratings increased for both safety and effectiveness with inter-module variability from pre-test and post-test ($p<0.01$). See Figures 2 & 3. Larger increases in effectiveness familiarity were found than of safety familiarity ($p<0.01$).
Reflection: This multi-modal curriculum significantly improved familiarity with CAM modalities, and their safety and effectiveness.

Poster 32: In Their Own Words: Surveying Medical Students about Developing Effective Search Behaviors and Use of Clinical Information – including Mobile Apps – during Medical School
K. Crea, B. Benson
University of Connecticut Health Center

Objectives: Health science librarians and faculty at UConn School of Medicine seek to understand how medical students begin their transition from novice information-seekers into "expert clinical searchers" by the time of graduation.

Background: In 2013, UConn Health Library was awarded a grant from American Library Association/Association of College & Research Libraries to develop a research project demonstrating how library collections and instructional services contribute to students' academic achievement locally. An "Assessment in Action" team with librarians, faculty and curriculum advisors was formed in April 2013.
Methods: UConn medical students have many clinical resources at their disposal including Access Medicine, Up to Date, Lexicomp, Dynamed, Essential Evidence, Micromedex, Visual DX, Pubmed and Scopus. Many are available as mobile applications. Faculty expect students to use these clinical resources early in their graduate studies. Reference librarians are given instructional time with students to demonstrate effective searching skills, evidence-based medicine resources and assist in loading mobile medical apps onto laptops, phones or iPads.
Results: The project team developed a digital "Library-Evidence Based Medicine Survey" to be used with all students, Years 1-4. Survey questions were written to specifically encourage individuals to explain how their selection of clinical resources and searching strategies progressed, over years. Survey data was collected in 2013-2014 and will be sent again in April 2015.
Reflection: This research project asked medical students to describe "in their own words" what they learned - and regard as educational value – from using library clinical databases, mobile resources and librarian-led instruction. While response rate was under 20%, input from students provides current evidence for faculty and administrators about effectiveness of librarians' involvement in the medical school curriculum. By participating in EBM training sessions with expert searchers, UConn students learn a practical skillset for finding quality information as they move into residency.

Poster 33: Integrating basic science and clinical skills using online learning modules: a longitudinal learning experience in Microbial Pathogenesis via the exemplar of Mycobacterium tuberculosis

S. Oh, E. Carmody
NYU School of Medicine

Objectives: To better support the new curriculum integrating basic and clinical sciences, NYU School of Medicine designed online learning modules that punctuate the curriculum at relevant points during the four years of medical school. By using effectively designed online learning modules, we intended to: - create learning experiences that connect clinical and basic science teaching - provide flexible, individualized and longitudinal learning experience that could occur outside of time allotted for formal classroom didactics - enhance learning experience.
Background: Since 2010, the NYU School of Medicine has deployed the Curriculum for the 21st Century (C21) that introduced "pillar activities" to facilitate the integration of basic and clinical sciences throughout medical school. These thematic pillars (microbial pathogenesis, metabolism, cancer biology, and cardiovascular disease) use disease-based exemplars to upon which to scaffold learning of mechanisms of disease. Although pillar education is considered important, it was difficult to integrate the new activities in the rigid curriculum. To better support the flexible implementation of pillar activities and to ensure positive learning outcomes, we designed onine learning modules in the "microbial pathogenesis pillar." Based on evidence-based cognitive principles of multimedia learning theories, the e-learning modules included multimedia to enforce learners' information processing capacity.
Methods: During the first eighteen months, medical students completed six mini e-learning modules, followed by a lecture, to learn about the relationship between TB and inflammation. These modules included pre- and post-tests, a common patient case, mechanism of disease, fundamental principles of microbial pathogenesis and immunology, and basic instruction on clinical management. In clerkship orientation, students were exposed again to TB-related cases

through three “pharmacological principles” e-learning modules. The quiz-based modules provided students with critical reviews of pharmacological principles and their applications to a clinical scenario. During the medicine clerkship, students revisited the first six modules prior to an interactive TB case conference to reinforce their knowledge, allowing higher-level learning within the conference. In the neurology clerkship, students integrated learning on CNS anatomy, microbial pathogenesis, and genetics of the host immune response to understand a clinical presentation of disease in the CNS TB e-learning module.
Reflection: The online learning modules allowed us to: - implement a longitudinal curriculum integrating clinical and basic sciences, without requiring different faculty members to be present at the same place - improve learning outcomes through audiovisual resources - update the content based on a real time learning analytics. Our experiences showed that some students wouldn’t complete learning modules unless tested on high-stakes exams. To engage learners, we plan to design the classroom activities that would require the mastery of the online content and to ensure that modules are assessed within the pre-clinical exams and clerkship grades. Future online learning modules are planned for the pediatric clerkship on the developing immune system and Mycobacterium tuberculosis during infancy, and in the advanced medicine clerkship on tuberculosis and greater principles on infection prevention and control.

Poster 34: Utility of modern integrated curricula in addressing current global health crises

M. Fahey, C.H. Hernon, J. Daly
University of Massachusetts Memorial Medical Center

Objectives: 1. Describe how understanding any global health crisis requires expertise across a number of medical disciplines. 2. Describe the value of a flexible, integrated curriculum to educate students about a current global health crisis. 3. Illustrate how polling technology can be used in the classroom to teach material and evaluate learning. 4. Describe the benefits of bringing clinical expertise into the classroom. 5. List at least three ways to bring medical consultants into the classroom using technology.
Background: Traditional medical curricula largely sequester information into discrete disciplinary “silos.”[1] Rigid compartmentalization is inadequate to meet the needs of educating medical students regarding the complex interplay of medical disciplines found in global health crises. Case-based teaching has been shown to be an effective tool in pre-clinical medical education.[2] A flexible, integrated curriculum incorporates multiple disciplines of thought, clinical expertise, and technology to create a case-based learning session to effectively educate students about the complexities of these crises.
Methods: The Infections and Integrated Case Exercise courses at UMass Medical School collaborated to create an interactive, integrated teaching session focused on the Ebola epidemic in West Africa, targeted to second-year medical students. The session utilizes polling technology to assess student knowledge, opinion and to explore issues in medical ethics. The session integrates material from a number of courses in the broader curriculum. Experts in the fields of infectious disease and global health offer their clinical insights during the session. Due to logistical concerns, a number of technologies are considered to bring consultants into the classroom.
Reflection: The session leaders will offer their opinions regarding particular strengths, limitations, and future directions of integrated case-based education sessions.

Poster 35: The Importance of Asking: Teaching Medical Students How to Ask Patients about Abuse and Violence

D. Donnell, A.M. Alerte
University of Connecticut School of Medicine

Objectives: We incorporated education about abuse and violence--particularly sexual abuse and assault--into the medical school curriculum, to teach future physicians how to ask patients about these important topics, how to react, and how to help. We aim to increase medical students' comfort asking patients about abuse and violence, which will hopefully change clinical practice, improve patient screening, and improve detection of sexual abuse and violence.

Background: Abuse and assault are highly prevalent in society, however few physicians ask patients about violence or abuse, therefore this important component of patients' mental health and well-being is often unreported and undertreated. As shown in the Adverse Childhood Experiences (ACE) Study there is a strong correlation between life experiences—including violence and abuse—and patient health. Sexual assault victims are "3 times more likely to suffer from depression, 6 times more likely to suffer from PTSD, 13 times more likely to abuse alcohol, 26 times more likely to abuse drugs, and 4 times more likely to contemplate suicide" (RAINN). Given the high rates of sexual violence--1 out of 6 women and 1 out of 33 men--and its potential health impacts, it is vital that future physicians have the necessary background knowledge, skills, and attitudes to effectively help these patients.

Methods: At UConn School of Medicine, we added instruction about abuse and violence--including sexual abuse and rape--into the curriculum of our clinical medicine course in which students are enrolled for the first two years of medical school. In the first year medical students' course students were taught to add questions about violence into the routine social history. We added two sentences: "Have you ever dealt with violence?" With a negative response followed by "If anything ever does happen, know that we are here to help you." Students were taught to include this from the beginning of their training so they become more comfortable asking about the three sensitive topics of sex, drugs, and violence simultaneously. In the second year students' course, we added a four-hour class about Abuse and Violence--particularly sexual abuse, rape, intimate partner violence, and physical abuse. Prior to this class, we established connections with a community organization called "Conn SACS (Sexual Assault Crisis Service)" for survivor outreach, patient resources, and first-hand knowledge. During the month prior to this class, all faculty involved with this class were invited to an hour training about Abuse and Violence, to increase their comfort and preparation for student questions. On the day of the class, students learned about sexual assault, sexual abuse, physical abuse, and intimate partner violence, with a focus on questioning techniques, how to respond verbally and nonverbally, and identification of appropriate resources. As the class is instructed with a direct, "how-to" approach, we aim for students to gain an understanding of what to do and why it is important. After this discussion, the class featured a panel of survivors--discussing their traumatic experiences, physician interactions, and recommendations--to enhance students' memory and awareness.

