2016 Spring Conference Program

Innovation & Impact: Modern Medical Education

April 6-8, 2016

NOTE: Wednesday thru Friday

Jointly hosted by:
Association of American Medical Colleges Central Group on Educational Affairs
University of Michigan Medical School
Department of Learning Health Sciences

CGEA Conference activities will be conducted at the
Ann Arbor Marriott Ypsilanti at Eagle Crest
1275 S Huron Street
Ypsilanti, Michigan 48197 USA

Website: http://www.cvent.com/d/zfq1gx
Registration: http://www.cvent.com/d/zfq1gx/4W

Twitter feed: @thecgea and #thecgea

Wi-Fi:
Conference Center: EagleCrest
Username: golf
Password: happy2016
Ford Ballroom: Marriott_CONF
Login: DTWYS
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Twitter feed: @thecgea and #thecgea

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Target Audience
This program will be of interest to educators and administrators participating in undergraduate and graduate medical and professional education and training.

Educational Objectives
Upon completion of this educational activity, participants should be better able to:
1) Discuss the benefits associated with an integrated and more seamless approach to the continuum of health professional education.
2) Design and implement strategies for effectively educating healthcare professionals in alignment with overarching healthcare improvement initiatives.
3) Describe current research and emerging tools and techniques designed to appropriately position and advance the medical education profession.
4) Identify a variety of best practices in the field of medical education and seek to effectively integrate innovative solutions into your medical education setting.
5) Build a network of colleagues available to engage in on-going discussions and idea generation surrounding education issues and challenges.

Program Committee:

Caren M. Stalburg, MD MA  
*Program Chair*  
University of Michigan Medical School

Toshi Uchida, MD  
*Program Co-Chair*  
Northwestern University Feinberg School of Medicine

Cynthia Ledford, MD  
*Member at Large*  
(The) Ohio State University College of Medicine

Mary Anderson, MD  
*Previous Program Chair*  
Rush Medical College

Elizabeth R. Ryan, EdD  
*Chair, CGEA*  
Northwestern University Feinberg School of Medicine

Anna Cianciolo, PhD  
*MESRE Chair*  
Southern Illinois School of Medicine

Lois Colburn  
*CME Chair*  
University of Nebraska Medical Center

Karen J. Marcdante, MD  
*GME Chair*  
Medical College of Wisconsin

Dawn S. Bragg, PhD  
*UGME Chair*  
Medical College of Wisconsin

Javier Farinas  
*OSR Representative* Rosalind Franklin University of Medicine and Science
Keynote Speaker:

Marc Triola, MD FACP

“Educational Innovations in a Continuously Learning Health Care System”

Marc Triola, MD, FACP is the Associate Dean for Educational Informatics at NYU School of Medicine, the founding director of the NYU Langone Medical Center Institute for Innovations in Medical Education (IIME), and an Associate Professor of Medicine. Dr. Triola's research experience and expertise focuses on the disruptive effects of the present revolution in education, driven by technological advances, big data, and learning analytics. Dr. Triola has worked to create a 'learning ecosystem' that includes inter-connected computer-based e-learning tools and new ways to effectively integrate growing amounts of electronic data in educational research. He has also extensively studied the use of Virtual Patients, and the assessment of change in knowledge and attitudes resulting from computer-assisted instruction. Dr. Triola and IIME have been funded by the NIH, the IAIMS program, the NSF Advanced Learning Technologies Program, the Josiah Macy, Jr. Foundation, the U.S. Department of Education, and the AMA 'Accelerating Change' program. He chairs numerous committees at the state and national level focused on the future of health professions educational technology development and research. He gave a 'TED Talk' at TEDMED 2012 and published his first textbook, “Biostatistics for the Biological and Health Sciences”.

Dr. Triola received his BA from the Johns Hopkins University and MD at NYU School of Medicine. He completed residency training in Internal Medicine at NYU School of Medicine and subsequently served as Chief Resident for the Internal Medicine Training Program. He completed a Research Fellowship in Medical Informatics at Mount Sinai School of Medicine. In previous roles at NYU, he has served as the Director of the Division of Educational Informatics, the Chief of the Section of Medical Informatics, the Associate Director of the Center for Health Information Preparedness, and the Director of Research for Advanced Educational Systems.
Central Group on Educational Affairs Disclosure Policy

It is the policy of the Central Group on Educational Affairs to abide by the standards set forth by the Accreditation Council for Continuing Medical Education (ACCME) Standards for Commercial Support of Continuing Medical Education. Even though we are not offering CME (or AMA PRA category 1) credit for this educational activity, we still strive to ensure balance, independence, objectivity, and scientific rigor in all of its activities.

To help achieve that objective, all persons involved in the planning/content development are expected to disclose all relevant financial relationships with pharmaceutical companies, biomedical device manufacturers or distributors, or others whose products or services may be considered related to the subject matter of the educational activity. Disclosure of these relationships will be included in all written activity materials, and mentioned verbally at the activity so that participants may formulate their own judgments in interpreting content and in evaluating recommendations.

Acronyms Glossary

- CME  Continuing Medical Education
- GME  Graduate Medical Education
- IME  Innovations in Medical Education
- MESRE Medical, Education, Scholarship, Research, & Evaluation (was RIME)
- SIG  Special Interest Group
- UGME  Undergraduate Medical Education

Information for Presenters:

We would like to invite you to submit your 2016 CGEA Presentation/Poster to the iCollaborative so that the conference programming can be shared more broadly. This a service of AAMC’s MedEdPORTAL that provides academic medical institutions a unique opportunity to share resources, activities, effective practices, and strategies to build coordinated approaches to quality, patient safety and performance improvement across the continuum of clinical care and medical education in academic medical centers.

To submit to the iCollaborative visit [www.mededportal.org/icollaborative/submit/](http://www.mededportal.org/icollaborative/submit/) and complete the submission form. To prepare your materials for submission to iCollaborative, please review the [iCollaborative Submission Checklist](http://www.mededportal.org/icollaborative/submit/).

Twitter feed: @thecgea and #thecgea

Wi-Fi:

- Conference Center: EagleCrest
  - Username: golf
  - Password: happy2016
- Ford Ballroom: Marriott_CONF
  - Login: DTWYS
Driving Directions to The Ann Arbor Ypsilanti Marriott at Eagle Crest
Ann Arbor Marriott at Eagle Crest
1275 S Huron Street, Ypsilanti, Michigan 48197
Phone: 1-734-487-2000 Fax: 1-734-481-0700
www.annarbormarriott.com

From NORTH
1. Start on US-23 South
2. Merge onto I-94 via exit 35 (4.1 miles)
3. Get off at the US-12 BR/Huron St. exit 183, toward Downtown Ypsilanti (0.3 miles)
4. Turn right onto S Huron St. (0.2 miles)
5. Look for red Marriott sign on left. At light turn left into Marriott/Eagle Crest Resort entrance (0.2 miles)
6. At first stop sign turn right into Marriott parking lot (0.0 miles)

From EAST
1. Start out on I-94 West toward Chicago
2. Get off at Huron St. exit 183, toward Ypsilanti (0.3 miles)
3. Stay straight onto US-12 BR W / S HAMILTON ST. Follow bend slight left to US-12 BR W (0.3 miles)
4. US-12 BR West becomes S Huron St. (0.2 miles)
5. Look for red Marriott sign on left. At light turn left into Marriott/Eagle Crest Resort entrance (0.2 miles)
6. At first stop sign turn RIGHT into Marriott parking lot (0.0 miles)

From SOUTH
1. Start on US-23 North
2. Merge onto I-94 via exit 35, toward Detroit (3.4 miles)
3. Take the US-12 BR/Huron St. exit 183, toward Downtown Ypsilanti (0.3 miles)
4. Turn right onto S Huron St. (0.2 miles)
5. Look for red Marriott sign on left. At light Turn LEFT into Marriott/Eagle Crest Resort entrance (0.2 miles)
6. At first stop sign turn RIGHT into Marriott parking lot (0.0 miles)

From WEST
1. Start on I-94 East toward Detroit
2. Get off on the US-12 BR/Huron ST exit 183, toward Downtown Ypsilanti (0.3 miles)
3. Turn right onto S Huron St. (0.2 miles)
4. Look for red Marriott sign on left. At light Turn left into Marriott/Eagle Crest Resort entrance (0.2 miles)
5. At first stop sign turn right into Marriott parking lot (0.0 miles)
**Airport Options**

**Detroit Metropolitan Wayne County Airport - DTW**
Airport Phone: +1 734 247 7678  
Hotel direction: 14 miles W  
This hotel does not provide shuttle service.  
Alternate transportation: Michigan Green Cabs; fee: 55 USD (one way); on request  
Estimated taxi fare: 59 USD (one way)

**DRIVING DIRECTIONS**

From the Detroit Metropolitan Wayne County Airport (DTW) (19 minutes / 17.04 miles)

1. Drive north to go onto MERRIMAN ROAD (0.4 mi)  
2. From Merriman take I-94 West toward Chicago, exit on right (14.6 mi)  
3. Get off on the HURON ST exit 183, toward Ypsilanti (0.3 mi)  
4. Stay straight onto US-12 BR W / S HAMILTON ST. Follow bend slight left to US-12 BR W (0.3 mi)  
5. US-12 BR W becomes S HURON ST (0.2 mi)  
6. Look for red Marriott sign on left. At light Turn LEFT into Marriott/Eagle Crest Resort entrance (0.2 mi)  
7. At first stop sign turn RIGHT into Marriott parking lot (0.0 mi)

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**Train Options**

**Amtrak** [https://www.amtrak.com/home](https://www.amtrak.com/home)  
Service to station **ARB** 325 Depot Street Ann Arbor, MI 48104  
Michigan Association of Railroad Passengers Website  

Would need cab or car transportation from the Train Station  
15 miles to hotel.
<table>
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<tr>
<th>Date</th>
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<th>Aud 2</th>
<th>Conf Room A</th>
<th>Conf Room B</th>
<th>Conf Room C</th>
<th>Conf Room D</th>
<th>Conf Room E</th>
<th>Conf Room F</th>
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<td>Weds 4/6/16</td>
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<td>4:00 pm - 6:00 pm</td>
<td>Optional tour of Taubman Health Sciences Library (Shuttle buses to medical campus)</td>
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<td>Thurs 4/7/16</td>
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<td>8:00 am - 9:00 am</td>
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<td>9:15 am - 10:45 am</td>
<td>MESRE Oral 1</td>
<td>Wkshop/Panel 1</td>
<td>Wkshop/Panel 2</td>
<td>Wkshop/Panel 3</td>
<td>Wkshop/Panel 4</td>
<td>Wkshop/Panel 5</td>
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<td>12:00 pm - 1:00 pm</td>
<td>Lunch and Business Meeting</td>
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<td>1:00 pm - 2:30 pm</td>
<td>MESRE Oral 2</td>
<td>Wkshop/Panel 6</td>
<td>Wkshop/Panel 7</td>
<td>Wkshop/Panel 8</td>
<td>Wkshop/Panel 9</td>
<td>Wkshop/Panel 10</td>
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<td>2:45 pm - 4:15 pm</td>
<td>MESRE Oral 3</td>
<td>IME Oral 1</td>
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<td>4:30 pm - 6:30 pm</td>
<td>Poster Session</td>
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<td>Fri 4/8/16</td>
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<td>8:15 am - 9:45 am</td>
<td>MESRE Oral 4</td>
<td>IME Oral 2</td>
<td>Wkshop/Panel 11</td>
<td>Wkshop/Panel 12</td>
<td>Wkshop/Panel 13</td>
<td>Wkshop/Panel 14</td>
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<td>9:45 am - 10:45 am</td>
<td>Poster Awards and Viewing</td>
<td>Atrium/Lobby</td>
<td>USMILE Pres</td>
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<td>11:45 am - 1:30 pm</td>
<td>Box Lunch pick up</td>
<td>Ford Ballroom</td>
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<td>SIG 3</td>
<td>SIG 4</td>
<td>SIG 5</td>
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<td>1:45 pm - 3:15 pm</td>
<td>MESRE Oral 5</td>
<td>Wkshop/Panel 15</td>
<td>Wkshop/Panel 16</td>
<td>Wkshop/Panel 17</td>
<td>Wkshop/Panel 18</td>
<td>Wkshop/Panel 19</td>
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<td>3:30 pm - 4:00 pm</td>
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Wednesday, April 6, 2016

7:00 am – 5:30 pm  REGISTRATION

9:00 am – 12:00 pm  PRE-MEETING WORKSHOP
Conference Room D  Medical Education Research Certificate (MERC) Workshop:
Formulating Research Questions and Designing Studies
Larry Gruppen, PhD, University of Michigan Medical School

In this workshop, participants will brainstorm research ideas, write, and refine a measurable research question. They will discuss when IRB approval is required for their study. The basics of research design will be discussed and applied to their selected research question. Participants will be able to:

- Write a FINER (feasible, interesting, novel, ethical, relevant) educational research question;
- Specify an educational research area of interest;
- Evaluate whether they need IRB approval for their study;
- Select the correct design for their research question.

12:00-1:00 pm  LUNCH (on your own)

1:00 – 4:00 pm  PRE-MEETING WORKSHOP
Conference Room D  Medical Education Research Certificate (MERC) Workshop:
Introduction to Qualitative Data Collection Methods
Ilene Harris, PhD, University of Illinois, College of Medicine at Chicago

This workshop is intended for physicians and generalists in medical education, as well as faculty and staff involved in student affairs, who wish to develop perspectives and skills for collecting qualitative data, such as data from focus group discussions, interviews, observation field notes, and responses to open-ended questions—used in admissions processes, program development, curriculum evaluation, needs assessments, performance evaluation, and various scholarship and research applications.

After participating in this workshop, learners will be able to:

- Demonstrate applied knowledge of the appropriate selection, use, and standards for rigor of some common methods for collection of qualitative data;
- Generate research questions appropriate for qualitative studies and choose appropriate data collection methods;
- Demonstrate applied knowledge of approaches to achieve rigor in the design of qualitative studies and collection of qualitative data;
- Demonstrate essential skills required for conducting focus groups

4:00 – 6:00 pm  Optional tour to Taubman Health Sciences Library, U of M Campus
Buses to the Medical Campus will provide transportation to and from the THSL.

5:30 – 7:00 pm  CGEA EXECUTIVE COUNCIL MEETING (closed meeting)
Conference Room F
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<th>Time</th>
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<tbody>
<tr>
<td>7:00am-5:30pm</td>
<td>REGISTRATION</td>
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</tbody>
</table>
| 7:00 – 9:30 am    | POSTER SET UP
                      *Poster presenters should hang their posters before 9:30 am.*      |
| 7:00 – 8:00 am    | BREAKFAST (free time to view posters)                                |
| 8:00 – 9:00 am    | KEYNOTE ADDRESS (Marc Triola, MD FACP)
                      Medical education is at a crossroads, facing both tremendous forces for change and
tremendous opportunities for transformation. Patient care is moving out of the hospital
and into the community; there is greater accountability for quality, value, and cost in
health care; and providers of all types need a wide variety of new competencies,
including those related to technology and information management. This talk will
address the broader changes happening in medical education and new directions for
how the use of educational technologies can accelerate our progress towards a
Continuously Learning Health System. |
| 9:00 – 9:15 am    | BREAK
                      Beverages available                                                  |
| 9:15 – 10:45 am   | CONCURRENT SESSIONS
                      Thursday AM                                                             |
| Auditorium 2      | MESRE Oral Abstract Presentations 1
                      (Presentations are allotted 15 minutes)
                      Moderator: Nikki Zaidi, PhD, University of Michigan
                      Use of the Harvey® Simulator to Reinforce Basic Exam Skills in Early Medical
Learners
                      C. Curren, College of Medicine, The Ohio State University
                      G.P. Ecklar, College of Medicine, The Ohio State University
                      M. Alexander, College of Medicine, The Ohio State University
                      C. Sinclair, College of Medicine, The Ohio State University
                      S. Ellwood, College of Medicine, The Ohio State University
                      D. Ryan, College of Medicine, The Ohio State University
                      Developing an Interprofessional Collaborative Practice Curriculum for Residents:
A Needs Assessment
                      N. Genere, Department of Internal Medicine-Pediatrics, University of Chicago
                      J. Oyler, Department of Internal Medicine, University of Chicago
                      A. Volerman, Department of Internal Medicine-Pediatrics, University of Chicago
                      *Supported by a University of Chicago Academy of Distinguished Medical Educators
Grant* |
Student Perceptions of Active Learning
K. Istas, Office of Medical Education, University of Kansas School of Medicine
T. Paolo, Office of Medical Education, University of Kansas School of Medicine
B. Berardo, Office of Medical Education, University of Kansas School of Medicine
G. Bonaminio, Office of Medical Education, University of Kansas School of Medicine
J. Fontes, University of Kansas School of Medicine
A. Walling, Office of Faculty Affairs, University of Kansas School of Medicine
N. Davis, Office of Faculty Affairs, University of Kansas School of Medicine

*Funded by an RIME mini-grant

Graduating Medical Student Self-Assessments of the Core EPA’s: Does a Pre-Internship Boot Camp Make a Difference?
M.E. Thompson, Family Medicine, Michigan State University College of Human Medicine
M. Emery, Emergency Medicine, Michigan State University College of Human Medicine
H. Laird-Fick, Michigan State University College of Human Medicine
D. Wagner, Michigan State University College of Human Medicine

Student Perceptions and Their Influence in the Instructional Redesign of Online Learning Components
M. Holley, Family Medicine, Indiana University School of Medicine
S. Cooper, Family Medicine, Indiana University School of Medicine
S. Renshaw, Family Medicine, Indiana University School of Medicine

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Panel Discussion—Session 1

Challenges and Opportunities Using the Flipped Classroom Model for Medical Education: Perspectives Across the Continuum
Carrie Bowler, MS, Mayo Clinic College of Medicine
Justin Kreuter, MD, Mayo Clinic Department of Laboratory Medicine and Pathology
Douglas Danforth, PhD, The Ohio State University College of Medicine
Geraud Plantegenest, MA, Michigan State University College of Human Medicine
Heeyoung Han, PhD, Southern Illinois University School of Medicine

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Workshop—Session 2

Peer Instruction—Not as easy as it looks and the students will tell us why!
Brenda Roman, M.D., Wright State University Boonshoft School of Medicine
Mary Jo Trout, Pharm D., Wright State University Boonshoft School of Medicine
Aaron A. Smith, M.Ed. Wright State University Boonshoft School of Medicine
Larrilyn Yelton, Wright State University Boonshoft School of Medicine
Alban Holyoke, Wright State University Boonshoft School of Medicine

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Workshop—Session 3

The Core Entrustable Professional Activities (EPAs) in Action: Lessons from the Pilot Schools
Abbas Hyderi, MD MPH University of Illinois College of Medicine
Dianne Wagner, MD Michigan State University College of Human Medicine
Matt Emery, MD Michigan State University College of Human Medicine
Meenakshy Aiyer, MD University of Illinois College of Medicine
Panel Discussion—Session 4

Bridging the Continuum Between Undergraduate and Graduate Medical Education: A Feedforward Mechanism for Graduating Medical Students

Helen Morgan MD, University of Michigan
Nicholas Kman MD, The Ohio State University College of Medicine
Sally Santen MD, PhD, University of Michigan

Workshop—Session 5


Karen MarcDante, MD, Medical College of Wisconsin
Louise Arnold, PhD, University of Missouri - Kansas City School of Medicine
Janet Lindemann, MD, University of South Dakota Sanford School of Medicine
Janet Riddle, MD, University of Illinois - Chicago School of Medicine
Deborah Simpson, PhD, Aurora UW Medical Group
Caren Stalburg, MD MA, University of Michigan

10:45–11:00 am BREAK (free time to view posters and exhibits)
Beverages available

11:00 – Noon AAMC CONCURRENT SESSIONS

AAMC Medical Education Update
This session will provide an update about Medical Education at the AAMC. Programs and activities highlighted will include the MedAPS Suite (Curriculum Inventory, ASSET), the Educating for Quality Suite (Teaching for Quality, Aligning and Educating for Quality, and Learning from Teaching), as well as the Optimizing GME Initiative, Learn Serve Lead, the AAMC Annual Meeting, and other relevant topics for discussion.

Presenters:
Lisa Howley
Terri Cameron

ACGME milestones focus group—Stan Hamstra

Noon – 1:00 pm LUNCH, WELCOME FROM THE DEANS, BUSINESS MEETING AND LEAD GRADUATION
Business meeting information:
https://www.dropbox.com/sh/yvzw6dvhdxwzao/AABKaEVHAKFAG0L4UIZIM5kva?dl=0
Auditorium 2

MESRE Oral Abstract Presentations Session 2
Scholarly Concentrations
(Presentations are allotted 15 minutes)
Moderator: Heeyoung Han, PhD, Southern Illinois University School of Medicine

The Impact of a Scholarly Concentration Program on Student Interest in Career-
Long Research: A Longitudinal Study
R.K. Wolfson, University of Chicago Pritzker School of Medicine
K. Albers, University of Chicago Pritzker School of Medicine
M. McGinty, University of Chicago Pritzker School of Medicine
K. Schwanz, University of Chicago Pritzker School of Medicine
K. Dickins, University of Chicago Pritzker School of Medicine
V.M. Arora, University of Chicago Pritzker School of Medicine

Mapping the Shared Repertoire of a Community of Practice: Citation Analysis of
Faculty Development in the Health Professions
J. Riddle, University of Illinois Chicago College of Medicine
L. Pien, Cleveland Clinic
M. Clark, University of Illinois Chicago

What’s in it for me? Goals of students participating in a scholarly concentration
program.
K. Albers, Pritzker School of Medicine, University of Chicago
V.M. Arora, Pritzker School of Medicine, University of Chicago
R.K. Wolfson, Pritzker School of Medicine, University of Chicago

Medical Student Curriculum Transformation Using Business Case Approaches to
Organizational Leadership
R.S. Mangrulkar, University of Michigan Medical School
S. Santen, University of Michigan Medical School
A. Tsai, University of Michigan Medical School
M. Englesbe, University of Michigan Medical School
J. House, University of Michigan Medical School
M. Lukela, University of Michigan Medical School
E. McKean, University of Michigan Medical School
S. Monrad, University of Michigan Medical School
E. Skye, University of Michigan Medical School
*Supported in part by a grant from the American Medical Association's Accelerating
Change in Medical Education Initiative

Student Personality is Related to Perception of the Learning Environment
R. Stansfield, University of Michigan
S. Santen, University of Michigan
L.D. Gruppen, University of Michigan

Conference Room A

Workshop—Session 6

From Passion to National Reputation: Building your personal brand with Twitter
Larry Hurtubise, Pediatrics, The Ohio State University
Nick Kman, Emergency Medicine, The Ohio State University
David Stukus, Pediatrics, The Ohio State University
Elissa Hall, Department of Laboratory Medicine & Pathology, Mayo Clinic
Conference Room B

**Workshop—Session 7**

The Leadership Education and Development (LEAD) Graduating Fellows’ Projects

Carol Kamin, Ed.D. MS, University of IL at Chicago, COM
Alan Bateson, PhD, Ross University SOM
Stefanie Ellison, MD, University of Missouri-Kansas City
Joshua Hopps, PhD, Loyola University
Janice Johnson, MD, Ross University SOM
Joseph Kiesler, MD, University of Cincinnati COM
Niels Larson, PhD, Ross University SOM
Denny Martin, DO, Michigan State University
Jeanette Morrison, MD, Chicago Medical School
Sheila Nunn, PhD, Ross University SOM
Chris Pierson, MD, PhD, Ohio State University
Suzanne Reed, MD, Ohio State University
Tony Ribera, PhD, Indiana University SOM
Erica Taylor, MD, Wright State Booshoft SOM
Mary Jo Trout, PharmD, Wright State Booshoft SOM
Steve Vance, MD, Central Michigan University COM
Jill Wener, MD, Rush University Medical College

Conference Room C

**Workshop—Session 8**

IPE in the Clinic Setting: Optimizing Your Clinic and Teaching when you have multiple health professions trainees on your team

Heather Hageman, MBA, Washington University Medical Center
Carol Hasbrouck, MA, University of Toledo
Anna Maio, MD, Creighton University
Michelle Masterson, PT, PhD, University of Toledo
Deb Simpson, PhD, Aurora Health Care

Conference Room D

**Workshop—Session 9**

Learner-Centered Feedback on Milestone Achievement: Calibrating Self-Assessments and Promoting the Desire to Learn

Daniel J. Schumacher, MD. Med, Emergency Medicine, Cincinnati Children’s Hospital Medical Center
John G. Frohna, MD, MPH, Pediatrics, University of Wisconsin School of Medicine and Public Health

Conference Room E

**Workshop—Session 10**

The Three R’s of Professional Identify Formation in Medical Students: Reflection, Relationships and Resilience

J. Harry Isaacson, MD, Internal Medicine, Cleveland Clinic
Richard Frankel, PhD, Indiana University
Johanna Goldfarb, MD, Cleveland Clinic
Bradley Gill, MD, MS, Cleveland Clinic
Natalie Lee, MD Internal Medicine, Cleveland Clinic

2:30 to 2:45 **BREAK (free time to view posters and exhibits)**

Beverages and snacks available
2:45pm - 4:15pm  CONCURRENT SESSIONS: Including Small Group Discussions
Thursday PM

Auditorium 2  MESRE Oral Abstract Presentations Session 3
Multiple Viewpoints
(Presentations are allotted 15 minutes)
Moderator: Elizabeth R. Ryan, EdD, Northwestern University Feinberg SOM

The distribution of grades from medical students: Analysis and tools for simulation studies
G.A. Patino, Biomedical Sciences, Oakland University William Beaumont School of Medicine

Description and Evaluation of Peer Review of Teaching in an Integrated Medical School Curriculum
K. Strafford, The Ohio State University Wexner Medical Center
K. Tartaglia, The Ohio State University Wexner Medical Center
N. Verbeck, The Ohio State University Wexner Medical Center
J. Davis, The Ohio State University Wexner Medical Center
J. Mahan, The Ohio State University Wexner Medical Center
R. Nagel, The Ohio State University Wexner Medical Center

Leadership through Student Teaching: Surgical Faculty Cues for Increasing Entrustment of Residents
G. Sandhu, University of Michigan
C. Magas, University of Michigan
D. Horne, University of Michigan
V. Nikolian, University of Michigan
R. Minter, UT Southwestern

*Supported by The Josiah Macy Jr. Foundation (Board Grant # B15-05) and the University of Michigan Graduate Medical Education Innovations Grant

Development and Validation of e-Clinical Evaluation Exercise (e-CEX) Tool to Assess Patient-Centered Electronic Medical Record Use
M.D. Lyons, Department of Internal Medicine, University of Chicago
W. Lee, Department of Internal Medicine, University of Chicago
J. Farnan, Department of Internal Medicine, University of Chicago
V. Arora, Department of Internal Medicine, University of Chicago
K. Wroblewski, University of Chicago
M. Alkureishi, Department of Pediatrics, University of Chicago

*Grant funding for this project includes: the Alliance for Academic Internal Medicine provided funding through an award via the 2013 Clerkship Directors of Internal Medicine (CDIM) Small Grants Program to Promote Educational Scholarship. University of Chicago Academy of Distinguished Medical Educators Medical Education Grant. Arnold P. Gold Foundation Research Institute “Mapping the Landscape, Journeying Together” Project Grant.

Conference Room A  INNOVATIONS IN MEDICAL EDUCATION (IME) Oral Presentation Session 1
Novel Curricula/Content
(Presentations are allotted 15 minutes)
Moderator: Brigid Dolan, MD, Northwestern University Feinberg School of Medicine
Piloting a Graduate Medical Education (GME) Scholars Track for Resident Trainees
S.K. Martin, Medicine, University of Chicago
J. Ahn, Medicine, University of Chicago
J. Farnan, Medicine, University of Chicago
H.B. Fromme, Pediatrics, University of Chicago

*Supported by an internal grant from the University of Chicago Academy of Distinguished Medical Educators, Medical Education Grant, awarded in 2013 for the years of 2013-2015

Optimizing Patient Care Curriculum: Bridging Three Domains of Knowledge for a Fully-Integrated, Longitudinal Curricular Thread
T.J. Caverly, University of Michigan School of Medicine
N.S. Mani, Taubman Health Sciences Library, University of Michigan
J. Purkiss, Office of Medical Student Education, University of Michigan
J. Grant, University of Michigan School of Medicine
R. Mangrulkar, Office of Medical Student Education, University of Michigan

A 6-Domain Framework Was Useful in Identifying Clinically Relevant Social Determinants of Health
D. Ward, Internal Medicine, University of Michigan
D.A. Chick, Internal Medicine, University of Michigan
B.C. Williams, Internal Medicine, University of Michigan
P.B. Mullan, Learning Health Sciences, University of Michigan

How Can You Increase Reporting of Medical Student Professionalism Issues? Use an App!
A.J. Michelfelder, Loyola University Chicago Stritch School of Medicine
S. Kavic, Loyola University Chicago Stritch School of Medicine
A. Hoyt, Loyola University Chicago Stritch School of Medicine
S. Graziano, Loyola University Chicago Stritch School of Medicine
T. Kristopaitis, Loyola University Chicago Stritch School of Medicine
G. Gruener, Loyola University Chicago Stritch School of Medicine
M. Boyle, Loyola University Chicago Stritch School of Medicine
N. Clipstone, Loyola University Chicago Stritch School of Medicine

Novel Champions for Professionalism in Electronic Medical Record (EMR) Use: Integrating Patient-Centered EMR Use Skills and Documentation Expectations into Required EMR Training
M. Alkureishi, Pediatrics, University of Chicago
W. Lee, Internal Medicine, University of Chicago
V. Arora, Internal Medicine, University of Chicago
S. Webb, EPIC Clinical Information Systems, University of Chicago

Conference Room F
MESRE Consultation
Consultant: Janet Riddle, MD, University of Illinois Chicago College of Medicine

The One-Week Research Rotation Intensive
A. Fant, Emergency Medicine, Northwestern University Feinberg School of Medicine
B.H. Schnapp, Emergency Medicine, Northwestern University Feinberg School of Medicine
P. Lank, Emergency Medicine, Northwestern University Feinberg School of Medicine
M.A. Gisondi, Emergency Medicine, Northwestern University Feinberg School of Medicine
2:45 - 3:30 pm  
Conference  
Room B  

Small Group Discussion 1  

Change Agents in Medical Education  
Larry Hurtubise, Pediatrics, The Ohio State University  
Victoria Cannon, Office of Curriculum Research and Evaluation, The Ohio State University  
Jeanne L. Koehler, Medical Education, Southern Illinois University School of Medicine  
Misa Mi, Oakland University William Beaumont School of Medicine

2:45 - 3:30 pm  
Conference  
Room C  

Small Group Discussion 2  

Curricular Integration of Social Medicine: A Call for Reform  
Allison A. Vanderbilt, Academic Affairs and Family Medicine, College of Medicine and Life Sciences, University of Toledo  
Reginald F. Baugh, Admissions and Otolaryngology, College of Medicine and Life Sciences, University of Toledo  
Patricia A. Hogue, Physician Assistant Studies, College of Medicine and Life Sciences, University of Toledo  
Imran I. Ali, Neurology and Academic Affairs, College of Medicine and Life Sciences, University of Toledo

2:45 - 3:30 pm  
Conference  
Room D  

Small Group Discussion 3  

A Lapse in Judgment and the Effect it has on Professionalism: A Multi-Institutional Perspective on Social Media and its Policy in Medical Schools  
Melissa Hansen, Office of Medical Education, The University of Toledo  
Geraud Plantegenest, College of Human Medicine, Michigan State University  
Aaron Smith, Academic Affairs, Wright State University  
Peggy Moore, E-Learning Instructional Design, University of Nebraska Medical Center

2:45 - 3:30 pm  
Conference  
Room E  

Small Group Discussion 4  

Development of a Standardized Institutional Process for Annual Program Evaluations and Graduate Medical Education Committee Oversight  
Kimberly Baker-Genaw, MD, Henry Ford Hospital  
Bret Stevens, Henry Ford Hospital

3:30 - 4:15 pm  
Conference  
Room B  

Small Group Discussion 5  

Implementing New Curriculum: No harder than quitting smoking  
Janet Lindemann, MD, University of South Dakota Sanford School of Medicine  
Scott Knutson, MD, University of North Dakota School of Medicine and Health Sciences  
Lisa Grill Dodson, MD, Medical College of Wisconsin  
Mark Beard, MD, University of South Dakota Sanford School of Medicine

3:30 - 4:15 pm  
Conference  
Room C  

Small Group Discussion 6  

Creating an evidence-based USMLE Step 1 advising program  
Jesse Burk-Rafel, MS, third year medical student, University of Michigan Medical School  
Joel Purkiss, PhD, Director of Evaluation and Assessment, University of Michigan Medical School
3:30 - 4:15 pm  Small Group Discussion 7
Conference Room D

To Be or Not To Be, That is the (Professional Identity Formation Assessment) Question
C. Alexander Grieco, M.D., Department of Radiology, The Ohio State University College of Medicine
Sheryl A. Pfeil, M.D., Department of Internal Medicine, The Ohio State University College of Medicine
Joanne Lynn, M.D., Department of Neurology, The Ohio State University College of Medicine
Rupel Dedhia, M.D., Department of Internal Medicine, Rush Medical College of Rush University
John A. Davis, Ph.D., M.D., Department of Internal Medicine, The Ohio State University College of Medicine

3:30 - 4:15 pm  Small Group Discussion 8
Conference Room E

Using Data for Planning and Improving: The AAMC Student Surveys
Heather Hageman, MBA, Washington University Medical Center
Marie Caulfield, PhD, Data Operations and Services, AAMC

4:30 – 6:30 pm  Poster Session and Reception
Walking hors d'oeuvres and drinks

Atrium/Lobby

Peer-Reviewed Research and Innovations in Medical Education
See Appendix A for a list of titles and authors for MESRE and IME posters
4:30 – 5:30 pm: Even numbered posters presented
5:30 – 6:30 pm: Odd numbered posters presented
### Friday, April 8, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00 am – 3:00 pm</td>
<td>REGISTRATION</td>
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<tr>
<td>7:00 – 8:00 am</td>
<td>BREAKFAST</td>
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<td><strong>Ford Ballroom</strong></td>
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<tr>
<td>7:00 – 8:00 am</td>
<td>SECTION MEETINGS</td>
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<tr>
<td><strong>Conference</strong></td>
<td>Continuing Medical Education (CME)</td>
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<td><strong>Room A</strong></td>
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<td><strong>Conference</strong></td>
<td>Graduate Medical Education (GME)</td>
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<tr>
<td><strong>Conference</strong></td>
<td>Undergraduate Medical Education (UGME)</td>
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<td><strong>Room C</strong></td>
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<tr>
<td><strong>Conference</strong></td>
<td>Medical Education Scholarship Research and Evaluation (MESRE)</td>
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<td><strong>Room D</strong></td>
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<td>8:00 – 8:15 am</td>
<td>BREAK</td>
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#### 8:15 – 9:45 am

**Concurrent Sessions**

**Friday AM**

- **Auditorium 2**
  - **MESRE Oral Abstract Presentations Session 4**
  - **Clinical Education/Assessment**
    - *Presentations are allotted 15 minutes*
    - **Moderator:** Elizabeth Baker, MD, MHPE, Rush Medical College
  - **Supplemental Milestones for 48-Month Emergency Medicine Residency Programs: A Validation Study**
    - A.R. Ketterer, Emergency Medicine, Northwestern University Feinberg School of Medicine
    - D.H. Salzman, Emergency Medicine, Northwestern University Feinberg School of Medicine
    - M.A. Gisondi, Emergency Medicine, Northwestern University Feinberg School of Medicine
    - J.B. Branzetti, Division of Emergency Medicine, University of Washington School of Medicine
  - **Grading beyond just disciplines: Competencies as stand-alone grades**
    - E. Simanton, University of South Dakota Sanford School of Medicine
    - S. Schellpfeffer, University of South Dakota Sanford School of Medicine
    - J. Lindemann, University of South Dakota Sanford School of Medicine
    - M. Beard, University of South Dakota Sanford School of Medicine
  - **Can Student Performance on Preclinical OSCEs Predict Clerkship Grades?**
    - M. Chima, College of Medicine, University of Nebraska Medical Center
    - G. Beck, College of Medicine, University of Nebraska Medical Center
    - D.V. O'Dell, College of Medicine, University of Nebraska Medical Center
The Prediction of M-1 Student Examination Performance in Three- and Four-Year Medical Degree Curricula
R. Treat, Medical College of Wisconsin
M. Tews, Medical College of Wisconsin
D. Brown, Medical College of Wisconsin
K. Kaljo, Medical College of Wisconsin
J. Janowitz, Medical College of Wisconsin
D. Bragg, Medical College of Wisconsin
W.J. Hueston, Medical College of Wisconsin

Examining a Better Predictive Model of Medical Student Empathy from Personality using Emotional Intelligence as a Mediator
R. Treat, Medical College of Wisconsin
D. Brown, Medical College of Wisconsin
K. Kaljo, Medical College of Wisconsin
M. Tews, Medical College of Wisconsin
J. Janowitz, Medical College of Wisconsin
D. Bragg, Medical College of Wisconsin
W.J. Hueston, Medical College of Wisconsin

INNOVATIONS IN MEDICAL EDUCATION (IME) Oral Presentation Session 2
Evaluation/Assessment/Feedback
(Presentations are allotted 15 minutes)
Moderator: Janet Lindemann, MD, University of South Dakota, Sanford School of Medicine

Evaluation-Driven Improvements to Our Unique Year-Long Organized USMLE Step Preparation Program
A.M. Dietrich, Academic Affairs, Medical College of Wisconsin
J. Janowitz, Academic Affairs, Medical College of Wisconsin

Making it stick: Initial implementation of an intelligent study system for adaptive learning and enduring mastery in two medical schools
M. Lineberry, Medical Education, University of Illinois at Chicago
A. Khan, Medical Education, University of Illinois at Chicago
C. Kamin, Medical Education, University of Illinois at Chicago
A. Riordan, Medical Education, University of Illinois at Chicago
S. Dauner, Medical Education, University of Illinois at Chicago
D. Lorens, Medical Education, University of Illinois at Chicago
A. Gangopadhyaya, Medical Education, University of Illinois at Chicago
N. Rajagopal, Medical Education, University of Illinois at Chicago
S. Gagliani, Knowledge Diffusion, Inc.
R. Haynes, Knowledge Diffusion, Inc.