Results: To evaluate curricular impact, we will conduct pre- and post- lecture surveys about students' comfort and knowledge of the material. We will evaluate their performance in the clinical skills lab, monitoring for their inclusion of abuse and violence questions.

Reflection: As strengths, this is a potentially impactful curricular change addressing a serious and pervasive healthcare issue. As a limitation, it has been resource-heavy, involving community outreach and much scheduling and communication. This is limited as it is presently only implemented at one university. Our future goals include longitudinal inclusion of this curriculum material into students' clinical years, elective options, and residency instruction.

Poster 36: Building Meaningful Bridges: An example of successful collaboration between students, faculty and librarians in the University of Massachusetts Medical School Capstone Scholarship and Discovery Course

M. Higgins, L. Levin
University of Massachusetts Medical School

Objectives: In this short communication, attendees will: 1. Be able to recognize examples of successful collaboration between an academic health sciences library and the medical school curriculum 2. Discover methods to develop similar collaborative initiatives at other medical schools.

Background: In 2010, the University of Massachusetts Medical School (UMMS) introduced a new, integrative curriculum. This curriculum includes a mandatory culminating experience called the Capstone Scholarship and Discovery Course (CSD). The CSD ensures that every graduating student completes an individualized, mentored, scholarly project that builds on their personal passion and medical school experience. Librarians in the Lamar Soutter Library (LSL) have become incorporated into the CSD in ways that capitalize on our research and information management skills. Most mentoring for the CSD occurs within one of five Learning Communities or "houses." A librarian is assigned to each house so that every student has a "personal librarian" to consult as they formulate their hypothesis, conduct their literature review, and design their data management plan. In 2014, the LSL partnered with a 2nd year student to construct an online guide on effective scientific and scholarly writing for the CSD.

Methods: As each student begins their 1st year at UMMS, they are assigned to one of five houses. As they begin their CSD projects in year 1, they are encouraged to meet with their house librarian to develop research and data management plans. Students and faculty have welcomed this collaboration and have sought ways to continue to highlight this unique mentoring relationship. Two such initiatives were the creation of an online scientific writing guide and a video project where librarians discuss the importance of sound research methodologies in CSD projects.

Reflection: The writing guide, launched at the start of the 2014-15 academic year, is prominently linked from the library's medical student portal. This portal is the third most visited of 46 existing subject guides which gives this content significant exposure going forward. The Lamar Soutter Library continually seeks ways to interact with our student body. This collaborative effort highlights how these relationships continue to be forged.

Poster 37: Student Reflections about Medical School Prior to Matriculation: A 20 Year Study at Rutgers Robert Wood Johnson Medical School (RWJMS)

N. Saks, H. Rashid
Rutgers Robert Wood Johnson Medical School

Objectives: To determine what students look forward to and what concerns they have prior to starting medical school, and whether these factors have changed in the past 20 years.

Background: The transition into medical school can be stressful. Medical schools accordingly provide orientation programs, peer mentoring, faculty advising, counseling and wellness programs (LCME MS-18, MS-26). In an effort to personalize the orientation programs at RWJMS, incoming students are asked to reflect on their upcoming experience prior to matriculation. Early engagement in reflection, a valuable component to training and in the practice of medicine (Sandars, 2009), provides an added benefit.

Methods: A two item open-ended survey (What are you looking forward to in medical school?" and "What are your concerns about medical school?") was administered to incoming medical students at Rutgers (formerly UMDNJ) Robert Wood Johnson Medical School between 1995

and 2014. Using Atlas Ti, student responses were grouped into common themes. Frequency and percent of responses within themes were calculated.
Results: Responses were received from 1,577 entering students (55%). "Looking forward to" responses were categorized mostly into 3 themes: learning, reaching a lifelong goal to become a physician, and meeting new people. Four main themes captured the highest percentage of concerns: learning and the heavy workload, ineffective study skills, managing/ balancing time, and losing touch with family/ friends. Results were consistent over all 20 years of data collection.
Reflection: Despite many changes in undergraduate premedical preparation and in the selection and training of medical students (Cooke, Irby, & O'Brian, 2010), student expectations and their concerns remained consistent. This information can inform decisions about orientation programs and student services. The survey sends an early positive message to students regarding an environment that cares about students. Documenting how well we have dealt with student expectations and concerns is of course of interest.

Poster 38: "But They're Fresh Out of High School!": A Prematriculation Program Transitioning Students into the World of Medicine

S. Pinol-Roma, D. McBeth, A. d'Antoni, E. Friedman, N. Roberts
Sophie Davis School of Biomedical Education

Objectives: Provide the opportunity for high school graduates to build skills necessary to succeed in medical school, including how to learn, independent learning, and teamwork; to develop an understanding of the interplay between the basic sciences and medicine; to facilitate a transition from the passive learning most students experienced in high school to the active learning that will be necessary in medical school.
Background: Though it is well established and indeed mandated by the LCME that medical students learn in environments predominantly characterized by active learning strategies, undergraduate faculty receiving students from high schools are often fearful that without being provided direct instruction, students will fail to learn basic sciences[1]. This program sought to test the proposition: can a four week prematriculation program assist students in the transition from high school to college and medical school such that they learn to learn, and they learn the importance of basic science knowledge to their medical school learning.
Instructional Methods and Materials: Four faculty members developed three medical problem based learning problems: Diabetic ketoacidosis, HIV infection, and deep vein thrombosis. Forty four students from the entering class of Sophie Davis took part in the program. ___ (number) upper level students were trained and served as facilitators for the PBL sessions. Each group was required to present two slides at the end of the week: One slide on their findings and one containing the group's reflection on their work.
Reflective Critique: Students were successful at identifying and meeting basic science learning objectives, as assessed by faculty. Students' reflections demonstrated sophisticated development of learning processes. Future directions include a systematic investigation of outcomes of the program; follow up on the students enrolled this year to track their progress; inclusion of PBL in the first year of school.

Poster 39: "Can we be replaced? Handing control to students in the lecture hall"

S. Pinol-Roma[1], N. Roberts[1], C. Bangeranye[2]
[1]Sophie Davis School of Biomedical Education, [2]School of Medicine at Hofstra University

Objectives: Develop and implement a student-led Genetic Disease learning module within a Basic Science course in which students generate, develop, and explain to their peers learning issues and their findings pertaining to key diseases.

Background: The Molecules to Cells course at the Sophie Davis School of Biomedical Education explores Human Cellular Structure and Function in health and in disease. It takes place in the 2nd and 3rd years of our 7-year BS/MD Program. It includes traditional large group sessions, small group discussions, and specific student-led sessions in which a group of 3 students present to the whole class their findings on the Biochemical, Cellular, and Genetic basis of specific disorders.
Methods: Each group gives a 10-minute slide presentation, as well as one-sheet handout for distribution to the class. Each group meets with a mentor beforehand to assist in their preparation. The groups take full responsibility for identifying learning needs pertinent to their assigned topic, and for both the structure and organization of their presentations. Time is set aside at the end for questions and answers from the class, which are typically energetic and interactive. Questions drawn from the presentations are included in quizzes and exams, and are given the same weight as material taught by the instructor.
Reflection: Initially, the mentors provided much guidance in formulating learning needs. Over time, the sessions evolved in a way that shifted virtually all the activity to the students. Performance on tests confirms that students learn the appropriate content, and professors observe that student-generated learning activities address the proper curricular content. Students found the peer presentations to be powerful tools in their metacognition. Along the way, a naive faculty learned the extent to which students could acquire, assimilate, and disseminate integrated basic science and clinical information to themselves and to their peers.

Poster 40: BRAIN Case Exercises: Integrative, Collaborative, Graded Problem-Solving
S.B. Gagliardi, N. Garg, T. Smith, M. Dershwitz, M. Rogoff
University of Massachusetts Medical School

Objectives: Develop and implement a graded case-based exercise that requires pre-assigned student teams to integrate information about the nervous system and its disorders, and to submit a collective response containing the “most likely” diagnoses, work-up, and management.
Background: The BRAIN course in the second-year curriculum at the University of Massachusetts School of Medicine integrates Clinical Neuroanatomy, Neurology/Neuropathology, Psychiatry and Pharmacology. Near its conclusion, course leaders provide a case exercise that utilizes collaborative educational methods with the goals of both helping students consolidate and apply content from these neuroscience disciplines, and promoting discussion, clinical reasoning and consensus-building in teams [1].
Methods: Students were assigned to teams of 4-5. Each team completed four multidisciplinary cases reflecting the different course elements during two required 90-minute sessions. Teams worked independently, without faculty facilitation. The cases were presented sequentially. Each team was required to reach consensus and finalize the group’s conclusions about one component of the case (e.g., history) before receiving information about the next (e.g., mental status exam). Later, the cases were reviewed in an interactive faculty-led discussion. The grading rubric for team submissions emphasized logical analysis and data interpretation. The team score represented 5% of each student’s course grade.
Reflection: In three years of experience with this exercise, all teams demonstrated competence, although some provided consistently deeper, more refined analyses. Each year, more than 50% of students reported that this exercise was “very helpful” to their understanding and learning (highest rating on a 4-point Likert scale; n=116 to 123). The absence of faculty facilitators was often cited as a strength of the exercise, suggesting that many students appreciated the opportunity to take full responsibility for team discussions, decision-making, and final submissions.

Poster 41: The "Conflict-Free" Lunch Series: Addressing Conflict of Interest in Early Medical Education

M. Shen
New York Medical College

Objectives: The goal of our project is to create a cultural shift in attitudes toward pharmaceutical industry marketing strategies such as free meals and gifts. The project implements a discussion series under the symbolic guise of "free lunch" sessions, directed towards medical students and clinicians-in-training. We believe early awareness about these issues may be a preventative measure against poor prescribing habits and medical misuse in future physicians. We also hope that by involving faculty and clinicians, they will learn more about students' views on the subject and take responsibility in shaping them.
Background: The influence of pharmaceutical industry marketing strategies on physicians is well-documented and has led to recent federal legislation, such as the Physician Payment Sunshine Act, to encourage transparency.[1] The justification behind this movement is simple: profit-based marketing may undermine evidence-based practice, lead to poor prescribing habits, and give rise to healthcare that fails to put the patient first.[2] These worries, however, are not confined to practicing clinicians. Recent literature has focused on the fact that such habits are developed earlier, in the clinical and even preclinical years of medical school. In fact, interactions between students and industry in clinical settings are associated with positive attitudes toward marketing, as well as skepticism about their negative effects on patient care.[3]
Methods: The project implements a series of monthly lectures and discussions, under the symbolic guise of "free lunch" sessions. Sessions focus on topics such as: student attitudes toward free meals and gifts, the implication of free drug samples, real cases in which harm resulted from inappropriate marketing of drugs, evidence-based medicine as a tool to improve patient care, and institutional policies regarding conflict of interest. The project will implement surveys to assess student and faculty attitudes toward relevant issues.
Reflection: This project has the ability to create cultural change due to the momentum of ongoing efforts that are currently underway at New York Medical College. The impact of this project will be potentiated in parallel by student-led initiatives to establish a Disclosure Slide Policy for the preclinical curriculum, as well as incorporate more evidence-based medicine into the curriculum.

Poster 42: Art, Empathy and Medicine Educational Collaborative

J. Gurwin, K. Revere, S. Davidson, H. DeLisser, G. Binenbaum
University of Pennsylvania School of Medicine

Objectives: To improve medical observation skills and emotional competency through observation training in the visual arts.
Background: Observation is a key component of physical examination, clinical diagnosis, and empathy, but is a difficult skill to teach. Art can be an avenue for teaching observational skills, as the language and principles of clinical descriptions are shared with fine arts. Observation is also important for empathy; to empathize, one must be able to recognize emotions, which requires the skill of observation.
Methods: Randomized, controlled, single-masked trial of 36 first-year medical students, randomized 1:1 into an art training group and control group. Art-training group will receive six custom-designed 1.5-hour art observation sessions at the Philadelphia Museum of Art. All subjects complete pre and post testing, in which they describe works of art, retinal images, and clinical photos. Their written descriptions are graded for observational and descriptive abilities by reviewers masked to group assignment and pre/post-status, using an a priori rubric. Subjects

also complete an empathy test, evaluating ability to recognize emotions based upon photographs of actors' eyes.
Results: Primary outcome measure is change in observational skills and emotional competency test scores, compared between study groups. We hypothesize that art training will result in higher scores for art and medical observations as well as emotional recognition.
Reflection: We expect that art observation training is an effective method for improving medical students' observational skills and empathy. Limitations include lack of long-term follow-up and no clinical testing with patients to determine effects of observational training on patient care. With data from this pilot study, we plan to create an expanded educational program in collaboration with the Philadelphia Museum of Art that will be available for all incoming Penn medical students and to share the program as a model for other institutions.

Poster 43: Crafting Medical Education: A New Perspective and Integration of Social Media and the Pharmaceutical Industry

M. Firnberg, M. Shen, I. Lo, F. Baccay
New York Medical College

Objectives: Our objective is to devise a preclinical curriculum to expose students to issues in social media as well as pharmeutical conflicts of interest.
Background: The arrival of the Internet and mobile technologies has created a disruptive shift in social interaction and information accumulation. The era of business-to-person communications driven by all things social (social media, social networks, and social influence) has emerged as a new model for engagement. In this era, the physician, when confronted with medical decision making, professional on-line networks are an increasingly essential decision-support tool due to the high levels of trust existing in information obtained from on-line networks. Final decision makers are more likely to indicate that they conduct research via a search engine. Changes are taking place in physicians as well as organizations' internal and external use of social media. The pharmaceutical industry is no exception. Marketing practices and priorities of the pharmaceutical industry have come under scrutiny for many years. Concerns arise from the financial aspects inherent to industry unduly influencing medical decisions and treatment plans. These conflicts of interest threaten the integrity of scientific investigations, medical education objectivity, patient care and the public's trust in medicine.
Methods: Small-group teaching, web-based curriculum and implementation of lectures and discussions would be used to educate and familiarize the medical student. Topics of concern would focus on student attitudes toward free meals, gifts, and the implication of free drug samples. Real cases in which harm resulted from inappropriate marketing of drugs in addition to evidence-based medicine serve as mediums to improve patient care, and institutional policies regarding conflict of interest. Independent thought and critical thinking would be encouraged and cultivated.
Reflection: Online communities provide a prime opportunity for physicians, patients and industry to get to know one another more intimately and keep the finger on the pulse of their needs and behaviors. As companies to embrace communities to help them serve their clients better, faster and in more cost-efficient ways, medical education should formalize and support preclerkship curricula that recognizes the roles of social media and the pharmaceutical industry's impact of conflicts of interests to better serve medical education.

Poster 44: Identifying the impact of advisor review on the quality of student scholarly writing

M. Fischer, C.J. Burnham, C. Alper
University of Massachusetts Medical School

Objectives: To assess using independent study tools and a longitudinal scholarly project to teach students skills of scholarly writing. To determine if advisor review enhances the quality of components of a scholarly paper.
Background: Scholarship courses are increasingly integrated into modern medical school curricula to enhance Career guidance, focused mentoring and development of skills of scholarship. The University of Massachusetts School of Medicine implemented the required Capstone Scholarship and Discovery course that culminates in the written presentation of a longitudinal four-year project. With no formal curricular time in the first three years of school, students work largely independently with guidance from Learning Communities mentors and then Capstone project advisors. Working with students, faculty, and library staff, course leadership have created tools in support of this independent work. Students complete semester progress reports designed to guide and evaluate effort, while generating draft components of the final project report. This paper evaluates draft project report components to determine if quality of scholarly writing is impacted by advisor review in advance of submission.
Methods: Three members of the course leadership team adapted a scholarly writing rubric and applied it blindly to three student introductions to test process and determine comparable application. All student submissions (n = 125) of draft Introduction sections were evaluated on this 20–point rubric. Scores were sorted into 4 groups (1-5, 6-10, 11-15, 16-20) and compared to student-report of advisor review prior to submission.
Results: Initial blind sampling of students' draft Introduction section was comparable, allowing independent review of the remainder of papers. We will present data regarding the rubric, quality of introductions and analysis of quality with relationship to faculty review.
Reflection: Potential limitations include student self-report regarding advisor meetings and that medical students bring a wide range of scholarly writing experience to the course.

Poster 45: Medical Student Summer Activities Between First and Second Year

H. Anderson[1], W. Raszka[1], N. Benson[2]
[1]University of Vermont College of Medicine, [2]Massachusetts General Hospital

Objectives: To identify which activities students had pursued between first and second year of medical school and the factors that influenced students' decision-making.
Background: The summer between first and second year of medical school is often deemed "the last summer." However, little has been published about how medical students view this time and what activities they pursue.
Methods: A 29-question web-based survey was administered to medical students from the classes of 2016 and 2017 at the University of Vermont during two weeks in August 2014.
Results: 136 students responded for an overall response rate of 60%. Among respondents 46% were in a committed relationship, 11% had children, 78% had research experience before starting medical school, and 42% reported that financial constraints limited their summer activities. Students reported planning a career in primary care (33.8%), surgery (16.9%) and were undecided (18.9%). The most common primary activities during the summer were spending time with family (22.1%), relaxation (20.6%), and research (20.6%). Approximately 14% reported studying for Step 1 while 2.2% reported studying for Step 1 was the primary activity. Students indicated that personal time for self-development and wellness was of high importance while studying for Step 1 was of low importance. If they could redo anything, the most common responses were travel (28.7%), not change anything (22.8%), or study for Step 1

(9.6%). Students planning a career in primary care were more likely to report participating in relaxation and family time than other students ($p<.01$). Students in a relationship were more likely to participate in relaxation than those not ($p<.01$). On average students starting planning the summer break 4.4 months before the summer and would prefer an 8.8 week break.
Reflection: Students participated in a variety of summer activities; relaxation was of critical importance. Planning for the summer break should begin early in the calendar year.