*Shiv Gagliani and Ryan Haynes are co-founders of "Knowledge Diffusion, Inc.,” which produces the medical education application "Osmosis." This collaboration has been disclosed to the funder (the NBME) and also to the lead institution (UIC) under a UIC-approved disclosure and management plan.

A Curriculum to Optimize Medical Student Experience with Patient-Centered Discharge Care
M.D. Lyons, Department of Internal Medicine, University of Chicago
A. Cifu, Department of Internal Medicine, University of Chicago
A. Pincavage, Department of Internal Medicine, University of Chicago
TALKS (Timely Assessment of Learner’s Knowledge and Skills): An Approach to Increase Volume and Quality of Resident Evaluations
A. Fant, Emergency Medicine, Northwestern University Feinberg School of Medicine
B.H. Schnapp, Emergency Medicine, Northwestern University Feinberg School of Medicine
M. Piro, Emergency Medicine, Northwestern University Feinberg School of Medicine
M.A. Gisondi, Emergency, Northwestern University Feinberg School of Medicine

OSU COM Professionalism Climate Questionnaire: Exploring a New Tool for Professionalism Assessment
J.D. Mahan, Nationwide Children’s Hospital/The Ohio State University
L. Hurtubise, Pediatrics, Nationwide Children’s Hospital/The Ohio State University
J. Chen, The Ohio State University College of Medicine
D. Gorgas, The Ohio State University College of Medicine

Conference Room B
Workshop—Session 11
Does TBL meet LCME Standard 6.3? You bet it does!
Abbas Hyderi, MD MPH, University of Illinois College of Medicine at Chicago
Amy Lin, MD, University of Illinois College of Medicine at Chicago
Dean Parmeelee, MD, Boonshoft School of Medicine of Wright State University
Colleen Hayden, MS, Boonshoft School of Medicine of Wright State University
Ruth Levine, MD, University of Texas Medical Branch at Galveston
Sandy Cook, PhD, Duke-NUS Graduate Medical School
Colleen Grochowski, PhD, Duke University School of Medicine

Please complete the preparatory reading (link below) prior to attending this workshop: https://www.dropbox.com/sh/703ykq76hjkxeyr/AAAgHMWqOujElvZoYeGxtJf6a?dl=0

Conference Room C
Workshop—Session 12
Perspectives on Curriculum Mapping – Local and National Impacts and Outcomes
Stefanie Ellison, MD, Department of Emergency Medicine, University of Missouri-Kansas City School of Medicine
Katharine Agnew, BA, Curriculum, University of Missouri-Kansas City School of Medicine
Robert Noiva, PhD, Biomedical Sciences, Oakland University William Beaumont School of Medicine
Robin Rivest MEd, MBA, Medical Education, Oakland University William Beaumont School of Medicine
Terri Cameron, MA, Association of American Medical Colleges

Conference Room D
Workshop—Session 13
Aligning Incentives: An Appraisal of Resources Required for Preservation and Innovation of the Education Mission
Dawn S. Bragg, PhD, Medical College of Wisconsin
Kristi J. Ferguson, MSW, PhD, University of Iowa Carver College of Medicine
Jose Franco, MD, Medical College of Wisconsin
Dianne Wagner, MD, Michigan State University College of Human Medicine

Conference Room E
Workshop—Session 14
Professionalism Lapse or Delay in Professional Identity Formation?
Amy Zack, MD, Family Medicine, MetroHealth Medical Center and Case Western Reserve University
John Frohna, MD, Pediatrics and Medicine, University of Wisconsin – Madison
Linda Daly, PhD, RN, The Ohio State University College of Nursing
Karen Marcdante, MD, Pediatrics, Medical College of Wisconsin
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>9:45 – 10:45 am</td>
<td><strong>CONCURRENT SESSIONS</strong></td>
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<td><strong>Friday AM</strong></td>
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<td><strong>POSTER SESSION</strong></td>
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<td>This poster session is an additional opportunity to interact with poster presenters. Poster award winners will also be asked to give a 5-minute summary of their poster during this session. Award winners will be notified Thursday night.  <strong>Presenters must remove their posters at the end of this session</strong>  Posters left after 12 Noon will be discarded</td>
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<td><strong>EXPANDING ASSESSMENT OF COMPETENCIES IN USMLE</strong></td>
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<td>Presenter: Miguel Paniagua</td>
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<td>In this session representative from the USMLE will solicit feedback from the medical education community on evolving assessments in areas that include: 1. Use of clinical decision making tools during an examination 2. Assessment of communication skills 3. Systems-based practice: focus on patient safety</td>
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<td>10:45 – 11:45 am</td>
<td><strong>AAMC CONCURRENT PRESENTATIONS</strong></td>
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<td><strong>ACGME milestones focus group—Stan Hamstra</strong></td>
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<td>11:45 am - 1:30 pm</td>
<td><strong>BOX LUNCH AND SPECIAL INTEREST GROUP (SIG) MEETINGS</strong></td>
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<td>Pick up box lunches in Ford Ballroom</td>
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<td>11:45 am – 12:30 pm</td>
<td><strong>SPECIAL INTEREST GROUP (SIG) MEETINGS</strong></td>
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<td><strong>Technology in Medical Education</strong></td>
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<td>Convener: Cecile Foshee, PhD and Elissa Hall, MA</td>
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<td><strong>Continuing Quality Improvement</strong></td>
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<td>Convener: Aleece Caron, PhD and Anna Maio, MD</td>
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<td><strong>Directors of Clinical Skills Course (DOCS)</strong></td>
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<td>Convener: Jeanne Farnan, MD, MHPE</td>
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<td><strong>Libraries in Medical Education</strong></td>
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<td>Convener: Misa Mi, PhD, MA, MLIS, AHIP</td>
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<td>12:45 pm – 1:30 pm</td>
<td><strong>SPECIAL INTEREST GROUP (SIG) MEETINGS</strong></td>
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<td><strong>Curriculum and Assessment</strong></td>
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<td>Convener: Brenda Roman, PhD</td>
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<td><strong>Faculty Development</strong></td>
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<td>Convener: John Mahan, MD</td>
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<td><strong>Culture &amp; Health and Medical Humanities</strong></td>
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<td>Convener: Diane Hummel, MA, MILS</td>
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<td><strong>Service Learning</strong></td>
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Room D  Convener: Raymond Yeow

1:30 – 1:45 pm  BREAK

1:45 – 3:15 pm  CONCURRENT SESSIONS
Friday PM

Auditorium 2  MESRE Oral Abstract Presentations Session 5
(Presentations are allotted 15 minutes)
Moderator: David Way, Med, The Ohio State University College of Medicine

Conducting Admissions Interviews at Regional Campuses Influences Applicants’ Preferred Campus Assignment in a Statewide System of Distributed Medical Education
J.J. Brokaw, Office of Admissions, Indiana University School of Medicine
J.P. O'Neal, Office of Admissions, Indiana University School of Medicine
K.W. West, Office of Admissions, Indiana University School of Medicine
K.A. Smartt, Office of Admissions, Indiana University School of Medicine

A 15-year longitudinal tracking study of underrepresented in medicine (URM) students completing a post-baccalaureate premedical program shows high levels of residency placement and preference for primary care specialties
A.M. Metz, MEDPREP, Southern Illinois University School of Medicine

Correlates of Emotional Intelligence among Matriculating Medical Students: what is important in a medical school applicant?
P.J. Kowalski, Michigan State University College of Human Medicine
R. Allen, Michigan State University College of Human Medicine
C. Arvidson, Michigan State University College of Human Medicine
J. Brady, Michigan State University College of Human Medicine
P. Brewer, Michigan State University College of Human Medicine
W. Green, Michigan State University College of Human Medicine
J. Maurer, Michigan State University College of Human Medicine
B. Mavis, Michigan State University College of Human Medicine
T. McGovern, Michigan State University College of Human Medicine
E. Novak, Michigan State University College of Human Medicine
J. O'Donnell, Michigan State University College of Human Medicine
D. Raffo, Michigan State University College of Human Medicine
B. Ulrich, Michigan State University College of Human Medicine
J. Osuch, Michigan State University College of Human Medicine

Social responsibility, self-actualization and empathy: A baseline comparison of characteristics of emotional intelligence and demographic characteristics of matriculating medical students
P.A. Brewer, Office of Academic Affairs, Michigan State University College of Human Medicine
R. Allen, Office of Academic Affairs, Michigan State University College of Human Medicine
C. Arvidson, Office of Academic Affairs, Michigan State University College of Human Medicine
W. Green, Office of Academic Affairs, Michigan State University College of Human Medicine
P. Kowalski, Office of Academic Affairs, Michigan State University College of Human Medicine
B. Mavis, Office of Academic Affairs, Michigan State University College of Human Medicine
E. Novak, Office of Academic Affairs, Michigan State University College of Human Medicine
J. O’Donnell, Office of Academic Affairs, Michigan State University College of Human Medicine
J. Osuch, Office of Academic Affairs, Michigan State University College of Human Medicine
D. Raffo, Office of Academic Affairs, Michigan State University College of Human Medicine
H. Toriello, Office of Academic Affairs, Michigan State University College of Human Medicine
J. Brady, Office of Student Affairs and Services, Michigan State University College of Human Medicine
W. Lipscomb, Office of Student Affairs and Services, Michigan State University College of Human Medicine
T. McGovern, Office of Student Affairs and Services, Michigan State University College of Human Medicine
J. Maurer, Office of Admissions, Michigan State University College of Human Medicine
B. Ulrich, Office of Admissions, Michigan State University College of Human Medicine

7-Year Trends in Demographic and Practice Characteristics of Primary Care versus Non-Primary Care Post-Graduate Physician Trainees in Indiana
K. Kochhar, Family Medicine, Indiana University School of Medicine
E. Tandukar, Family Medicine, Indiana University School of Medicine
S. Bruen, Office of Graduate Medical Education, Indiana University School of Medicine
M. Howenstine, Office of Graduate Medical Education, Indiana University School of Medicine
P. Nalin, Dean's Office of Educational Affairs, Indiana University School of Medicine

Conference Room A

Workshop—Session 15
“I'm Burned Out!” Helping our Medical Trainees Develop Skills to Build Resilience
Michelle Martinchek, University of Chicago
Amber Pincavage, University of Chicago

Conference Room B

Workshop—Session 16
Understanding and Use of Effect Size Measures for Improved Research, Decision-Making, and Medical Practice
Joel A. Purkiss, PhD, Learning Health Sciences, University of Michigan
James T. Fitzgerald, PhD, Learning Health Sciences, University of Michigan
R. Brent Stansfield, PhD, Learning Health Sciences, University of Michigan
Larry D. Gruppen, PhD, Learning Health Sciences, University of Michigan

Conference Room C

Workshop—Session 17
Enhancing Physician Teaching Skills in the Ambulatory Setting
Kristen Rundell, MD, Department of Family Medicine, The Ohio State University College of Medicine
Pat Ecklar, MD, Department of Internal Medicine, The Ohio State University College of Medicine
Cynthia Ledford, MD, Department of Internal Medicine, The Ohio State University College of Medicine
Cami Curren, MD, Department of Internal Medicine, The Ohio State University
John D Mahan, MD, Department of Pediatrics, The Ohio State University College of Medicine

Diana Bahner, The Ohio State University College of Medicine

Conference Room D

Panel Discussion—Session 18
“I tried that and it didn’t work!” Moving Beyond Barriers and Leveraging Resources to Drive Educational Innovation
Peggy A. Moore, MSEd, University of Nebraska Medical Center
Linda M. Love, EdD, Faculty Development, University of Nebraska Medical Center
Geraud Plantegenest, MA, Medical Education Research & Development, Michigan State University
Cory J. Rohlfsen, MD, Internal Medicine, University of Nebraska Medical Center

Conference Room E

Workshop—Session 19
Professional Identity Formation: From Pedagogy to Practice
Sheryl Pfeil, MD, The Ohio State University College of Medicine
Michelle Daniel, MD, University of Michigan School of Medicine
Joshua Hauser, MD, Northwestern University Feinberg School of Medicine

3:30 - 4:00 pm
Conference Room A

Conference Debrief

CONFERECE ADJOURNS
Appendix A—Posters

Posters will be displayed from the morning of Thursday 4/7/16 through the poster session on Friday 4/8/16. Posters that are not displayed by 4 pm on Thursday will not be included in the judging process. On Thursday even numbered posters will be presented from 4:30 – 5:30 pm and odd numbered posters will be presented from 5:30 – 6:30 pm. Posters must be removed after the Friday morning poster session that concludes at 10:45am. Posters left after 12 noon will be discarded.
Medical Education Scholarship, Research, & Evaluation (MESRE) Posters
(note: numbering is not sequential)

31. Physicians' Perceptions of Psychiatric Care Delivered in General Medical Settings: A Targeted Needs Assessment
   *N. Feldman, M. Marcangelo, J.M. Farnan, University of Chicago*

32. Student-Directed Learning in Medical Neuroscience Courses: A Systematic Review of the Literature
   *D. Gould, M. Mi, G. Patino, Oakland University William Beaumont*

33. Interdisciplinary Co-teaching in a Clinical Skills Course: What Makes the Relationship Work?
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34. The Great Vanishing Act: A Lack of High Quality Clinical Instruction in Physical Examination
   *A. Taylor, P. Bergl, J. Feagles, K. Quirk, M. Muntz, K. Fletcher, Medical College of Wisconsin*

35. Improving the presentation of web-based case studies
   *J. De Prey, W. Martinez, M. Tuffnell, Medical College of Wisconsin*
   **Disclosure- This project was supported by Elsa B. & Roger D. Cohen MDs Fellowship in Medical Education**

36. Medical Students as Teachers Elective: Follow-up Study of Participants
   *K.N. Huggett, University of Vermont College of Medicine*
   *A. Maio, Medicine, Creighton University*

37. Building Resilient Teams: Senior Resident Experience with Difficult Clinical Events
   *M. Martinchek, A. Pincavage, University of Chicago*

38. Cultural Competence in Undergraduate Medical Education
   *M. Mi, I. Udo-Inyang, Oakland University William Beaumont School of Medicine*

39. Implementing a Self-developed Cultural Competence Workshop in Pediatric Residency and Assessing Outcomes
   *M. Puliyel, K. Maksimowski, D. Massarella, A. Prezynski, A. Caron, Metrohealth Medical Center*

40. Cognitive learning strategies, mental well-being, and academic performance in 1st and 2nd year medical students
   *J. Hopps, G. Sigman, B. Sonntag, Stritch School of Medicine, Loyola University Chicago*

41. Older adult perspectives on their role in a community-based health profession education project
   *M. Cheslock, T. Wunderlich, N. Afonso, Oakland University William Beaumont School of Medicine*
   **Disclosure- This project received grant funding from the Oakland University William Beaumont School of Medicine Capstone Department**
52. Resident education on advanced care planning in a community outpatient setting
   **O. Opelami, A. Caron, MetroHealth, Cleveland**

54. Impact of Electronic Medical Record Use on the Patient-Doctor Relationship and Communication: A Systematic Review
   **M. Alkureishi, W. Lee, M. Lyons, V. Press, V. Arora, D. Werner, University of Chicago**
   Disclosure- This systematic review received funding from the Arnold P. Gold Foundation.

55. Evaluating the portfolio’s ability to identify behaviors that persist into clerkships
   **C.L. O’Brien, C. Chen, M. Green, Northwestern University, Chicago**
   Disclosure- The research is supported by a CGEA mini-grant, awarded in 2015.

56. Comparing a PBL Curriculum to an “Ideal” Social and Behavioral Sciences Curriculum
   **M.D. Warne-Griggs, K. Dryer, K. Hoffman, University of Missouri**
   Disclosure- This work was supported in part by NIH-OBSSR RFA OD-05-001 – K07

59. Patient Advisors Orient Medical Students to Patient-and-Family-Centered Care
   **J.A. Purkiss, K. Parent, K. Jones, A. Sullivan, J. House, University of Michigan**

60. What are the Most Important Attributes of a First-Year Medical Resident? Insights for Medical Education from Ten Years of Resident Survey Data, 2004-13
   **J.A. Purkiss, M. Zaidi, J. Miller, P. Ross, K. Grob, N. Zaidi, S. Santen, University of Michigan**
Innovations in Medical Education (IME) Posters

1. You Mapped Your Curriculum – Now What? Developing, Sustaining and Effectively Using a Curriculum Map  
   H. Hageman, C. Dufault, Washington University School of Medicine  
   R. Givens, University of Arizona  
   J. Mahoney, University of Pittsburgh

2. A Student-Centered Participatory Program Evaluation for Curriculum Reform: Two-Step Approach  
   A. Beason, E. Curry, M. Ginnetti, B. Kabat, J. Mool, S. Murray, E. Neumeister, L. Swale, H. Han, J. Koehler, Southern Illinois University School of Medicine

3. What’s Lean Got to Do with It? Increasing Efficiencies and Reducing Costs in Medical Education  
   K. Rivera, K. Musak, S. Bayens, D. Simpson, Aurora Health Care, Milwaukee

4. Crowdsourcing the Keys to Academic Career Success for Clinician Educator Faculty Development Program Graduates  
   D. Simpson, Aurora Health Care, Milwaukee  
   K. Marcdante, Children’s Hospital of Wisconsin  
   Disclosure- Partial funding for this project is provided by the Health Resources & Services Administration (HRSA) of the U.S. Department of Health & Human Services (HHS), grant no. D55HP23197

5. Defining and Improving Medical Student Coachability: A Student-Led Curriculum Development Project  
   S.L. Murray, A. Ghareeb, C. Working Group, A. Cianciolo, Southern Illinois University School of Medicine  
   Disclosure- This project was supported by the Josiah Macy Foundation.

6. Critical actions to ensure student wellbeing during curriculum change.  
   E. Simanton, W.H. Percy, J. Lindemann, University of South Dakota Sanford School of Medicine

7. Developing Authentic Learning in an Online Environment  
   M. Holley, S. Cooper, S. Renshaw, Indiana University School of Medicine  
   Disclosure- Elements of this project were supported by funds from HRSA and the IUPUI Center for Teaching & Learning.

8. Championing the Cause - An Innovative Student-Led Curriculum  
   S. Gupta, L. Gimbel, S.L. Rao, S. Dutta, Rush University

9. Managing Future Expectations — A Partnership in Medical Education  
   J. Nellis, C. Paul, D. DeMik, S. Sciengienka, M. McHugh, University of Iowa, Carver College of Medicine  
   A. Reed, University of Iowa Hospitals and Clinics  
   Disclosure- This project received early financial support from a single alumnus.
10. Online Anatomy Cases: Building Clinical Context into Gross Anatomy Education  
   **A. Grayev, L. Gonzalez, A.S. Becker, K. Krabbenhoft, C. Seibert, University of Wisconsin, Madison**  
   *Disclosure- Our research was supported by an Educational Innovation grant from the University of Wisconsin.*

11. Vertical and Horizontal Alignment of the Gross Anatomy Curriculum with the Core Entrustable Professional Activities (EPAs)  
   **B. Giffin, P. Baker, L. Lukin, University of Cincinnati College of Medicine**

12. Video Questions add Interest to Medical Neuroscience Examinations  
   **B.B. Krippendorf, D. Wilke-Zemanovic, R. Treat, Medical College of Wisconsin, Milwaukee**

13. Compass: a Longitudinal Course Addressing Medicine, Patients, Self and Society  
   **J.A. Lammert, J.D. Pauly, J. Donaldson, K. Kane, S. Swofford, J.E. Schneider, University of Missouri-Columbia School of Medicine**

14. Creating a Student-Led Service-Learning Advisory Council to Facilitate Integration of Extra-Curricular Service-Learning within the Curriculum  
   **J. Kiesler, Family and Community Medicine, University of Cincinnati College of Medicine, J. Riddle, University of Illinois-Chicago College of Medicine**

15. UW-PRIME: An Innovative Three-Tiered Approach to Promote Medical and Physician Assistant Students' Knowledge and Skills in Public Health  
   **E.M. Petty, P. Pillai, P.L. Remington, University of Wisconsin, Madison**  
   *Disclosure- This work was supported by a grant from HRSA/DHHS, grant no. T85HP24472.*

16. An Effective Approach to Train Future Physicians to Address Health Needs of Underserved Rural Communities: The Wisconsin Academy of Rural Medicine (WARM)  
   **E.M. Petty, B.J. Crouse, School of Medicine and Public Health - University of Wisconsin, Madison**  
   *Disclosure- This work was supported by a grant from HRSA/DHHS, grant no. T85HP24472.*

17. Integrating Assessment of Food Insecurity into the Medical School Curriculum as an Important Health Indicator  
   **V. Uhley, A. Farr, Oakland University William Beaumont School of Medicine**

18. Poverty Simulation: A Psychosocial Learning Experience for Interprofessional Healthcare Students  
   **N.R. Bihani, F. Shun, J.C. Mendez, Wayne State University School of Medicine**  
   **J.T. Bickes, Wayne State School of Nursing**

19. Classroom to Community Initiative: Medical Students Supporting the Efforts of a Public School District in Need  
   **R. Wedemeyer, V.C. Lucia, R. Schneider, T. Wunderlich, N.M. Afonso, Oakland University William Beaumont School of Medicine**
20. Classroom to Community Initiative: Development of a Medical Student-Led Infectious Disease Module for High School Students  
*R. Wedemeyer, A. Dearden, V.C. Lucia, Oakland University William Beaumont School of Medicine*

21. Doctors of Tomorrow: Leadership and Collaboration through an Innovative Mentorship Curriculum  
*K. Heinze, K. Steenbergh, D. Mohan, L. McIntosh, H. Gits, J. Finks, G. Sandhu, University of Michigan*  
*Disclosure*—The Doctors of Tomorrow program has received funding from Jeffrey Cappo and the Victory Automotive Group.

22. Pilot ENT Mentorship Program for Second Year Medical Students  
*R. Sethia, C. Sheehan, D. Danforth, G.F. Essig, T.N. Teknos, C.A. Elmaraghy, The Ohio State University*

23. Advanced Clinical Track in Pediatrics: A Milestone Based Curriculum for the 4th Year in Undergraduate Medical Education  
*N. Liao, A. Splinter, J.D. Mahan, The Ohio State University/Nationwide Children’s Hospital*  
*J. McCallister, M. Khan, The Ohio State University*

24. Leadership Development Across the CGEA: From Micro to Macro  
*J. Pettit, J. Nellis, C. J. Paul, Carver College of Medicine, University of Iowa,*  
*S. Neeley, Wright State University*  
*P. A. Cola, Case Western Reserve University*  
*C. Kamin, University of Illinois, Chicago*  
*S. Chauvin, Louisiana State University School of Medicine*

25. The Initial Clinical Experience (ICE): A Novel Approach to Interprofessional Education through Early Immersion in Healthcare Teams  
*J.J. Cedarbaum, J. House, A. Sullivan, M. Daniel, F. Haque, Medical School, University of Michigan Medical School*  
*Disclosure*—Funding from the AMA “Accelerating Change in Medical Education” grant, received by the University of Michigan Medical School, was used in the development of the ICE course.

26. Lessons In U.S. Veteran Centered Care: An Interprofessional Massive Open Online Course (MOOC) for Health Professionals  
*P.T. Ross, K. Goldrath, University of Michigan Medical School*  
*M.L. Lypson, Ann Arbor VA Healthcare System and University of Michigan*  
*Disclosure*—This work was supported by the Arnold P. Gold Foundation.

27. Starting on Day 1: An Interactive Role Play for Incoming Interns on the Importance of Interprofessional Practice  
*A. Chandiramani, J. Balachandran, J. Farnan, V. Arora, The University of Chicago*  
*N. Stewart, Creighton University Medical Center*  
*K. Pischke-Winn, University of Chicago*
28. Patient Safety Room of Horrors
   **L.G. Broutman, M. Stout, Rosalind Franklin University**

29. Can a Capstone Course Provide Entering PGY-1 Residents Competence, Confidence, and Reduce Medical Errors?
   **M. Hansen, M.R. Smith, I. Ali, S. Raja, The University of Toledo**

30. Piloting a Modular Curriculum on Teamwork and Quality Improvement for 1st Year Medical Students: A Novel Approach to Teaching Health Systems in a Longitudinal Ambulatory Clinical Preceptorship.
   **S.G. Chheda, J.E. Davis, J.A. Foertsch, K.S. MacMillan, C.S. Seibert, University of Wisconsin School of Medicine and Public Health**
   Disclosure- Funding for this project was provided by the Wisconsin Partnership Program of the UW School of Medicine and Public Health.

34. Using Instructional Design Theory to Develop a Clinical Reasoning Curriculum
   **M. Daniel, M. Cole, R. Huang, N. Theyyunny, S. Cinti, University of Michigan School of Medicine**

35. Critical Clinical Competencies (CCC): An Online Video-based Curriculum to Develop Clinical Reasoning Skills
   **H. Han, A.T. Ciancioolo, D. Klamen, Southern Illinois University School of Medicine**
   N. LaVoie, Parallel Consulting
   Disclosure- Funding from the Josiah Macy Jr. Foundation was used for this project.

36. Groundschool: A Week-long Multidisciplinary Experience for Our Clerkship Students
   **H.R. Cronau, A. Harzman, C. Hoyle, K. Tartaglia, Ohio State University College of Medicine**

37. Women Leading Healthy Change: Improving a Student-Led Health Curriculum for Women Recovering from Prostitution or Substance Abuse
   **S. Prasad, E. Garfield, S. Kerlakian, S. Reimer, University of Cincinnati College of Medicine**
   Disclosure- The grant funding supporting the development of our submission comes from The Academy of Medicine of Cincinnati.

38. Baby steps: An innovative Mom-Baby newborn home visit program in a Family Medicine residency program.
   **A. Zack, MetroHealth Medical Center, Case Western Reserve University**
   J. Zhou, Case Western Reserve University

39. Medical Student Views on HPV Vaccination
   **J.M. Schulte, T. Wunderlich, M. Kavanagh, N.M. Afonso, Oakland University William Beaumont School of Medicine**

40. How communication skills are modeled and reinforced during early clinical experiences:
   Analysis of Medical and PA Student reflections
   **A. Brenneman, M. Rosenbaum, C. Bernat, University of Iowa Carver College of Medicine**
41. Alternative Clinical Education Sites for Year 1 & 2 Students
   N. Nartker, B.E. Ueberroth, H. Maqbool, A. Burkat, J.C. Mendez, Wayne State University
   School of Medicine

42. Teaching Medical Students about Medication Adherence
   J. Stojan, S. Buckler, J. Kahn, M. Wolff, University of Michigan

49. Just in Time Resident as Teachers Development using Teaching Tokens
   K. Koerner, P. Bergl, J. Kolinski, Medical College of Wisconsin
   M. Longeway, Waukesha Memorial Hospital
   S. Bodden, St Marys Family Medicine, Milwaukee
   D. Simpson, Aurora Hospital, Milwaukee
   Disclosure- Partial funding for this project is provided by the Health Resources & Services
   Administration (HRSA) of the U.S. Department of Health & Human Services (HHS), grant no.
   D55HP23197.

53. Adapting a Faculty Development Workshop on Patient-Centered EMR Use for Busy
   Clinicians using a Group OSCE
   M. Alkureishi, W. Lee, V. Arora, University of Chicago
   J. Isaacson, M. Mayer, Cleveland Clinic
   J Farnan, University of Chicago
   A Windover, L Pien, Cleveland Clinic
   R Frankel, Indiana University
   Disclosure- This project received funding from the AAMC CGEA Collaborative Grants.

57. Including Simulated Medical Students in the Training of Portfolio Coaches
   College of Medicine

58. A Milestone-based tool for faculty evaluations: Meaningful Data about Teaching Practice
   K.L. Kassis, L. Hurtubise, R. Wallihan, M. Chase, J. Mahan The Ohio State University
   College of Medicine
   S. Goode, Nationwide Children's Hospital, Columbus, Ohio
THANK YOU to OUR REVIEWERS!

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Use of the Harvey® Simulator to Reinforce Basic Exam Skills in Early Medical Learners

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Background: The use of the Harvey® for teaching the cardiovascular physical examination has not been studied or previously proven effective in teaching early learners mastering basic exam skills. It has however been studied in more proficient learners. If proven effective for early learners, use of the Harvey® may be a method of enhancing early mastery of complex exam skills and knowledge in the preclinical years. It is a method that does not require additional instructor time or skills and which can be repeated independently by the learner until mastery occurs.

Methods: The Harvey® was used to demonstrate the basic cardiovascular physical examination as well as to demonstrate a few salient abnormal cardiac findings. Students then voluntarily practiced for up to 5 minutes the demonstrated exam findings using the Harvey®. Half of the students received Harvey® training one week before a similar case using a standardized patient and a taped fixed split S2 was utilized in a FOSCE. The other half of the students received Harvey® training the week after the FOSCE. Students were rated on their FOSCE performance using a modified Kalamazoo (standard FOSCE rating instrument) in the usual manner, and a comparison was made between the ratings of those students who experienced Harvey® training before and those who experienced this additional teaching method after the FOSCE. All Longitudinal Group first year students, totaling approximately 200, experienced both Harvey® training and the FOSCE.

Results: Students were rated on 8 aspects of the cardiopulmonary exam during the FOSCE; these included draping the patient, auscultating in 3 positions and in 4 locations, inspecting the precordium and palpating the PMI, using the stethoscope bell and diaphragm, palpating pulses, and correctly identifying a split S2. Pulse palpation was the only exam parameter on which learners performed significantly better after Harvey training. Although students felt that having this intervention before the FOSCE would have optimized their learning and performance on this event, no significant difference was found to exist in student scoring on auscultation technique and positions between those who had and those who had not had this experience prior to the FOSCE (Pearson Chi Square and Fisher’s Exact Test used for analysis).

Conclusion: The conclusion of this study was that this teaching and learning method (TLM) likely provided insufficient experience to affect learning, and that more significant involvement and hands-on use of simulators in early learner education is needed to determine whether they effectively accelerate skill development.

References:
Developing an Interprofessional Collaborative Practice Curriculum for Residents: A Needs Assessment
N. Genere, Department of Internal Medicine-Pediatrics, University of Chicago
J. Oyler, Department of Internal Medicine, University of Chicago
A. Volerman, Department of Internal Medicine-Pediatrics, University of Chicago

**Background:** Interprofessional teams are associated with improved patient satisfaction and patient outcomes, as well as improved employee satisfaction and retention, according to prior studies. In today’s health care system, physicians must be prepared to work within and lead interprofessional teams. Studies demonstrate that physicians’ early clinical experiences have transformative potential for how physicians work collaboratively with nursing staff throughout their careers. Formal physician training in interprofessional collaboration has traditionally been limited, thus prompting national accreditation bodies to integrate interprofessional education (IPE) as a core competency. The purpose of this study is to describe residents’ knowledge, skills, and attitudes toward interprofessional collaborative practice (IPCP) to inform a curriculum in IPCP for residents in the primary care setting.

**Methods:** A survey was conducted of internal medicine (IM) and medicine-pediatrics (MP) residents at one institution. Post-graduate year one residents (PGY1) were asked about their experiences with interprofessional education and their perceptions of skills necessary for IPCP. The survey also assessed knowledge about interprofessional practice using case-based questions and attitudes toward IPCP using a previously validated scale, the Attitudes Toward Health Care Teams Scale. Survey questions were developed based on Interprofessional Education Collaborative’s ‘Competencies for Interprofessional Collaborative Practice’, as well as broader discussions with key stakeholders in our primary care clinic, including residency leaders, clinical administrators, residents, and staff. Responses were graded on a Likert scale, from ‘strongly disagree’ to ‘strongly agree’.

**Results:** The response rate was 91% (n=43). Approximately two-thirds (65%) of first-year residents had formal interprofessional education in medical school. These experiences occurred in various settings, including lectures, small group seminars, simulations, clinical rounds, and volunteer experiences. For the case-based knowledge assessment, 65% of PGY1s with formal IPE correctly answered clinical questions about IPCP compared to 40% of PGY1s without formal IPE (p=0.11). All residents agreed that training in interprofessional practice is necessary during their career and a majority (90%) stated they would like further training in interprofessional collaboration. In terms of perceived skills, residents were most confident in their teamwork abilities (4.0/5.0) and less confident with interprofessional roles and responsibilities (3.6/5.0) and feedback (3.4/5.0). A quarter of residents (23%) indicated that they lacked in one or more skills necessary for interprofessional practice. Residents felt interprofessional collaboration positively impacted patient care. Specifically, residents agreed that an interprofessional team improves quality of care (4.2/5.0) and efficiency in care delivery (4.1/5.0).

**Conclusions:** There is a growing need for further education in interprofessional collaboration within residency training. Residents recognized that interprofessional collaboration would be essential in their careers and were interested in further education on this topic. They also indicated that IPCP conferred an improvement in quality and efficiency of care. At the same time, almost a quarter of residents felt they lacked skills to practice in an interprofessional team. Prior IPE did not confer significant improvement in resident knowledge about interprofessional collaboration. These data suggest that current methodology for IPE may not be sufficient. These results highlight a need for formal training in interprofessional collaborative practice for resident physicians. We will pilot a curriculum about interprofessional collaboration for residents with allied health professionals serving as resident educators.

*Supported by a University of Chicago Academy of Distinguished Medical Educators Grant.*
Student Perceptions of Active Learning
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A. Walling, Office of Faculty Affairs, University of Kansas School of Medicine
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Background: Rooted in established educational theory, burgeoned with institutional acceptance, and braced by the encouragement of accrediting bodies, Active Learning (AL) has become fundamental to quality medical education. As AL depends on collaboration and mutual investment by learners and teachers, the paucity of information about medical student perceptions and experiences concerning AL is surprising. We found no published reviews of student perspectives on AL undertaken prior to introducing this strategy into the curriculum. This study was undertaken to identify student beliefs, attitudes, concerns and perceived advantages regarding AL in order to address these factors in designing an AL-based curriculum. The project also aimed to assess the prior experience of AL among our students.

Methods: In the fall of 2014, all medical students at the three campuses of the University of Kansas School of Medicine were invited to participate in focus groups concerning their perceptions of AL. Refreshments were provided for participants. A total of 10 focus groups were conducted. Each focus group mediator utilized the same set of questions and informed consent procedures. Focus groups were recorded and transcribed. To better understand the student perspective, two coding processes were conducted. A transcript-based analysis was used in addition to a detailed coding of each transcript segment to classify thoughts and perceptions concerning what AL is/is not and its impact on learning and the learning process. The second coding process identified the overarching themes gleaned from each transcript. The team discussed each transcript as a group and reached consensus on the major themes. This project focuses on the overarching themes gleaned from transcripts by the research group.

Results: There was excellent agreement about what constituted an AL activity. Activities that required researching, talking about, questioning, recalling, presenting, and teaching material were considered AL. Most clinical activities with patients were considered AL. In addition to the activities, 12 major themes were extracted. The most emergent theme was student concern about how well AL will prepare them for institutional and licensure examinations, or detract from more effective ways to prepare for such examinations. Participants wished to retain AL activities, but strongly endorsed having opportunities to prepare by receiving material and clear objectives ahead of time. Being unprepared, risking embarrassment, or letting peers down were major concerns about participating in AL sessions. Participants agreed that AL improves retention and recall of material and develops critical thinking. Being responsible for material or a patient was seen as increasing engagement and motivation for learning. Students also indicated that certain personalities/learning styles may benefit more from AL than others. The perceived inefficiency of AL as a learning strategy and the human and other resources required were additional concerns.

Conclusions: The majority of students had prior experience with AL which varied widely; students held a variety of perceptions. Twelve major themes emerged from focus groups. Students reported advantages and disadvantages of AL and had clear opinions about where it was appropriately used and not used in the curriculum. Regardless of learning strategy, success in medical licensing exams and achieving optimal grades are top priorities for students. When designing AL activities for students, faculty should prioritize utility for examinations as well as relevancy for future practice. If the AL activity is not related to assessment and grading, students are not as motivated to engage in the activity. Providing background information and objectives prior to the AL activity is seen as beneficial by students. These results are
from one institution and the inherent bias of the participants towards their own curriculum may limit these findings.

_Funded by an RIME mini-grant._

_Graduating Medical Student Self-Assessments of the Core EPA’s: Does a Pre-Internship Boot Camp Make a Difference?_

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_**Background:**_ As a pilot school for developing curriculum and assessment for the Core Entrustable Professional Activities (EPA’s) for Entering Residency, we have a keen interest in how our current students perceive their own entrustability at the time of graduation. Additionally, because we are implementing a new curriculum in AY 2016-2017, we sought to collect data about our students’ perceptions of their preparedness under our current curriculum to help inform development of the new one. We piloted a “Fourth Year Boot Camp” to help prepare graduating students for tasks of residency. Activities in the boot camp include patient handoffs, delivering bad news (not an EPA), answering multiple pages while seeing patients, and evaluating/recommending management for common problems, including urgent situations. The Boot Camp was voluntary, with 35 participants (of 182 graduates).

_**Methods:**_ We developed a survey to assess students’ confidence in performing the 13 EPA’s. Students were asked to respond that they were either: 1) unable to perform the task or skill, 2) comfortable performing the task or skill with supervision, or 3) confident in performing the task or skill without supervision. Students ranked the five EPA’s for which they felt the best prepared, and the five EPA’s for which they felt the least prepared. Surveys were distributed via e-mail to fourth year students approximately four weeks prior to graduation. In November, a follow-up survey with identical content to the first survey was sent to all members of the class. Boot camp participants were surveyed as to whether they felt that the boot camp made them feel more prepared for the different EPA’s.

_**Results:**_ Forty-six (25.3%) of 182 students replied to the initial survey, and 41 (22.0%) (data to date) responded to the follow-up survey. Results regarding comfort with performing each task/skill ranged from nearly 100% comfortable (History and Physical) to 82% comfortable with supervision (entering orders). Pre-graduation, students felt most prepared to perform the following tasks: 1) gathering history/physical examination (91%), 2) collaborating as a member of a professional team (68%), 3) documenting a clinical encounter in the patient record (63%), 4) giving bad news (43%), and 5) developing/prioritizing a differential diagnosis (38%). Students felt LEAST prepared to: 1) enter and discuss orders (82%), 2) recognize critical test results/formulate a plan (68%), 3) perform general procedures (64%), 4) recognize a patient requiring urgent attention and initiating an evaluation/plan (59%), and 5) appropriately prioritize a list of tasks involving patient care (38%). The follow up survey found tasks and skills for which graduates recall being most prepared were the same as in the pre-graduation survey. Respondents to the follow-up survey differed somewhat from those in the pre-graduation survey in what they felt LEAST prepared to do: both entering orders and performing general procedures of a physician topped that list, followed by 2) identifying system failures; 3) recognizing critical diagnostic test results and initiating a plan and 4) recognizing a patient requiring urgent or emergent care and initiating evaluation and treatment. Eleven of 35 (31.4%) boot camp participants responded to the follow-up survey. Of all of the tasks, students most commonly felt that the boot camp improved their
confidence in giving bad news (70%), recognizing a patient requiring urgent/emergent care (60%), and appropriately prioritizing a list of tasks (40%).

**Conclusions**: The results gave us clear guidance that our students need more preparation in entering orders, recognizing critical test results, performing general procedures, recognizing a patient requiring urgent attention, and prioritizing a list of tasks. Our fourth year boot camp appeared to build confidence regarding the latter two skills. We can use these exercises in shaping our new curriculum.

**Student Perceptions and Their Influence in the Instructional Redesign of Online Learning Components**

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*S. Cooper, Family Medicine, Indiana University School of Medicine*

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**Background**: Three years ago, our institution developed an online module on the topic of motivational interviewing to be used with third-year medical students as part of the Family Medicine clerkship curriculum. Prior to the creation of the online module and subsequent use of a Virtual Patient Experience (VPE), motivational interviewing had previously been taught in a didactic environment combined with small group role-playing that received poor feedback from students. The self-directed module consisted of reading material, videos, and basic written application exercises. In an effort to make the module more “authentic,” a virtual patient experience (VPE) was developed to further develop the learners’ abilities to apply techniques of motivational interviewing in a low-risk environment.

**Methods**: In order to determine if meaningful learning had occurred, a pilot was completed with 323 students. During this phase, student assessment of the intervention and VPE experience includes a pre-and post-test on knowledge acquisition as well as items such as preferred learning approaches. Medical students also complete a detailed questionnaire about the VPE. Based upon the data evaluation of the pilot-test, the first VPE was analyzed and a second VPE was developed. The development of the second VPE was enhanced by building a design team which consisted of two subject matter experts from different fields, an evaluation expert and a design expert. The second VPE took approximately three months to build. During this time, the design team heavily referenced student feedback from the first VPE. The second VPE was released as a pilot in early October.

**Results**: All participants were asked to complete a short 9 item survey. The survey items focused on student satisfaction and perceptions of usefulness of the VPE to learn Motivational Interviewing techniques. A large response rate of 70% was attained with 227 of 323 students completing the survey. Initial data analysis revealed a high level of satisfaction with the VPE with 90% of students indicating agree or strongly agree that the content was presented in an interesting and interactive way. In addition the data showed that 87% felt that the content was appropriately targeted for their stage of training (agree and strongly agree) and 83% reported that the instructional approach was helpful in applying motivational interviewing techniques (agree and strongly agree). In order to facilitate instructional improvement learners were also asked to respond to items regarding the instructional strategies utilized. When asked about the timing of the VPE 95% percent agreed or strongly agreed that the time allotted to complete the activities was appropriate. Given that this was the first time a VPE had been utilized in the curriculum students were also asked about overall satisfaction and future uses. Students indicated high level of overall satisfaction with 71% rating the VPE as above average or excellent and 78% reported wanting to see more VPE’s in future courses.

**Conclusions**: The results indicate an overwhelming majority of learners found the VPE to be a novel and effective way to practice motivational interviewing techniques but the learners also provided some constructive criticism noting that the VPE could be made more challenging, with more opportunities for learners to make decisions and to increase the quality of the incorrect responses so that the correct answer was not so obvious. Based on the results of this data analysis the VPE has been revised to address
the areas of concern from students and future data collections planned in order to continue assessing the satisfaction and effectiveness of this instructional approach.

*Partially supported by funds from the IUPUI Center for Teaching and Learning.*

**Panel Discussion—Session 1**  
**Challenges and Opportunities Using the Flipped Classroom Model for Medical Education: Perspectives Across the Continuum**

*Carrie Bowler, MS, Mayo Clinic College of Medicine*  
*Justin Kreuter, MD, Mayo Clinic Department of Laboratory Medicine and Pathology*  
*Douglas Danforth, PhD, The Ohio State University College of Medicine*  
*Geraud Plantegegest, MA, Michigan State University College of Human Medicine*  
*Heeyoung Han, PhD, Southern Illinois University School of Medicine*

**Methods/Session Format:**
- **Introduction (5 minutes):** Moderator will introduce session, obtain participant information related to roles/experiences with the flipped classroom (Poll Everywhere), and introduce session back channel (Today’s Meet) for participatory social knowledge creation; used to capture participant discussion and questions.
- **Content Overview (20 minutes):** Four institutions representing medical education across the continuum will briefly provide (1) their role, (2) context of curriculum content flipped, and (3) a key technology used to facilitate the experience.
- **Panel Discussion: (40 minutes):** Moderator will lead the panel discussion session broken into three segments: Planning/Implementation/Change, Active Learning, and Impact. Questions will canvas (1) instructional design process and implementation planning, (2) effective active learning strategies for in/out class experiences, (3) change management strategies, (4) faculty development approaches, and (5) assessment of adoption impact, with examples of anticipated questions.
  - **Segment: Planning/Implementation/Change (1, 3, 4):** What do we need to consider when integrating the flipped classroom experience into medical education (stakeholders, maintenance, preparing learner environment)? What theoretical framework did you use for designing the flipped experience? What role can faculty development play to facilitate adoption? What was the biggest challenge to overcome and how did you prevail? How did you approach buy in from all stakeholders?
  - **Segment: Active Learning (2):** What parameters do you use to select/determine your in class and out of class experience? How do you facilitate in class higher order thinking; what are strategies you employ during class time to engage learners? How do you assess in/out of class experiences?
  - **Segment: Impact (5):** What measures have you used to determine the success of the experience? Given your experience with the flipped classroom, what would you recommend the medical education community to study?
- **Audience Participation (20 minutes):** Moderator will solicit questions from the audience during the transition of each segment and end with an opportunity to explore future directions.
- **Closure (5 minutes):** Moderator will summarize the panel discussion. Post Session: Continued Collaboration Back channel discussion transcript will be available via an online repository (iTunes U/Wikispaces) and participants will be encouraged to continue to share flipped classroom
experiences. Session Outputs: At the end of this session, participants can access: (1) electronic transcript of back channel discussion (2) virtual repository for resource sharing

Objectives: Discuss instructional design strategies, implementation barriers, and faculty development approaches to facilitating the flipped classroom. Debate active learning strategies to apply within a flipped classroom. Align and adapt change management strategies to incorporate during preparation, implementation, facilitation, and assessment stages of the flipped classroom. Examine the impact the flipped classroom has on faculty, learner, and institution stake holders.

Rationale: Medicine is undergoing rapid transformation, technology has fueled learning liberation, and everyone is charged with doing more for less. The flipped classroom has been proposed as a curricular model to address these challenges. The flipped model promotes higher order thinking and problem solving, generates individualized learning, and fosters opportunities to engage in complex reasoning. Literature supports a call to reform medical education delivery, however, consensus, implementation challenges, and resistance exist. Moreover the unique environment of the medical education classroom can make conventional flipped approaches challenging. Participants will be better prepared for this experience by hearing from peers across four institutions who have embraced the flipped model representing perspectives from undergraduate, graduate, and continuing medical education. This session will explore the several facets of the flipped classroom including: (1) instructional design process and implementation planning, (2) effective active learning strategies for in/out class experiences, (3) change management strategies utilized throughout, (4) faculty development approaches, and (5) assessment of adoption impact. Session participants will be solicited to explore future directions and bring forward topics for debate.

Workshop—Session 2

Peer Instruction—Not as easy as it looks and the students will tell us why!
Brenda Roman, M.D., Wright State University Boonshoft School of Medicine
Mary Jo Trout, Pharm D., Wright State University Boonshoft School of Medicine
Aaron A. Smith, M.Ed. Wright State University Boonshoft School of Medicine
Larrilyn Yelton, Wright State University Boonshoft School of Medicine
Alban Holyoke, Wright State University Boonshoft School of Medicine

Methods/Session Format:
Audience: Academic Affairs Deans, Medical Educators, and Information Technologists
Session Format/Timeline:
• 10 minutes Overview of Peer Instruction by Dr. Roman
• 30 minutes Demonstration of Peer Instruction by Drs. Trout and Roman and Mr. Smith, with the audience participating as “students” using an audience response system and the instructors facilitating the session as they would in a medical school classroom
• 15 minutes Question and Answer
• 20 minutes Presentation by Larrilyn Yelton and Alban and Holyoke, second year medical students, on student perceptions of peer instruction
• 15 minutes Question and Answer

Objectives: At the end of the session, participants will be able to: 1. Define peer instruction and learn effective techniques in facilitating a peer instruction session 2. Identify the technological resources necessary to carry out this mode of instruction 3. Describe effective ways to overcome barriers to implement the teaching technique 4. Describe the methods utilized to increase learning while minimizing stress for the students
**Rationale:** With the increasing focus on active and engaged learning (1), medical schools are under increasing pressures to “flip the classroom” in which information “transfer” is completed outside the classroom, and assimilation or application of learning is done within the classroom. Peer instruction (2-4), developed by Eric Mazur, is an interactive, evidence based teaching method that involves students preparing outside the classroom, then answering questions posed by the instructor, first individually, then discussing their answers with peers, and then committing again to an answer. While research has found the technique to be an effective way to learn, student engagement is important for the overall success of this teaching technique. In this workshop, we will demonstrate peer instruction (as being done at the Boonshoft School of Medicine), describe our grading rationale and schema for peer instruction sessions, describe lessons learned for effective facilitation, and share the student perspective for this learning modality including why students feel the process enhances their learning when done well.

**References:**

**Workshop—Session 3**

**The Core Entrustable Professional Activities (EPAs) in Action: Lessons from the Pilot Schools**

*Abbas Hyderi, MD MPH University of Illinois College of Medicine*  
*Dianne Wagner, MD Michigan State University College of Human Medicine*  
*Matt Emery, MD Michigan State University College of Human Medicine*  
*Meenakshy Aiyer, MD University of Illinois College of Medicine*

**Methods/Session Format:**

- **30 minutes:** The session will begin with a brief review of the Core EPA pilot, including the mission of the project, the thirteen EPAs themselves, the guiding principles of the pilot and the constructs of trustworthiness and supervisory levels. Though we acknowledge this is not particularly interactive, our experience with colleagues is that there remains notable variability in awareness and use of the foundational terminology used to describe EPA-based work that is leading to confusion. We believe spending some time on definitions to ensure consistency is very important.
- **30 minutes:** Work as a group to conceptualize how one of the thirteen core EPAs may be taught, assessed and entrusted, using the curricula of schools represented by attendees (i.e., a traditional 2+2 school, a shortened-preclinical school, a school using longitudinal integrated clerkships, etc.). Note, should this proposal be accepted the one EPA will be determined by the team of speakers in advance of the conference.
- **30 minutes:** Discuss anticipated challenges (faculty development, resources for coaching and data management, remediation) and brainstorm approaches to resolving them.

**Objectives:** The purpose for this workshop is to share early experiences from the implementation of the Core EPA curricula, assessment and entrustment processes at the ten AAMC Core EPA pilot schools and to engage medical educators at schools implementing EPA-based systems and those considering using
EPAs in their curricula in a discussion about their opportunities and challenges. Specifically, by the end of the workshop, we expect that participants will be able to:

- Describe the ways the Core EPAs can increase confidence among residents, patients and program directors regarding what each resident can be relied upon to do at entry to internship.
- Describe the thirteen core EPAs and the guiding principles of the Core EPA pilot.
- Describe the three components of trustworthiness (truthfulness, conscientiousness and discernment) and their role in entrustment.
- Describe the range of supervisory levels and its relationship to entrustment.
- Apply the Core EPA construct and its systems-based checklist to work underway at their home institutions.

**Rationale**: Over the past ten years, the momentum to develop and implement competency-based curricula in medical education has reached an important threshold and now theory is rapidly translating to practice. The construct of Entrustable Professional Activities (EPAs) has helped catalyze this transformation because it places trust at the center of the education mission and links what patients should trust their physicians to do with what teachers must entrust their learners to do with less and less supervision over the course of their training. In undergraduate medical education, a group convened by the AAMC has articulated the Core EPAs: those activities that all residents should be trusted to perform without direct supervision on their first day. Now that the Core EPAs have been published, medical schools are grappling with ways to implement competency-based curricula using the Core EPAs. A group of ten schools, again convened by the AAMC, is in the midst of piloting the Core EPAs and developing best practices for their implementation.

**Panel Discussion—Session 4**
**Bridging the Continuum Between Undergraduate and Graduate Medical Education: A Feedforward Mechanism for Graduating Medical Students**
*Helen Morgan MD, University of Michigan*
*Nicholas Kman MD, The Ohio State University College of Medicine*
*Sally Santen MD, PhD, University of Michigan*

**Methods/Session Format**: This session is designed to run 85 minutes and allow each panelist to provide a brief overview of their programs and assessment strategies that are being planned or are currently in place.

- **Introduction**: 15 minutes Helen Morgan, MD: The creation of a mMSPE based on assessments from a four-week Advanced Clinical Skills in Obstetrics and Gynecology course. 15 minutes Nicholas E Kman, MD: The creation of Clinical Tracks in the 4th year of medical school to ensure that graduates are working toward entry level milestones or core specialty-specific EPAs. 15 minutes Sally Santen, MD, PhD: The successful creation of a mMSPE based on assessments from the EM clerkship, end-of-third-year multistation standardized patient exam, and EM boot camp elective.
- **Questions and Discussion**: 25 minutes

**Objectives**: Upon participating in this session, participants will be able to identify strategies for creating specialty specific mMSPE at their institutions.

**Rationale**: Medical education at both the Undergraduate Medical Education (UME) and Graduate Medical Education (GME) levels is moving toward competency based assessment. The Accreditation Council of Graduate Medical Education (ACGME) core competencies involve the six domains of Medical Knowledge, Patient Care, Professionalism, System Based Practice, Interpersonal Skills and
Communication and Problem Based Learning and Improvement. At this time, there is limited information that is passed forward from UME to GME. Student performance on the USMLE examinations provides data on Medical Knowledge, however there is scant data provided between UME and GME on the other five competencies. In addition, the current system does not incentivize medical schools to pass forward information that may hamper their students’ chances for a successful match into residency program. If there is to be a true competency-based continuum between UME and GME, there should ideally be a process for feeding forward individualized information for each learner. A post-match Milestones-based Medical Student Performance Evaluation (mMSPE) has been developed and implemented in the fields of Emergency Medicine and Obstetrics and Gynecology at one of our institutions. The mMSPE documents learners’ attainment of specialty-specific milestones. This is sent to Program Directors (PDs) after the match, in order to help PDs create individualized learning plans. This will become truly useful to PDs once more medical schools begin creating mMSPEs for their graduating students. This panel discussion will highlight different perspectives and approaches to the creation of mMSPEs. Panelists will discuss lessons and pitfalls at different stages of development and process in mMSPE design.

Workshop—Session 5
Advising? Coaching? Mentoring? Aligning Methods with Goals for Professional Identity Development
Karen Marcdante, MD, Medical College of Wisconsin
Louise Arnold, PhD, University of Missouri - Kansas City School of Medicine
Janet Lindemann, MD, University of South Dakota Sanford School of Medicine
Janet Riddle, MD, University of Illinois - Chicago School of Medicine
Deborah Simpson, PhD, Aurora UW Medical Group
Caren Stalburg, MD, University of Michigan

Methods/Session Format: Following introductions, this workshop will present a brief didactic explanation of the differences between advising, coaching and mentoring in terms of how the learner and counselor may experience them. Facilitated small groups will then work on selected real-life vignettes that depict key incidents often involved in professional identity formation (e.g., moral dilemmas, workplace stressors, professional behaviors). Each vignette will be reviewed from the perspective of each of the 3 approaches (advising, coaching, mentoring), evaluating the potential impact and effectiveness. The group will then select one of the methods as a “best practice” for the vignette. Small groups will present their findings to the large group for facilitated discussion. Finally, the participants will review their perspectives of the current use of the three methods in their own institution and identify the possibilities for aligning methods to optimize professional identity formation for our learners. Each participant will leave the session with a better understanding of the use of various methods and the impact on professional identity formation. Time --- Topic (presenter, method) 5 min --- Introductions 10 min --- Advising, Coaching and Mentoring (compare and contrast) (Marcdante, brief didactic) 5 min --- Introduction to vignette work (Lindemann, Interactive discussion) 15 min --- Work on first vignettes - Review vignette from advisor, coach, mentor perspective (All facilitators, small group work) 5 min --- Check in - questions/concerns (Simpson, interactive discussion) 15 min --- Work on second vignettes - Review vignette from advisor, coach, mentor perspective) (All facilitators small group work) 20 min --- Share and discuss selections (Riddle, large group discussion) 12 min --- Use of methods at home institution - benefits of expanding options, operational issues (Stalburg, brainstorming) 3 min ---- Wrap up (Marcdante, interactive discussion)

Objectives: At the end of this session, participants will be able to: Compare and contrast the key components of advising, coaching and mentoring of learners in medical education. Select the appropriate method for each of a variety of real-life vignettes that may impact learners’ professional identity
formation. Create a plan to discuss the optimal use of the three methods in their own institutions (section, department, clerkship, school-wide) to enhance learners’ professional identity formation.

**Rationale:** Helping learners develop an identity as a medical professional is vital to their long term success. Professional identity formation requires the individual to identify who they are and how they wish to be seen in the conduct of their professional lives (1). It relies on building relationships, socializing into the field and incorporating a set of ethics into daily practice. While a faculty’s role as an advisor or mentor are often discussed as a method to aid success and are recognized as key educator roles (2), less is understood about their role in professional identity formation in medicine. Coaching is becoming recognized as a third method to support professional identity format, focusing less on telling or sharing past experiences and more on helping the individual to solve problems using their own values. As educators, deliberately selecting the optimal method for the learner and their current situation is an important and often neglected skill. This workshop will investigate the use of these three “counseling” methods as tools to aid professional identify formation for medical learners.

**References:**

Thursday, April 7, 2016
Concurrent Sessions 1:00 – 2:30 pm

**MESRE Oral Abstract Presentations—Session 2**

**The Impact of a Scholarly Concentration Program on Student Interest in Career-Long Research: A Longitudinal Study**

R.K. Wolfson, University of Chicago Pritzker School of Medicine
K. Alberson, University of Chicago Pritzker School of Medicine
M. McGinty, University of Chicago Pritzker School of Medicine
K. Schwanz, University of Chicago Pritzker School of Medicine
K. Dickins, University of Chicago Pritzker School of Medicine
V.M. Arora, University of Chicago Pritzker School of Medicine

**Background:** Concerns remain regarding the future of the physician-scientist workforce. One strategy to address this concern is the rise of scholarly concentration (SC) programs at US medical schools. SC programs provide students the opportunity to conduct mentored scholarly work in parallel with the 4-year medical school curriculum. An implicit goal of SC programs is to give students the skills and motivation to pursue career-long scholarly work. SC-related variables that impact students’ career plans have not been well-described. We used longitudinal data from the University of Chicago Pritzker School of Medicine to determine the impact of its SC program, Scholarship & Discovery (S&D), on career plans.

**Methods:** De-identified data from the graduating classes of 2014 and 2015 were included, taken from first-year Intake Assessments, second-year S&D Block Evaluations, and fourth-year S&D Program Evaluations. At each survey, students indicated interest in career-long research using a question derived from the AAMC Graduation Questionnaire. Responses on a 5-point scale described the extent of projected career-long research involvement, ranging from exclusively involved, to no involvement at all. Change scores were generated to define change in interest in a research career from matriculation to
graduation for individual students. Graduating students were also asked to rate their overall satisfaction with the S&D program and satisfaction with their S&D mentor on a 5-point scale, in addition to reporting dissemination of scholarly work. Ordinal logistic regression, controlling for baseline interest in a research career, was used to determine whether higher overall satisfaction with S&D, higher overall satisfaction with the S&D mentor, or dissemination were associated with increased interest in a research career from matriculation to graduation. Data were analyzed using STATA 14 (College Station, TX) with p<0.05 deemed statistically significant.

Results: 125 students (63 men and 62 women) completed all three surveys, indicating full participation in S&D. At matriculation, 1 student (0.8%) intended a career exclusively in research, 51 (40.8%) intended significant involvement in research, 48 (38.4%) intended to be somewhat involved, 24 (19.2%) intended limited research involvement, and 1 (0.8%) intended no research involvement. At graduation, 29 students (23.2%) intended significant research involvement, 75 (60%) intended to be somewhat involved, 19 (15.2%) expected limited involvement, and 2 (1.6%) expected no involvement. Most students were satisfied (46.4%) or very satisfied (35.2%) with S&D at graduation. Most students were satisfied (16%) or very satisfied (77.6%) with their S&D mentor. 65 students (52%) authored or co-authored a publication. When controlling for baseline interest in career research, a one-point higher level in overall satisfaction with S&D was associated with a 2.03 (95% CI 1.28-3.23, p=0.003) greater proportional odds of an increased interest in a research career from matriculation to graduation. After controlling for overall satisfaction and baseline interest, publication was independently associated with a 2.35 (95% CI 1.11-4.99, p<0.001) greater proportional odds of an increased interest in a research career. There was not an independent association between mentor satisfaction and change in interest in a research career, but mentor satisfaction was correlated with overall satisfaction.

Conclusions: Ours is the first longitudinal study describing the impact of an SC program on change in career plans during the course of medical school. Overall satisfaction and publication were independently associated with increased intent to participate in career-long research. Given these associations, two ways to improve the physician-scientist workforce are to boost satisfaction with existing SC programs and formally support students to publish their work. Future work to track outcomes of SC program graduates is warranted.

Mapping the Shared Repertoire of a Community of Practice: Citation Analysis of Faculty Development in the Health Professions

J. Riddle, University of Illinois Chicago College of Medicine
L. Pien, Cleveland Clinic
M. Clark, University of Illinois Chicago

Background: Communities of practice are social learning structures that allow members of the community to manage their knowledge and experience. Communities of practice are characterized by three elements - shared interest in a specific domain, interaction in on-going ways to deepen expertise in that domain, and a shared repertoire of language, frameworks, and tools. Texts and journal articles represent components of the shared repertoire of a community. Citations within texts and articles provide additional insight into the conceptual frameworks that underlie the knowledge used by the community. We analyzed the literature and frameworks that constitute the shared repertoire of faculty development using citation analysis of a recently published text. Our analysis is intended to guide learning by both novice and more experienced members to enrich their participation in the faculty development community of practice.

Methods: Faculty Development in the Health Professions, published in 2014, is the first comprehensive review of faculty development in health professions education. This book consists of 20 chapters written by 35 authors from 6 countries. Yvonne Steinert, the book’s editor, authored or co-authored 4 chapters...
in the book. Using citation analysis, we compared the reference lists of each chapter in Faculty Development in the Health Professions with every other chapter. We performed a detailed analysis of references cited in 3 or more chapters, including analysis of the publication type (journal article, book, etc.), year of publication, source journal title where appropriate, and available citation counts in Web of Science.

**Results:** In total, 146 citations appeared in 2 or more chapters. Chapter topics varied widely in the number of shared citations (2 - 56). The chapters with the fewest shared citations were “Faculty Development Online” (2 shared citations) and “Faculty Development for Interprofessional Education” (3). Chapters with the greatest number of shared citations were those authored by Steinert on “Future Directions” (56), “Core Concepts and Principles” (54) and “Learning from Experience” (41). There are 56 references that are cited in 3 or more chapters in the book. Of these, there are 42 journal articles, 10 books or chapters, 3 websites, and 1 conference proceeding. 70% of the journal articles were published in health professions education journals. 88% of the articles were published between 2003-2012. Three types of journal articles predominate: conceptual and systematic reviews, reports of faculty developers’ experiences in design and evaluation of programs, and articles that build new models or frameworks from the educational and health professions education literature. The frequency of citation within the book does not reflect the Web of Science citation counts for the journal articles. The most widely cited books were on social learning theory, reflective practice, program evaluation, and scholarship. 80% of the books/chapters were published prior to 2000.

**Conclusions:** This comprehensive text provides a map to the shared repertoire of the faculty development community of practice. Our citation analysis begins to characterize how this group of authors conceptualizes the shared repertoire of concepts, frameworks and perspectives that inform their work in faculty development. The frequently cited journal articles within the book demonstrate the value placed on learning from the experiences of experts in the community through in-depth examination of exemplar programs. Literature reviews contribute to defining current questions and challenges – and underlie the development of new models that guide practice. Beyond reading the book, the references identified through our citation analysis point faculty developers to resources that will enrich their knowledge in the foundations of this field.

**What’s in it for me? Goals of students participating in a scholarly concentration program.**

K. Alberson, Pritzker School of Medicine, University of Chicago  
V.M. Arora, Pritzker School of Medicine, University of Chicago  
R.K. Wolfson, Pritzker School of Medicine, University of Chicago

**Background:** Almost 70% of US medical students participate in faculty-mentored scholarly work during medical school, both gaining skills in research and distinguishing themselves from peers in an increasingly competitive residency application environment. Scholarly concentration programs provide structure to students’ research experiences, yet the goals of participating students have not been described. We aimed to compare the importance of student goals against gender and student career aims, including interest in highly competitive residencies, career-long research, and academic medicine.

**Methods:** An anonymous survey was distributed electronically to first year students who matriculated at the University of Chicago Pritzker School of Medicine in 2014 and 2015. Dual degree students were excluded. Students ranked the importance of 14 goals related to participation in the longitudinal, required Scholarship & Discovery program on a 5-point Likert scale. Students also reported their career interests. Data were analyzed using the Wilcoxon rank sum test, except for the relationship between gender and career goals, which used the chi-square test (STATA 14©, College Station, TX).

**Results:** 125 (78%) of 161 students responded, including 67 women and 58 men. 49 (40.2%) were interested in highly competitive residencies, 54 (43.5%) were interested in career-long research, and 73
(58.4%) were interested in academic careers. Compared to women, men were more likely to rate first authorship as an important goal (33.9% vs 19.4%, p=0.03) and express greater interest in highly competitive residencies (50.9% vs 29.2%, p=0.02) and academic careers (69.6% vs 49.3%, p=0.02).

Interestingly, women valued mentorship more highly than men (83.6% vs 62.5%, p=0.01). Compared to their peers, students interested in highly competitive residencies placed greater value on manuscript publication (55.1% vs 27.4%, p=0.002), first author publication (34.7% vs 20.6%, p=0.02), and enhanced competitiveness in the residency match (71.4% vs 52.8%, p=0.01). Compared to their peers, students interested in career-long research placed greater value on development of a career-long scholarly interest (53.7% vs 38.6%, p=0.02), development of specialty-related expertise (31.5% vs 22.9%, p=0.03), first author publication (35.2% vs 20%, p=0.01), learning to develop a research question (68.5% vs 47.1%, p=0.03), learning to present a poster (31.5% vs 20%, p=0.01) and performing statistical analysis (42.6% vs 25.7%, p=0.01). These students also placed more importance on the Scholarship & Discovery program in their decision to matriculate at the Pritzker School of Medicine compared to their peers (77.8% vs 47.1%, p=0.0001). Similar results were found for students interested in academic careers. These students placed more importance on publication (46.6% vs 28.9%, p=0.01), first author publication (32.9% vs 17.3%, p=0.001), learning to present a poster (32.9% vs 13.5%, p=0.01), learning to perform statistical analysis (39.7% vs 23.1%, p=0.03), and development of a career-long scholarly interest (52.1% vs 35.3%, p=0.03).

Conclusions: In this evaluation of a scholarly concentration program, we found that students who plan career-long research or academic careers place greater importance on specific goals related to the process of scholarly work and productivity. Conversely, students planning to enter highly competitive residency programs are particularly interested in outcomes of scholarly work, with an emphasis on publication. Last, we found unexpected gender differences, highlighting that men are more driven by outcome and women are more driven by mentorship.

Medical Student Curriculum Transformation Using Business Case Approaches to Organizational Leadership

R.S. Mangrulkar, University of Michigan Medical School
S. Santen, University of Michigan Medical School
A. Tsai, University of Michigan Medical School
M. Englesbe, University of Michigan Medical School
J. House, University of Michigan Medical School
M. Lukela, University of Michigan Medical School
E. McKean, University of Michigan Medical School
S. Monrad, University of Michigan Medical School
E. Skye, University of Michigan Medical School

Background: Curricular change can be incremental or transformative. QI processes to improve curricula exist at most schools and frequently involve data-driven approaches that involve key stakeholders who analyze and present action items to improve existing curricular elements. Traditionally, large-scale curricular revisions involve a greater number of stakeholders, and convene them in retreats and meetings to define a new model of medical education. However, embedded in these initiatives are the strong presence of traditional stakeholders, and the anchor of the current model, which limits substantial change. At Michigan we recognized that the breadth of the changes that were needed to address a new vision for the medical school required more than standard curricular revision methods, and would not be successful using traditional approaches to curricular revision that had been employed in 2003 and 1990 (the previous 2 curricular revisions). In addition, there had been 2 failed attempts at large scale curricular transformation at Michigan in 1988 and 2008 which also provided lessons on how to lead a transformation effort in education at Michigan.
**Methods:** We adopted the Kotter model for Leading Change, and deliberately managed a 2.5 year process that included several essential ingredients to engaging the medical school on this transformative change effort. These ingredients began with careful adherence to the first 6 (pre-launch) steps of Kotter's model which engaged all on "Establishing Urgency - Why Change", "Forming a Powerful Guiding Coalition", "Creating a Vision", "Communicating the Vision", "Empowering others to Act on the Vision", and "Creating Quick Wins"  

**Results:** In June of 2015, the curriculum transformation was approved by a majority vote of the Executive Faculty, with 762 faculty voting. Four out of five faculty who voted approved of the curriculum plans and the process we are using to move forward. This was one of the largest turnouts for a faculty vote in many years. While much of the curricular implementation work remains ahead, the organization is engaged and moving towards the goal of transformation.  

**Conclusions:** When engaging in large scale curricular change, it is insufficient to only use curricular change methods and processes. One must engage a large set of relevant stakeholders in the input, design, and implementation of the change; these actions represent organizational change processes. Therefore, when engaging in large scale curricular change, one should employ both curricular change processes as well as organizational change processes in an integrated way.