Poster 46: Development and Integration of a Longitudinal Peer and Self-Assessment Program into the Medical School Curriculum

J.J. Chudow, K. Moghbeli, A.B. Iyer, S.P. Justvig, S. LeDonne, D. Satnick, R.J. Iuli, L. Chandran
Stony Brook University School of Medicine

Objectives: A Peer and Self-Assessment (PSA) program was developed by current students in conjunction with the new LEARN (Learning-focused, Experiential, Adaptive, Rigorous, Novel) curriculum introduced at Stony Brook University School of Medicine (SBUSOM) in 2014. This program's goals are to develop constructive feedback and communication skills in medical students, encourage life-long learning, and support self-reflective practice.
Background: PSA programs improve self-awareness and communication abilities in medical students[1]. In group settings, PSA has been found to engender peer accountability, improve student motivation, and encourage the formation of professional behaviors.[1] PSA is effective when introduced gradually as medical students adjust to the medical school learning environment. Success is found with reinforcement and instruction throughout the curriculum.[2]
Methods: During the medical school orientation course, students are introduced to PSA, its goals, and the SBUSOM program. During pre-clinical years, monthly selected activities (e.g., team-based learning sessions, mock H&Ps, group anatomy dissections) incorporate PSA. Students are randomly assigned a fellow group member to reflect on their performance, contributions and group role as well as their own. Afterwards students complete an online questionnaire (incorporated into the school's online course management system, CBase). Feedback is anonymous for the first half year and identified thereafter. Twice a year, students review their feedback portfolio with pre-assigned faculty members and create action plans for achieving program goals. Faculty insights may subsequently be used in students' Medical Student Performance Evaluation (MSPE) letters.
Reflection: This program provides a consistent basis for PSA and faculty review of provided and received feedback. Challenges of this program include possible distractions to team development and exercises as well as time constraints on faculty. Future goals are to incorporate PSA into the clinical curriculum and assess the program's effectiveness.

Poster 47: Utilization of Course Management Software in Student-Driven Peer and Self-Assessment Program

S.P. Justvig, S. LeDonne, J.J. Chudow, A.B. Iyer, K. Moghbeli, D. Satnick, R.J. Iuli, L. Chandran
Stony Brook University School of Medicine

Objectives: The Peer and Self-Assessment (PSA) program at Stony Brook University School of Medicine (SBUSOM) was developed in conjunction with the LEARN (Learning-focused, Experiential, Adaptive, Rigorous, Novel) curriculum introduced in 2014. This student-led initiative aims to cultivate constructive feedback and communication skills, lifelong learning, and self-reflection throughout SBUSOM's undergraduate medical education. Essential to PSA's feasibility is the use of technology through the Curriculum Online Database (CBase) platform, SBUSOM's Course Management Software.
Background: Peer and self-assessment programs have been shown to improve medical student self-awareness, communication abilities, and professionalism.[1] Information technology

is ubiquitous in healthcare and should be incorporated into undergraduate medical education,[2] and online portfolios have successfully been used to develop self-reflective skills.[3] Therefore, we believe there is support for the use of technology in an effective PSA program.
Methods: The Curriculum Online Database, or CBase, is used for communication and course information at SBUSOM. Since this Course Management Software is custom-built, we could incorporate a CBase-centered mechanism for soliciting and logging PSA over time. The PSA program, with the help of CBase, drives student groupings and randomly assigns students to be evaluated while maintaining anonymity when appropriate. This platform allows for ease of form submission and transfer to the proper recipient as well as PDF export of feedback. Through this instrument, students can access information on PSA-evaluated group events, deadlines, and a log of their PSA over time.
Reflection: The PSA program achieves maximal effectiveness by students' regular use of an online platform. At present, access to PSA on CBase is limited to students; expanding this to include mentors would allow for more streamlined information transfer. Student and faculty mentor feedback will drive future adjustments to the CBase platform.

Poster 48: Timing and Duration of Multiple Choice Examination in a Basic Science Curriculum: Implications for Program Design

R. Nichols[1], W. Raszka[1], N. Benson[2]
[1]University of Vermont College of Medicine, [2]Massachusetts General Hospital

Objectives: We sought to identify how medical students view multiple choice question (MCQ) examinations and the factors that influence their attitudes.
Background: Medical students take numerous MCQ examinations. However, little is known about how students view the scheduling or timing of these examinations.
Methods: A 22 question web-based survey that was administered to UVM College of Medicine students from the classes of 2016 and 2017 during two weeks in June 2014. Results were analyzed using chi-square and Mann-UWhitney tests.
Results: 160 completed the survey for an overall response rate of 71%. Among respondents, 13%, 64%, and 23% reported grades in 70%-79%, 80%-89%, and >90% grade ranges respectively. The most commonly indicated career choice was primary care (36%). Respondents agreed that personal time for relaxation or reflection (90%) and grades were important (71%). More students agreed than disagreed that MCQ examinations should prepare students to take USMLE Step I (85% vs. 1%), and test speediness (44% vs. 20%). Students preferred timed over untimed exams (70% vs 7%) and using the same timing standard as on USMLE Step 1. Only 13% of students thought an untimed examination would help performance. Almost 70% wanted at least some examinations on Friday. More students agreed than disagreed that it was more important to have a free weekend than additional time to study (48% vs. 21%). Students were on average willing to accept a loss of 2.4% points to move a Monday examination to Friday. Class year, self-reported grades, and career choice affected how students viewed the importance of grades, a preference for untimed examinations, and whether examinations should test speediness ($p<.05$).
Reflection: Free weekend time is important to medical students. Preparation for USMLE Step I plays an important role in influencing students' perceptions on the timing of MCQ examinations. Recall bias and low response rate could limit data reliability.

Poster 49: Effect of Interdisciplinary Case Discussions on Enhancing Personal Meaningfulness of Learning Biochemistry

M. Ullo[1], S. Schild[1], R. Demaio[1], L. Chai[1], M. Calt[1], S. Phadtare[1,2], E. Ercikan Abali[1], K. Ercikan[3]
[1]Rutgers Robert Wood Johnson Medical School, [2]Cooper Medical School of Rowan University, [3]University of British Columbia

Objectives: The objective of this study is to explore whether the attitudes of M1 medical students towards biochemistry and patient care would improve after participating in a guided journal reflection on the Interdisciplinary Case Discussions (ICDs), a structured metacognitive process which has been shown to enhance student learning.
Background: ICDs integrate patient care with clinical correlates of biochemistry by fostering an appreciation for the fundamental relationship between the study of biochemistry and medicine and allowing students to reflect on their own values and beliefs to develop compassion and empathy. The association between self-reflection and an increase in a patient-centered approach has been supported in medical education (1-3).
Methods: A pre-post survey of reflection-in-learning (RLS) questionnaire was given at the beginning and end of the M1 GI, Metabolism & Nutrition course. Participants were randomly assigned either to the intervention group to complete structured reflection journals (n = 39) or to the control group (n = 45). The intervention group answered open-ended questions based on their experiences with ICDs. Journal responses were scored as positive, neutral, or negative attitudes towards the ICD and biochemistry. Data were analyzed using SPSS statistical software
Results: Based on the scoring of the journals, the attitudes of students towards biochemistry and ICDs in integrating course material were positive (Mean = 0.5 and 0.8, respectively). Analysis of the pre-post RLS survey showed a significant change ($p<0.01$) in composite RLS scores for both the intervention and the control groups. When each item of the RLS questionnaire was analyzed separately; significant differences ($p<0.05$) were observed for the five survey questions between the intervention and the control groups.
Reflection: Based on the scoring of the journals, the attitudes of students towards biochemistry and ICDs in integrating course material were positive (Mean = 0.5 and 0.8, respectively). Analysis of the pre-post RLS survey showed a significant change ($p<0.01$) in composite RLS scores for both the intervention and the control groups. When each item of the RLS questionnaire was analyzed separately; significant differences ($p<0.05$) were observed for the five survey questions between the intervention and the control groups.