*Supported in part by a grant from the American Medical Association's Accelerating Change in Medical Education Initiative.*

**Student Personality is Related to Perception of the Learning Environment**  
**R. Stansfield, University of Michigan**  
**S. Santen, University of Michigan**  
**L.D. Gruppen, University of Michigan**

**Background:** Measurements of the quality of the undergraduate medical school Learning Environment (LE) must rely on students' perceptions because only students can judge their LE. Students tend to disagree about the quality of their LE, and studies of student ratings of the LE show wide individual variance. To some extent, this is due to differences in students' proclivities: for instance, introverted students may make different friends and engage differently in learning activities than extroverted students. To another extent, this may be due to student disposition: for instance, introverted students may perceive a quiet study hall as comforting while extroverted students may perceive that same quiet study hall as cold and hostile. This study attempts to compare student personality traits to individual differences in perception of the LE to elucidate the meaning of these individual differences.  

**Methods:** The Ten Item Personality Inventory (TIPI, from Gosling, Rentfrow, & Swann, 2003) and the Medical School Learning Environment Scale (MSLES, from Rosenbaum et al, 2007) were administered to 2 cohorts at a large, midwestern medical school: 139 3rd year and 143 2nd year medical students as part of a larger psychosocial survey. Complete data were received from 95 and 120 of these, respectively. The Big 5 personality traits: extroversion, agreeableness, conscientiousness, emotional stability, and openness were tested for correlations with each of the items on the MSLES, and each item was modeled by all 5 traits using multiple regression.  

**Results:** Extroversion was associated with greater satisfaction with social aspects of the LE (Pearson’s r between .16 and .20). Conscientiousness was associated with greater satisfaction of assessments (r between .12 and .17). Openness was associated with greater satisfaction with institutional responses (r = .18). Neither agreeableness nor emotional stability showed strong associations with MSLES items. The multiple regression models showed that social experiences and administrative responsiveness to student complaints were most associated with student personality; perception of time for extra-curricular
activities and intellectual openness were least associated with student personality. These patterns were observed for both M2 and M3 students with no interactions.

**Conclusions:** Students’ perception of the LE is to some extent related to their individual personalities. The LE is a subjective experience and analyses of student ratings of certain aspects of the LE should account for differences in student experiences and perspectives. Further work should attempt to disentangle the extent to which these differences are due to behaviors or perceptual biases. Through their behavior, students create their own and impact each others’ learning environment so individual differences must be accounted for before assessing the impact of institutional factors. These results suggest that student perceptions of social cohesion and institutional responsiveness are likely more related to student differences than other aspects of the LE.

**Workshop—Session 6**

**From Passion to National Reputation: Building your personal brand with Twitter**

*Larry Hurtubise, Pediatrics, The Ohio State University*

*Nick Kman, Emergency Medicine, The Ohio State University*

*David Stukus, Pediatrics, The Ohio State University*

*Elissa Hall, Department of Laboratory Medicine & Pathology, Mayo Clinic*

**Methods/Session Format:**

I. Quick Start: Walk through setting up technology or the session (Pre-Work)

II. Introduction and Appreciative Inquiry (15 Minutes) After a brief introduction to social networking basics, participants will be asked to participate in a think, pair, share activity about their professional passions, who they want to share with and who else is interested.

III. Digital Professional Identity formation (10 Minutes) Participants will engage in an activity and large group discussion about the impact of personal photos and other features of a social media profile

IV. Medical Education Case (20 Minutes) After a demonstration of basic features participants will practice tweeting in a safe environment (Today'sMeet.com) Presenter will share his use of Twitter for medical education and the impact of medical education scholarship about the project

V. National Reputation Case (20 minutes) Presenter will share strategies for building a national reputation Presenter will discuss potential social media pitfalls that can harm one’s reputation Participants will practice tweeting about a professional passion. Participants’ tweets be critiqued by other participants and the presenters

VI. Features, Benefits, Opportunities and Obstacles (20 Minutes) Presenter will share strategies used to create a community of inquiry via Twitter Participants will discuss the benefits and obstacles to leveraging social media to build a national reputation

VII. Conclusion (5 Minutes) Presenters will facilitate discussion to help participants identify next steps and answer remaining questions.

**Objectives:** Discuss, Develop and Demonstrate strategies for leveraging social media networking sites (twitter) for dissemination of scholarly work and medical education Compare and contrast the features and benefits of social media networking sites for development of a national reputation. Use basic feature of Twitter like #, and @, as well as deleting tweets to best harness the potential reach of your profile, expand your social network, and develop a national reputation

**Rationale:** Social media networking sites, like Twitter, are connecting medical educators with learners as well as peers from local to international colleagues. The proliferation of these sites is impacting medical education through increased transparency and accessibility of information, and by fostering collaborative connections in an open environment. Medical educators use social media networking sites to connect
learners with important web-based content for formative assessment. The sites are also used to promote collaboration and professional development. While many hospitals have a presence, professional organizations create specific hashtags used by individual members to share broadly the news from their meetings. Individuals can develop a national reputation by sharing the latest evidence, while colleagues are able to follow near and far. However, the open transparent nature of these sites can cause trepidation for the novice user. The social networking landscape is ever-changing, with sites starting and ending regularly while others change their user interfaces. This interactive workshop, presented by medical educators who are experienced tweeters, will provide an opportunity to discuss the rationale and benefits of engaging with social media networking sites as well as hands-on practice tweeting in a safe simulated environment. There will also be opportunities to discuss the pros and cons of various strategies for leveraging social media networks for medical education and to develop a national reputation.

Workshop—Session 7
The Leadership Education and Development (LEAD) Graduating Fellows’ Projects
Carol Kamin, Ed.D. MS, University of IL at Chicago, COM
Alan Bateson, PhD, Ross University SOM
Stefanie Ellison, MD, University of Missouri-Kansas City
Joshua Hopps, PhD, Loyola University
Janice Johnson, MD, Ross University SOM
Joseph Kiesler, MD, University of Cincinnati COM
Niels Larson, PhD, Ross University SOM
Denny Martin, DO, Michigan State University
Jeanette Morrison, MD, Chicago Medical School
Sheila Nunn, PhD, Ross University SOM
Chris Pierson, MD, PhD, Ohio State University
Suzanne Ree, MD, Ohio State University
Tony Ribera, PhD, Indiana University SOM
Erica Taylor, MD, Wright State Booshoff SOM
Mary Jo Trout, PharmD, Wright State Booshoff SOM
Steve Vance, MD, Central Michigan University COM
Jill Wener, MD, Rush University Medical College

Methods/Session Format: This interactive session will be comprised of 2-3 LEAD graduates seated at each of several tables who will be joined by LEAD mentors and session participants. After a brief introduction and using a round-robin format, the LEAD graduates will rotate every 15 minutes to a different roundtable every 15 minutes. The session will conclude with a large group summary. Each graduating Fellow will provide a one-page handout of his/her Applied Leadership Focus that includes a description and rationale, implementation and insights, and how the graduate plans to continue his/her leadership development. Introduction (5 minutes) Explanation of the session format Overview of the LEAD program Introduction of the LEAD faculty Introduction of LEAD graduating Fellows Round-robin Table Discussions: Participants engage in a 15-minute roundtable discussion with 2-3 LEAD graduates. Graduates will then move to a different table every 15 minutes. There will be five 15-minute rotations with 5 minutes for transition time between rotations totaling 80 minutes. Within each roundtable discussion, the LEAD graduates will provide a handout and an overview of his/her Applied Leadership Focus and LEAD activities, reflecting the four leadership domains: setting direction, developing people, developing organizations, and managing and administering. Session participants will be invited to ask
questions and share experiences and views regarding leadership development. Wrap-Up/Closure: The session will conclude with a large group debriefing and summary of key points. (5 minutes)

Objectives: At the end of this session, participants will be able to: Describe the components of the LEAD program. Explore the educational leadership domains of setting direction, developing people, developing organizations, and managing and administering. Appraise the various focused applications completed by the LEAD graduates. Apply the examples and lessons learned from others to his/her own situation.

Rationale: The Leadership Education and Development (LEAD) certificate program was created in 2009 with support from the SGEA, expanded to the CGEA in 2011, and in 2013 was implemented in all four GEA regions. At the 2016 spring meeting, fellows who have completed the 2014-16 nation-wide program will graduate. This session will provide an opportunity for LEAD graduates in this region to present their experiences, and in particular, how they applied their LEAD learning to a specific workplace situation (i.e., their personalized LEAD Applied Leadership Focus). The session will culminate their two-year learning commitment and provide opportunities for others who are interested in leadership development to explore the LEAD program and its conceptual framework that is comprised of four domains. It will also allow participants to have a dialogue with the fellows and gain personal insights into the benefits of the LEAD program. The LEAD program was designed specifically for medical educators already in a mid-level educational leadership position or those aspiring for such positions. The LEAD program focuses on the following educational leadership competencies: setting direction, developing people, developing organizations, and managing and administering. As a cohort, the LEAD Fellows completed workshops at the annual regional GEA meeting. Throughout the year, each Fellow interacts regularly with a LEAD faculty advisor and a local coach. As a cohort, they interact with LEAD faculty and each other through quarterly intersessions via teleconference. LEAD Fellows also complete periodic self-directed assignments and reflexive exercises. A key component of each Fellow’s portfolio is the inclusion of an Applied Leadership Focus that is completed in Year 2 to apply what is being learned in LEAD to a specific aspect of the Fellow’s local leadership context. Through roundtable discussions with audience members, the LEAD graduates will use their Applied Leadership Focus experiences to discuss leadership development experiences in LEAD.

Workshop—Session 8
IPE in the Clinic Setting: Optimizing Your Clinic and Teaching when you have multiple health professions trainees on your team

Heather Hageman, MBA, Washington University Medical Center
Carol Hasbrouck, MA, University of Toledo
Anna Maio, MD, Creighton University
Michelle Masterson, PT, PhD, University of Toledo
Deb Simpson, PhD, Aurora Health Care

Methods/Session Format:
I. Introductions and Overview of Workshop (10m)
II. Overview of Challenges to IPE in the Clinic Setting (15m)
III. Small-group discussion to generate best practices in five focal areas specific to learners in the clinical workplace (35m). Participants will be asked to select one area during this portion; each small group will be facilitated by a workshop presenter. 1. Logistics/Facilities – How many trainees can be accommodated and do it well? Consider facilities, time, patient flow, etc. How do you orient your staff/engage your colleagues in interprofessional teaching? 2. Alignment with Clinic Priorities – How do you align goals to create “win/wins” for learners AND patient care? 3. Teaching Strategies/Approaches – What are the different ways interprofessional learners can be taught? How
best could they be teamed to take care of patients? Is it possible to teach across professions (ie, an RN faculty teaching pharmacy learners)?

4. Assessment – Does peer evaluation work to measure teamwork, competence, professionalism, communication, etc? Where does direct observation of skills fit in?

5. Faculty Development – Are there existing faculty development models which could be repurposed to prepare faculty to teach IPE? Is their success dependent on specific local factors?

IV. Large-group presentation and discussion of SG work (20m).

V. Summary and Next Steps (5-10 min)

1. Distribute key references by each of 5 focal areas specific to IPE
2. Consider SIG on IPE
3. Collate key findings from each workgroup and circulate to participant.

Note this information will be shared across regions and collated from workshops in other regions and shared back with participants in a national framework for validation.

Objectives: At the conclusion of this workshop, participants will be able to:

1. Summarize challenges to teaching interprofessionally in the clinic setting.
2. Discuss best-practice methods for teaching in the interprofessional clinic.
3. Consider which assessment methods and faculty development models for IPE might be most successful at their institutions.

Rationale: Interprofessional education (IPE) often stops in the classroom. However, the workplace is where learners can apply basic IPE principles and begin working collaboratively toward better patient outcomes (IPEC Expert Panel, 2011). However, several systemic issues pose significant barriers to effective workplace learning in IPE. Logistical issues include consideration of how many different learners can fit in a specific setting and whether schedules can be effectively aligned. Educational programs also have specific expectations for their learners which do not always match reality, including medical student supervision by a physician as primary contact and overlapping expectations of different roles such as those between MD and NP/PA learners. Administrative priorities also may be out of line with the educational objectives, including the concern that learners take time and would need electronic health record access when currently such systems are often partitioned by profession. In this workshop, participants will explore the barriers to, and solutions for, effective IPE in the clinic. They will then have the opportunity to work together in small groups to discuss best practices for clinical IPE in one of five areas. Participants will be asked to share their expertise and consider ways to enhance their programs. Information from this session, as well as similar workshops at the other regional GEA meetings, will be collated and returned to all participants for validation of the identified best practices.

Workshop—Session 9
Learner-Centered Feedback on Milestone Achievement: Calibrating Self-Assessments and Promoting the Desire to Learn

Daniel J. Schumacher, MD. Med, Emergency Medicine, Cincinnati Children's Hospital Medical Center
John G. Frohna, MD, MPH, Pediatrics, University of Wisconsin School of Medicine and Public Health

Methods/Session Format:

0:00-0:05 – Introductions, learn about composition of audience
0:05-0:07 – Didactic: Review utility of milestones, focusing on tracking learner development, ensuring outcomes to public and profession, and helping learners develop
0:10-0:10 – Didactic: Review evidence of milestones as roadmaps for learning (Schumacher et al Academic Pediatrics 2013, Aagaard et al, JGME 2013)
0:10-0:20 – Large Group Discussion: Introduce how trainees view own development as important for giving feedback and that feedback being used and then brainstorm problems with self-assessment and how we can address them (with a focus on what informs self-assessment and what calibrates it)
0:20-0:25 – Didactic: Review theories pertaining to what informs and calibrates self-assessment (Articles by Eva and Regehr)
0:25-0:35 – Large Group Discussion: Calibrating in a learner-centered manner – how do you do it?
0:35-0:50 – Didactic: Review of our thoughts for this (in slides)
0:50-0:1:10 – Large Group Activity: Role play of giving feedback that calibrates self-assessment while attending to maintaining a sense of competence, relatedness, and autonomy (harder than it sounds!)
1:10-1:25 – Large Group Discussion: Report back from group
1:25-1:30 – Wrap-up/Commitment to change

Objectives: At the end of this session, learners will be able to:
1) Value the role of milestones in providing a roadmap for learning for trainees.
2) Discuss theories that inform and calibrate self-assessment.
3) Discuss the three components of self-determination theory and how attending to them can drive learner-centered feedback and discussions about development along the milestones.

Rationale: The focus for milestones continues to be on the summative assessment of trainees’ development for the purposes of reporting to the ACGME. This is an important goal and one that aligns with the important objective of advancing graduate medical education and providing assurance to the public that trainees have met the outcome goals of training that prepare them for unsupervised practice. However, focus on this goal alone and not the important process pieces that lead to it may limit, or at least delay, the ability to achieve it. Given that competency-based education is built upon the learner as the driving force for the educational process, it is important to ensure feedback and discussion about milestone achievement is learner-centered. Studies in both pediatrics and internal medicine suggest that milestones provide a useful roadmap for learning. Building upon a literature review, this session will focus on how programs can capitalize on this strength of the milestones framework to enhance feedback to learners.

Workshop—Session 10
The Three R’s of Professional Identity Formation in Medical Students: Reflection, Relationships and Resilience

J. Harry Isaacson, MD, Internal Medicine, Cleveland Clinic
Richard Frankel, PhD, Indiana University
Johanna Goldfarb, MD, Cleveland Clinic
Bradley Gill, MD, MS, Cleveland Clinic
Natalie Lee, MD Internal Medicine, Cleveland Clinic

Methods/Session Format:
• Introduction – 5 minutes Faculty will introduce themselves and conduct a brief check-in during which workshop participants will introduce themselves and identify what goals they wish to accomplish by attending the workshop.
• Overview of Professional Identity Formation – 10 minutes Faculty will provide an overview of professional identity formation based upon the latest evidence and educational theory.
• Strategies to enhance Professional Identity Formation – 20 minutes Faculty will provide examples of the 3 R’s and different strategies/tools that allow medical students to develop their professional identities. Examples of reflective writing, facilitation of small group discussion, role modeling, and a portfolio system will be included. Two residents will reflect on their experience in a medical school that has no grades and uses only a portfolio system for promotion.
• Reflective practice exercise – 30 minutes Participants will engage in reflection and storytelling as a tool to explore professional identity formation. Using appreciative inquiry, participants will be asked
to reflect on an event in their training or career that positively impacted the development of their own professional identity. Participants will share their stories in small groups.

- Large group debrief of reflective practice exercise – 15 minutes Volunteers from the group will be invited to share their stories from the reflective practice exercise. The faculty will analyze the stories for themes around professional identity formation.
- Wrap up/session evaluation – 10 minutes

**Objectives:** At the end of the workshop participants will be able to:
1. Define professional identify formation and identify why attention to healthy professional identity formation is critical to becoming and being a physician
2. Describe the 3R’s of PIF, reflection, relationships and resilience.
3. Experience the value of reflection directly in an appreciative inquiry exercise
4. Identify opportunities to enhance professional identity formation in their own educational environments

**Rationale:** In its broadest sense, Professional Identity Formation (PIF) in physicians refers to the transformation of a lay person into a professional with the expected knowledge, attitudes, skills, and attributes that attend the role over the course of one’s career. Professional identity formation (PIF) is a critical component in the development and maturation of medical students, residents, and practicing physicians. Gaps in PIF have been associated with professional lapses, burnout (including depression and high rates of suicide), and dissatisfaction with the profession. There is an emerging consensus that a focus on professional identity formation in medical school is important, however challenges remain in translating PIF into practical learning activities and assessment. PIF is complex and is not easily represented as a check list of competencies. What are the key factors in PIF? What strategies exist to facilitate PIF? How can PIF be assessed and evaluated? The literature suggests key drivers of PIF include: reflection; relationships; and resilience. (1) Reflection, including the use of personal narratives, fosters development of self and situation awareness. Relationships with patients, families, mentors, and colleagues help give meaning and context to the responsibilities that come with being a physician. Resilience, through shared social identity and self-care, enhances professional identity formation. A variety of tools are available to facilitate PIF including guided reflection, formative feedback, personal narratives, role models, and discussion in a safe community. (1) The use of portfolios allows students to reflect on the development of their professional identity over time and can be used to assess PIF. This workshop will allow medical educators to better understand the three R’s of PIF and develop skills to facilitate its development and assessment in their medical students. Participants will have the chance to experience a reflective practice exercise focused on PIF and generalize the experience to relationships and resilience. By the end of the workshop participants will have gained a framework and resources to enhance PIF in their own educational environments.


**Thursday, April 7, 2016**
**Concurrent Sessions 2:45 – 4:15 pm**

**MESRE Oral Abstract Presentations—Session 3**

The distribution of grades from medical students: Analysis and tools for simulation studies
_G.A. Patino, Biomedical Sciences, Oakland University William Beaumont School of Medicine_
**Background:** The majority of studies on medical education that focus on numerical grades or exam performance make use of parametric statistics, which assume a normal distribution of the characteristic being evaluated. However, medical students represent a highly selected sample of the overall population of college graduates, scoring consistently in the high-end of the aforementioned distribution for their cohorts. Many of these students take courses with high-stakes exams as the mean of assessment, which requires scoring within a narrow distribution of points to achieve a passing grade. For all these reasons the assumption that numerical grades from medical students follow a normal distribution can not be taken at face value. Furthermore, with the move from frequentist to Bayesian statistical analysis a need arises to determine the empirical distribution of those grades, so that simulations studies and probabilistic models can be developed.

**Methods:** Given that the Step exams are among the most standardized tests in medical education, we hypothesized that their score distribution would be the closest to the general distribution of numerical grades among medical students. We extracted the percentile data for USMLE Step 1 score ranges from the August 2015 USMLE Score Interpretation Guidelines. The percentile data was then transformed to a probability mass function (PMF) of the grades. We used the PMF to generate random scores that followed the same distribution as the reported Step 1 score percentiles. As a quality control measure, the mean and SD of the random scores couldn't be significantly different than those reported for the 2014 Step 1. We then evaluated if the random scores were normally distributed for different class sizes (5 simulations per different number of students) using the Shapiro and Kolmogorov-Smirnov tests. We also evaluated how the reported distribution of Step 1 scores match the reported results of high-stakes examinations.

**Results:** The reported Step 1 score percentiles were based on an n = 65,427. We simulated class sizes between 50 to 66,000. The Kolmogorov-Smirnov test produced a p-value < 0.0001 for all class sizes, while the Shapiro test gave p-values > 0.1 for class sizes between 50 and 125 but not for bigger groups. QQ-plots confirmed the non-normality of distributions for larger classes, and suggested that even groups of 50-75 students were also not normally distributed. When the score ranges from Step 1 were adjusted to the 0-100 scale most commonly used in high-stake examinations, 19% of the scores were between 55 and 69 points, 81% placed between 70-89, and 0% were or equal to 90 points. Compared to the reports on the literature about high-stakes exams the Step 1 scores had a very high percentage of scores in the fail region (below 70 points), and no scores in the honors area (above 90 points), suggesting that Step scores might not be the best sample to simulate numerica grades from high-stakes exams. To allow other researches to perform simulation studies of the Monte-Carlo style, in which prior knowledge of the empirical distribution is necessary, we created a Python script that allows users to generate simulated sets of scores with the same distribution as the Step 1 score percentiles for different class sizes. For users that prefer not to use the Python script we have also generated tables of simulated scores that are available as an Excel spreadsheet for different numbers of students.

**Conclusions:** Our results suggest that the assumption of a normal distribution for grades of medical students must be carefully evaluated for a dataset. However, Step 1 scores might not be representative of the grade distribution for high-stakes exams and institutional, even course-specific, analysis of the grade distribution might be needed. We make available a Python script that can be used for such analysis. Excel tables of simulated score sets complement the script for use in modeling studies.
Background: Recognition of effective teaching and faculty development to promote excellence in teaching are common priorities in academic medical centers, but teaching faculty are often subject to student reviews as the only means of evaluating their teaching. Peer review is an increasingly important component in teaching evaluation and one that can be challenging to institute. Barriers include time and faculty concern about being analyzed. Peer review at our institution is a formative process and the review is the property of the instructor. Faculty are, however also required to have documentation of peer review of teaching included in their promotion and tenure packets. In our med 3-4 clerkships, faculty peer review has traditionally not been done. With the implementation of integrated clerkships, we aimed to review the majority of classroom didactic and small group sessions and desired to assess the reliability of our process.

Methods: In an observational study of teaching in integrated clerkships, faculty leading didactic or small group sessions were peer-reviewed by select faculty, named Expert Educators (EEs). Initial development of our peer review forms involved literature review of peer review and medical education. The documents were created by educational committee opinion and modified using resources from the Stanford Faculty Development Program. EEs were provided with a 90 minute training session on peer review and giving feedback by a consultant from the College of Medicine. In addition EEs had experience and formal instruction in reviewing student performance and providing feedback to learners. The EEs reviewed sessions across all disciplines in the clinical curriculum (med-3 year). Where possible, EEs were paired to provide a review on the same didactic session. We compared paired reviews using percent agreement as a means of assessing the consistency of feedback generated. Evaluators were asked to rate instructors on twelve items. Response options were: Needs Improvement, Effective As Is, Exemplary, Not Observed, and Not Applicable. Responses from each evaluator were coded and agreement between each item and pair of evaluators was determined. If both evaluators provided the same rating a score of 1 was given signifying agreement, if they did not provide the same rating a score of 0 was given signifying disagreement. We also coded the data by grouping “Effective as Is” and “Exemplary” together to provide an Acceptable/Not acceptable score.

Results: Nineteen paired and 44 individual peer reviews were completed by EEs from March to November 2015. Sixteen paired reviews were able to be analyzed. Average agreement by case was 56% with a range of 33% to 75%. Average agreement by item ranged from 31% to 88%. The grouping of Effective As Is with Exemplary improved agreement scores. Item agreement range rose to 69% to 100% and average case agreement to 88%. Reviews indicate faculty most need improvement in audio-visual learning materials. Faculty scored well in preparation, organization, asking and answering questions, knowledge base, and overall lecture quality.

Conclusions: Trained faculty expert educators generally had moderate agreement when reviewing the same didactic session and high agreement when elements were coded as Needs Improvement vs Effective/Exemplary. We have insufficient evidence at this time to “validate” our review forms/process. Low agreement on an item may suggest that further EE training is needed, or that the item may need further refinement to suit this particular application. We plan to use taped lecture review by 3-4 EEs to continue assessment of rater reliability. This group approach to one session would also allow for additional development and rater training for the EEs. Additional future directions include comparisons of peer reviews with reviews from curriculum leaders, students and faculty self-reflections. We also intend to explore the acceptance of the peer review process by those performing and receiving the reviews.

Leadership through Student Teaching: Surgical Faculty Cues for Increasing Entrustment of Residents
G. Sandhu, University of Michigan
Background: Education of residents in the operating room is simultaneously a salient interaction in the development of future independent surgeons; as well as a high risk enterprise where maintaining patient safety is critical. Faculty surgeons consider their responsibility not only to patients they care for today, but also to future patients cared for by residents they graduate. Charged with balancing these responsibilities, faculty directly observe residents and make deliberate entrustment decisions to move learners from assistants to independent surgeons. It is imperative to better understand entrustment decisions and behaviors among faculty-resident dyads to determine which interactions support graduated operative autonomy.

Methods: 37 faculty members and 62 residents participated in semi-structured interviews. Participants were selected using stratified random sampling of general surgery residency training programs representing national geographic distribution and training environment diversity as designated by FREIDA.1 Interviews were transcribed, open coded, and thematically analyzed.

Results: One of the major themes identified as reflective of intraoperative entrustment in faculty-resident interactions is ‘providing residents with opportunities to lead cases when appropriate.’ A significant dimension of operative leadership which emerged was ‘faculty surgeons entrusting senior residents to teach junior residents.’ Faculty commented heavily on resident leadership within a case and noted trust in a resident’s decision making process was of the utmost importance in selecting the appropriate level of intraoperative autonomy to be granted. When a trainee demonstrates sound and safe decision-making, including recognition of one’s own limits and regulating operative pace, attendings express greater trust in the resident’s ability to teach junior learners. The following faculty quote exemplifies this subtheme: “When [senior residents] get to that point where I want them to start taking other residents through, that is probably the biggest signal that I am giving them more autonomy.” This unique interaction is comprised of 3 core resident responsibilities: (i) Resident as educator (ii) Resident as learner (iii)Resident providing safe surgical care to patient Through this interaction the senior resident assumes more responsibility by identifying gaps in the junior resident’s knowledge and advancing the learner to the next appropriate level. The senior resident is also integrating knowledge and skills in an effort to react to the current operative event, think ahead about next steps in the operation, and adapt the overall plan of the operation, all the while recognizing personal limitations when a faculty member is indirectly supervising the case. Lastly, central to this interaction are the senior residents, junior residents, and faculty participating in an environment that consistently provides safe, informed, and technically sound patient care.

Conclusions: One method by which faculty surgeons grant greater autonomy to residents is by entrusting senior residents to take junior residents through a case. When a senior resident is granted this opportunity, trainees are aware that they are being given a higher level of entrustability as evidenced through faculty and resident interviews. Unpacking faculty decision making to determine when this high degree of autonomy is granted will help inform entrustment interactions among faculty-resident dyads. Future directions will include the development of faculty and resident training materials for enhancing understanding about behaviors which support entrustability and optimize interactions in the operating room to support the attainment of autonomy. Findings from our study point to the benefits of deliberate intraoperative teaching while continuing to support the ultimate goal of graduating safe independent surgeons.
Development and Validation of e-Clinical Evaluation Exercise (e-CEX) Tool to Assess Patient-Centered Electronic Medical Record Use

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W. Lee, Department of Internal Medicine, University of Chicago
J. Farnan, Department of Internal Medicine, University of Chicago
V. Arora, Department of Internal Medicine, University of Chicago
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M. Alkureishi, Department of Pediatrics, University of Chicago

Background: Despite widespread adoption of the Electronic Medical Record (EMR) and identification of specific EMR-related behaviors and skills that can enhance patient-physician interactions, providers receive minimal formalized education and feedback on these skills. The American Medical Association and the Alliance for Clinical Education have both recently highlighted the importance of addressing this issue in undergraduate and graduate medical education; however, methods by which to evaluate medical student proficiency in patient-centered EMR use are both essential and lacking. Using a previously developed patient-centered EMR use curriculum, the investigators aimed to develop and validate the electronic-Clinical Evaluation Exercise (e-CEX) tool as a method by which to assess and reassess medical student EMR specific communication skills over time.

Methods: The investigators developed a patient-centered EMR use curriculum provided to second year pre-clinical medical students (MS2) during their Clinical Skills course at the University of Chicago. The curriculum included a lecture on EMR use barriers and best practices and videotaped Group Objective Structured Clinical Examinations (GOSCEs) with a Standardized Patient (SP) immediately after the lecture and one year later. Third year medical students (MS3) who had not received the curriculum also performed in the same patient-centered EMR use OSCE, however as individual participants and not in group format. The investigators created the e-CEX, a 10-item 90-point tool, for use in direct observation assessment by trained observers as well as an SP evaluation tool (16 items, 80 points total) based on best communication practices identified in the literature. Inter-rater reliability of the e-CEX was established using intraclass correlation coefficient and trained observers evaluated the videotaped encounters using the e-CEX. The investigators evaluated internal consistency using Cronbach’s alpha and concurrent validity between the e-CEX tool and our SP evaluation tool, a surrogate for patient experience, using Pearson correlation coefficient.

Results: A total of 70 students and 85 encounters were rated using the e-CEX: 20 trained MS2s, 50 untrained MS3s, and 15 MS3s who were trained one year prior as MS2s. Cronbach’s alpha for the e-CEX was 0.89, indicating high reliability. Trained MS2 students (n=20) scored significantly higher on the e-CEX than untrained MS3 students (n=50) [55 (SD=10.7) vs. 44.9 (SD=12.7), p=0.003]. Trained MS2 (n=20) average scores using the SP evaluation tool were significantly higher than untrained MS3 (n=88) students [70.8 (SD=4.3) vs 58.1 (SD=13.1), p<0.001]. The e-CEX tool rating correlated with the SP evaluation tool (Pearson correlation 0.74). As third year students (one year after receiving the curriculum as MS2s), e-CEX scores were not significantly changed (average change = -0.9, SD=15.4; p=0.83) although their SP evaluation scores deteriorated [71.6 (SD= 3.4) vs 62.9 (SD=14.5), p=0.027].

Conclusions: The e-CEX tool was a reliable and valid method of evaluating medical student skills and behaviors surrounding patient-centered EMR use. The curricular intervention was effective in improving students’ patient-centered skills while using the EMR and this effect largely remained one year after the intervention. Future work would include evaluating the tool with residents and patients in real clinical scenarios and as a faculty development tool.
Grant funding for this project includes: the Alliance for Academic Internal Medicine provided funding through an award via the 2013 Clerkship Directors of Internal Medicine (CDIM) Small Grants Program to Promote Educational Scholarship. University of Chicago Academy of Distinguished Medical Educators Medical Education Grant. Arnold P. Gold Foundation Research Institute “Mapping the Landscape, Journeying Together” Project Grant.

Innovations in Medical Education Oral Abstract Presentations—Session 1

Piloting a Graduate Medical Education (GME) Scholars Track for Resident Trainees
S.K. Martin, Medicine, University of Chicago
J. Ahn, Medicine, University of Chicago
J. Farnan, Medicine, University of Chicago
H.B. Fromme, Pediatrics, University of Chicago

Objective/Purpose: We describe a pilot project to design and implement a medical education track for resident trainees at an academic institution. The track aimed to integrate scholarship and training in medical education within the existing infrastructure in place within undergraduate medical education (UME) as well as faculty development programs.

Need for Innovation/Practice: Upon entering postgraduate training, a common aspiration and interest among residents is to become a clinician educator. Factors associated with this goal include training at a research-oriented program as well as strong mentorship and clinician educator role-modeling, but unfortunately interest in these careers may wane throughout residency training. A training program offering a structured approach to scholarship in medical education combined with formal mentorship may be advantageous in attracting trainees toward careers as clinician educators and developing future leaders. However, these types of programs are uncommon. The University of Chicago has a strong infrastructure in place to train leaders in medical education at other points in the continuum of medical training, though structured opportunities for career development in medical education were notably underrepresented within residency training. There remained a need to develop a longitudinal and comprehensive training experience to nurture and develop residents who express interest in careers as clinician educators, all while respecting the time constraints of postgraduate clinical training and surmounting the silo effect of separate residency training programs. A GME Medical Education Scholars Track was conceived and designed to prepare residents for careers in medical education, and allow both active and asynchronous engagement with a network of colleagues and faculty across disciplines to promote an environment of collaboration and support.

Methods, Materials and Resources Used: We designed and piloted a structured longitudinal medical education track for trainees expressing a strong interest in careers in medical education. Two junior faculty members under the mentorship of senior clinician educators and leaders in medical education at the institution designed and piloted the two-year curriculum that includes a web-based didactic curriculum as well as a live program. The web-based curriculum includes a six-part webinar program that covers topics related to curriculum development, evaluation, and adult learning theory. Webinars are completed in the first year and feedback on performance and application of concepts to their own scholarly projects is provided by the course directors. The live program provides opportunities for practical implementation of medical education skills and includes quarterly group meetings, medical education journal club, direct observation and feedback of teaching activities by senior faculty, attendance at Research in Medical Education conferences, and participation in Residents as Teachers coursework. Concurrently during the two years of their participation in the program, GME Scholars also complete a mentored scholarly project in medical education.
Outcomes: The two inaugural cohorts (2014-2016 and 2015-2017) of GME Scholars include 22 residents from pediatrics (5); surgery and surgical subspecialties (5); internal medicine (4); emergency medicine (4); anesthesia (1); obstetrics and gynecology (1), internal medicine/pediatrics (1), and psychiatry (1). We surveyed participants about prior educational experiences and career goals. Over 90% of participants had taught clinically at the bedside as well as via lecture and small-group settings. The majority of participants (17 of 22) reported teaching experience in the UME setting, whereas only 6 noted experience within the GME setting. About 25% of participants report no prior formal training in medical education, and about 60% report no previous medical education scholarship. The most common reasons for participation included pursuit of future leadership positions in medical education (90%), enhancing skills in teaching and project implementation (80%) and enhancing research skills (77%). At the end of Year 1 (2014-2015), the majority (>50%) of participants reported they were mostly able to attend program activities with minimal conflicts. Over 75% of participants reported high levels of satisfaction with the program’s curriculum, and over 90% with the program’s contribution to their professional development. Six of the eleven participants in the pilot cohort had reported scholarship that had been produced from their participation in the project thus far.

Strengths and Areas for Improvement: Resident trainees from a variety of specialties have demonstrated interest in a dedicated track for pursuing scholarship and further training in medical education. The GME Medical Education Scholars has been successfully designed and piloted to address the needs and desires of the initial participants. Areas for improvement include further evaluation of career- and scholarship-related outcomes to aid in evaluating efficacy of this program in training future leaders in medical education.

Feasibility of Program Maintenance/Transferability: Feasibility of the program has been addressed by incorporating the GME Scholars Track within the existing infrastructure of the medical education community at the University of Chicago. Support for faculty time and administrative support is provided by Pritzker School of Medicine. Certain elements of this program (e.g., the webinar series and quarterly meetings) would be well-suited for transfer to other institutions, and other elements are easily adaptable to meet needs of other institutions and leverage existing resources (e.g., RAT electives and research conferences).

Supported by an internal grant from the University of Chicago Academy of Distinguished Medical Educators, Medical Education Grant, awarded in 2013 for the years of 2013-2015.

Optimizing Patient Care Curriculum: Bridging Three Domains of Knowledge for a Fully-Integrated, Longitudinal Curricular Thread

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Objective/Purpose: Using a conceptual model adapted from Hoffman et al. (2014), we have set the goal of achieving a fully-integrated curricular thread that encompasses a comprehensive set of inter-related skills: (1) Evidence-Based Medicine (including clinical informatics), (2) Patient-Centered Communication Skills, and (3) Shared Decision-Making, which we have called the Optimizing Patient Care Curriculum (OPCC).

Need for Innovation/Practice: As U-M Medical School embarks on a major, comprehensive curricular revision, we have significantly modified and expanded curriculum components related to medical decision making. Previously, instruction in this area was provided over the first three year years of
medical school in different courses and clerkships via a series of curricular experiences that combined lectures, small group problem-solving sessions and computer informatics workshops. While the former approach was successful by some key measures – e.g., students' scores on biostatistics and clinical epidemiology components of national licensure exams were well above the national average – the previous curriculum architecture limited the integrated longitudinal approach that is needed in order to create habits of inquiry and reflection that are required for lifelong learning.

**Methods, Materials and Resources Used:** An interdisciplinary team with combined expertise in the three OPCC foci developed an inaugural curriculum for first-year learners. Learning objectives have been developed, and experiences (some completed; many in development) encompassing each of the three OPCC domains, with integration points in the following curricular areas: M1 Launch (the expanded first-year orientation during the first weeks of medical school), Foundations in Molecular Medicine (the first sequence of the M1 year, with a focus on biochemistry and genetics), Chief Concern Course (a longitudinal course with a focus on clinical reasoning), and Initial Clinical Experience (a longitudinal first-year clinical experience with a focus on patients, healthcare teams, and healthcare systems). Through intentional planning and collaboration, faculty from OPCC and the aforementioned curricular areas have been building a truly integrated curricular thread. OPCC elements which are being integrated into curricular components are being designed by incorporating experiential learning (Kolb, 2014) and critical reflection (Schön, 1987) frameworks to ensure experiences that are meaningful, active, integrated, and reinforced. Through pedagogical approaches that include self-directed learning, utilization of the flipped classroom framework, small group discussion, and individual reflection, students are being exposed to content related to diagnostic reasoning and clinical epidemiology, clinical informatics, decision making for populations, patient centered communication, and decision making with patients.

**Outcomes:** Student feedback on initial OPCC sessions has been favorable. Sessions during M1 Launch yielded the following evaluation outcomes: 90% of students Agree or Strongly Agree that “Overall, the OPCC activities increased my understanding of patient-centered communication”; 78% of students Agree or Strongly Agree that “Overall, the OPCC activities increased my understanding of clinical informatics”; 88% of students Agree or Strongly Agree that “Overall, the OPCC activities increased my understanding of shared medical decision-making.” Among students’ narrative comments were the following: “I am so impressed by how intentionally-designed the 3 sessions were. I was just raving about it to my parents. Thank you!” “Fabulous introduction to this curricular thread.” “This and Thursday were the best days of the week!” Furthermore, collaboration with directors and faculty from other curricular components is proceeding successfully, and is now moving in both directions – i.e., OPCC faculty seek out and are sought out by faculty from other curricular components to develop integrative learning experiences.

**Strengths and Areas for Improvement:** Compared to developing a stand-alone curriculum, a primary challenge when integrating a curricular thread such as OPCC lies in the additional effort required to fully integrate material from multiple domains in a manner that builds sustainable habits, opportunities for inquiry, and also touches all relevant elements of the new curriculum in ways that are synergistic. By assembling an interdisciplinary team to develop the curriculum, and by intentionally and proactively seeking and achieving points of collaborative integration with other curricular components, we were able to initiate a fully-integrated, longitudinal curricular thread.

**Feasibility of Program Maintenance/Transferability:** Next steps include summative evaluation of current OPCC based experiences to identify the extent to which content from all three domains were appropriately woven into curricular areas, and provided opportunities for students to start developing habits of inquiry. In addition, focus will be placed on identifying additional OPCC integration points that are optimal in helping learners engage in foundational skills and knowledge using an OPCC lens; this will be done using a multipronged approach including program evaluation surveys, and program reviews which include learners, course/sequence directors, and OPCC faculty.
A 6-Domain Framework Was Useful in Identifying Clinically Relevant Social Determinants of Health  
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D.A. Chick, Internal Medicine, University of Michigan  
B.C. Williams, Internal Medicine, University of Michigan  
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Objective/Purpose: To provide physician learners a method for efficiently gathering information from patients during routine clinical care that would: a) enhance identification of clinically relevant behavioral and social factors directly relevant to their assessment and care, and b) facilitate mobilization and collaboration with non-physician health care providers.

Need for Innovation/Practice: Traditional ‘History and Physical’ data gathering format emphasizes biomedical diseases and underemphasizes behavioral, environmental, and social determinants of health. Clinical assessment and planning by physicians frequently omits psychosocial information relevant to mutual goal setting, facilitating patient self-management, and identifying and addressing barriers to care. Physician learners cite as barriers to gathering more complete biopsychosocial information: a) limited time, b) limited skills and responsibility for managing non-biomedical problems, and c) that social determinants of health require interventions other than health care.

Methods, Materials and Resources Used: Based on best practices in settings emphasizing comprehensive care planning - geriatrics, mental health, and care of homeless persons we developed a framework for assessment with 6 domains: 1) Biomedical conditions, 2) Mental Health, 3) Behavioral Health, 4) Social Support, 5) Resources and Living Environment, and 6) Function. The framework was introduced to fourth year medical students on Internal Medicine Inpatient services with physician teams comprised of a teaching attending and a subintern. Students were required to use the framework to: a) gather information at admission or in daily care of at least one patient, and b) identify one problem to address with other physician and/or non-physician members of the health care team. After 2 months of exploratory refinement, 10 students applied the framework in May and June, 2015. This report focuses on students’ open-ended comments and responses to 10 Likert-type questions on the usefulness of the framework in identifying information that could be used to improve patient care. Response categories ranged from 1 (Strongly Disagree) to 5 (Strongly Agree).

Outcomes: Students’ ratings were highly positive, indicating that the 6-domain framework was “helpful in identifying barriers to care and followup” (mean (SD) rating 4 (1.1)), “improved my understanding of my patient and their needs” (4.2 (0.8)), that “there were resources to help with barriers” (4.4 (0.7)), and that they were “able to develop a plan to address at least one barrier to care” (4.4 (0.8)). Lower but positive ratings were reported for other items including “(the framework) helped me create a comprehensive problem list” (3.8 (1.4)), and “(the team used the framework to) help utilize resources in nursing, pharmacy, and social work” (3.5 (1.4)). Comments, received from 6 of the 10 students, were uniformly positive, and included “This was a great exercise and really helped my patient.”, “Would be great to do on every patient…”, “Very helpful…Ensures complete H and P”, and “going through these questions improved (my) relationship…with my patient, as she thanked me…afterwards…I was glad (using the framework) had a conversational flow and didn’t feel like…a checklist of questions.”

Strengths and Areas for Improvement: In this pilot study, the 6-domain framework for patient assessment was useful in facilitating medical students’ identification of clinically relevant issues not included in the traditional ‘H and P’ without feeling burdened by the more comprehensive approach. It also appears useful in facilitating care planning involving other physician and non-physician members of the health care team. We plan to: a) examine the content of students’ admission and progress notes for systematic application of the framework and relevance to care planning, and b) investigate the feasibility of expanding the 6-domain framework to other inpatient and outpatient teaching settings for students and residents.
Feasibility of Program Maintenance/Transferability: This study demonstrates the feasibility of integrating a comprehensive assessment framework into routine clinical teaching and work. If validated in future studies, primary barriers to implementation will be costs of faculty development and resistance in the dominant culture to expanding the scope of ‘physicians’ work’ to include biopsychosocial and social determinants of health in patient care.

How Can You Increase Reporting of Medical Student Professionalism Issues? Use an App!
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Objective/Purpose: At the Loyola University Chicago Stritch School of Medicine, we created the Professionalism Reporting App (PRA) for faculty and residents to report medical student professionalism issues in real time. The purpose was to increase frequency, timeliness and accuracy of reporting professionalism issues so interventions and actions could occur faster, and be based on more robust data.

Need for Innovation/Practice: Have you ever been at a meeting where professionalism issues of a fourth-year medical student are brought up and others in the room say they saw those same issues in year 1 or 2? And then you look at the student’s record and nothing is reported? Or have you heard about a student having issues early in a clerkship that are resolved by the end, so are never reported, and then the same cycle occurs in the next clerkship, so again is not reported? We wondered if professionalism issues could be captured earlier, more frequently and in a more robust manner if we created an easy method for faculty and residents to report student professionalism issues from their mobile devices. We sincerely hope that this is accepted as an oral presentation as it will be most effective if we can demonstrate the app and then discuss the faculty development that needs to occur for the culture change of faculty feeling more comfortable with reporting medical student professionalism issues.

Methods, Materials and Resources Used: We created a mobile-friendly platform, based on a web link (essentially an App) for reporting medical student professionalism issues in real time. The Professionalism Reporting App (PRA) was made available to faculty and residents and training on its use occurred department, by department. The app is simple, straightforward, and easy to use. Reports generated are sent immediately by e-mail to the course or clerkship director where the issue occurred and to the members of our Academic Review and Intervention Committee (ARIC). If the issue occurred outside of a course or a clerkship, such as in the school cafeteria, or at a school function, then the report only goes to ARIC. Creating this app required IT to link to our master database of faculty and residents, as well as to link to the individual student academic portfolios.

Outcomes: The app has been piloted in the OB/GYNE and Emergency Medicine Clerkships and will go school-wide the first week of December 2015. Our pilot data show that the Professionalism Reporting App (PRA) did increase reporting of professionalism issues, and in fact, led to immediate intervention with several students. As we already obtained robust data in our pilot phase, we expect to have significantly more data before the CGEA meeting, as the app will be rolled out to all faculty and residents in December 2015. One important piece of data we will present is that the app actually spawned a campus-wide discussion about faculty’s reluctance to report student issues. We addressed this by relating to faculty that the issues are tracked over time, and for any issue not egregious, it will be acted
upon only if recurring, and then there would be data from multiple faculty. In addition we discussed with faculty that if a student has an issue early in a clerkship, such as repeated tardiness, and fixes that by the end of the clerkship, then it is likely not reported to anyone. However, that same pattern could occur in the next clerkship, and again is never reported. We have seen these patterns from students that do not get reported, and impressing upon the faculty that tracking is vital to being able to intervene and help the student is crucial to their professional development. We are hoping this is accepted as an oral presentation so that we can demonstrate the app and discuss with the audience the larger issues of faculty comfort with reporting professionalism issues.

**Strengths and Areas for Improvement:** The Professionalism Reporting App was relatively easy to build, and has so far achieved the goals in the pilot phase. The area for improvement is the larger issue of changing the culture to get faculty to actually report professionalism issues. We will be further developing our faculty development program around reporting professionalism issues.

**Feasibility of Program Maintenance/Transferability:** This app was a creative and inexpensive build on the part of the IT department, and likely could be easily replicated at other institutions because it does not require an app designer. We call it an "app" and everything thinks of it as an app, but it is really a web link that jumps to a mobile platform to easily report issues. This is something that most school IT departments could create.

**Novel Champions for Professionalism in Electronic Medical Record (EMR) Use: Integrating Patient-Centered EMR Use Skills and Documentation Expectations into Required EMR Training**

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* W. Lee, Internal Medicine, University of Chicago
* V. Arora, Internal Medicine, University of Chicago
* S. Webb, EPIC Clinical Information Systems, University of Chicago

**Objective/Purpose:** EMR use with patients in clinical care is the new norm. Despite ACGME competencies regarding professional documentation expectations and interpersonal communication skill development in order utilize patient-centered education strategies, few institutions provide formal curricula on patient-centered EMR use. Furthermore even if such curricula exist, it is difficult to practically deliver it to all institutional trainees, thus limiting training to specific departments. We aimed to embed training on institutional documentation expectations and patient-centered EMR use strategies for all incoming post-graduate trainees at the University of Chicago (UChicago) into their required EPIC onboarding training and assess the impact of our curricula.

**Need for Innovation/Practice:** Without required institutional education, trainees are left to rely on the hidden curriculum to learn EMR integration strategies and can adopt unprofessional documentation practices.

**Methods, Materials and Resources Used:** After reviewing the literature, we developed a 10-minute presentation on patient-centered EMR use best practices and issues related to documentation professionalism including “cut and paste” and authorship. UChicago EPIC trainers were instructed by the PI’s on curricula content and delivered it as part of the 8-hour required EMR training for all 2015 new interns, residents and fellows. Post-training, a 10-item Likert-scale survey was used to evaluate trainee self-assessed patient-centered EMR use knowledge, ability, and likelihood to change clinical practice. Likert responses at the high end of the scale were grouped to dichotomize data (i.e. 4=agree and 5=strongly agree combined as “agree”).

**Outcomes:** One hundred fifty-eight trainees completed evaluations (72 residents and fellows, 86 interns; 32 primary care and 126 surgical or specialty trainees in 27 specialties). Trainees reported increases in their knowledge of patient-centered EMR use barriers (Pre-training 3.1 (0.9 SD) vs Post-training 3.9 (SD 0.8), p<0.001), best practices (Pre-training 3.1 (0.9 SD) vs Post-training 3.9 (SD 0.8), p<0.001), and ability
to implement best practices (Pre-training 3.1 (0.9 SD) vs Post-training 3.9 (SD 0.8), p<0.001). Most felt the training was effective (90.5%, n=143), that it should be required (86.7%, n=137) and that it would change their future clinical practice as a result (70.9%, n=112). When comparing program type, primary care trainees were more likely to report training was effective (4.34 vs 4.09, p=0.003) and that it would change their future practice (4.13 vs 3.73, p=0.02).

**Strengths and Areas for Improvement**: Graduate Medical Education faculty partnership with EMR trainers who do routine required on-boarding is a novel, timely and effective method to facilitate training on patient-centered EMR communication strategies and professional documentation expectations across a variety of residency and post-residency training programs. Future training should aim to longitudinally reinforce best practices for trainees, train faculty to promote positive role-modeling in order to proactively shape the hidden curriculum" of EMR use, and measure patient-satisfaction with trainee communication to determine if training was effective in creating an institution-wide shared model of professionalism and high quality patient care in the computerized setting.

**Feasibility of Program Maintenance/Transferability**: Given the success of training and its reception by both trainees and trainers, the curriculum will continue yearly for all incoming trainees and also be incorporated into all new hire EMR training for attendings, nurses and support staff at UChicago. This curricula capitalizes on existing support structure available at most academic settings, involves minimal effort on part of the faculty and EMR trainers, and does not require additional cost making it extremely feasible and easily replicated at other institutions.

**MESRE Consultation**
*Consultant: Janet Riddle, MD, University of Illinois Chicago College of Medicine*

**The One-Week Research Rotation Intensive**
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*B.H. Schnapp, Emergency Medicine, Northwestern University Feinberg School of Medicine*
*P. Lank, Emergency Medicine, Northwestern University Feinberg School of Medicine*
*M.A. Gisondi, Emergency Medicine, Northwestern University Feinberg School of Medicine*

**Background**: The Residency Review Committee (RRC) of Emergency Medicine (EM) requires that every resident participate in a scholarly project. The type of project is not proscribed, and each residency’s leadership may define it as they see fit. One of the benefits of a four-year curriculum in EM is to allow more time to complete a scholarly project. The goal of this rotation was to provide a week of intensive education in research methodology, in both a synchronous and asynchronous form, to facilitate residents’ completion of a study proposal, IRB submission or grant submission. Additionally, residents compete for a position in the Northwestern Physician Scientist Training Program (PSTP) based on the quality of their project. The expected long-term outcome is an increased number of first-author publications from residents during residency, however in this first pilot year the outcome is feasibility of implementation. The secondary outcome is resident satisfaction.

**Methods**: During the second post-graduate year, residents have a one week research rotation. They are scheduled to complete the rotation in pairs to encourage collaboration and discussion about their projects. Prior to the rotation, residents must complete online IRB training, read about formulating research questions, and begin thinking about a research question. They are also asked to discuss this question with faculty members to determine its feasibility. During the week, residents are given daily goals for completion of their project proposal, IRB or grant submission. Activities include watching online lecture content on research methodology curated by the department’s research faculty. Residents are also required to attend a session on effectively searching the literature and using EndNote taught by the
Residents were asked to research funding opportunities for resident projects and were given examples of successful grant applications submitted by residents obtained from the Council of Residency Directors – Emergency Medicine Foundation (CORD-EMF) grant program. Residents must also meet with faculty members and research staff to discuss their research project in order to ensure mentorship and feasibility of the final project. Additionally, residents are asked to accompany a research associate to observe how patients are recruited to clinical studies. The remainder of time is spent performing a literature review and writing the document of their choice: a study proposal, an IRB submission or a grant submission. Residents must defend their document research faculty who will provide a final evaluation score for the rotation. The highest scoring residents from each class will be invited to participate in the PSTP with resident researchers from other specialties, hopefully jumpstarting a lifelong career in clinical research.

**Results:** As of submission, four residents have completed the research rotation. All four submitted study proposals. ¾ (75%) feel that the rotation helped them learn how to formulate a testable research question, design a research study, write a research proposal, submit an IRB and prepared them to complete a research project during residency. ¾ (75%) also felt that research skills were important and felt they would use the skills they learned during the rotation. ¾ (75%) enjoyed the rotation and would not have chosen to do other work, such as time in the ED or ICU instead of the research rotation. The residents have not yet presented to the research faculty for final scoring.

**Conclusions:** To date, 4 of 16 residents have completed the rotation and they generally appear satisfied with it. The implementation has been feasible. However, the residents have not yet defended their projects at the research meeting and the scoring system has not been implemented yet. Once the first group has completed this step, we will be able to make adjustments to the scoring system. The feasibility of the PSTP awards will not be assessable until the end of the academic year.

**Small Group Discussion 1**
**Change Agents in Medical Education**

*Larry Hurtubise, Pediatrics, The Ohio State University*
*Victoria Cannon, Office of Curriculum Research and Evaluation, The Ohio State University*
*Jeanne L. Koehler, Medical Education, Southern Illinois University School of Medicine*
*Misa Mi, Oakland University William Beaumont School of Medicine*

**Methods/Session Format:**
- Introductions will include a time of appreciative inquiry where participants share positive experiences in bringing about change and the key skills associated with success. (5 minutes)
- Faculty development in times of change: Discussants will share experiences and essential skills for developing faculty in times of curricular change. Participants will share their experiences and ask questions. (7 Minutes)
- Information & Library Sciences in times of change: Discussants will share experiences and essential skills for integrating information management and lifelong learning skill into new curricula. Participants will share their experiences and ask questions. (7 Minutes)
- Student Support: Discussants will share experience supporting student learning in times of change. Participants will share their experiences and ask questions. (7 Minutes)
- Technology Implementation: Discussants will share experience implementing new software and systems and essential skill sets to support a new curriculum. Participants will share their experiences and ask questions. (7 Minutes)
• Wrap up discussion about the essential skills and resources for supporting medical education in times of curricular change. (12 Minutes)

**Objectives:** Participants will know or be able to discuss and define essential skills needed to support medical education in times of change. List desirable skills sets. Discuss and illustrate how panelists as serving as change agents contribute to the strategic goals of their home institution in areas of teaching, research, and patient care. Discuss other areas change agents could be leveraged for enhancing teaching and learning in medical education.

**Rationale:** Health care and medical education are in an unprecedented time of change. Thought leaders suggest developing new 21st century curricula that require new roles and skills sets. Given the current economic environment, many medical education programs do not have the needed budget to hire individuals with all the requisite skills to promote change. This panel of self-proclaimed change agents come from varying roles and will lead a discussion regarding the skills and attributes required for supporting medical education in times of change. The panelists with experience in faculty development, library and information science, student affairs, and technology implementation will share how their roles have evolved and what essential skills they leverage.

**Small Group Discussion 2**

**Curricular Integration of Social Medicine: A Call for Reform**

*Allison A. Vanderbilt, Academic Affairs and Family Medicine, College of Medicine and Life Sciences, University of Toledo*

*Reginald F. Baugh, Admissions and Otolaryngology, College of Medicine and Life Sciences, University of Toledo, Toledo*

*Patricia A. Hogue, Physician Assistant Studies, College of Medicine and Life Sciences, University of Toledo*

*Imran I. Ali, Neurology and Academic Affairs, College of Medicine and Life Sciences, University of Toledo*

**Methods/Session Format:** This session will provide a brief rationale and overview for the importance of social medicine as part of medical education and this can serve as the umbrella for the overarching needs for curriculum reform related to: health disparities, cultural competence, service learning, population health, and diversity. Social medicine can be taught many ways within medical education curriculum and the large group will be broken into small groups to discuss how this can be achieved. One person will remain at the table with a large flip chart and the rest will rotate to the next table to discuss the ideas related to the topic (e.g., service learning) the person at the table will explain what the previous group discussed and then the new group will add to it. A new person scribe will be selected to stay and the second group will rotate. This will allow for an exchange of ideas and discussion. At the end one person will represent each key table to share what were the top 3-5 ideas related to their topic for curriculum reform in medical educated related to social medicine. The speakers will then tie this back to the LCME standards and assessment and evaluation.

**Objectives:** The following is what the participants will understand as a result of this session: How to incorporate the following LCME standards into their curriculum at their schools in an innovative way: Curriculum Reform/Redesign LCME Standard (8.3) LCME Standards related to Health Disparities (7.6) LCME Standards related to Cultural Competence (7.6) How to use formative and summative assessments and evaluation For LCME Standards (7.6; 8.3)

**Rationale:** The compilation of communities is the foundation of the overall health status of the population. Unfortunately, in the United States (US) the health of a community falls on a continuum ranging from healthy to unhealthy and fluctuates based on several variables. Alarmingly, these variables are linked to an enormous gap within the healthcare system related to health disparities that are commonly associated with a variety of factors including insurance status, income, and race. Research policy and public health practice literature report substantial disparities in life expectancy, morbidity, risk
factors, and quality of life, as well as persistence of these disparities among segments of the population. Health disparities can negatively impact subsets of the population who have systematically experienced greater social or economic obstacles to health. These obstacles can stem from characteristics historically linked to discrimination or exclusion such as race or ethnicity, religion, socioeconomic status, gender, mental health, sexual orientation, geographic location, cognitive, sensory, or physical disability. Medical schools have the potential to develop curriculum, standards, and criteria that can be implemented to reduce health disparities. Incorporating the principles of social medicine into medical education for trainings and/or curriculum is vital; it has been noted by several key professional agencies such as: The Institute of Medicine, the Accreditation Council of Graduate Medical Education (ACGME), and the Liaison Committee on Medical Education (LCME). This will allow for medical schools to measure their performance and commitment to reducing health disparities in the US. Curriculum reform and systematic formative assessment and evaluative measures can be developed to match the social medicine health disparities curricula for individual medical schools with their mission related to assuring that future physicians are being properly prepared for residency and the workforce to decrease health inequities in the US. To achieve these target goals, medical school curriculum must be reformed to meet the needs of our incoming learners to best prepare them for the milestone based competency assessments in residency, to provide quality care to patients, and to close the gap on health disparities within the US. To better understand how to tackle closing the gap, medical educators must better understand underserved population data and needs of the future physician workforce physicians in critical need areas. When revising medical school curriculum it is not sufficient to include a one-hour lecture on health disparities to proclaim that medical students have been “taught” about underserved populations and the LCME standards are now met. We propose that curriculum reform includes an ongoing social medicine component for medical students. Hence, providing students with interactive awareness experiences to become aware of implicit bias; clinical rotations and electives focused on serving diverse communities and quality improvement projects that focuses on healthcare disparities throughout their years in medical school. In our experience, community based clinical experiences provides a rich and powerful experience and allows students to learn firsthand the impact of lack of health care resources on health and well-being. This integrated pedagogic approach based on the literature combining clinical experiences with didactic and self-reflection will have the biggest impact on undergraduate medical school learners and has the potential to increase the number of future physicians serving the populations of underserved areas. Furthermore, medical students will have the opportunity to participate in service learning as part of the community and interact with at-risk patient populations, underserved areas, and engage with social medicine. The implementation of an organized population health curriculum will enhance the potential for students to understand the extent of the problem and its’ potential solutions.

References:

Small Group Discussion 3
A Lapse in Judgment and the Effect it has on Professionalism: A Multi-Institutional Perspective on Social Media and its Policy in Medical Schools
Melissa Hansen, Office of Medical Education, The University of Toledo
Geraud Plantegenest, College of Human Medicine, Michigan State University
Aaron Smith, Academic Affairs, Wright State University
Peggy Moore, E-Learning Instructional Design, University of Nebraska Medical Center

Methods/Session Format:
• Introduction (4 minutes) Group facilitators will introduce themselves and describe the session format. Today's Meet, a backchannel chat platform, will be used to enhance participant interaction, collect participant feedback and questions, as well as disseminate resources during and after the session. The following question will be presented at the beginning of the session to provoke participants to think about student’s recognition of appropriate and inappropriate display on social media: Do students recognize appropriate/ inappropriate display on social media?
• Obtain participant information (6 minutes) Facilitator 1, Administrative Assistant in the Office of Medical Education & Diversity, from Institution 1, will obtain group participants information as it relates to their experiences/ interest with social media in their medical schools.
• Content overview (20 minutes) Each facilitator (10 minutes), from institution 1, institution 2, institution 3, and institution 4, will discuss social media policies as indicated by each individual’s institution. An exchange of institutional themes, challenges, and approaches will be shared, highlighting social media policies across these institutions as well as those revealed through a
literature search regarding current trends in social media and digital professionalism in medical education.

- Facilitator 2 (10 minutes), Manager of Blended Curricular Learning Resources, from institution 2, will share a case from the AAMC GIR Digital Literacy toolkit (1) which contains real-life examples illustrating key concepts involving digital professionalism and social media. Participants will be solicited to consider the case and the implications social media has on professionalism. Engaging the group, participants will be asked to: 1. Identify issues related to professionalism. 2. Share advice they would give to students based on the case presented.

- Audience participation/discussion (10 minutes) Facilitator 3, an E-Learning Instructional Designer, from institution 3, will facilitate audience participation utilizing the following discussion questions, as time allows: 1. Is there a need for medical schools to embed social media awareness into the curriculum? If your institution is already doing so, where can it be found, i.e. first year orientation, ethics courses, etc? 2. Share an example in which social media has had an impact in your medical school, confirming the need for such a policy. 3. Share a struggle you are experiencing with social media in medical education.

- Summary/Closure (5 minutes) Based upon the presentation, discussion, and Today’s Meet audience participation, social media policies and implications will be summarized and participants will be challenged to consider the impact social media use has on professionalism and the necessity of social media policy in medical schools. Facilitator’s will utilize Today’s Meet, a backchannel chat platform, to address participant questions during the session. Facilitator 4, Tech Analyst, from institution 4, will monitor and introduce participant questions into presentation as appropriate. Presenters will collect resources and review feedback via Today’s Meet and disseminate results after the session via email list.


Objectives: At the end of this session participants will be to: Identify medical student use of social media Describe the impact social media has on student professionalism Recognize common social media policy guidelines Explain how social media policy is being used throughout the medical school community

Rationale: Social media sites and applications have found their way into the toolboxes of medical students, residents, physicians, and medical educators across the globe (1,2,4,5,6). While these technologies certainly have the potential to enhance education, they also have the capability of causing harm if not used appropriately. Today’s medical students are learning in a social media era in which patient confidentiality is at risk (3,8), as well as the professional image of not only the student but the institution of which they are affiliated. As a result of these technological advances, the possibility exists for one’s professional image and personal image to become blurred (3) as students often fail to recognize how online “public” posts could be viewed as inappropriate or offensive, creating a poor image for themselves, their institution, and their peers (7). As a number of medical schools are in the midst of curriculum reform, integrating clinical exposure into earlier stages of medical education, it is important for students to be cognizant of both appropriate and inappropriate uses of social media as it correlates with health information privacy and professionalism standards. While this is the case, social media policies can be indistinct and susceptible to misinterpretation. A 2010 study by Kind et al revealed that 128 of the 132 Liaison Committee on Medical Education (LCME) accredited US medical schools had student guidelines or policies publicly available online. While that number is fitting, of the 128 schools, only 13 had guidelines or policies explicitly mentioning social media (3). The purpose of this discussion is to identify the use of social media by medical students while providing the ability to describe the impact such use has on professionalism. Facilitators will describe common themes by which social media policy is used within the medical school community while considering common policy guidelines.
References:
8. Walton JM, White J, Ross S. What’s on YOUR Facebook profile? Evaluation of an educational intervention to promote appropriate use of privacy settings by medical students on social networking sites.

Small Group Discussion 4
Development of a Standardized Institutional Process for Annual Program Evaluations and Graduate Medical Education Committee Oversight
Kimberly Baker-Genaw, MD, Henry Ford Hospital
Bret Stevens, Henry Ford Hospital

Methods/Session Format: Introduction and program objectives: 5 minutes Institutional and program challenges associated with the APE process: 5 minutes Introduction of process and tools: 15 minutes Questions/comments from audience: 20 minutes

Objectives: Participants will learn how to streamline program data collection and data review as well as identify roles of the program director versus program coordinator throughout the process. Group discussion will identify best practices for the Annual Program Evaluation process, and participants will use Henry Ford Hospital’s standardized templates and oversight process to learn how to modify them to meet their institution’s needs. Participants will leave the session with a full set of APE templates that are usable across specialties and can be readily modified for every institution’s use.

Rationale: Under the requirements of the Accreditation Council for Graduate Medical Education (ACGME), all residency and fellowship programs must complete an annual program evaluation (APE) and each sponsoring institution’s Graduate Medical Education Committee (GMEC) must provide oversight of this process. Many institutions struggle with oversight of the APE process and clarification of data required from program directors and coordinators is an ongoing challenge. Over the past few years Henry Ford Hospital’s GME Administration, in conjunction with the institution’s GMEC, developed a standardized set of templates and review process to support APE oversight for 48 ACGME-accredited programs. This APE oversight system can be expanded or condensed to accommodate any number of programs based on an institution’s needs. The system supports program self-improvement and faculty development while allowing the GMEC to provide effective oversight.

Small Group Discussion 5
Implementing New Curriculum: No harder than quitting smoking
Janet Lindemann, MD, University of South Dakota Sanford School of Medicine
Scott Knutson, MD, University of North Dakota School of Medicine and Health Sciences
Lisa Grill Dodson, MD, Medical College of Wisconsin
Mark Beard, MD, University of South Dakota Sanford School of Medicine

Methods/Session Format:
I. Moderator introduces topic: Mark Beard (4 mins) The cycle of change diagram will be used as a visual. http://www.esourceresearch.org/Default.aspx?TabId=732
II. Speaker: Lisa Dodson (7 mins; 5 mins presentation, 2 mins Q/A) Precontemplation to Contemplation (stages 1 and 2) – Describe experience Challenge and Strategy What worked? Didn’t work?
III. Speaker: Scott Knutson (7 mins) Preparation (stage 3) - Describe experience Challenge and Strategy What worked? Didn’t work?
IV. Speaker: Janet Lindemann (7 mins) Action to Maintenance (stages 4 and 5) - Describe experience Challenge and Strategy What worked? Didn’t work?
V. Small group discussion (10 mins) In groups of 3-4, audience participants are prompted to share challenges or strategies from their own institutions. The format used between small group and large group discussion will depend on the number of participants. Discussion questions: Where is our institution in the stages of change cycle? What challenge(s) did we face? What strategies helped?
VI. Large group discussion (8 mins)
VII. Moderator wrap-up summary (2 mins)

Objectives: At the conclusion of this session, participants will be able to:
1) Apply the stages of change model to curriculum reform.
2) Describe the curriculum reform experience of three schools in the central region, including challenges and strategies from each stage within the stages of change model.
3) Identify and share challenges and strategies from their own institutions.

Rationale: Every medical school is currently in the process of major or minor curriculum change. The well-known stages of change: precontemplation, contemplation, preparation, action, and maintenance, serve as a foundation for smoking cessation and other change situations (Prochaska and DiClemente). These stages also create the backdrop for curriculum change, where each stage has inherent challenges and strategies for success. Curriculum leaders from three schools represent various stages of implementation of longitudinal integrated clerkships (LIC) and other curricular innovations. Regardless of whether the LIC model is a consideration at their institution, participants will be able to apply this change model and inherent curriculum implementation challenges and strategies to their own institutions.

Small Group Discussion 6
Creating an evidence-based USMLE Step 1 advising program
Jesse Burk-Rafel, MS, third year medical student, University of Michigan Medical School
Joel Purkiss, PhD, Director of Evaluation and Assessment, University of Michigan Medical School

Methods/Session Format: We will describe the collaborative process by which we created an evidence-based USMLE Step 1 advising program at a leading public medical school. The focus of the session will be the most broadly applicable aspects of our Step 1 advising program, including needs assessment, survey methodology, and effective methods for dissemination to whole cohorts. We will also highlight key challenges and limitations we encountered. We will facilitate discussion and actively solicit perspectives and input from participants, to identify the ways in which our approach would need to be modified for
application in other institutional contexts. We will foster active participation and engagement through
the use of a real-time audience response system (PollEverywhere) throughout the presentation.
Ultimately, we hope to stimulate conversations regarding USMLE Step 1 advising and to emphasize the
important role for students in developing evidence-based programs. The session format will be as
follows: 5 minute introduction of the “problem,” 10 minute description of student-facilitated “solutions,”
and 5 minute description of the collaborative interplay between student representatives, medical
education faculty and staff, and administrative leadership. We will then open the session for 25 minutes
of audience Q&A. We will prepare several discussion questions to stimulate discussion. At the end of the
session, we will assess interest in a multi-institution collaboration on USMLE study behaviors.

**Objectives:** By the end of the session, participants will be able to:
1. Describe and implement learner-centric needs assessments related to the USMLE Step 1.
2. Implement methodologically sound surveys assessing USMLE study behaviors.
3. Describe approaches for disseminating data-rich advising information to student cohorts.
4. Understand the elements of a successful student-administration alliance in promoting student
   success.
5. Discuss the potential advantages and disadvantages of involving student leaders in advising efforts.
6. Form collaborations with other interested medical schools present at the session.

**Rationale:** The United States Medical Licensing Exam (USMLE) Step 1 is an important hurdle for medical
students. Residency programs increasingly use Step 1 scores for candidate selection: residency directors
citing Step 1 as a factor increased from 73% in 2010 to 94% in 2014, and 89% of residency programs
would “Seldom” or “Never” consider an applicant who failed their first Step 1 attempt (NRMP Program
Director Survey). Given these realities, promoting student success on this exam is an important aim for
most medical schools. However, the relationship between study behaviors and Step 1 performance is
poorly understood, limiting prescriptive advising. Historically, students at our institution have largely
sought informal peer advice regarding Step 1 preparation. Our academic staff recently added
upperclassmen advice panels, but students rightfully question the validity of such convenience samples.
In this collaborative initiative between student and administrative leaders, we sought to develop an
evidence-based USMLE Step 1 advising program by identifying study behaviors and student
characteristics associated with USMLE performance. This initiative involved student leaders across three
cohorts who partnered with faculty leadership and academic support staff. We conducted four different
voluntary surveys over two years, yielding a total of 554 responses. Initial surveys of students who had
not yet taken Step 1 characterized their questions and concerns, which grouped into several areas:
balancing coursework with USMLE preparation; developing a study plan; and deciding how and what to
study. Subsequent surveys collected study behavior information (e.g., intensity, resources, burnout) from
students who had recently taken Step 1. These results were linked to admissions scores, preclinical
grades, and Step 1 scores. Linking study behaviors to official Step 1 scores using these methods allowed
us to develop data-driven recommendations, which were disseminated through both student- and
faculty-led advising sessions to two cohorts of students. In addition, our results have been incorporated
into the advising armamentarium of our counselors, who conduct one-on-one advising. We have
completed the first stage of this multi-year study and are tracking student outcomes, such as study
anxiety and Step 1 scores. Initial qualitative feedback has been overwhelmingly positive, with students
lauding the rigorous scientific methods and overall demystification of the exam. By partnering student
and educational leadership in presenting relevant findings, we have conveyed a message of transparency
and support that many students have appreciated. Having found value in this evidence-based approach,
we plan to utilize such methods for the foreseeable future at our institution.