Poster 50: Student-Organized Medical Interviewing in Spanish Elective at UMass Medical School

V.L. Winslow
University of Massachusetts Medical School

Objectives: It comes as no surprise to learn that the Spanish-speaking population of the U.S is rapidly growing. In just a few years, it is estimated that the United States will have the second largest Spanish-speaking population in the world, second only to Mexico.[1] This makes medical Spanish an asset to medical education, and those who partake in its study more competitive candidates for residencies and fellowships nationwide. This fall, students at the University of Massachusetts Medical School orchestrated a Medical Interviewing in Spanish elective course in an effort to improve medical students' levels of comfort conducting interviews of Spanish-speaking patients. [1]Source: Gonzalez-Barrera, A & Hugo-Lopez, M. (August 2013). Spanish is the most spoken non-English language in U.S homes, even among non-Hispanics. Retrieved from: http://www.pewresearch.org/fact-tank/2013/08/13/spanish-is-the-most-spoken-non-english-language-in-u-s-homes-even-among-non-hispanics/

Background: The course was orchestrated by two medical students during the Summer of 2014. Funding from a private donor allowed for the hire of a professional instructor and once the donation was made, funds were only disbursed by the University of Massachusetts Medical School. The elective course was offered to first and second-year medical students and its curriculum, designed by one contracted individual: a certified medical interpreter, certified medical interpreter instructor, high school Spanish teacher, and native Spanish speaker hand-selected by student leaders who also served as the course instructor.
Methods: Three levels of medical Spanish were offered: Basic, Intermediate, and Advanced/Bilingual for between 2-3 hours per week for a total of 30 instructional hours per class. The course was offered as an Optional Enrichment Elective, and students that attended at least 70 percent of scheduled instructional time were credited on their transcripts; those who did not suffered no penalty.
Reflection: Some strengths of the program included its focus on speaking and the ample opportunities students had to converse in Spanish. Originally, the hope was to have advanced students volunteer as Teaching Assistants in the Basic and Intermediate levels, an initiative that was minimally successful due to a lack of consistent volunteers. When Teaching Assistants were present in classes, however, students reported the experience to be positive. Anonymous quality improvement surveys were administered before and after the course and the feedback provided will be used by future coordinators to improve outcomes.

Poster 51: Creating a Medical Educators Pathway at SUNY Downstate: A New Paradigm in Student and Faculty Collaboration

K. Jong, D. Daniel, J. Kurtzman, L. Eisner, N. Gabbur, J. Kubie
SUNY Downstate College of Medicine

Objectives: The goal for the Medical Educators Pathway (MEP) is to promote innovation in teaching through student participation in curriculum development, medical education research, and peer-to-peer education. The pathway will provide medical students at SUNY Downstate with opportunities to serve in leadership positions and to work closely with faculty and peer mentors. Planning, evaluation, and development of the MEP is a student and faculty collaboration in theory, design, and practice.
Background: SUNY Downstate has long prided itself on graduating alumni who hold a significant number of faculty positions at academic medical centers although, Downstate has never implemented a formal pathway to guide them. While other medical schools have developed faculty driven medical education pathways to address this need, our MEP program is primarily student driven with the support of key faculty.
Methods: In Spring 2014, students and faculty worked together to create a proposal based on successful education pathways at other institutions and the educational objectives of SUNY Downstate's unique curriculum. In order to successfully complete the pathway, students in the MEP are required to participate in an educational theory mini-course, faculty and peer mentorship, academic committees, small group or lecture teaching, curriculum development, and scholarly projects. The Medical Educator Pathway (MEP) was introduced in Fall 2014 and has been already greeted with an unexpectedly large student interest.
Reflection: One of the greatest strengths of the MEP is that students are involved with the execution and continual development of the MEP. At a time when the structure and content of medical education curricula are changing rapidly, this innovative MEP also offers an opportunity for faculty and students to work together to evaluate and improve a curriculum while addressing a need to better prepare graduates for careers in medical education. This requires minimal investment of resources on the part of the institution. Limitations on the development of the MEP include faculty time, school resources, and lack of an affiliated teaching academy. To allow for growth and accommodate the growing student interest, additional faculty mentors will be

recruited to mentor students. The pathway will track outcomes of student participation based on student's teaching and participation portfolios. Once the first group of students has completed the pathway, the MEP administration will also track career outcomes of graduates.

Poster 52: A Core Physical Exam for Medical Students: A Systematic Review of the Evidence Base

E. Jang[1], D. Marshall[1], D. Gowda[1], L. Kosowicz[2], M. Shlomovich[2]
[1]Columbia University College of Physicians and Surgeons, [2]University of Connecticut School of Medicine

Objectives: The purpose of this study was to systematically review the evidence base for each of the maneuvers comprising a core physical exam for medical students.
Background: A national survey of medical educators has demonstrated strong support for a core-and-cluster model for teaching the physical examination to medical students.[1] There has yet to be a systematic review of the evidence base for each of the maneuvers in the core physical exam.
Methods: A systematic review of medical literature and relevant texts was conducted for each of the 45 maneuvers recently assessed for inclusion in a core physical exam. Pooled positive and negative likelihood ratios (LR+, LR-) were collected for the relevant potential findings for each maneuver. The quality of evidence was also tabulated for each maneuver according to established evidence-based medicine guidelines.
Results: There was generally strong agreement between the scientific evidence and educator consensus (Figure 1). Notable exceptions include relatively weak evidence for: lymph node examination (LR+ range, 0.6-10.9; LR- range, 0.4-1.1); inspection of oropharynx and dentition (LR+ range 1.4-3.4; LR- range, 0.3-1.0); and weight/height/body mass index (LR+ range, 2.0-5.9; LR- range, 0.4-0.9). Conversely, many of the more specialized maneuvers which were not selected for inclusion had favorable statistical attributes (e.g. palpation of femoral pulses, assessment of functional range of motion, and the cerebellar, otoscopic, and fundoscopic exams).
Reflection: There was generally strong agreement between the scientific evidence and educator consensus (Figure 1). Notable exceptions include relatively weak evidence for: lymph node examination (LR+ range, 0.6-10.9; LR- range, 0.4-1.1); inspection of oropharynx and dentition (LR+ range 1.4-3.4; LR- range, 0.3-1.0); and weight/height/body mass index (LR+ range, 2.0-5.9; LR- range, 0.4-0.9). Conversely, many of the more specialized maneuvers which were not selected for inclusion had favorable statistical attributes (e.g. palpation of femoral pulses, assessment of functional range of motion, and the cerebellar, otoscopic, and fundoscopic exams).

Poster 53: An Ongoing Student, Faculty, and Administrative Collaboration to Integrate LGBTQ+ Health within the UVM College of Medicine

C.F. Nicholas, M.A. Shear, R. Boylard, S. McAdam, C. Reback, W.B. Jeffries
University of Vermont College of Medicine

Objectives: Students from the UVM COM Gender and Sexuality Alliance (GSA), faculty, and administration created a collaborative process to create, sustain and grow longitudinal LGBTQ+ curriculum and programming. We sought to understand the results of this ongoing student/faculty/administrator collaboration.
Background: Physicians need to be competent in societal and health-related problems faced by LGBTQ+ patients. On average, 5 hours of dedicated curricular time is spent discussing LGBTQ+ issues in american medical schools, despite its necessity as documented by the AAMC, LCME and Healthy People 2020.

Methods: Needs assessment/gap analysis: Representatives from each group inventory the curriculum and institutional programing to identify areas of strength and for gaps. Filling in the gaps: Representatives work together to identify key competencies based on the literature and in alignment with the COM Institutional Competencies to add LGBTQ+ learning objectives and activities plus assessments to existing courses. Program assessment: Internal faculty/ program evaluations and external measures such as the AAMC GQ allow for ongoing curricular improvement. Other opportunities: The administration, faculty and students look for ways to enhance the required curriculum through innovative programming. Comparative analysis: Compare UVM COM and other schools of medicine in LGBTQ+ curriculum and programing.
Results: UVM COM continues to strategically integrate LGBTQ+ competencies by innovative programming in (1) medical education of LGBTQ+ health disparities, (2) clinical education and LGBTQ+ patient simulation, and (3) improvement of health care delivery through advanced electives.
Reflection: The collaborative approach, ongoing student/faculty interest, and support from the administration has contributed to: •The UVM College of Medicine becoming a national leader in LGBTQ+ medical education and innovative programing. •Expansion of programming and outreach to the greater LGBTQ+ community. •Ongoing improvement and expansion of mandatory instruction in LGBTQ+ education.

Poster 54: The Global Health Pathway: A four-year longitudinal experience to train future physicians in the principals and practice of global health

M. Chin
University of Massachuestts Medical School

Objectives: The overall goal of the Global Health Pathway (GHP) is to prepare and provide U.S. medical students at the University of Massachusetts Medical School (UMMS) with clinical, research and cultural experiences with underserved populations both in the U.S. and around the globe. To meet this goal, the objectives of the GHP include: increase knowledge of diseases affecting underserved populations around the world; increase cultural competency in caring for underserved populations; learn about refugee and immigrant populations living in the U.S. and the challenges that they face accessing health care; learn about organizations serving underserved populations and how to advocate for these populations.
Background: In response to growing interest among medical students who want to receive training in global health, UMMS redesigned and expanded its Global Health Pathway (GHP) starting in the 2013/2014 Academic Year.
Methods: The objectives of the GHP will be achieved using a new curriculum that includes small-group seminar discussions, clinical case presentations, large-group presentations by guest lecturers, a global health immersion experience, poster presentations, activities outside the medical school with community-based organizations, a group service project, and completion of an individualized Capstone project on a global health topic. Sixteen 1st year medical students were accepted into the GHP in the 2013/2014 Academic Year, and nineteen 1st year medical students were accepted in the 2014/2015 Academic Year.
Reflection: Students that apply and are accepted into the GHP will continue in the Pathway for their entire 4-years of medical school. Therefore, the new GHP curriculum is being implemented over the course of four years. Evaluations after the first year of the GHP showed strong initial results, with 100% of students reporting that they would agree or strongly agree with recommending this course to other students, that the clinical case presentations were a good method of learning about global health, and that faculty were professional role models.

Poster 55: Hands-on Education in Health Disparities: Food Access in Patients Receiving a Free Health Literacy Intervention from Clínica Esperanza Hope Clinic.

R.M. Yalamanchili[1], J. Diaz[1], F. El Rayess[1], I. Castillo[2], D. Rosales[2], A. De Groot[2]
[1]Warren Alpert Medical School of Brown University, [2]Clinica Esperanza

Objectives: Recent guidelines by many organizations, including the AAMC, have urged medical schools to begin incorporating training on healthcare disparities issues within their curricula. While it is certainly important to provide theoretical background in healthcare disparities within the classroom, it is equally significant to provide medical students hands-on learning opportunities that can directly impact their surrounding underserved communities. One of the goals of this project is to assess a survey tool in collecting information about healthy food access in order to determine the value of said experience in serving as a hands-on learning opportunity for medical students that also has a positive impact on the community as a whole.

Background: Health disparities (HD) are linked to a lack of healthcare access. While Latinos represent 12% of the population in Rhode Island (RI), 31% of uninsured patients in the state self-identify as Latinos (RI DOH). In addition, Latinos are 3.7 times more likely to be diagnosed with diabetes and experience higher rates of obesity and hypertension than non-Hispanic whites (Heron, 2007; CDC). Furthermore, many studies have shown poor health outcomes are associated with poor access to food (Moore et al., 2008; Sharkey, 2009). Given the increasing food insecurity rate in RI within the past decade, which had grown to 14.7% of households in 2010 (USDA), food access issues most likely prevent uninsured patients from obtaining healthy foods. Poor access to food may also attenuate the outcomes of local programs that aim to improve health literacy among medically underserved patients. To gain a better understanding of the societal factors that may affect food access for underserved populations, a survey was designed based on past models. This survey was administered at Clinica Esperanza Hope Clinic (CEHC) during its Vida Sana Program (VS), a major health literacy intervention in Providence to address HD affecting this free clinic's primarily Latino and uninsured patient population.

Methods: A 3-page survey was composed in both Spanish and English with 21 questions about demographics and societal factors affecting food access, such as distance of primary grocery store (PGS) and quality of food available at said establishment. A pilot study was held in July and August 2013 to gain participant feedback on survey clarity and design. All non-pregnant patients aged 18 or older and enrolled in VS were eligible to participate.

Results: Over the course of the pilot study, 19 total patients were surveyed, 78% of whom chose Spanish versions. Among basic demographics, mean participant age was 51 years, 63% were women, and 84% self-identified as Hispanic/Latino. Within socioeconomic variables, slightly higher than half did not have a high school degree, and 52% had an annual household income less than $15,000. Additionally, 89.5% and 31.6% reported lack of insurance and use of SNAP, respectively. Finally, 63% of participants indicated Price Rite (+/- Compare Foods) as their PGS. Upon completion of the pilot study, the survey was further optimized and re-implemented in a longer-term study with identical eligibility criteria (currently on-going).

Reflection: This bilingual food access survey serves as an informative tool to better understand the nature of food access among uninsured patients enrolled in health literacy programs. Given the minimally invasive yet simultaneously elucidating nature of this type of research, projects utilizing surveys to explore food access in marginalized communities may provide a valuable hands-on learning opportunity for medical students during their health disparities training while also benefiting the community as a whole.

Poster 56: "Flipping" a medical and dental school pipeline program course with instructor pedagogical training and Khan Academy content resources: A model for instruction and evaluation

A.Swan Sein, A. Jasek, S. Siegmund, D. Mowshowitz, S. McLaughlin, D. Javier, H. Hutcherson, S. Quiah
Columbia University Medical Center

Objectives: This poster will outline the process of flipping this course, including describing the pre-class, during-class, and post-class learning opportunities, describing the process of evaluating the pilot course, and lessons learned in supporting these endeavors.
Background: Incorporating "flipping the classroom" pedagogical frameworks in medical education contexts is gaining in popularity[1]. The Columbia University College of Physicians and Surgeons (P&S) Summer Medical and Dental Education Program (SMDEP), for college students from underrepresented backgrounds in medicine and dentistry, introduced a flipped classroom pilot in its 2014 summer program. Our goal was to study how to support this approach in the broader program. P&S partnered with the Khan Academy to utilize its new MCAT preparation videos[2] as outside-of-course resources.
Methods: The SMDEP organic chemistry course was chosen for the pilot because it utilized high level learning objectives vis-a-vi Bloom's Taxonomy[3] that require active learning approaches. It was hypothesized that students would benefit from high level classroom learning opportunities made possible by the flipped approach. The program arranged for the course instructor, a P&S MD/PhD student, to work closely with a Columbia faculty member/ expert teacher and the Khan Academy medical education team in order to prepare pre-, during-, and post- class student learning opportunities. The program worked with Columbia's Center for Education Research and Evaluation to design and implement a pilot evaluation, examining student ratings of the course and performance in the course as compared to their non-flipped courses, along with student, TA, instructor, and program administration reflections on the experience.
Reflection: As the flipped classroom is increasingly utilized in medical education settings, it is important to study and document instructional design and evaluation approaches to improve student learning experiences over time. P&S plans to utilize its pilot lessons in designing and supporting an expansion of the flipped classroom in the wider P&S SMDEP program next summer.

Poster 57: A Strategy for Classifying Student Evaluation Comments: A Learning Environment Case Study

F. Garcia, W. Pluta, A. Swan Sein, S. Quiah, L. Mellman, B. Richards
Columbia University Medical Center

Objectives: This poster describes the process of designing an efficient, low-cost filter that supports the classification of student comments pertaining to their learning environment, by identifying comments in need of further inspection, among thousands of comments about clinical rotations.
Background: Each year individual medical schools collect thousands of narrative comments on the quality of educational experiences from students and faculty. A significant challenge is efficiently processing these comments so that they can be understood, summarized, and presented to a wide array of stakeholders and can support instructional improvement in a timely manner. While there is growing interest in educational informatics and data mining[1], most offices of medical education lack knowledge, experience and resources in these areas to develop sophisticated evaluation systems. Our aim is to take steps address this gap. Due to recent

emphasis on the AAMC learning environment[2], we focus on our ability to identify reports of mistreatment in students' narrative evaluations of faculty and clinical rotations[3].
Methods: A list of words associated with mistreatment was created by examining previously hand-coded comments and by considering the AAMC definition of mistreatment. Columbia's Center for Education Research and Evaluation (CERE) wrote a very simple tagging program within an Access database to identify instances of these "mistreatment words." This tagging program was then tested on a set of data that had also been used in the development of coding. The sensitivity and specificity of the filter has been examined for identifying instances of mistreatment and hostile learning environment.
Reflection: Overall, the sensitivity and specificity of the tagging program were deemed sufficient to support further use of the filter. CERE is currently incorporating the filter into the workflow for processing comments and will report on the progress.