**Small Group Discussion 7**
To Be or Not To Be, That is the (Professional Identity Formation Assessment) Question
C. Alexander Grieco, M.D., Department of Radiology, The Ohio State University College of Medicine
Sheryl A. Pfeil, M.D., Department of Internal Medicine, The Ohio State University College of Medicine
Joanne Lynn, M.D., Department of Neurology, The Ohio State University College of Medicine
Rupel Dedhia, M.D., Department of Internal Medicine, Rush Medical College of Rush University
John A. Davis, Ph.D., M.D., Department of Internal Medicine, The Ohio State University College of Medicine

Methods/Session Format: Brief presentations will provide background for the small group interactions, based on the “think-pair-share” method. Small group discussions will be followed by a large group report.

2 minutes Introduction
3 minutes Presentation 1: “Being is the New Doing” – Amending Miller’s Pyramid
7 minutes Small group discussion 1 Based on the existing curriculum at your home institution: - Is PI formation an explicit part of the curriculum? - If so, how and when does PI formation fit into the curriculum? For purposes of designing a new curriculum: - Should PI formation represent the apex of the pyramid, or should it be a part of each level?
5 minutes Large group report 1 (summary themes transcribed for display during exercise 2)
5 minutes Presentation 2: PI formation – Challenges and Opportunities for Assessment
10 minutes Small group discussion 2 Within your newly designed curriculum, construct a plan for assessing PI formation: (groups will be assigned to “formative” or “summative” assessments, dependent on attendee number) - Describe your assessment plan (method, timing in the curriculum). - Discuss how a student’s performance will impact his or her progress in the curriculum.
10 minutes Large group report 2 (summary themes transcribed)
3 minutes Conclusion

Objectives: As a result of participation in this session, attendees will be able to:
1. Describe Miller’s Pyramid and the rationale for the proposed amendment incorporating professional identity formation.
2. Discuss the challenges of the assessment of professional identity formation in medical students.

Rationale: The transformation from student to physician depends not only on attainment of medical knowledge and clinical reasoning, but on identifying with the role through which these skills will contribute to a patient’s care. Professional identity (PI) has been studied as a developmental construct, impacted by numerous intrinsic and extrinsic factors.[1][2] Its formation in students has been cited as a central goal for medical education reform by the 2010 Carnegie Foundation report,[3] and a key curricular objective.[4][5] As such, helping students to achieve mastery demands consideration of the methods used to assess a learner’s progress toward PI formation. George Miller’s pyramidal model for levels of mastery has served as a framework for instruction and assessment design throughout medical curricula since its 1990 publication.[6] The vertical progression from “Knows,” the initial level, to “Does,” at the peak, is tracked by assessments of increasing complexity, culminating in the learner’s consistent demonstration of the behaviors of a physician. This model is at the core of the competency-based shift in education, and finds representation within the residency milestones adopted by multiple specialties.[7] In recognition of the centrality of PI formation, Cruess, Cruess, and Steinert have proposed an amendment to Miller’s Pyramid, such that “Is” would represent the highest level of achievement.[8] The revised model is a more than fitting response to the Carnegie Foundation’s recommendations, but presents new questions, dealing with the requisite assessments of its new apex. Experts from Miller onward have acknowledged the increasing challenge of accurate, reliable assessment at successively higher levels of the pyramid.[9] Assessing the final transition from “Does” to “Is” will involve mediating
between observable and unobservable behaviors, the latter bearing, arguably, the most impact on the learner.[10] Various methods have been applied to support PI formation, including simulation, reflection, questionnaires, and coaching/mentoring.[11][12] These bear in common a critical longitudinal element, and are ideally employed throughout a learner’s development. Any of these could be adapted for the assessment of PI, but should hardly be limited to the endpoint of the path. As a non-linear, deeply personal process, PI formation might best be conceptualized — and assessed — as being the apex of the pyramid, as well as the mortar solidifying each level leading up to it. “To be” a physician is the penultimate goal of every medical student. Optimizing PI formation will require an innovative approach toward the design of assessments and their corresponding curricular elements. Doing so will maximally support each student’s ascent to the pyramid’s apex, with his or her future patients as the true beneficiaries.

References:

Small Group Discussion 8
Using Data for Planning and Improving: The AAMC Student Surveys
Heather Hageman, MBA, Washington University Medical Center
Marie Caulfield, PhD, Data Operations and Services, AAMC

Methods/Session Format: The two speakers will speak for the first 20 minutes of the session, providing background on the surveys, highlighting the recent changes to the surveys, and describing recent uses of
the data at member schools. The remaining 25 minutes will be for discussion of possible innovative uses of the data and feedback from the participants on how the surveys and data could be made more useful to the schools.

**Objectives:** At a result of this session, participants will be familiar with the AAMC Student Surveys and associated reports and will have learned about innovative ways that schools have used data from the surveys for evaluation and improvement activities.

**Rationale:** To develop strategies for planning and improvement, medical schools require access to relevant and useful data about their programs and the students who participate in them. The portfolio of AAMC Student Surveys provides information about students as they progress to and through the undergraduate medical education pipeline. This session will facilitate use of these data in productive ways.

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**Friday, April 8, 2016**
**Concurrent Sessions 8:15 – 9:45 am**

**MESRE Oral Abstract Presentations—Session 4**

**Supplemental Milestones for 48-Month Emergency Medicine Residency Programs: A Validation Study**

A.R. Ketterer, Emergency Medicine, Northwestern University Feinberg School of Medicine  
D.H. Salzman, Emergency Medicine, Northwestern University Feinberg School of Medicine  
M.A. Gisondi, Emergency Medicine, Northwestern University Feinberg School of Medicine  
J.B. Branzetti, Division of Emergency Medicine, University of Washington School of Medicine

**Background:** Emergency Medicine (EM) has two accepted residency training formats, 36 months and 48 months in length. The Residency Review Committee for EM requires that 48-month programs provide educational justification for the incremental 12 months. We created a new set of milestones that 48-month programs might use to define and assess outcomes in domains that meet this accreditation requirement. This study aims to validate the proposed supplemental milestones using similar methodology to the original EM Milestones validation study.

**Methods:** A panel of EM educators and curriculum design experts identified content domains for which additional training is offered by many 48-month programs. This led to the development of 6 subcompetencies: Operations and Administration, Critical Care, Leadership, Research, Teaching and Learning, and Career Development. Subject-matter experts at other 48-month EM residencies refined the milestones for these subcompetencies. Program directors of all 48-month programs were then asked to order the proposed milestones using the Dreyfus model of skill acquisition for each subcompetency. Data analysis mirrored that used in the original EM milestone validation, leading to the final version of these supplemental milestones.

**Results:** Sixteen of 33 subjects (48.5%) completed the study. No subcompetency or individual milestone met deletion criteria. Of the 97 proposed milestones, 61 (62.9%) required no further editing and remained at the same level as proposed by the study authors. Thirty-five milestones underwent level changes; 15 (15.5%) were moved one level up and 18 (18.6%) were moved one level down. One milestone (1.0%) in Leadership was moved two levels up, and one milestone in Operations and Administration was moved two levels down. One milestone in Research was ranked by the survey respondents at one level higher than that proposed by the authors, however this milestone was kept at its original level by the authors.

**Conclusions:** Six additional subcompetencies were generated and validated among a cohort of 48-month program directors using the same methodology as was used to validate the current EM Milestones. These
optional milestones may serve as an additional set of assessment tools that will allow 48-month programs to report educational outcomes using a familiar milestone rubric.

**Grading beyond just disciplines: Competencies as stand-alone grades**

*E. Simanton, University of South Dakota Sanford School of Medicine*

*S. Schellpfeffer, University of South Dakota Sanford School of Medicine*

*J. Lindemann, University of South Dakota Sanford School of Medicine*

*M. Beard, University of South Dakota Sanford School of Medicine*

**Background**: Assessment and grading of students should yield information that is valuable to the students (to aid self-awareness and guide personal improvement), medical schools (to evaluate effectiveness of curriculum and make decisions regarding student progress/promotion), and residencies (to guide selection of their future residents). For this reason, measurement of student performance should provide information that is as rich and broad as possible. To address this need for more information, credits awarded in the primary clinical year were divided equally between competencies and clinical disciplines. Data sources were identified that would provide grading data for each of those competencies. Beginning in July of 2013, students were graded based on their performance by both competency and discipline. Although students have been receiving discipline and competency grades for several years, no detailed study has examined the effectiveness of the new system to provide better information regarding student performance.

**Methods**: Student performance from 2 cohorts (graduating classes of 2015 and 2016) was analyzed (N=105). (class of 2017 finishes the primary clinical year in February and the April presentation will include data from that cohort as well) Data were analyzed using descriptive statistics. Additionally Pearson correlations were run between courses followed by factor analysis (Extraction method: unweighted least squares).

**Results**: Discipline grades tended to be lower and have larger standard deviations compared with competency grades. Discipline grades tended to correlate well with other discipline grades but not as well with competency grades suggesting that the skills being measured in the competencies was significantly different from what was being measured in discipline grades. Factor analysis yielded 3 distinct factors with loadings of .500 or greater. Factor 1 loaded most strongly with all of the disciplines, as well as the competencies of medical knowledge and practice-based learning and improvement. Factor 2 loaded most strongly for patient care, interpersonal and communication skills, and system-based practice. Factor 3 only loaded strongly with professionalism.

**Conclusions**: It is likely that because of the way discipline grades tend to be graded, all discipline grades tend to more highly measure test-taking skills and scientific aspects of medicine (factor 1). Students who do well in one discipline are likely to do well in others. Human relationship skills (factor 2) such as patient care and interpersonal skills are highly important characteristics that, while included in discipline grades, are not likely to be highlighted unless looked at separately. Professionalism (factor 3) is different from all other skills and needs to be evaluated separately so that professionalism data does not get outweighed by test scores or other highly weighted grading criteria.

**Can Student Performance on Preclinical OSCEs Predict Clerkship Grades?**

*M. Chima, College of Medicine, University of Nebraska Medical Center*

*G. Beck, College of Medicine, University of Nebraska Medical Center*

*D.V. O’Dell, College of Medicine, University of Nebraska Medical Center*

**Background**: Objective structured clinical examinations (OSCEs) have been used to assess the clinical competence and interpersonal skills of healthcare professional students for decades (1). The reliability
and utility of these examinations has been widely studied (2) and the correlation between OSCE performance and many other metrics have been described (3). However, we were unable to identify published accounts of the relationship between performance on preclinical OSCEs and clerkship grades. The reliability of OSCEs to effectively assess student performance varies based on how the exam is designed and executed (2). Additionally, it is more difficult to reliably assess communication skills than clinical skills (2). In a 2014 survey of factors contributing to applicant rank, Residency Program Directors cited interpersonal skills as the most important influencer, surpassing USMLE Step 1 and grades. Therefore, we seek to explore the correlation between pre-clinical OSCE grades and 3rd year Internal Medicine (IM) clerkship OSCE performance and how student performance in areas of communication during their preclinical years predict their OSCE performance during their clinical clerkships.

**Methods:** Data from UNMC medical student second year (M2) fall and spring OSCEs and medical student third year (M3) IM clerkship OSCEs were obtained for graduates of the 2013 and 2014 classes. The M2 OSCE total scores and just the communication portions were provided. Students who did not complete all of these examinations between 2011 and 2013 were excluded. The data were analyzed using Microsoft Excel and SPSS. Analysis of variance (ANOVA) was used to analyze the relationship between preclinical OSCE performances and those scoring with percentages in the 90s, 80s, and 70s on the IM clerkship OSCE. ANOVA was also used to analyze IM clerkship OSCE scores based on the timing of clinical rotation.

**Results:** Of the 245 records, 229 (93.5%) had data points for all metrics of interest. M2 OSCE performance had no correlation to IM clerkship OSCE scores (defined by total score percentage 90-99%, 80-89%, or 70-79%). Additionally, there were no differences in IM clerkship OSCE scores between students who completed the clerkship 1st, 2nd, or 3rd in the academic year. Students who completed their internal medicine clerkship last (4th) did statistically better than all other times during the academic year (F(3,225)=6.102, p<0.05).

**Conclusions:** Student communication scores and overall performance during M2 OSCEs were not significantly different from the IM clerkship OSCE. Generally, clerkship OSCE performance does not improve as the academic year progresses, with the exception of the last group of students to rotate through the IM clerkship, which is expected at the end of the year. However, since interpersonal and communication skills are imperative yet difficult to consistently measure, more effective means of assessing student communication should be instituted. Given these findings, all students may benefit from a longitudinal review of their OSCE communication scores and comments, which is a plan for the redesign of the curriculum as a means of reaching milestones related to this entrustable professional activity.

**References:**

The Prediction of M-1 Student Examination Performance in Three- and Four-Year Medical Degree Curricula

*R. Treat, Medical College of Wisconsin*
*M. Tews, Medical College of Wisconsin*
*D. Brown, Medical College of Wisconsin*
*K. Kaljo, Medical College of Wisconsin*
*J. Janowitz, Medical College of Wisconsin*
Background: A student self-assessment activity was used to compare personal characteristics that predict M-1 student cumulative examination performance (CEP) in a new three-year primary care emphasized medical school campus versus a traditional four-year campus. This is vital to understanding whether the three-year curricular model has academic comparability to the current four-year model and whether it has any deleterious effects on student attitudes and well-being. The predictive strength of student characteristics such as personality traits, empathy, emotional intelligence, anxiety, stress, and human values to student performance should be different between the two campuses since the anticipated pressures of time will be higher for the students in the three-year campus. The purpose of this study is to compare the relationships between M-1 medical student characteristics with examination performance in the three- and four-year campuses.

Methods: In 2015/16, 60 (of 230) M-1 medical students voluntarily completed these self-reported surveys: (1) 50-item Five Factor NEO PI-R Personality Inventory (scale: 1=very inaccurate/5=very accurate), (2) 21-item Interpersonal Reactivity Index (IRI) for dispositional empathy (1=does not describe me well/5=describes me well), (3) 56-item Schwartz’s Value Inventory (0=not important/7=supreme importance), (4) 40-item State-Trait Anxiety Inventory for Adults (1=not at all/4=very much so), (5) 10-item Global Measure of Perceived Stress (1=never/5=very often), and (6) 30 item Trait Emotional Intelligence Survey (1=completely disagree, 7=completely agree). A CEP score was created by averaging all M-1 examination scores which assessed knowledge in anatomy, biochemistry, genetics, human development, physiology, and tissue biology. Pearson correlations and multivariate linear regression assessed relational strength between survey item scores and CEP scores. IBM® SPSS® 21.0 was used for statistical analysis. This research was approved by the school’s IRB as an expedited study.

Results: After selecting only students who are choosing a primary care specialty (family medicine, internal medicine, pediatrics, and psychiatry), the three-year campus CEP scores were significantly predicted (R2=.93, p=.001) by: extraversion and openness (personality), empathic concern and personal distress (empathy), feeling relaxed (state anxiety), and enjoying life (value). Empathic concern was the best predictor of CEP (beta=0.55) with a Pearson correlation of r=0.69 (p=.001). CEP scores for the four-year campus were best predicted (R2=.92, p=.001) by extraversion and neuroticism (personality), empathic concern (empathy), unexpected events (stress), universalism, self-direction, and stimulation (values), and expressing emotions (emotional intelligence). Universalism was the best predictor of CEP (beta=0.77) with a Pearson correlation of r=0.51 (p=.001).

Conclusions: Student exam performance can be determined from four student characteristics for the three- and four-year campuses. Personality, empathy, anxiety, and values surveys have different predictive items, but are common characteristics for both campuses. Understanding which personal characteristics of students lead to their success at each campus will assist medical school recruiters and advisors to encourage the best students for each campus.

Examining a Better Predictive Model of Medical Student Empathy from Personality using Emotional Intelligence as a Mediator
R. Treat, Medical College of Wisconsin
D. Brown, Medical College of Wisconsin
K. Kaljo, Medical College of Wisconsin
M. Tews, Medical College of Wisconsin
J. Janowitz, Medical College of Wisconsin
D. Bragg, Medical College of Wisconsin
W.J. Hueston, Medical College of Wisconsin
**Background:** The ability of a medical student to empathize with a patient first requires the ability to recognize the patient’s feelings. This implies that an individual’s emotional intelligence and personality traits will impact their ability to empathize with a patient. Certain personality characteristics are linked to both emotional intelligence and empathy, but the relationship between the three is not fully understood, and more complex than currently reported in the literature. Personality is a relatively stable trait in young adults and is a predictor of both emotional intelligence and empathy, while emotional intelligence is a predictor for empathy. Analytical models using all the three variables simultaneously will need to be examined to understand this relationship more completely. The purpose of this study is to examine a three-way mediator relationship between M-1 medical student personality, emotional intelligence, and empathy.

**Methods:** In 2015/16, 60 (of 230) M-1 medical students voluntarily completed these self-reported surveys: (1) 50-item Five Factor NEO PI-R Personality Inventory (scale: 1=very inaccurate/5=very accurate), (2) 21-item Interpersonal Reactivity Index (IRI) for dispositional empathy (1=does not describe me well/5=describes me well), (3) 56-item Schwartz's Value Inventory (0=not important/7=supreme importance). Pearson (r) and Spearman rho correlations and stepwise multivariate linear regression assessed relational strength between personality, emotional intelligence, and empathy. IBM® SPSS® 21.0 was used for statistical analysis. This research was approved by the school’s IRB as an expedited study.

**Results:** Neuroticism (personality domain) was moderately correlated to emotional intelligence (r= -.533, p=.001) and personal distress (empathy domain) (r= .481, p=.001). Emotional intelligence was correlated to personal distress (r= -.523, p=.001). There were 85 (28% of 300) statistically significant (p≤.050) item correlations between neuroticism and emotional intelligence; 22 (31% of 70) significant correlations between neuroticism and personal distress, and 66 (31% of 210) significant correlations between emotional intelligence and personal distress. Neuroticism (personality domain) significantly predicted empathy (beta=.481, R2=.23, p=.001) and its beta value significantly decreased when emotional intelligence was entered as a mediator variable (beta=.289, R2=.33, p=.001).

**Conclusions:** The results of this study provided analytical evidence of a three-way mediator relationship between M-1 medical student personality, emotional intelligence, and empathy. Specifically, emotional intelligence mediated the relationship between neuroticism and personal distress. This implies that an individual’s emotional stability will impact their ability to recognize a person’s feelings and then their ability to empathize with them.
Last year, 100% of our MS3 tutors responded “yes” to whether they would tutor again. Additionally, our student participation increased each year. For the 2014-15 program, 68 MS3 tutor volunteers were paired with 198 MS2 students. For the 2015-16 program, 87 MS3 students volunteered to facilitate groups of 203 MS2 students— the entire MS2 class! The results of our program review surveys identified three desired areas for improvement: a more structured program timeline, resource centralization, and continuity among groups and material covered.

**Methods, Materials and Resources Used:** A core group of program coordinators, comprised of MS3 and MS4 academic affairs tutors, and program co-facilitators collaborated to address these areas of improvement. This leadership developed a more structured curriculum, provided board review resources with an accessible online “bank of resources,” created a game-show based curriculum, and acted as expert resources to support 32 small groups. To promote continuity among groups and material covered, program leadership created monthly large group sessions with a mini-lecture about a high-yield board topic (i.e. biochemistry or microbiology) followed by game-show based questions to reinforce core concepts. Program leadership developed “how to” sessions for MS3 tutors to discuss small group facilitation, professionalism, and resource utilization. Institutionally derived online evaluations were sent to participants after each large group session and for end-of-year feedback of the program and group tutors. Program coordinators obtained quarterly feedback to keep open communication and address group challenges efficiently.

**Outcomes:** Outcomes of student and tutor satisfaction and comments will be measured after evaluations are administered after each large group session, quarterly, and end-of-year.

**Strengths and Areas for Improvement:** To our knowledge, our year-long structured step preparation program is unique among medical schools. Our strengths lie in numbers and a strong foundation in continuity to allow the program to last and continue to grow. We implemented a mix of MS3 and MS4 students as coordinators and facilitators to allow ease of leadership flow. As the program continues to improve and participants are happy with the outcome, MS2 participants will transition to knowledgeable MS3 tutors and the program’s reputation will continue to entice MS2 students to join. Our main challenge in the future will be feasibility of small group facilitation with multiple campuses as small group sessions will need to be accomplished remotely via Skype or other mode of communication.

**Feasibility of Program Maintenance/Transferability:** We hope our program model can be easily adapted at other institutions as each medical school has M3 students who have participated in the step 1 boards and M2 students who are eager to learn from upper classmen. The overall structure with a central bank of resources available on the institution’s class website can be accomplished with support from an institution’s academic affairs and dedicated student leadership.

**Making it stick: Initial implementation of an intelligent study system for adaptive learning and enduring mastery in two medical schools**

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*A. Khan, Medical Education, University of Illinois at Chicago*

*C. Kamin, Medical Education, University of Illinois at Chicago*

*A. Riordan, Medical Education, University of Illinois at Chicago*

*S. Dauner, Medical Education, University of Illinois at Chicago*

*D. Lorens, Medical Education, University of Illinois at Chicago*

*A. Gangopadhyaya, Medical Education, University of Illinois at Chicago*

*N. Rajagopal, Medical Education, University of Illinois at Chicago*

*S. Gaglani, Knowledge Diffusion, Inc.*

*R. Haynes, Knowledge Diffusion, Inc.*
Objective/Purpose: To help medical students better integrate and retain learning, the University of Illinois at Chicago (UIC) and the University of Central Florida (UCF) are piloting an intelligent study system (ISS) with financial support from the National Board of Medical Examiners’ Stemmler Fund. The ISS studied is a Web- and mobile-learning platform (“Osmosis”) designed to challenge learners with daily, brief, and relevant regimens of high quality practice questions as an integral part of preclinical curricula.

Need for Innovation/Practice: The amount of knowledge and skills that physicians must master – and then must apply, often in ambiguous and stressful contexts – is both incredibly large and rapidly changing. Further, each physician’s strengths and weaknesses in particular areas of knowledge and skill can be dramatically different. Enhancing self-directed learning has been proposed as a way to address these issues; however, in their already limited time, it is unreasonable – and in indeed contrary to empirical data – to expect that learners can constantly monitor their mastery of thousands of concepts and skills, to say nothing of then selecting efficient and effective practice strategies to address gaps. Much as elite athletes require a contingent of coaches to optimize their training, physicians need help in developing tailored practice regimens to master the complexities of medicine.

Methods, Materials and Resources Used: The intelligent study system in use, “Osmosis”, recommends daily regimens of practice questions for learners. All learners see common sets of practice questions shortly after learning experiences; e.g., after a cardiac auscultation workshop, the system presents learners with heart murmur sound files to diagnose. After questions have been answered once, the system adapts how and when particular questions are revisited for each learner based on a continually-updating model of their knowledge or skill given their past question performance. By showing questions only when the system’s algorithm predicts a given learner is beginning to forget a concept, the system applies three strategies known in cognitive psychological research to be highly effective: the testing effect, the spacing effect, and the mixed practice effect. The system also helps students identify appropriate practice questions for topics by text-mining curricular documents (e.g. lecture slides or handouts) and suggesting related questions. It also promotes students creating their own practice questions, sharing them with peers, and commenting on and/or correcting one another’s questions.

Outcomes: The pilot is in a “soft launch” phase during the first semester of medical school at both institutions. At UIC, by 11/30/2015, 175 M1s had answered questions 61,280 times (individual median = 88 answers). By contrast, at UCF, 81 students had answered questions 5,722 times (individual median = 21 answers). We are currently conducting focus groups, interviews, and surveys to understand students’ and course faculty’s early experiences in using the system and to engage them in improving its implementation.

Strengths and Areas for Improvement: The system’s automatic integration with each school’s curriculum, and its use of cognitive psychology principles with strong theoretical and empirical support, are particular strengths. Our early experiences point to challenges with ensuring quality and relevance of practice questions, encouraging students to use the system on a regular basis, facilitating students’ interactions with one another in the system, and helping course faculty learn to interact effectively with the system.

Feasibility of Program Maintenance/Transferability: As an educational intervention that spans individual courses, the system requires central coordination, as well as course faculty buy-in and education. However, as an institution uses such a system, considerable efficiencies should be gained from repeated use (e.g., borrowing and refining student-generated questions for later cohorts). These efficiencies should also accrue well across institutions, given the system’s ability to automatically adjust for different curricular content schedules. Ultimately, we hope such systems will help learners at many institutions to develop enduring, application-ready mastery of the very large body of knowledge and skill needed in medicine.
Shiv Gaglani and Ryan Haynes are co-founders of "Knowledge Diffusion, Inc." which produces the medical education application "Osmosis." This collaboration has been disclosed to the funder (the NBME) and also to the lead institution (UIC) under a UIC-approved disclosure and management plan.

A Curriculum to Optimize Medical Student Experience with Patient-Centered Discharge Care
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A. Cifu, Department of Internal Medicine, University of Chicago
A. Pincavage, Department of Internal Medicine, University of Chicago

Objective/Purpose: To create a curriculum to address the gap in patient-centered discharge care education during clinical clerkships.

Need for Innovation/Practice: Given the recently increased focus on effective care transitions, comprehensive patient-centered discharge care is critical but infrequently formally taught in clerkships.

Methods, Materials and Resources Used: Based on a needs-assessment demonstrating students do not frequently provide ambulatory post-hospital follow-up nor receive supervision providing discharge care, a curriculum was created. Students participated in an interactive workshop focused on patient-centered discharge care techniques that included our teaching video of one patient’s flawed care transition and a reflective small group exercise. To promote direct observation, mobile application tools were designed for attendings and residents to observe students providing discharge care. Students were required to complete one observed discharge education and encouraged to attend one post-hospital follow-up visit. For assessment, surveys were administered in the academic year before and after the curriculum.

Outcomes: There was a pre-curriculum response rate of 84% (73/87) and a post-curriculum response rate of 80% (68/85). Compared to pre-curriculum, after the curriculum more students completed a post-hospitalization telephone call (53% vs. 91%, p<0.001), assessed medication adherence after hospitalization (19% vs. 61%, p<0.001), and saw a patient at a hospital follow-up visit (30% vs. 79%, p<0.001). More students provided discharge education more than twice per clerkship (63% vs. 84%, p=0.005) and students reported spending more time (>5 minutes) reviewing discharge materials with patients (81% vs. 94%, p=0.03). Students were more often directly observed completing discharge paperwork (52% vs. 78%, p=0.004) and at a hospital follow-up visit (21% vs. 43%, p=0.004). Students also were more likely to elicit patients’ perspectives about discharge more than twice per clerkship (78% vs. 96%, p=0.006). Student satisfaction with their discharge care (33% to 60%, p<0.001), discharge planning competency (34.3% vs. 60%, p=0.01), and post-hospital follow-up care competency (25.7% vs. 51%, p=0.001) improved.

Strengths and Areas for Improvement: Our curriculum improved student participation in discharge care and direct observation of these activities. Similar to previous studies, it improved students’ satisfaction and self-reported competency. However, it also increased patient-centered discharge behaviors. Next steps include adapting the curriculum for the sub-internship as well as resident trainees. This curriculum needs further evaluation but has potential to address competencies focused on patient-centeredness, system-based practice, and communication as well as the core EPA addressing care transitions.

Feasibility of Program Maintenance/Transferability: Maintaining this curriculum is feasible as it was incorporated using existing clerkship infrastructure and did not utilize additional funding. The workshop portion of the curriculum requires only one hour of didactic time with each quarter of clerkship students. The direct observation portion of the curriculum does not require oversight as it is the responsibility of each medical student to ensure these activities are completed. For ease of use, the direct observation tool is available in paper form as well as a mobile application. Faculty and residents rotating on the wards are expected to complete the observation as part of their teaching duties and are familiar with the curriculum and the requirement. The curriculum would be easily transferrable to other institutions as it
Objective/Purpose: The goal of this intervention was to increase the number of evaluations for each resident. Secondary goals were to: increase the quality of narrative comments in the evaluations; and to provide timely feedback to residents who received poor evaluations.

Need for Innovation/Practice: The Accreditation Council for Graduate Medical Education (ACGME) Next Accreditation System requires that residency programs biannually submit resident performance evaluations in the form of milestones. These milestone determinations are made by Clinical Competency Committees, which use all available data to formulate a comprehensive evaluation of each resident. In Emergency Medicine (EM), much of this data comes from end-of-shift evaluations. However, end-of-shift instruments, either electronic or paper, can be cumbersome and time consuming for faculty to complete. Cursory open text box comments such as “needs to read more” (or no responses at all) provide the CCC with inadequate assessments of the residents. End-of-shift evaluations are often completed only by faculty who have something very negative or very positive to report, neglecting the majority of residents who are performing appropriately for their learner level. Finally, residents often receive these evaluations during biannual reviews, which may leave the resident without timely context for the feedback and possibly depriving him or her of a chance to improve in real time. Prior to this intervention, we used an electronic survey submitted weekly to all faculty members in which they could choose to individually evaluate any resident. The response rate was consistently low and the amount and quality of comments was minimal.

Methods, Materials and Resources Used: For this intervention, three faculty investigators (all residency leaders) initiated face-to-face conversations (“TALKS”) with other faculty members about resident performance during or after a clinical shift. During these 15-20 minute TALKS, faculty members were encouraged to provide feedback about each of the residents in a single post-graduate year (PGY) class. TALKS are structured interviews that use open-ended questions, allowing faculty to speak for as long as they wanted about any individual resident. Comments were then transcribed into each resident’s file. Faculty members also ranked individual residents in categories that are anchored to EM specific milestones (Table). Similar to previous evaluations, faculty evaluations use a rubric that a resident is “not meeting expectations” (bottom 5% for peers), “meeting expectations”, or “exceeding expectations” (top 5% for peers) in each of the performance categories. Residency leadership reviewed evaluations weekly. Any resident who received a negative comment or a “not meeting expectations” evaluation was discussed and an action plan was developed. Residency leaders met with these residents within one week to review the concerning evaluations.

Outcomes: A total of 337 resident evaluations were received from 16 faculty members in the first 4 months of the TALKS program. For comparison, only 88 evaluations from 12 faculty members were collected during the corresponding 6-month evaluation period last year; a nearly 4-fold increase in evaluations was observed using the new TALKS program. On average, each PGY4 resident had 7.8 evaluations, PGY3 residents had 7.7 evaluations, PGY2 residents had 6.9 evaluations and PGY1 residents had 2.2 evaluations, compared to 1.0, 2.9, 1.7 and 1.2 evaluations respectively last year. Additionally, 20 discrete evaluations with negative comments or “does not meet expectations” were identified, compared
to 3 last year. Each of these residents was informed of the evaluation by residency leadership within one week.

**Strengths and Areas for Improvement:** The TALKS method of obtaining residency evaluations resulted in a much higher number of evaluations per resident, as well as the ability to rapidly identify underperformers and provide timely interventions, when compared to traditional electronic methods used in the previous academic year. Below expected evaluations were given back to residents within 1 week. While we presume that this will lead to more rapid improvement, we do not have any long-term data to demonstrate this. Currently we are only delivering the negative feedback in real time. Eventually, we hope to alert high-performing residents as well to encourage them to continue their positive behaviors.

**Feasibility of Program Maintenance/Transferability:** Although developed locally to capture evaluations for the EM milestones, the TALKS approach could easily be adapted to other specialties using modified interview questions. It requires little faculty time and no special training.

**OSU COM Professionalism Climate Questionnaire: Exploring a New Tool for Professionalism Assessment**

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**J. Chen, The Ohio State University College of Medicine**

**D. Gorgas, The Ohio State University College of Medicine**

**Objective/Purpose:** To evaluate the feasibility of using a 36 question survey (OSU COM Professionalism Climate Questionnaire - PCQ) to assess the professionalism climate within a department/work area as determined by residents, medical students, and attending physicians.

**Need for Innovation/Practice:** Professionalism is a critical component of both undergraduate and graduate medical education. Continual assessment of professionalism is necessary for mastery of this competency and to help learners understand and ultimately develop skills to avoid professionalism lapses. Individual behavior and attitudes are often affected by the overall work and learning environments and role modeling by attending physicians and peer pressure from colleagues can contribute to both positive and unprofessional behaviors. Formative evaluation of the professionalism climate within a department/work area by learners and faculty can play a valuable role in identifying specific components in need of improvement using the power of the group to identify important professionalism gaps.

**Methods, Materials and Resources Used:** We developed a 36 question survey from a list of 68 potential questions based on validated patient safety survey tools concepts. The survey was administered to 2 pilot groups and the questions were evaluated for conceptual clearness and understanding and refined to the present 36 questions based on feedback and repeat assessment. In use as a survey instrument, respondents were instructed to assess the frequency at which specific professional behaviors were demonstrated within their work/learning environment using a Likert-like rating scale (1-5) and surveys were then collected using unique identifiers and scored. In this study survey results implemented as a component of required professionalism workshops for orthopedic surgery and radiology residency programs at the Ohio State University Wexner Medical Center and the pediatrics residency program at Nationwide Children’s Hospital were analyzed.

**Outcomes:** Initial results indicate that the OSU COM Professionalism Climate Questionnaire was able to assess the overall environment of professionalism based on observations of certain professional behaviors by 39 residents and their values were different from those provided by a small group of faculty. Subgroup analysis showed significant differences between groups with mean overall PCQ scores in resident group C (mean 4.525, SD 0.313) significantly higher (p< 0.0001) than overall PDQ scores in resident group A (mean 3.90, SD 0.235) and group B (mean 3.83, SD 0.287). Variability in specific
domains, such as communication and respect, was evident within and between groups and led to rich discussions in group sessions. Another potential use of this instrument is the analysis of group responses which help generate areas for program director and faculty to focus efforts to positively intervene and affect the professionalism climate of the trainee.

**Strengths and Areas for Improvement:** The OSU COM Professionalism Climate Questionnaire is a unique and useful tool for evaluating professionalism within work and learning environments. Questionnaire results delineate specific aspects of professionalism that can generate valuable learning discussion for trainees and also generate data that can help program directors and faculty identify areas that may require more attention help leadership address professionalism gaps in their learners’ environment.

**Feasibility of Program Maintenance/Transferability:** This tool is easy to administer and score. It has been well received by different resident groups and can be useful in educational and program improvement efforts. Further exploration of the use of these specific questions in other learning environments will be needed to assess the transferability of this questionnaire to other programs and institutions.

**Workshop—Session 11**

**Does TBL meet LCME Standard 6.3? You bet it does!**

Abbasi Hyderi, MD MPH, University of Illinois College of Medicine at Chicago  
Amy Lin, MD, University of Illinois College of Medicine at Chicago  
Dean Parmelee, MD, Boonshoft School of Medicine of Wright State University  
Colleen Hayden, MS, Boonshoft School of Medicine of Wright State University  
Ruth Levine, MD, University of Texas Medical Branch at Galveston  
Sandy Cook, PhD, Duke-NUS Graduate Medical School  
Colleen Grochowski, PhD, Duke University School of Medicine

Please complete the preparatory reading (link below) prior to attending this workshop:
https://www.dropbox.com/sh/703ykq76hjgkxyr/AAAgHlMkqQuJvQYeEgGxJf6a?dl=0

**Methods/Session Format:** The session will be conducted in a case-based format. After a brief introduction (5 min), participants will be divided into teams (5 min). Teams will be given a question to discuss, then presenters will facilitate a whole group discussion about the question. Questions will address 1) ways in which TBL meets LCME element 6.3, self-directed and lifelong learning (35 min); and 2) potential additional activities that can be incorporated into TBL to augment self-directed and lifelong learning skills (35 min). Presenters will summarize the key take-home points and conclude the session reminding participants that their input will be utilized to create a white paper to LCME articulating how TBL meets standard 6.3 and that a synthesis of ideas/best practices generated from the group will be shared with them (10 min).