Poster 58: Using Quality Improvement Tools to Engage in Curriculum Mapping and Improvement

E.V. Gilmore, J. Amiel, A. Swan Sein
Columbia University College of Physicians and Surgeons

Objectives: Using the Plan-Do-Study-Act (PDSA) model for rapid cycle improvement[1], this poster will describe one school's curriculum mapping and improvement process.
Background: In order to improve learning outcomes and to address LCME standards on curriculum mapping and quality improvement (ED-19A/Std-1.1; ED-37/Std-8.3)[2], Columbia College of Physicians and Surgeons has recently developed a process to 1-develop an up-to-date topic map of the pre-clerkship curriculum, 2- engage students in continuous quality improvement[1] and 3-lay the groundwork for ongoing learner-staff-faculty collaboration in improving the constructive alignment of the medical school's learning objectives, instructional methods and assessment/ evaluation tools[3].
Methods: Plan: we selected the USMLE's new unified content outline as an organizing system for mapping, OASIS as a platform for tagging learning events, and ExamSoft for tagging assessment questions. Do: we engaged two students who had worked closely with the Office of Medical Education to tag learning events and assessment items, using the USMLE content outline, allowing us to build curriculum maps of where content is taught and assessed. Study: we are examining the alignment between our learning events and assessments. We have preliminary data on the representation content areas in our courses in the first two semesters (Figure 1) and will have a complete data set in January. Act: we anticipate identifying content areas under-represented in learning events and assessments, working with course leaders to improve alignment with our school-wide goals.
Reflection: Through this project, we realized the value of a structured approach guided by the quality improvement literature to generate much-needed data for ongoing management of the curriculum, foster collaboration between students, faculty and staff, and gain familiarity with a new framework for mapping content areas. We anticipate ongoing work to maintain a data set that is up-to-date and reliable as we begin to identify subject threads, redundancies, and lacking areas in the preclinical curriculum to ultimately improve student learning outcomes.

Poster 59: Weaving in Determinants of Health: Students-Led Curriculum Change

C. Kunycky, X. Wang
University of Massachusetts Medical School

Objectives: 1. Engage student leaders in identifying opportunities to integrate social determinants of health into preclinical lectures 2. Develop feedback regarding social

determinants of health for lecturing faculty 3. Partner with faculty to implement inclusions of social determinants of health into lecture material

Background: Given awareness of the powerful effect of social determinants of health on a population's health status, University of Massachusetts Medical School students and faculty created the "Enhancing the LInC Curriculum with Social Determinants of Health" project in 2012. The project aims to ensure that today's medical education exposes tomorrow's clinicians to the impact of social factors on patient outcomes and disease prevalence.

Methods: Initial cohorts of students evaluated 30 lectures previously determined to be relevant to determinants of health. Two student leaders then chose six lectures from the existing data set and revised them to integrate the disease's social factors with the biological. A targeted literature search focused on epidemiology, psychosocial burden, cultural practices, and genetic markers informed their revisions. Directly edited lecture slides provided examples of how revised material could be presented. Students then presented proposed changes as well as potential new course materials to UMMS course leaders, resulting in immediate and ongoing curriculum change in courses on infectious disease, cancer, and cardiovascular disease; the infectious disease course leaders additionally requested that students write an exam question that addresses the identified social determinants of health.

Reflection: The leadership of students whose work gives voice to their own lived experiences and the responsiveness of UMMS faculty to student feedback are great strengths of the project. Ongoing challenges include implementing methods to evaluate how lecture changes affect student perspectives. To address this challenge, ongoing cohorts of students will develop an evaluation tool to determine the effectiveness of the integration on student learning and to determine best practice for integrating determinants of health into preclinical lectures.

Poster 60: Why Co-teaching? Inter-professional collaboration in medical education

S. Rougas[1], M. Daniel[1], S. Warrier[1], A. Yang[1], J. Taylor[1], L. Kosowicz[2]
[1]Warren Alpert Medical School of Brown University, [2]University of Connecticut

Objectives: To understand and apply co-teaching as a pedagogical method in medical education. Specific objectives are to: 1) Define co-teaching and discuss existing co-teaching models in education 2) Identify potential benefits and challenges to effective co-teaching 3) Discuss common steps to guide co-teaching 4) Reference resources for developing faculty as co-teachers

Background: Co-teaching, defined as two or more professionals with complimentary expertise delivering meaningful instruction to a group of students, has become an increasingly popular pedagogic method in medical education[1]. Co-teaching has come into common use based on perceived benefits to students, such as provision of complimentary subject matter expertise, modeling of inter-professional collaboration, and provision of a holistic approach to patient care. Faculty may benefit through distribution of labor that potentially improves recruitment and retention of educators by sharing the burden of instruction[2]. Faculty who co-teach have also described improvement in their own teaching skills, greater job satisfaction through team support, and increased opportunities for professional growth and development.

Methods: This poster is designed to introduce viewers to co-teaching in medical education. Using models that are currently implemented in clinical skills courses at two institutions, learners will understand the benefits and challenges associated with co-teaching. Five potential models for co-teaching will be presented from the K-12 literature with discussion of how these models can be implemented in medical education. Using known resources for co-teaching in the literature, participants will be guided through the necessary steps to establishing a co-teaching model at their institution[3].

Reflection: Our institutions have successfully implemented co-teaching models in our clinical skills courses with perceived benefits from both faculty and learners. Students appreciate

having diverse viewpoints and feedback from different sources, while faculty report increased flexibility and complementary teaching strengths as the major benefits. Limitations include the lack of parity that may exist between co-teaching pairs as well as the increased burden of cost and recruitment. Future directions include additional qualitative research in co-teaching to establish common themes and a guiding framework for medical educators.

Poster 61: Thinking Like a Scientist … And an Engineer – Training Future Leaders and Innovators in Health Care Systems and Delivery

D.K. Ong, E. Dickson, L. Pelletier
University of Massachusetts Medical School

Objectives: 1. To train medical students in the leadership skills and critical thinking tools needed for solving problems unique to health care systems and delivery, targeting curriculum year 2015-2016. 2. To identify the hurdles and challenges for developing such a program and design a training model based on feedback and interest.
Background: Health care is increasingly becoming more complex. Hospitals and health systems are expanding. Government reforms are changing the way we practice medicine. Medical technology and how we pay for services are constantly evolving. As leaders of care teams, physicians will be expected to have a hybrid set of critical thinking skills extending beyond clinical expertise. How do we train and foster future leaders and innovators in medicine?
Methods: This project will develop a case based training model with Lean management philosophy as the core critical thinking framework. Cases will include active projects by physician leaders within the UMass system so that students can see how their education can be transformative in a real life scenario. (training planned for 2015-2016 curriculum year). A medical student survey will provide data on interests and outcomes important to our target audience to help shape the training (planned for January 2015). We will work with the Center for Health Care Innovation and Transformational Change at UMass Memorial for guidance and resources.
Reflection: The main strength to this project is that it will plant the seed for leadership and innovation so students will have the drive and critical thinking framework to solve major problems in any medical field. It will also be shaped by initial feedback from the student population. Generating awareness and participation in the training will be challenging. The future direction is to broaden the model to inter-professional participants and to create a pipeline of national leaders and innovators.

Poster 62: First job after residency: Being a primary care doctor can be a rewarding way to spend a career…

A.Motta-Moss, N. Roberts, E. Friedman, V. Escobar
Sophie Davis School of Biomedical Education

Objectives: This paper examines the first jobs that medical students secure after residency in a school that emphasizes primary care as a mission throughout the curriculum. This mission integrates community health courses and field placement, a longitudinal narrative medicine experience focused on social determinants of health, and clinical courses that integrate learning communication skills with the basic elements of physical examination.
Background: While people may argue that students entering medical schools with a primary care mission have already made up their career choices, a significant number of these students change their minds by the time they enter residency programs. Evidence suggests that curricular experiences may increase interest in primary care, including: required family medicine clerkships, continuity of experiences in primary care settings, and primary care education tracks.

Methods: Survey interviews with 425 graduates between 1977 and 2005 (30% return rate) are examined. The sample is balanced by gender, with about 25% of respondents from underrepresented minorities groups.
Results: Preliminary results indicate that nearly half of respondents completed primary care residencies, with over 60% reporting earnings between $100,000-299,900 and another 12% indicating income above $300,000 per year. Over two-thirds of the graduates (n=269) stayed in New York State after residency, securing full-time first jobs primarily in ambulatory care settings. Of these, 62.5% were employed by hospitals as attending physicians in various clinics, 25% were employed by private clinics or health maintenance organizations on diverse titles, and the remaining 12% secured first jobs as primary care physicians in community health centers. Combined, the results suggest that a primary care curricular focus plays an important role in promoting a satisfying career in primary care, even among non-minority graduates. They also confirm the expectation that new doctors are in the frontline of our healthcare system.
Reflection: Further studies are warranted to address the study setting limitation of including only one medical school and to discern the barriers that prevent more medical students from securing careers in primary care.