**Objectives:** By the end of this workshop, participants will be able to:
1) Explain the key components of LCME standard 6.3 (Self-directed and lifelong learning)  
2) Identify where and how TBL meets the criteria for LCME standard 6.3  
3) Develop strategies for incorporating self-directed and lifelong learning into a curriculum that uses TBL  
4) Create additional activities that can be incorporated into TBL to augment self-directed and lifelong learning skills already present

**Rationale:** Prompted by the prior Liaison Committee for Medical Education’s (LCME) standard, ED5-A which states, “A medical education program must include instructional opportunities for active learning and independent study to foster the skills necessary for lifelong learning,” many medical schools incorporated the active learning strategy Team-based learning (TBL) into their preclinical curriculum The newly revised LCME standards include element, 6.3, which shifts the focus from active learning and independent study to self-directed and lifelong learning, opening up the question about whether the TBL method meets the new requirements. The purposes of this workshop are to: 1) help participants...
articulate the ways TBL fulfills element 6.3; and 2) create additional activities that can be incorporated into TBL to augment self-directed and lifelong learning skills already present. After the session, the facilitators will help incorporate participants’ input into creating a white paper to LCME articulating how TBL meets standard 6.3. Session facilitators will create a synthesis of ideas / best practices generated from the group about how to further augment TBL. This will be shared with participants.

Workshop—Session 12
Perspectives on Curriculum Mapping – Local and National Impacts and Outcomes
Stefanie Ellison, MD, Department of Emergency Medicine, University of Missouri-Kansas City School of Medicine
Katharine Agnew, BA, Curriculum, University of Missouri-Kansas City School of Medicine
Robert Noiva, PhD, Biomedical Sciences, Oakland University William Beaumont School of Medicine
Robin Rivest MEd, MBA, Medical Education, Oakland University William Beaumont School of Medicine
Terri Cameron, MA, Association of American Medical Colleges

Methods/Session Format: Format of Activities:
• Introduction of Panel Discussion Issues by speakers (30 minutes)
• 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?
• Reports back to the whole group (25 minutes)
• Questions/Wrap-up/summary (5 minutes)

Objectives: By the end of this workshop, participants will be able to:
• Discuss the issues involved in choosing a curriculum management system and the criteria that should be considered in choosing a system
• Describe the challenges and solutions for engaging faculty in curriculum documentation efforts
• 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
• Explain how standardized vocabulary is used to facilitate reporting of curriculum content, pedagogy, and competencies
• Review how benchmarking reports can be used with outcomes data for continuous improvement

Rationale: Background/Theoretical Framework, including importance to medical education: Medical school faculty and leadership deal with multiple challenges and perspectives as they direct curriculum documentation efforts at their schools. Issues include developing and demonstrating a curriculum that will have the most impact on the health of the nation in today’s healthcare system; determining how to document innovative curricula so that it is captured in systems that report aggregate data; establishing terminology to map throughout their curricula for vertical and horizontal integration, benchmarking, and accreditation; naming the pedagogy used to document instructional and assessment methods; documenting 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, engaging faculty in documentation efforts; and creating reports that impact faculty and curriculum council decisions 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 in how medical schools are preparing future physicians to function in the ever-changing health care environment. Multiple perspectives are necessary to accomplish this extremely complex process. Curriculum leaders assist faculty and curriculum committees in keeping up with current literature, trends and best practices in medical education, accreditation policies and procedures and developing innovations to implement curriculum change. Curriculum staff must work with faculty to develop best practices for organizing and documenting curricula and developing reports that will provide the best impact, both at the local level where faculty review the data as they make decisions, and for how those decisions impact graduates, and, ultimately, patients of those graduates. This session will use small groups to document existing and potential challenges that face curriculum leaders and staff as they choose and develop best practices on using a curriculum management system, work with faculty to document their curricula, and establish benchmarking reports to lead efforts in continuous quality improvement, accreditation, curriculum review and management, and educational research.

**Workshop—Session 13**  
**Aligning Incentives: An Appraisal of Resources Required for Preservation and Innovation of the Education Mission**  
*Dawn S. Bragg, PhD, Medical College of Wisconsin*  
*Kristi J. Ferguson, MSW, PhD, University of Iowa Carver College of Medicine*  
*Jose Franco, MD, Medical College of Wisconsin*  
*Dianne Wagner, MD, Michigan State University College of Human Medicine*

**Methods/Session Format:** Session Plan: We propose an inquiry among our constituency to outline strategies employed at various institutions. Various models, such as educational value units versus FTE support versus set remuneration for educational roles will be explored. We will determine the pros and cons of each approach and articulate what has been effective in a variety of settings (academic centers, community-based programs, etc.). Additionally, we will identify the benefits and challenges associated with organizational structures that include centralized administrative support and/or have established offices of medical education. Session Format:

1. Overview of resources needed to support innovations, as well as the core curriculum. This section will include a focused presentation from three medical schools: 1) Medical College of Wisconsin which has recently completed a major curriculum revision; 2) University of Iowa Carver College of Medicine, which has recently implemented a major curriculum revision; and 3) Michigan State University College of Human Medicine, which plans to implement its new curriculum in 2016. (20 minutes)

2. Participants will divide into small groups to focus on particular types of resources, such as faculty time, centralized staff support, faculty development, program evaluation, and so forth. Fictional cases will be developed for each type of resource and participants will use the cases to formulate ideas schools can use to inform decisions about resource allocations. (45 minutes)

3. Participants will report out to the large group their discussion and ideas. (25 minutes)

**Objectives:** Learning Objectives:

1. Identify key characteristics in curricular innovation and associated resources necessary to support the innovations.

2. Identify challenges to funding the educational missions of Academic Health Centers.

3. Formulate ideas on how to rectify resource allocations to address the demand for curriculum innovation, while recognizing the funding challenges of Academic Health Centers.
**Rationale:** This workshop is an initiative of the Undergraduate Medicine Education (UME) section of the Group on Educational Affairs (GEA). UME programs are faced with the ubiquitous challenge of repeated calls for innovation in medical education.1-2 Unfortunately these calls do not adequately address the associated resource demands.3-4 As we strive for integration and individualization, we face increased staffing demands and find ourselves developing new organizational structures to centralize educational support. More and more, there is a need to financially support our faculty members actively engaged in curricular design, delivery and assessment.5 The Group on Educational Affairs UME section would like to explore evolving models implemented to support UME programming, in order to articulate trends and identify best practices. Acknowledging that overall resources are limited, this workshop will be a valuable addition to the conversation about educational innovation and core curriculum support. The information obtained from workshops at each of the GEA regional meetings will be combined with an extensive literature review, institutional surveys/interviews, and input from the Group on Business Affairs and other relevant AAMC partners, to create a national report of institutional models that could support educational goals in settings with a range of available resources. This workshop will contribute to our national discussion on this important topic and will introduce participants to alternative models utilized at regional institutions.

**References:**

**Workshop—Session 14**
**Professionalism Lapse or Delay in Professional Identity Formation?**
*Amy Zack, MD, Family Medicine, MetroHealth Medical Center and Case Western Reserve University*
*John Frohna, MD, Pediatrics and Medicine, University of Wisconsin – Madison*
*Linda Daly, PhD, RN, The Ohio State University College of Nursing*
*Karen Marcdante, MD, Pediatrics, Medical College of Wisconsin*

**Methods/Session Format:** This workshop will begin with a brief discussion of the integrative view of professional identity formation. Participants will then evaluate vignettes of common "professionalism lapses" to identify whether the learner is exhibiting a delay in identity formation. Small groups will then compare and contrast the usual remediation approach with an approach that would address enhancing experiences to promote identity formation. Findings will be shared in a large group discussion. Participants will then brainstorm ideas to help convey their findings to home institutions, identifying the potential impact on current and future curriculum. Agenda --- Topic (Presenter, Method)

5 min --- Introductions (Zack, interactive discussion)
15 min -- Professionalism vs Professional Identity Formation (Marcdante, interactive presentation)
5 min --- Introduction to vignette review (Frohna, interactive discussion)
25 min -- Review of vignettes from professionalism vs PIF perspective (All facilitators, small group discussion)
20 min -- Sharing of results (Zack, large group discussion)
15 min -- What do we do now? Taking lessons learned home - what might work? (Marcdante, large group discussion)

5 min --- Wrap up and evaluations (Frohna, interactive discussion)

**Objectives:** At the end of this session, participants will be able to:
1. Compare and contrast characteristics of professionalism and professional identity formation.
2. Apply concepts of professionalism and professional identity formation to vignettes describing behaviors commonly viewed as professionalism lapses.
3. Identify the potential impact on curriculum and remediation activities when "lapses" are viewed as delays in professional identity formation.

**Rationale:** All medical educators deal with professionalism issues in learners across the spectrum - from medical student to resident to fellow and even to peers. Many feel that those who exhibit some lapses don’t always believe that their failure to comply with deadlines, treat others with respect, etc, are issues of professionalism. Uncounted hours are spent each year in developing remediation plans for these "perpetrators" once problems arise. Many are perplexed when they can’t answer the question "Why would intelligent people not recognize that behaviors define their professionalism?" The recent emphasis on professional identity formation (PIF) may offer some answers. The developmental process of identity formation can be viewed from multiple perspectives. In addition to professionalism, PIF involves development of an individuals ego, social interactions and formation of knowledge, skills, and commitment.(1) Several thought leaders have identified that PIF is a dynamic process that requires experience, reflection and incremental understanding of the role of the professional. (2) Given this need for experiential learning, is it possible that events viewed as professionalism lapses by experienced educators are, in reality, delays in the process of developing a professional identity? This possible explanation may provide insight into how individuals and institutions address behaviors viewed as professionalism lapses in different ways. This workshop will compare and contrast two perspectives (professionalism lapse vs. delayed identity formation) using real-world issues with a goal of identifying potential changes to curriculum and remediation activities.

**References:**

Friday, April 8, 2016
Concurrent Sessions 1:45 – 3:15 pm

**MESRE Oral Abstract Presentations—Session 5**

**Conducting Admissions Interviews at Regional Campuses Influences Applicants’ Preferred Campus Assignment in a Statewide System of Distributed Medical Education**

*J.J. Brokaw, Office of Admissions, Indiana University School of Medicine*

*J.P. O’Neal, Office of Admissions, Indiana University School of Medicine*

*K.W. West, Office of Admissions, Indiana University School of Medicine*

*K.A. Smartt, Office of Admissions, Indiana University School of Medicine*

**Background:** Indiana University School of Medicine is the second largest medical school in the country, with over 2,000 full-time faculty members and more than 1,400 medical students distributed among 9
campuses. Approximately 40% of the matriculating students are assigned to the main campus at Indianapolis, where they complete all four years of medical school. The other 60% are dispersed across 8 regional campuses associated with local universities at Bloomington, Evansville, Fort Wayne, Gary, Muncie, South Bend, Terre Haute, and West Lafayette. After finishing their preclinical training, these students can either remain at the regional campus to complete their third and fourth years, or they can transfer to Indianapolis for their final two years. The class size at the regional campuses ranges from 24 to 36 first-year students. At the Indianapolis campus, the first-year class size is about 140 students. The initial assignment of students to a regional campus or Indianapolis is based on a combination of student preference, availability of space, and the school’s diversity needs (e.g., equitable gender distribution).

Prior to 2012, all admissions interviews were conducted on the Indianapolis campus, which was the only campus the applicants saw or learned anything about when they came for their interview. Consequently, most newly accepted students ranked Indianapolis as their first-choice of campus assignment, with fewer students preferring to attend a regional campus. The goal of this study was to determine whether interviewing at a regional campus positively influences an applicant’s likelihood of attending that campus.

**Methods:** Beginning with the 2012-2013 academic year, we expanded the interview locations to include the Northwest (Gary) and Muncie campuses, which afforded applicants an opportunity to tour the facility, meet with local faculty and students, and learn what sets that campus apart from the others. Applicants were given the option of interviewing at Indianapolis, Northwest, or Muncie, with the understanding that by interviewing at a regional campus they were not committed to attending that campus if they were ultimately admitted.

**Results:** Three years after implementing regional campus interviews, chi-square analysis revealed a strong statistical association between interviewing at the Northwest campus and matriculating at the Northwest campus (OR = 19.5, X2 = 207.1, P < 0.001, N= 1,051). Of the 102 successful applicants who interviewed at the Northwest campus during this three-year period, 44% returned to matriculate at the Northwest campus, which suggests that many of the applicants formed a positive opinion of the Northwest campus after interviewing there and ranked it as their preferred assignment. This is supported by the finding that the percentage of applicants who indicated a preference for attending the Northwest campus increased from 56% in the three years prior to regional campus interviews to 78% in the three years after regional campus interviews (OR = 2.7, X2 = 6.96, P < 0.01, N = 132). However, the results for the Muncie campus are mixed. Although there was a significant association between interviewing at the Muncie campus and matriculating at the Muncie campus (OR = 4.3, X2 = 27.42, P < 0.001, N = 1,051), the percentage of applicants who ranked Muncie as a preferred campus actually decreased slightly from 63% to 52% (not significant) after the regional campus interviews were implemented.

**Conclusions:** Interviewing at a regional campus is statistically associated with matriculating at that campus, which may be mediated in part by improved applicant attitudes fostered by the interview, though other explanations are possible. Nevertheless, we are encouraged by these findings and have expanded the interview locations to include the regional campuses at Fort Wayne and Terre Haute. Ultimately, we hope to include all of the regional campuses in the interview process. Our experience may have implications for other multi-campus medical schools.

A 15-year longitudinal tracking study of underrepresented in medicine (URM) students completing a post-baccalaureate premedical program shows high levels of residency placement and preference for primary care specialties

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**Background:** African-Americans, Hispanics and Native-Americans continue to be underrepresented in medicine (URM). The MEDPREP (MP) 2-year post-baccalaureate prepares URM students with poor undergraduate academic profiles for medical school via a rigorous 2-year intervention focusing on
academic and personal preparedness. The purpose of this study was to measure the effectiveness of this intervention on student success, as measured by completion of medical school and entry into residency. Additionally, we aimed to determine program GPA and MCAT scores associated with academic success. In the high-stakes medical school admissions and training process, this study is significant because positive outcomes provide evidence that a focused intervention can recruit underprepared URM students and successfully prepare them for medical careers, thus increasing the number of URM physicians.

**Methods**: 526 MP students were tracked longitudinally. The records from students who enrolled between 1995 and 2009 were de-identified, and placed in SPSS v 23.0 for analysis. Records were subsequently coded for medical school placement, medical school completion and residency placement. Average MCAT scores and GPAs for various student cohorts were compared using independent T-tests and non-parametric tests as appropriate.

**Results**: 526 MP students over 15 years were followed through residency placement. 70% were female, and 95% were underrepresented in medicine (83% African-American, 11% Hispanic, 1% Native American). 450 (86%) of MP students matriculated into MD or DO schools, and we were able to track 422 of these students (94%). 376 of 422 students (89%) completed medical school (357) or were in progress (19). 97% of medical school completers were matched with residencies; 11 students did not match. MCAT, undergraduate GPA and MP program GPAs were compared for the 346 students who entered residency (“successful students”) and 57 students who did not (failure to complete medical school or failure to match - “non-successful students”). The average MCAT score for successful students was 23.8, (~43rd percentile), which was significantly higher than the average MCAT score for non-successful students (22.1, ~30th pctl, p = 0.004). Undergraduate (prior to MP) GPAs were not significantly different for both sets of students (2.98 vs 2.90), but there were significant differences in MP overall and science GPAs for successful students (3.61) as compared to non-successful students (3.28 GPA, p = 0.00); successful students also averaged 3.52 science GPA compared to 3.17 for non-successful students (p=0.00). MP alumni chose primary care specialties at high rates: 25% chose family medicine, 15% internal medicine, 13% OB/GYN and 10% pediatrics, for a total of 63% in primary care specialties. This is substantially higher than the current population of active U.S. physicians in those areas (13% family medicine, 13% internal medicine, 13% OB/GYN and 7% pediatrics (total 38%; AAMC 2014 Physician Specialty Data).

**Conclusions**: A rigorous post-baccalaureate intervention program can properly prepare URM students who would not otherwise be able to enter medical school, helping bring URM students into the profession and into primary care specialties. It is worth noting that the academic profiles of successful students are not what might otherwise be considered ideal at the time of medical school application, and yet these students go on to succeed at very high rates. Here, MP program performance appears to be an important indicator of success. MP includes two full years of rigorous coursework with heavy emphasis on active learning, effective study technique, time management and healthy work-life balance. Failure to excel in this environment (e.g. GPA below ~3.6) as well as MCAT scores below the ~45th percentile after the intervention may serve as indicators of risk for failure.

**Correlates of Emotional Intelligence among Matriculating Medical Students: what is important in a medical school applicant?**

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**Background:** Emotional Intelligence (EI) is commonly defined as the awareness of emotions in oneself or others, the recognition of differences between emotional expressions, and the capacity to modulate behavior based upon emotional inputs. Measurement of EI has its roots in the business literature where it has gained some support in identifying effective leadership qualities. Measures of EI could play a role in assessing medical students, however, its value as a novel characteristic is not well understood. This study describes the characteristics of matriculating M-1 medical students that relate to EI.

**Methods:** In the fall of 2015, 96 M-1 (first year) medical students (51% of the entering class) voluntarily completed the Emotional Quotient Inventory 2.0 (EQ-i 2.0), a validated, self-report instrument of EI. The students who chose to participate did not significantly differ in a variety of demographic data (from those M-1 students who did not choose to participate). The EQ-i 2.0 provides a total summary score of EI as well as scores on five composite categories (self-perception, self-expression, interpersonal, decision making, and stress management) and an indicator of happiness. EQ-i 2.0 total score and subscores were compared across student demographic and achievement characteristics, as reported from AMCAS.

**Results:** MCAT scores from matriculating students demonstrated significant associations with two EQ-i 2.0 subscores: MCAT verbal reasoning scores were negatively correlated with happiness ($r = -0.23; p = .024$), while MCAT biologic science scores were negatively correlated ($r = -0.21; p = .038$) with self-expression (reflecting emotional expression, assertiveness, and independence). Female students compared to male students had greater self-perception composite scores (110.1 vs. 106.4; $p=.066$), decision-making composite score (108.8 vs. 104.5; $p=.061$) and happiness (109.1 vs. 104.5; $p=.048$), although only the difference in happiness was statistically significant. Matriculant age, underrepresented in medicine status, and undergraduate GPA all showed no significant differences.

**Conclusions:** Medical school admission processes that emphasize pre-matriculant achievement scores (MCAT) may incur a cost in terms of the EI of those admitted. The inclusion of EI into the admission of applicants should be considered if aligned with a medical school’s priorities, although its impact on physician development and performance requires further study.

**Social responsibility, self-actualization and empathy: A baseline comparison of characteristics of emotional intelligence and demographic characteristics of matriculating medical students**

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**Background:** Emotional Intelligence (EI) is defined as the ability to recognize one’s own and other people’s emotions, to discriminate and label feelings appropriately, and to use emotional information to guide thinking and behavior. EI is considered to be important for successful physicians and patient satisfaction. The purpose of this study is to describe how gender, age, and underrepresented in medicine status within a medical school matriculating class compare across a range of self-reported attributes.

**Methods:** All 189 Michigan State University College of Human Medicine (MSU-CHM) students matriculating in 2015 were invited to participate in this study. EI was measured using the Emotional Quotient Inventory (EQ-i 2.0), a validated self-reporting instrument with a total score based on five sub-scales: self-perception, self-expression, interpersonal relationships, decision making, and stress management. Each sub-scale also has three component scores. A well-being (happiness) indicator is also included in the EQ-i. The EQ-i has scores ranging from 60-130: a sub-scale score of 60-90 is considered to be in the low range, while 90-110 is mid-range and 110-130 is high range. American Medical College Application Service (AMCAS) data used in this study were limited to male/female, age (< or > 27), and underrepresented in medicine (URiM). The correlation between AMCAS characteristics and EQ-i was used to determine the strength of the relationship. Continuous variables were compared using t-tests and Chi-square was used to compare nominal variables.

**Results:** The EQ-i response was 51% (96 students) but was determined, based on a variety of demographic characteristics, to be representative of the class, although URiM students were less likely to participate. Our students had scores ranging from 65-130 with 2% in the low range, 59% in the mid-range and 39% in the high range. When considering component scores our students had three categories in which they scored in the high range: Social Responsibility (mean = 112), Self-Actualization (mean = 111) and Empathy (mean = 110).

**Conclusions:** The MSU-CHM mission statement states that we enhance our communities by providing outstanding primary and specialty care, promote the dignity and inclusion of all people, and respond to the needs of the medically underserved. We also strive to admit non-traditional and diverse students. Non-traditional students can be characterized as those who didn’t follow the standard path of high school to college to medical school, with few if any breaks between, career changers, and older students. Our medical school is known for producing doctors consistent with the social mission of medicine, documented in a 2010 study that ranked our medical school as sixth nationally in social responsibility.

Self-actualization is the willingness to persistently try to improve oneself and be a lifelong learner. Most medical students fit into this category and our students would be no different. Empathy is a very important quality that we, as a community-based medical school, look for during our admission process as we strive to educate primary care physicians. It is gratifying to see that our students scored higher in that area. Further study of this cohort of students as they progress through medical school is warranted to see how these EQ-i scores change over time and hopefully remain consistent with our medical school's mission. It will also be interesting to see how these EQ-i scores may or may not be different in subsequent matriculating classes.

**7-Year Trends in Demographic and Practice Characteristics of Primary Care versus Non-Primary Care Post-Graduate Physician Trainees in Indiana**

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**Background:** In order to plan effective healthcare workforce development initiatives in Indiana, it is important to understand the reasons why Indiana University School of Medicine (IUSM) residency and fellowship graduates choose their practice destinations.

**Methods:** From 2008 through 2014, a cross-sectional survey of post-graduate trainees (resident physicians and fellows) was conducted to gather information on demographic characteristics, assessment of the training, plans after graduation, where they intend to practice and why they chose that location. In addition, the survey gathered feedback on the trainees’ self-rated level of competence in the Accreditation Council for Graduate Medical Education (ACGME) competency areas. The survey was administered at the time of the exit interview process. The trainees’ names were matched with their specialty and then classified into two categories, primary care and non-primary care. Primary care specialties included family medicine, general internal medicine, general pediatrics, and medicine/pediatrics. The response rates increased from 62 percent in 2008 (n=177/284) to 89 percent in 2014 (n=357/403). This project received an exempt approval from the IUPUI Institutional Review Board each year.

**Results:** Primary care trainees were more likely to be female, have a hometown outside Indiana, enter a “fellowship” after completing their training, have “no” educational debt load, enter a hospital setting (inpatient, outpatient, or emergency department), have “many” job opportunities within their specialty in Indiana, and stay within the state to practice. Non-primary care trainees were more likely to go into “patient care or clinical practice” or accept a position in “academia” after completing their training, have an educational debt load of $150,000 or more, enter a group practice, expect a gross income of $200,000 or more in their first year of practice, have “few to no” job opportunities in their specialty in Indiana, and practice outside the state. Primary care and non-primary care trainees were equally likely to be “fully” competent in the following ACGME competency areas namely patient care, inter-personal communication, and professionalism. The main reasons given by primary care and non-primary care trainees to practice at “this location” were: liked the people, met my professional needs, and met my personal needs. The main reasons given by primary care and non-primary care trainees to practice “outside Indiana” were: proximity to my family, proximity to my spouse’s family, and never intended to practice in Indiana.

**Conclusions:** Over the last seven years, trends are emerging in comparisons of primary care and non-primary care graduates of residencies and fellowships at Indiana University School of Medicine. Primary care trainees are more likely to be women, from outside Indiana, enter a fellowship, work in a hospital setting, and stay within the state of Indiana where there are many jobs and practice opportunities in primary care. Non-primary care trainees are more likely men, carry a higher educational debt load, enter a group practice, report few to no job opportunities in Indiana in non-primary care specialties, and leave the state to practice elsewhere.

**Workshop—Session 15**

“I’m Burned Out!” Helping our Medical Trainees Develop Skills to Build Resilience

**Michelle Martinchek, University of Chicago**
**Amber Pincavage, University of Chicago**

**Methods/Session Format:**
- We will start by defining the impact of trainee burnout and have participants break into small groups to share experiences with trainee burnout and brainstorm areas in which trainees need help developing resilience (20 minutes).
• We will then introduce basic concepts of resilience including what resilience is, tools to measure resilience, and resilience skills including managing expectations, finding gratitude and letting go (15 minutes).
• In groups, participants will focus on one basic resilience concept, identify one training area this skill may impact, brainstorm ways to teach this skill, and anticipate barriers to trainee engagement. Afterwards groups will share and discuss their ideas (15 minutes).
• Then participants will focus on promoting resilience in senior residents as team leaders. Groups will discuss scenarios of difficult team situations and approaches to teach the resident to handle them more constructively to help promote team resilience (20 minutes).
• Finally, we will share our experiences and techniques to promote resilience training in residents and introduce tools we have developed to teach these core resilience concepts (10 minutes).
• We will also have time at the end for questions from the audience about our experiences teaching resilience skills (10 minutes).
• After the session, participants will receive a copy of a toolkit we have created that includes core resilience concepts, sample lesson plans for lectures and small group workshops for teaching these concepts to trainees, further information on measuring resilience in trainees with a validated resilience assessment tool, and a list of resources.

Objectives:
1. Identify the impact of trainee burnout on clinical performance and work-life balance.
2. Identify and understand core concepts of resilience including:
   a. Managing expectations and setting realistic goals
   b. Finding gratitude
   c. Letting go
3. Identify areas in which faculty can help trainees develop skills to increase resilience and introduce sample skill building exercises to cultivate resilience in trainees.
4. Be empowered to implement strategies to build resilience in their medical trainees within their specific institutions.

Rationale: Burnout amongst medical professionals is pervasive and experienced by many trainees. It is associated with increased rates of depression, suicide, and poor clinical performance. Increased depressive symptoms amongst medical trainees are associated with factors encountered during residency, including perceived medical errors, increased work hours, and stressful life events. Despite increased recognition of physician burnout, little data exists on how it relates to resilience and few interventions focus on developing resilient trainees. Resilience skills may be particularly useful for trainees after difficult clinical events. Our workshop is designed to help programs cultivate resilience in their trainees as a novel approach to mitigate burnout and improve professional development. It will also help programs meet milestones in the areas of professionalism and systems based practice.

Workshop—Session 16
Understanding and Use of Effect Size Measures for Improved Research, Decision-Making, and Medical Practice
Joel A. Purkiss, PhD, Learning Health Sciences, University of Michigan
James T. Fitzgerald, PhD, Learning Health Sciences, University of Michigan
R. Brent Stansfield, PhD, Learning Health Sciences, University of Michigan
Larry D. Gruppen, PhD, Learning Health Sciences, University of Michigan
**Methods/Session Format:**

- **10 minutes.** Participants will be introduced to the workshop content through a very brief, formative “pre-test” survey, to promote engagement with session content, and identify common gaps in knowledge and areas of misunderstanding.

- **45 minutes.** The next portion of the workshop will be comprised of a series of three interactive explanatory segments facilitated by the speakers, each followed by structured application segments in small-group format. During these three segments, the speakers and participants will review, reference, and analyze a pre-identified set of three published research studies. These will be selected as teaching examples to foster the knowledge, understanding, and skills necessary for applying key session concepts to practical examples of broad interest to those involved with medical education. Using these example research studies, each of the three segments will focus on clarifying concepts necessary for addressing three key questions. Segment one will focus on clarifying the concept of statistical significance, so that the manner in which it differs from effect size can be made clear. This segment will address the following question: “Are observed effects in the studies ‘real’, or should they be attributed to sample selection or other extraneous factors?” [10 minutes] Segment two will focus on the purpose, uses, and meaning of a variety of effect size measures, and will then turn to addressing the question: “What is the strength or magnitude of the observed effects in these studies?” [25 minutes] In segment three, we will emphasize that effect size measures can contribute significantly to decisions about practical significance of study findings. However, we will also underscore that they cannot ultimately make these decisions for us, as the practical meaning of findings must be determined with awareness and understanding of context. A third question will motivate the activities in this final segment: “Is the effect observed in these studies large enough to be practically meaningful?” [10 minutes]

- **30 minutes.** In this portion of the workshop, participants will be provided with one of three additional published research studies. In small groups, they will work independently to revisit the three key questions which organized the preceding segments, applying them to the new set of studies. Small groups will then report out to share findings and conclusions from this second round of applying effect size concepts.

- **10 minutes.** This final segment will consist of open Q&A. The speakers will respond to any questions about effect size measures from the participants.

**Objectives:** Through active participation in the workshop, participants will be able to:

- Describe the conceptual difference between indicators of statistical significance and measures of effect size
- Recognize and use specific effect size measures
- Use measures of effect size to inform decisions about practical significance of statistical findings
- Better interpret and critically review the result of published research studies

**Rationale:** It is common in the lay press to see claims that coffee (or red wine or broccoli) consumption will make you live longer or reduce the probability of some dire event. Similarly, claims in medical education about the benefits of educational innovations often misinterpret the meaning of research findings. These claims often focus on statistical significance rather than the practical size of the effect or relationship. Effect size measures are essential to the meaningful interpretation and understanding of statistical findings. As statistical tools which provide an absolute measure of the strength of an observed association or other phenomenon of interest, effect size measures inform decisions about the practical significance of study results. Given their strong utility, and increased promotion of their use in recent years - e.g. by journal editors and peer-reviewers – awareness, expectations, and application of effect size measures are essential to the meaningful interpretation and understanding of statistical findings. As statistical tools which provide an absolute measure of the strength of an observed association or other phenomenon of interest, effect size measures inform decisions about the practical significance of study results. Given their strong utility, and increased promotion of their use in recent years - e.g. by journal editors and peer-reviewers – awareness, expectations, and application of effect size measures are essential to the meaningful interpretation and understanding of statistical findings. 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size measures is increasing. However, in medical education circles, there remains a deficit in awareness and use of the types and appropriate interpretations of effect size measures. Furthermore, it remains common that findings from tests of statistical significance (p values) are misinterpreted as indicators of the importance of an effect. Effect size measures are necessary information for correct interpretation of a study’s results, and for future inclusion of that study in rigorous literature reviews and meta-analyses. This workshop will clarify the purpose, use, and interpretation of effect size measures. It will be valuable to medical educators who wish to expand their analytic skills, interpret the research literature more appropriately, and improve the quality of both their research and their evidence-based decision-making processes.

**Workshop—Session 17**

**Enhancing Physician Teaching Skills in the Ambulatory Setting**

*Kristen Rundell, MD, Department of Family Medicine, The Ohio State University College of Medicine*

*Pat Ecklar, MD, Department of Internal Medicine, The Ohio State University College of Medicine*

*Cynthia Ledford, MD, Department of Internal Medicine, The Ohio State University College of Medicine*

*Camii Curren, MD, Department of Internal Medicine, The Ohio State University*

*John D Mahan, MD, Department of Pediatrics, The Ohio State University College of Medicine*

*Diana Bahner, The Ohio State University College of Medicine*

**Methods/Session Format:** All sections of the workshop will have a pre-test and a post-test as well as audience response questions administered electronically during the session. The workshop will have mini vignettes to enable participants to practice evaluation. There will be a small group session at the end for practicing and giving feedback.

Section 1. Working as a team to complete the learning objectives. Review the roles of the office/clinic staff in assisting in student education, discuss tips for teaching with a full load of patients.

Section 2. Evaluation and giving feedback to the student. Will review the evaluation parameters based on behaviors that to be demonstrated. Review the expectations of the preceptors and the students regarding evaluations Review two student vignettes and be asked to write an evaluation for the student based on the vignettes. Watch two video vignettes and work in small group to practice giving feedback as related to the vignettes.

Section 3: Dealing with student who is not making the benchmarks. Review the process for identifying students not meeting expectations or having some other difficulties. Review resources available to preceptor, student and staff for the student who is not meeting expectations.

**Objectives:**

1. Participants will gain greater confidence in their ambulatory teaching and feedback skills.
2. Participants will be more confident in completing behavioral based evaluations.
3. Participants will be able to identify and create a plan for remediation for the student who is not meeting benchmarks.

**Rationale:** In October 2012, The Ohio State University College of Medicine implemented a new medical school curriculum entitled Lead, Serve and Inspire (LSI). This innovative curriculum contains a 1:1 longitudinal continuity experience covering the first 19 months of medical school called ‘Longitudinal Practice’. As with implementation of all new curricula, we have identified some barriers to effective outcomes. Major obstacles are 1) training ambulatory preceptors for the Longitudinal Practice curriculum and 2) standardizing evaluations. We created an annual 3 hour training workshop for our ambulatory preceptors to enhance their teaching skills and facilitate more informative feedback sessions and assessments coupled with a series of additional online educational video activities that are designed to deepen the knowledge and skills of the preceptors. We plan to recreate some of the highlights of that
conference as well as discuss the challenges of creating a sustainable faculty development program in our workshop. We will present the workshop in three sections, the first discussing working with students in a busy practice. This session is highly interactive with audience participation. It will discuss tips for ambulatory preceptors trying to meet educational goals with a full schedule of patients. The second section will focus on evaluation of the student and giving feedback. This section employs video vignettes for audience response and participation as well as cases for small group discussion. This section will also discuss how this type of workshop can be implemented in other institutions to help with standardization of evaluations. At the end we will discuss the student who is not meeting benchmarks. This section includes cases for group discussion regarding identification of the area of remediation as well as tools to help the faculty work with the student. The workshop will have time for questions during the workshop and at the end the participants may take the cases with them to review.

Panel Discussion—Session 18
“I tried that and it didn’t work!” Moving Beyond Barriers and Leveraging Resources to Drive Educational Innovation
Peggy A. Moore, MSEd, University of Nebraska Medical Center
Linda M. Love, EdD, Faculty Development, University of Nebraska Medical Center
Geraud Plantegenest, MA, Medical Education Research & Development, Michigan State University
Cory J. Rohlfsen, MD, Internal Medicine, University of Nebraska Medical Center

Methods/Session Format: This session is designed as an interactive panel discussion that examines contemporary teaching and scholarship methods from the perspective of organizational leaders, faculty developers, instructional designers, innovators, and students.