Poster 63: From Scantron to Computer-based Testing: Implications for Medical Student Learning

A.Motta-Moss, E. Friedman, N. Roberts, F. Andujar
Sophie Davis School of Biomedical Education

Objectives: The goal of this paper is to describe and discuss the impact of transitioning from scantron-based testing to computer-based testing system (Blackboard) for both medical faculty and students. Specifically, we will explore resources required, lessons learned, and students' learning experiences during the exam review process.
Background: Computer-based testing has been used in many medical schools for the evaluation of student achievement. The same modality of test has also been applied to high stakes examinations such as the United States Medical Licensing Examination (USMLE) and the National Board of Medical Examiners subject tests (NBME). This allows students to practice by using online tests, to receive feedback faster and be better prepared for taking online board exams.
Methods: A participatory research process was used to allow the researchers, faculty and students to step back cognitively from their testing routines and learning process in order to fundamentally question and rethink established interpretations of the testing situations and strategies. This process allowed for the investigation of: a) the resources required for computer-based testing (e.g., faculty training and time to create exam and provide response feedback; IT support during the exam; proper testing environment so that faculty can control access to the computers and proctor the exam), b) lessons learned (e.g., usefulness for questions which require visual aids, such as recognizing anatomic structures and analyzing complex graphs; setting up student formative assessments; developing clear policy to deal with lateness, absence and make-up exams as well as any technical issues), and c) the unanticipated finding that this transition promoted students' learning experiences during the exam review process (e.g., discussing response options and clarifying content material while it is still 'fresh'; engaging students and professors in goal-setting; creating and reinforcing evidence-based instructional practice based on real-time data).
Reflection: This poster may help medical professors to more easily adopt and fully utilize a computer-based testing system to improve the learning environment in medical education. Further studies may examine the experiences of faculty and students while using computer-based testing on different information platforms.

Poster 64: A Preliminary Analysis of Diversity and Cultural Competency in UVM Pre-Clinical Courses Case Presentations

D. Hershkowitz, L. Rosen
University of Vermont College of Medicine

Objectives: Systematically assessing diversity in case presentations provides a potential measure of where the UVM pre-clinical education curriculum stands with respect to addressing cultural competencies. Examining the diversity of case presentations in medical education at the College of Medicine is important to help identify areas of strength and areas in need of improvement with respect to diversity education. The findings of this assessment can be used to increase medical students' awareness of diversity, erode stereotypes, reveal unconscious bias in the curriculum, and stimulate positive discussion around these issues.
Background: As the national population diversifies, an understanding of different backgrounds is important for the education and training of healthcare workers. Accordingly, the University of Vermont College of Medicine is committed to valuing diversity and inclusion, and enacting those values. In the medical school curriculum, there is an opportunity to enhance cultural and diversity-related competencies by evaluating the demographics of current classroom patient case presentations (i.e., the cases used in lectures/small groups). Based on a literature search, no medical school has engaged in this kind of analysis to date.
Methods: A checklist was created and used to assess case presentations with respect to age, race, ethnicity, sex, gender, sexual orientation, BMI, and socioeconomic status. For each case the diversity of the patient and whether the patient's demographics related to the material being taught was assessed.
Results: Analysis of approximately 300 cases is under way. The preliminary results of 108 randomly selected cases indicate that a majority of cases do not present diversity identifiers. When identifiers are presented, most are white and heterosexual.
Reflection: Understanding the diversity in case presentations allows the opportunity for reflection on how and under what circumstances diversity is expressed in the curriculum. Given that Vermont is less diverse than the nation as a whole, should more incidental diversity be presented throughout course materials?

Poster 65: The Anatomage Table in Teaching: A Case Presentation

A.Christakis, A.M. Gilroy, J. Makris
University of Massachusetts Medical School

Objectives: 1) To demonstrate capabilities of the Anatomage table system 2) To illustrate how the Anatomage table can be used to enhance the learning experience of both pre-clinical and clinical medical students 3) To present a case using the Anatomage that helps illustrate a specific region of anatomy, particularly through using different imaging modalities and views
Background: The Anatomage Table is an anatomy visualization system, which uses a large interactive touch surface to display anatomy on a life-size scale. The table has both 3D male and female models, over 120 pathology cases, and is able to process raw CT and MRI data through its unique software. Recently, the Interprofessional Center for Experiential Learning and Simulation at UMass acquired an Anatomage system and has been integrating it into the first year medical school curriculum. However, many faculty and clinicians are not familiar with the table and may benefit from a demonstration of what the table can do and how it can provide a novel interactive experience.
Methods: The Anatomage Table will be used to help illustrate the regional anatomy involved in a pediatric head and neck case presentation. The poster will introduce the table and discuss a case, with the different viewing modes of the table highlighting the vascular, skeletal, and soft tissue anatomy.

Reflection: The strength of the Anatomage Table is that it provides a three-dimensional, interactive way for faculty and students to approach imaging. The table has built-in resources including models, high-resolution scans, and pathology cases but can also be used to analyze any CT or MRI data. Limitations to using the table in an educational setting include a steep learning curve, general unfamiliarly with the hardware and software, and that the table is better suited to small groups of students.

Poster 66: Lessons Learned in the Process of Developing and Implementing an Interprofessional Clinical Pilot Program

JA Encandela[1], C Kennedy[1], D Brissette[1,2], D Fahs[3], R Gonzalez-Colaso[1,2], L Honan[3], P Martinez[3], E Colson[1]
[1]Yale School of Medicine, [2]Physicians Associate Program, [3]Yale School of Nursing

Objectives: We conducted a brief pilot of an interprofessional (IP) longitudinal clinical experience (LCE) for first year medical, nursing, and physician associate students. We set out to learn the feasibility of teaching students interprofessionally in their first year of training, and what processes and training approaches would be most effective.
Background: Interprofessional education improves communication and collaboration needed in healthcare teams, which in turn improves patient outcomes (1,2). Despite its importance, it has been difficult to implement IP LCEs at other institutions, largely because of logistical and process barriers, highlighting the importance of examining process issues closely.
Methods: Faculty from 3 training programs recruited 9 students—3 from each professional group. We used qualitative methods (student/faculty weekly written answers to "prompts"; observations of interactions between preceptor/student teams and patients; and other faculty, student, and patient verbal feedback) to learn about the quality and success of various processes for implementing the LCE. Narrative data were analyzed via an iterative process to establish key themes. Quantitative pre- and post-survey methods tested changes in readiness for interprofessional education and attitudes and perceptions regarding interprofessional team work. Differences in means between pre- and post-tests were calculated and compared using t-tests.
Results: Among many results, some of the most pertinent are: 1. Students and faculty increased positive attitudes toward IP team work and self-perceptions of team skills, and had mixed results in readiness to participate in interprofessional learning. 2. Commonalities in training approaches by all three programs became the platform for interprofessional training. Differences between programs' training approaches were gradually introduced and received by students as an opportunity to learn about other professions' roles and expectations. 3. Faculty performed clinical team procedures before students were introduced to the process. In this way, faculty could experience first-hand what they would be asking their students to accomplish. Many details, such as uniformity of dress among team members, were worked out in this process before presenting guidelines to students. 4, Students preferred to decide amongst themselves what each team member's role would be vis-à-vis each patient, with some flexibility in sharing roles as needs emerged in patient encounters. They preferred faculty to be "facilitative" but not "directive" as preceptors, allowing students to learn through trial and error, with corrections/suggestions as needed. 5. Patients were accepting of interprofessional students, did not tend to make distinctions between the professions, and often took on the role of "teacher"--informing students about illness experiences and providing them with constructive feedback.
Reflection: It was crucial to conduct a small, brief pilot that focused on process before undertaking a larger, longerpilot. We believe that many implementation details would have been overlooked if we began with a larger pilot focusedstrictly on outcomes. With smaller numbers, of

course, there is the risk that results may be anecdotal; but a second,more extensive pilot will permit testing of the representativeness of results.

Poster 67: Do Medical Students Cheat On Unmonitored Online Exams? Data From the UMass Principles of Pharmacology Course

C. Sagerström, M. Dershwitz
University of Massachusetts Medical School

Objectives: To assess in-class versus unmonitored online examination performance in first-year medical students in the Principles of Pharmacology course.
Background: The new curriculum for medical students at the University of Massachusetts encourages online summative assessments. As instructors, we wondered whether our students adhered to the honor code in terms of working independently and utilizing no outside aids during such online assessments. Because of lack of reliability with a "locked" browser, and the likelihood that a student intent on cheating could use an additional device to locate information (as well as use printed material), we simply asked our students to confirm that they were following the honor code each time they took an online assessment.
Methods: During the courses administered to first-year students in 2012 and 2013, we compared average online and in-class examination scores, and calculated the online:in‑class exam score ratio for each student.
Results: The mean and median ratios for each class are listed in the table. The ratios for almost all of the students fell within the range of 0.8 - 1.2. Individual ratio values are shown in the figure. Among the outliers, there did not appear to be any correlation between a high or a low ratio and the student's rank in the class.
Reflection: The results do not, of course, prove that no one cheated. However, they suggest that, on average, the students in our classes did indeed adhere to the honor code because a given student was just as likely to perform better on an online assessment as on an in-class assessment. We find these results to be reassuring and they have reinforced our desire to continue to make online assessments an integral part of our course.