- Engagement Survey Q1: (10 min) On-screen while participants arrive to session. Poll Everywhere: How does your campus define educational innovation? What IS it? Information on Today’s Meet for ongoing back channel communication throughout session.
- Introduction: (5 min.) Setting the stage for discussion of supporting educational innovation. Single introductory slide of presenters, topics, and roadmap of discussion. Presenters introduce themselves.
- Engagement Survey Q2: (5 min) Poll Everywhere: Other than “time”, what are the barriers to implementing educational innovation on your campus?
- Panel Discussion: (40 min.) Moving purposefully (slowly): Discuss the evolution of a diffusion of innovation strategy for engaging faculty in e-learning. (10 min.) Linda M. Love Moving with momentum: Discuss motivation for students engaged in e-learning and accelerating curricular innovation including resources. (10 min.) Peggy A. Moore Moving in uncharted waters: Discuss using student experiences to develop curricular content and the program innovation to shift the teacher-student paradigm for deeper learning. (10 min.) Cory J. Rohlfsen Moving the needle on scholarship: Discuss engaging faculty and use their investment in time and resources in educational scholarship. (10 min.) Geraud L. Plantegenest Action Accelerators and Resources: (10 min.) Demonstrate three examples of e-learning student and faculty products. Student e-learning module checklist. (Resource UNMC E-Learning Website: http://unmc.edu/elearning/student-program/index.html) Self-directed learning contract handout. Educational scholarship guide and author checklist. (Resource) The panel will wrap-up the discussion with the top lessons learned that support tech-enhanced teaching and scholarship.
- Q&A: (15 min.) The panel will be open to questions and comments from the audience about their respective e-learning programs, methods and resources. If needed, participant discussion triggers will be utilized to engage participants. Participant Discussion Triggers: 1. How will you leverage elearning
to provide formative/summative activities? 2. What resources are available or have you implemented in your institutions? 3. What key educational elearning technologies have been deployed? 4. What strategies have you utilized to overcome resistance with elearning development and integration? 5. How have you/will you assess or determine value or impact of elearning integration? Participant Engagement Strategies: 1. Throughout the presentation, participants will be able to post questions, access additional resources, and add their own experiences to a virtual micro-blogging platform such as Todays’Meet to enhance the discussion and exchange of resources. 2. Participants will use Poll Everywhere to answer introductory survey questions to identify common themes. 3. Panel presenters will collect resources and review feedback via Today’s Meet and Poll Everywhere, and disseminate results after the session via email list.

- Wrap-Up (5 min.) The panel will wrap-up the discussion with the top lessons learned that support tech-enhanced teaching and scholarship.

**Objectives:** Following this session, participants will be better able to:

1. Describe a tested structure for engaging faculty in the advancement of innovative teaching and scholarship.
2. Discuss the characteristics of student designed educational units to support change in medical education.
3. Describe how faculty can leverage e-learning for educational scholarship.
4. Identify resources within your institution for creating e-learning.

**Rationale:** Medical schools across the country are embarking on curriculum change, have recently finished a curriculum overhaul or are planning a major redesign. The forces of change in modern academic medicine often clash with pressures of time for ingenuity and creativity in teaching. These real constraints tempt faculty and organizations to resort to familiar teaching traditions, not a viable ongoing solution. The environment and the context of curricular change are important contributors for transformation in medical education. This session demonstrates wide ranging actions for how e-learning can be leveraged to help educators reevaluate their traditional roles as distributors of content to become facilitators of learning, and how it can help foster a culture of educational innovation and scholarship. Participants will examine both the measured educational scholarship framework and a rapid development framework, each aimed at cultivating the current and next generations of med ed teachers. This session provides an opportunity for participants to determine the best steps for creating momentum in tech enhanced learning at their organization.

**References:**

Workshop—Session 19

Professional Identity Formation: From Pedagogy to Practice

Sheryl Pfeil, MD, The Ohio State University College of Medicine
Michelle Daniel, MD, University of Michigan School of Medicine
Joshua Hauser, MD, Northwestern University Feinberg School of Medicine

Methods/Session Format:
1. 5 minutes: Introduction to define terms and introduce panelists
2. 20 minutes: Representatives from three regional institutions will describe recent interventions that have focused on advancing PIF as an explicit instructional goal.
3. 45 minutes: Participants will work in small groups to design or modify a curricular element at their own institutions, or to share works in progress. Groups may be organized by particular pedagogies of interest, e.g., learning communities/mentoring, doctoring course elements, fostering resilience, reflective writing, use of e-portfolios and other interventions that influence PIF.5 (Goldie 2012) Participants will use a worksheet designed to focus attention and facilitate development of their proposed interventions. A scribe at each table will capture key ideas.
4. 20 minutes: Report out from tables on the most promising (exciting and feasible) intervention identified at each table.

Objectives:
1. Articulate the distinction between professionalism and professional identity formation in medical education and training
2. Discuss pedagogies and best practices from the region in making identity formation explicit
3. Collaborate with other participants to design new educational interventions or adapt existing curricular offerings that will help advance PIF as an explicit part of medical education and training in their own institutions

Rationale: Since the 2010 publication of the Carnegie Foundation’s Educating Physicians: A Call for Reform of Medical School and Residency (Cooke, Irby, O’Brien), professional identity formation (PIF) has become the focus of increased attention in medical education.1 Posited as one of four goals for educating future physicians, professional identity formation has been defined as “the transformative journey through which one integrates the knowledge, skills, values, and behaviors of a competent, humanistic physician with one’s own unique identity and core values.” (Holden, et al, 2015). 2 At the 2015 Medical Education Meeting in Baltimore, the Group on Educational Affairs’ (GEA’s) Professional Identity Formation (PIF) Working Group led a workshop designed to explore specific strategies supporting the development of PIF in educational activities across the continuum of medical training. The topic that generated the most interest at this session was what Cruess and colleagues call one of the “educational implications and future directions” of the reframing of medical education to support PIF: making identity formation explicit in medical training. 3 The PIF Working Group of the GEA (Pamela Schaff, Chair) now
proposes a workshop to be presented at each of the Spring Regional meetings where participants will be able to learn from several regional institutions that have developed educational strategies to make students aware of the concept of professional identity—to “engage learners as active participants in the process of identity formation and encourage them to trace their own progress through the journey.”

Participants will then work together to design interventions for implementation at their home institutions. Electronic proceedings will be made available to all participants (across all regions), and a report on progress of the resulting interventions will be delivered at the 2016 Medical Education Meeting.

References:
31. Physicians' Perceptions of Psychiatric Care Delivered in General Medical Settings: A Targeted Needs Assessment  
*N. Feldman, M. Marcangelo, J.M. Farnan, University of Chicago*

**Background:** The intersection of psychiatric and general medical care is an important and problematic area. The majority of patients with psychiatric conditions are treated for those conditions by a general medicine physician, but such care has been found to be less effective than treatment by a psychiatric specialist. Additionally, patients are more likely to see a primary care physician than a psychiatrist in an average year, making primary care physicians the frontline of assessing and treating psychiatric conditions. Given these factors, and given the 18.6% prevalence of mental illness in the United States, there is a need to provide targeted education for primary care physicians in how to treat patients with mental illnesses. Objective: To perform a needs assessment amongst practitioners in internal medicine and psychiatry which can guide future curricular development and care in this area.

**Methods:** A national sample of internists and psychiatrists were surveyed. The surveys focused on physicians' perceptions of the role of internal medicine physicians in the treatment and assessment of patients' psychiatric conditions; physicians' perceptions of current knowledge gaps regarding that treatment; and physicians' assessments of what changes they would like to see in how internal medicine practitioners are prepared to treat patients with psychiatric conditions.

**Results:** Internists reported being least comfortable with treating patients with psychotic disorders (86% of respondents), eating disorders (72%), attention/learning disorders and personality disorders (59% each). Psychiatrists reported perceiving internists as least effective at treating patients with personality disorders (93%), bipolar disorder (60%), and substance use and psychotic disorders (40% each). 53% of psychiatrists surveyed reported that internists needed additional information on medication management and titration, with a focus on sufficient dosage.

**Conclusions:** Physicians' perceptions of gaps in current care suggest a direction for future CME for internists regarding the treatment of patients with psychiatric conditions. Future CME could instruct internists on current best practices in medication prescribing and titration; it could address and dispel misconceptions or concerns about titrating psychotropic medications to therapeutic doses; it could provide strategies for how to best recognize and/or provide care for patients with psychotic disorders or personality disorders. These results provide the beginning of a roadmap to specific areas that could be addressed in order to better the overall standard of general medical care for patients with psychiatric conditions.

32. Student-Directed Learning in Medical Neuroscience Courses: A Systematic Review of the Literature  
*D. Gould, M. Mi, G. Patino, Oakland University William Beaumont*

**Background:** Student-directed learning (SDL) holds the promise of endowing medical students with the skills to tackle the growing body of information in medicine and facilitate its integration to solve clinical problems. The sufficiency of SDL experiences is one of the criteria used by the LCME for accreditation. ED-5-A states that ‘self-assessment on learning needs; the independent identification, analysis, and synthesis of relevant information; and the appraisal of the credibility of information sources’ is a necessary part of a medical education program. Traditionally, neuroscience is a subject perceived by physicians and medical students as highly complex; as such, it could greatly benefit from SDL. A first step in implementing SDL in medical neuroscience is to determine the amount and type of SDL that currently exists in these courses. Despite its promise, the implementation of SDL has been
hindered by the lack of standardized definitions and methods, lack of incentive to innovate and an overall persistent adherence to traditional methods. A systematic review of the literature on the use of SDL in medical neuroscience courses would provide stakeholders with an overview of the resources available, the knowledge that already exists and the impact on educational outcomes. The review was conducted to examine how neuroscience courses are structured and delivered to promote SDL in the medical school preclinical curriculum.

**Methods:** We conducted a comprehensive search of multiple databases including MEDLINE, EMBASE, CINAHL, Cochrane Library, ERIC, PsychINFO, Scopus, and Web of Science from March 1980 to August 2015. We included primary research studies published in English focusing on education of neuroscience in the preclinical curriculum of medical education in LCME accredited medical schools. We excluded surveys, reviews, commentaries, editorials, and letters. Working independently and in duplicate, we screened titles and abstracts for potentially relevant studies and reviewed the full content of eligible studies for inclusion. A hand searching of reference lists of included articles was performed for additional relevant articles. Data extracted included: types of medical curricula, instructional methods/strategies, learning activities, types of evaluation of learning process and outcomes, and levels of SDL Data. Data extraction was also performed independently and in duplicate.

**Results:** Out of 1226 identified and reviewed, seven articles that met inclusion criteria were included for the systematic review. Results indicate that: 1) programs that met the inclusion criteria all used systems-based or integrated curricula; 2) there still exists a faculty-driven approach to content, instruction, timelines, objectives and assessments; and 3) there is little SDL, as defined by the LCME in LCME-accredited medical neuroscience curricula reported in the literature.

**Conclusions:** The results of the present systematic review informs individual faculty members, course directors and their institutions as to the nature of what exists currently, so that they may build upon such efforts at their own institutions toward the goal of increasing SDL. We propose a framework for integrating SDL activities that are based on evidence-based learning principles into the neuroscience curricula and recommend areas for future educational research.

33. **Interdisciplinary Co-teaching in a Clinical Skills Course: What Makes the Relationship Work?**

M. Daniel, E. Hogikyan, University of Michigan Medical School

**Background:** Interdisciplinary co-teaching has become an increasingly popular pedagogic model in clinical skills courses (CSCs). This educational paradigm warrant study for its potential to teach medical students how to integrate biologic and psychosocial perspectives to promote more holistic, patient centered care[1], while simultaneously modeling collaborative practice on healthcare teams.[2] The purpose of this qualitative study was to explore interdisciplinary co-teaching between physician and social behavioral science (SBS) faculty in a clinical skills course (CSC) at a single institution, to gain an in depth understanding of the factors that promote and impede these relationships.

**Methods:** Permission for the study was obtained from the Brown University Institutional Review Board (IRB). Twelve semi-structured interviews were conducted using purposive, maximum variation sampling. Interviews were audio recorded and transcribed verbatim. Independent coding was performed on a sample of interviews to ensure inter-rater agreement and consensus on themes was reached through discussion. Data was analyzed using NVivo software and a constant comparative method, grounded theory approach until thematic saturation was reached. Two focus groups were used for member checking and elaboration.

**Results:** Respect, trust, open and honest communication, flexibility, knowledge base and experience, similar levels of investment (in the course, the co-teaching team, and the students), and similar small
group facilitation styles were identified as important. A breakdown in any one of these elements could harm the relationship. Hierarchies and dominant “alpha” interaction styles were identified as particular impediments. Several factors that could have marked positive or negative effects on the relationship were identified that were not under the direct control of the co-teachers themselves. These included good pairings (by the administration), the small group composition (the students themselves), the physical environment, the course design, the curricular topics, administrative support (including faculty guides and faculty development), and (perceived fairness of) compensation.

**Conclusions:** Many of these findings resonate with what has been described in the general education literature on co-teaching, but others appear to be unique to this interdisciplinary, medical education setting[3],[4],[5]. This work has the potential to inform administrative practices and future faculty development in this and other CSCs using, or considering using, a co-teaching paradigm. Ideally, the factors identified may be used to improve pairings, and co-teaching practice in the classroom and in clinical environments. The findings may also be transferable to other healthcare settings involving interdisciplinary teams.

**References:**

43. **The Great Vanishing Act: A Lack of High Quality Clinical Instruction in Physical Examination**

*A. Taylor, P. Bergl, J. Feagles, K. Quirk, M. Muntz, K. Fletcher, Medical College of Wisconsin*

**Background:** Medical students generally receive formal education in physical examination skills during the preclinical years. By the third and fourth years, schools expect students to refine and apply these skills in clinical contexts. Direct observation and feedback from experienced teachers is one of the most efficient ways for students to improve skills. The AAMC Graduation Questionnaire and other studies suggest that students are observed performing physical exams during their clinical rotations. However these studies rely on self-reporting and do not completely capture how well or how often students are observed. We sought to better characterize the frequency and content of physical exam instruction by directly observing teaching activities on the general medicine ward teams.

**Methods:** This prospective observational study used time motion data, checklists on clinical teaching, and reflections written by the observer. Data was collected by a medical student (AT) who was trained by our lead investigator (PB). The team generated a data collection tool based on best practices in clinical teaching described in the literature. Behaviors of inpatient medicine teaching teams were observed during pre-rounds, attending rounds, and admission (i.e. “on call”) activities. Our observer recorded bedside patient encounters and dialogues regarding the physical exam.

**Results:** Sixteen (16) teams were observed. Participants included 21 faculty attendings, 12 residents, 21 interns, 11 fourth year students, and 26 third year students. During attending rounds, the physical exam was presented 44% of the time (72/163) in the conference room, 56% of the time (24/43) in
the hallway, and performed 67% of the time (82/123) at the bedside. The location of teaching activities had no effect on whether teams discussed the clinical significance of exam findings (p>0.05). When the physical exam was discussed away from the patient, the team noted physical findings to verify at the bedside 7% (5/72) of the time when rounding in the conference room and 13% (3/24) of the time in the hallway. Of the 82 patients examined by the attending at the bedside, the teacher noted exam findings for learners 45% (37/82) of the time, asked students to re-examine the patient before revealing findings 6% (5/82) of the time, and observed the learner’s physical exam skills 15% (12/82) of the time. Bedside experiences significantly increased the probability that the team would highlight a physical finding (p < 0.001). During 30 new patient admissions, the student independently examined the patient 53% (16/30) of the time and was observed by a senior team member 20% (6/30) of the time. A senior team member demonstrated exam techniques for the student 7% (2/30) of the time. During 30 patient-student interactions on pre-rounds, the student examined the patient 70% (21/30) of the time. When the student performed an exam, it was observed by a senior team member 19% (4/21) of the time.

Conclusions: Physical exam skills were most likely taught at the patient bedside, although significant discussion about the physical exam occurred away from the bedside. Thus, the presence of the patient appears to influence how the physical exam is taught. As expected, students routinely perform physical exams during pre-rounds and new admissions; however, students were rarely observed or guided by senior team members. Our findings suggest that self-reported student-level data do not completely describe the extent to which students are observed performing physical examinations. Our data are particularly relevant as medical schools adopt the Core Entrustable Professional Activities for Entering Residency framework which depends on workplace-based direct observation of skills like physical exam. Based on our findings, teaching of the physical examination could be improved by increasing bedside encounters and encouraging senior team members to directly observe students during times they are likely to examine patients.

44. Improving the presentation of web-based case studies

J. De Prey, W. Martinez, M. Tuffnell, Medical College of Wisconsin

Background: Web-based learning has become an increasingly important tool in medical education. Educators are being charged with adapting existing educational material to a web-based format. However, developing a successful educational website requires the appropriate use of innovative tools which are dependent on the audience and subject matter. In this study, we aimed to determine the usage patterns of web-based ophthalmic case studies. Using this information, we sought to determine whether an enhancement of the content, design, and quality of the case studies would improve utilization and overall learner experience.

Methods: Google analytics data were evaluated to compare the usage of 17 ophthalmic case studies located on the medical education section of Medical College of Wisconsin’s (MCW) Department of Ophthalmology website. The page analytics were reviewed in two time periods, a six-month period before and a six-month period after a major reformatting of the web-based cases (January 1 to June 30, 2014 and January 1 to June 30, 2015). Analytic values, such as rank within the top MCW ophthalmology pages, total number of views per page, unique views per page, and average time per page, along with subjective user feedback on usability and content, were used as the basis for reformatting the website. Furthermore, a more mobile-friendly format was employed using data related to how learners accessed the website.

Results: The case studies’ main web page was the most visited page on the MCW Department of Ophthalmology website during both time periods studied. Additionally, all 17 case study web pages appeared in the top 100 pages accessed on the department’s website throughout the study.
Following the launch of the new website, the total number of page views increased from an average of 597 views per case study in 2014 to 848 views in 2015, corresponding to a 42% increase in overall page views. Similar to data collected prior to implementation of the new website, the first three case studies continue to have the highest relative percent of total views, though there is a more uniform distribution of page views per case study with the new website. Furthermore, the average time learners spent per case decreased by 60% (from 4.66 min per case study in 2014 to 1.87 min in 2015). Finally, data also showed that nearly 24% of visitors have been accessing the cases using a tablet or mobile device, a percentage that has been steadily increasing in recent years.

**Conclusions:** Increased usage and decreased time spent per web page were noted after a major website redesign, suggesting a more positive learner educational experience possibly due to improved case quality and navigation. However, viewer interest continues to be focused on the first three case studies. Furthermore, more learners are accessing web-based educational content from mobile devices, indicating the need for web designers to make websites more mobile-friendly. Understanding patterns of web-based learning will allow educators to design websites that fulfill the goals of the academic exercise while providing a time-efficient and fruitful experience to the learner.

*This project was supported by Elsa B. & Roger D. Cohen MDs Fellowship in Medical Education*

45. Medical Students as Teachers Elective: Follow-up Study of Participants

*K.N. Huggett, University of Vermont College of Medicine*

*A. Maio, Medicine, Creighton University*

**Background:** Teaching is an essential skill for residents and physicians. As of 2010, 43 medical schools offer courses or modules to introduce students to fundamental skills of curriculum design, assessment, and teaching in various settings (Soriano et al. 2010). Due to the relatively recent implementation of many of these courses, however, published reports of programs are descriptive and most lack outcome data. In 2008, we introduced an elective course, MED 486: Medical Education, at Creighton University School of Medicine. The goal of the course is to introduce fourth year medical students to general topics in teaching, foster interest in medical education, and provide instruction to promote teaching skills particularly in small group and clinical settings. In addition the 4 week option introduces students to medical education scholarship and provides support for development of a scholarly project. Although students have provided positive comments about the course and their learning shortly after completing the course, we lack evidence of the outcome and impact of the course. The purposes of the program evaluation study were to describe the outcomes of the elective on participants' work and to describe differences (if any) in skills required for teaching based on participants' career path.

**Methods:** We surveyed students via email who completed the elective from 2008-2014. The five question survey asked for their current position, any teaching activities they have been involved in since graduation, how they have used the course materials, how they have used their scholarly project if they did one, and how they thought the course could be improved. Survey responses were reviewed by both investigators and analyzed for recurring themes. The Creighton University IRB approved this study.

**Results:** Eight of our 38 students responded. All students had been involved in teaching, some informally and others as a chief resident or course director. Several recalled the One Minute Preceptor and used this strategy; one student recalled our discussion of learning styles and tried using various approaches for different learners. One student was planning on using their project now that the survey had reminded him about it. One student suggested we add more information about
strategies for morning report or noon conferences since this is where they felt the teaching/learning of residency occurred.

**Conclusions:** Participants report frequently teaching and using some of the skills and techniques they learned in the elective. Although our follow-up study was limited by the response rate, we found the rich descriptions of teaching activity useful evidence of the need for a medical student teaching elective. We plan to incorporate this feedback into sessions with current students who inquire about future teaching opportunities.


46. **Building Resilient Teams: Senior Resident Experience with Difficult Clinical Events**  
* M. Martinchek, A. Pincavage, University of Chicago

**Background:** Building resilience is one promising method to help mitigate professional burnout, which is experienced by many physicians, including trainees. Few curricula focused on increasing resiliency in trainees exist. Resilience skills may be particularly useful after difficult clinical events. This study aims to assess senior residents’ baseline resilience and experiences with difficult clinical events.

**Methods:** Cross-sectional surveys were given to Internal Medicine residents. Baseline resilience was assessed using the Connor-Davidson Resilience scale (CD-25) and categorized into low (<70), intermediate (70-79), and high (80-100) resilience. Residents were also surveyed on burnout, stress, and reflection after difficult events.

**Results:** A total of 41/62 (66.1%) categorical Internal Medicine senior residents completed the survey. Of these, 14.6% had high resilience, 46.3% intermediate, and 39.0% low. On a single item burnout scale, 11 residents (26.8%) reported at least 1 or more symptoms of burnout. There was no association between high or low resiliency and burnout (p=0.27) or between high or low resiliency and reporting that difficult clinical events affect well-being at work (p=1.00). Over the past six months, 51.2% of residents reported experiencing difficult clinical events several times a month, 24.4% several times a week, and 9.8% daily. The top difficult events that residents reported were unanticipated patient deaths, medical errors, systems issues, and poor team dynamics. After these events, 22.0% of residents prefer to discuss them with their team immediately, 56.0% later that same day, 19.6% in the following days to weeks, and only 2.4% prefer not to discuss them at all. Residents individually reflect on these events very often (41.5%), often (29.2%), or sometimes (19.5%), whereas only 9.8% reflect on them rarely. After these events, residents talk with interns and students very often (17.1%), often (39.0%), or sometimes (39.0%), but most reported talking with attendings only rarely (41.5%) or sometimes (41.5%). Only 17.0% of residents reported talking with attendings often. All residents (100%) reported at least some stress after unanticipated patient deaths, medical errors, systems issues, and poor team dynamics and 68.3% of residents think difficult events affect their well-being at work. Additionally, 58.6% of residents want more training to help their team cope after difficult events.

**Conclusions:** Internal Medicine residents experience difficult clinical events regularly. Difficult clinical events seem to greatly affect residents of all resiliency levels equally. Most residents find these events stressful and prefer to discuss them with their teams. Residents discuss these events with interns and students frequently, but not with attendings. Residents often lead these team conversations but have not received training in this area and would like more. Curricula to teach senior residents leadership skills and a framework for team based reflection after difficult clinical
events to promote team resiliency are needed. Interventions to promote faculty involvement in helping trainees cope after difficult clinical events are also needed.

47. Cultural Competence in Undergraduate Medical Education

*M. Mi, I. Udo-Inyang, Oakland University William Beaumont School of Medicine*

**Background:** Peter L. Slavin pointed out in his address at the 2015 AAMC meeting that “health care disparities are exacerbated by the conscious and unconscious biases of health care professionals on the one hand and the fear of bias of patients on the other.” Darrell G. Kirch concurred with Slavin’s view that the quality and equality of care go hand in hand. Kirch called on health care professionals and educators to take important and unique roles in academic medicine to help reduce health inequity and disparities. LCME stimulates that a medical education program provide education experiences to develop medical students’ skills, knowledge, and attitude towards cultural competence to prepare them for delivering culturally competent care for increasingly diverse patient populations. Most medical schools in the United States have instituted cultural competency education in their curriculum. However, research indicates that the cultural competence education that medical students receive during their medical school might not address the issues that arise when caring for patients from diverse cultures. No systematic review has ever been conducted on literature addressing cultural competence in undergraduate education. The research synthesis is undertaken to contribute to the evidence regarding the focus, benefits, and challenges of cultural competence education in the medical curriculum. Findings from the review will inform decisions on the design, implementation, and evaluation of educational experiences in cultural competence for optimal learning outcomes.

**Methods:** A comprehensive literature search of studies published between 2000 and 2015 was conducted using databases of the Cochrane Library, Embase, CINAHL PsycINFO, PubMed, Scopus, and Web of Science. Search terms included index terms on concepts of cultural competence, culture, cultural diversity, medical students, medical education, and medical schools, in combination with relevant keywords such as cultural awareness, cultural sensitivity, and cross-cultural communication. Studies have been retrieved and screened for full content review if they are peer-reviewed original research reports that investigated the effectiveness of any cultural competence intervention integrated into the undergraduate medical curriculum in medical schools accredited by LCME. Reference lists of selected studies are also reviewed and hand-searched for additional relevant studies. A standard extraction form is developed to abstract and code data from the selected studies on structure of intervention, setting, core areas of curriculum content, location of the content in the curriculum, teaching methods, duration of instruction, instruction delivery format, outcome measures, and types of learning outcomes. Core areas of content are analyzed based on Joseph Betancourt’s key principles in cultural competence. Full review and data extraction are being conducted independently and in duplicates.

**Results:** Results of the systematic review are pending. Data extraction and quality assessment of selected articles are in progress.

**Conclusions:** It is expected that the results of the synthesis will answer the questions: “How is cultural competence taught in undergraduate medical education? What is the impact?” The poster will report the main findings of the systematic review, present recommendations for the best evidence-based practices in teaching and evaluating cultural competence interventions, and suggest directions for further research that would improve understanding about different aspects of this educational experience that is most effective.
48. Implementing a Self-developed Cultural Competence Workshop in Pediatric Residency and Assessing Outcomes
M. Puliyel, K. Maksimowski, D. Massarella, A. Prezynski, A. Caron, Metrohealth Medical Center

**Background:** The United States is becoming more culturally and linguistically diverse. Pediatric trainees’ cultural backgrounds do not always reflect the same mix of diversity as the patients they serve. There is an increasing need for providing our trainees with the education and tools to provide culturally and linguistically appropriate health care.

**Methods:** Objective: Develop a cultural competency workshop in pediatric residency and present data on faculty/resident alignment of culturally relevant behavioral outcomes and on resident pre/post intervention performance on same set of measures. We measured the faculty and resident self-reported use of “shared negotiation at least once a week” and “incorporation of patient beliefs in treatment plans at least once per week” as the key outcome measure. Differences on the primary learning outcomes between Pre and posttest were examined using cross-tabulation and chi-square tests. Instructional Methods: We developed a 4 hour workshop which began with a 2 hour brainstorming session to reflect on the meaning of cultural competence, ethnicity and race. This was then followed by small group sessions aimed at bringing awareness to one’s own cultural context; presenting data on patterns of healthcare disparities, to encourage recognition of one’s potential for bias and stereotyping. The group sessions were also used to describe strategies for reducing the effects of these biases, once identified. The team then watched 2 video clips which were followed immediately by debriefing. The first clip explored the role of power and privilege in the clinical encounter. The second video highlighted communication issues which could arise due to the provider and the patient coming from different cultural backgrounds. The second half of the 4 hour workshop was used to conduct standardized Objective Structured Clinical Encounters (OSCE) in a high fidelity simulation center, with video recording and using observation feedback tools with checklist to provide immediate feedback. Three standardized cases were utilized, including a combination of patient cultural background and distinct health care problem Cases were used to elicit the patient’s (Kleinman’s Explanatory) model of illness, demonstrate the use of shared negotiating skills, discuss common health beliefs, identify questions about health practices and beliefs that may be important in a local community, to demonstrate competent use of medical interpreter services and effectively overcome the language barrier in communicating with patients.

**Results:** Before the workshop we used a standardized cultural medicine questionnaires developed by Ring and Colleagues to assess the faculty perception of cultural competence teaching and what the residents report that they are practicing. 13 faculty members and 22 residents responded to the pre-survey and 16 residents out of the total of 24 resident participants responded to the post survey. 13/13 faculty members reported using shared negotiation at least once a week 13/13 vs 11/22 of the residents ( p<0.01) 8/13 faculty reported incorporating the patient’s health beliefs in treatment plans at least once a week vs 5/22 of the residents ( p<0.05).The same survey conducted 6 months after the workshop failed to show a significant change in the resident’s use of above mentioned skills.

**Conclusions:** There is a wide gap between faculty perceptions of cultural teaching, and what the residents report that they are practicing while providing care to patients. This emphasized the need to have additional training to ensure that trainees deliver culturally responsive healthcare. This workshop with educational strategies aimed at different learning styles, including high fidelity simulation environment with feedback failed to show sustained change in pediatric trainees practice behaviors. Longitudinal efforts may be more effective in reinforcing and achieving sustained change.

50. Cognitive learning strategies, mental well-being, and academic performance in 1st and 2nd year medical students
**Background:** In order to facilitate students' transition to the medical school learning environment, all matriculating students are offered the opportunity to complete the Motivated Strategies for Learning Questionnaire (MSLQ), a well-established instrument aimed at measuring cognitive learning strategies and self-regulated learning. We explored whether the cognitive learning strategies of incoming 1st year students have predictive value for students' well-being and academic performance. **Methods:** A cohort of 117 students (75% response rate) completed the MSLQ (adapted for medical education) at the beginning of the academic year. Three cognitive learning strategies are measured by the MSLQ: Rehearsal (memorization strategy), Elaboration (knowledge integration), and Organization (constructing knowledge hierarchies); these were selected for analysis in order to determine if self-efficacy in any of the three areas were related to grades and students' sense of their emotional well-being. A follow-up survey at the conclusion of the academic year included surveys of wellness, including the Center for Epidemiologic Studies - Depression Scale (CES-D) and the Maslach Burnout Inventory. **Results:** Multiple Linear Regression revealed that Rehearsal was the only cognitive learning strategy significantly related to measures of well-being (F=6.8, p=.011). Follow-up pairwise comparisons showed significant negative correlations with depression (r=-.211, p=.033) and all aspects of burnout (Cynicism: r=-.22, p=.022; Exhaustion: r=-.245, p=.022; Personal Effectiveness: r=-.247, p=.01) . First-year grades were not significantly correlated with Rehearsal (r=.1, p=.28), combined basic science grade approached significance, but remained at the trend level (r=.18, p=.07). **Conclusions:** As self-efficacy in memorization increased, self-report of depression and burnout symptomatology decreased. Students who have a high perception of their efficacy in rehearsal strategies may feel equipped for success in courses with a relatively high memorization demand (e.g., anatomy). This may provide a buffer against the cumulative effects of feeling chronically out of their learning zone of comfort. Those viewing themselves to be relatively less efficacious in memorization strategies may be subject to chronic, low level stress when confronted with demands perceived to exceed the capacity of their rehearsal strategy. Evaluation of medical students' perceptions of their facility with memorization techniques could lead to targeted interventions to teach students how to implement evidence-based rehearsal strategies, which may come with protective effects in well-being.

51. Older adult perspectives on their role in a community-based health profession education project

*M. Cheslock, T. Wunderlich, N. Afonso, Oakland University William Beaumont School of Medicine*

**Background:** According to data from the Corporation for National and Community Service, 18.7 million older adults contributed on average more than three billion hours of service in their communities per year between 2008 and 2010. There is a gap in medical education regarding which factors motivate older adults to volunteer for community-based education programs. In the Partners in Care (PIC) Program at the Oakland University William Beaumont School of Medicine, older adults volunteer for a home visit from a team of health professional students. PIC requires this inter-professional team of students to visit older adults twice in their homes, during which students work together to obtain a medical history, administer various assessments, and assess living conditions. The objectives of this project were to: 1) Gain a better perspective of why older adults volunteer for community-based health education programs 2) Understand older adult views on their role and impact on the program and the student, and 3) Obtain feedback from the volunteers for program improvement.
Methods: This mixed-methods study involved 1) a survey measuring attitudes and perceptions towards volunteering and 2) the option to participate in a focus group. The research team created a survey tool based on five themes that were identified a priori. The survey included 25-likert scale items, and 2 open-ended questions. Alpha-factor analysis was performed on the survey data. In addition, a focus group was held with 13 randomly selected older adults. The discussion was recorded, transcribed, and analyzed using thematic analysis.

Results: A total of 101 surveys were sent, the overall response rate was 62%. The ages of the respondents ranged from 65 to over 86 years of age. Alpha-factor analysis revealed four themes from the survey data. These themes included 1) personal development, 2) perceived benefits as an educator, 3) altruism, and 4) feeling part of a larger community. Thematic analysis of the focus group revealed seven themes: altruism, personal development, feeling part of a larger community, education of students, uniqueness of program, enjoying being with students, and sharing unique health experiences as older adults. They also provided feedback on the PIC program and suggestions for improving recruitment.

Conclusions: The Partners in Care program provides an opportunity to engage older adults in a meaningful and beneficial experience to students who will be on the front line of care as millions of Baby Boomers reach seniority. This study provides a better understanding of why older adults volunteer for programs that assist in educating health professional students and how the health professions educational community can best meet their needs. It is crucial to learn more about these volunteers who provide students with such a wealth of knowledge and insight into holistic patient care. By understanding why older adults are motivated to volunteer, we hope to expand the PIC program and improve volunteer satisfaction.

*This project received grant funding from the Oakland University William Beaumont School of Medicine Capstone Department*

52. Resident education on advanced care planning in a community outpatient setting

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Background: Advanced care planning (ACP) is a critical part of patient centered care. It includes advanced directives, living will and assigning a health care power of attorney. Effective ACP has been associated with improved quality of care at the end of life in Medicare patients. Increased healthcare costs driven by multiple hospital admissions, intensive care unit care and emergency department visits have been documented in patients with chronic illness towards the end of their lives. Providing quality care has been associated with improved family satisfaction and reduction in health care cost. ACP with a single provider improved agreement between patients and families wishes, reduced hospital admissions and reduced number of days spent in hospital care. However, physician attitude, inadequate knowledge and communication skills training have been identified as leading barriers to ACP. Medical students feel unprepared to discuss end of life issues with patients and majority do not think they have enough formal education to have these discussions. This study examines the ACP practice patterns among medical residents in different primary care specialties.

Methods: A 6 question survey was administered to family medicine and combined medicine and pediatric residents across levels of training in a community health care system. A popular web based survey site was used and invitations were sent to residents’ email addresses. The study was designed as a pre-intervention tool to address the lack of medical education on ACP in the outpatient clinic.

Results: A total of ten residents responded to the survey out of which seventy percent were males and thirty percent were in their first year of medical residency. Forty percent of respondents have never had formal ACP training in their outpatient clinics and seventy percent of respondents have never discussed ACP with their patients in the outpatient setting.
Conclusions: In this small survey done within a community hospital residency program, majority of medical residents do not have ACP discussions with their patients in the outpatient clinic. This finding needs to be tested in a larger group of residents which will be followed up by an intervention study on the impact of regular ACP training on residents’ outpatient practice.

54. Impact of Electronic Medical Record Use on the Patient-Doctor Relationship and Communication: A Systematic Review

Background: As physicians increasingly integrate the Electronic Medical Record (EMR) into medical practice, it is important to understand its impact on the patient-doctor communication dynamic. Unfortunately, concerns have been raised over physicians who pay more attention to the “iPatient” on the computer screen than to the real patient during a clinical interaction. While benefits of computerization in health care are well described, important drawbacks exist. In order to provide patient-centered care in the digital age, it is critical to understand how EMR use impacts the quality of communication and the patient-doctor relationship. To provide a comprehensive representation of the current literature, the aims of this systematic literature review were to examine the impact of EMR use on the patient-doctor relationship and communication with a focus on patient perspectives and to identify future directions for study.

Methods: Parallel searches in Ovid MEDLINE, PubMed, Scopus, PsycINFO, Cochrane Library, reference review of prior systematic reviews, meeting abstract reviews, and expert reviews from August 2013-March 2015. Medical Subject Heading terms related to EMR use were combined with keyword terms identifying face-to-face patient-doctor communication. English language observational or interventional studies (1995-2015) were included. Studies examining physician attitudes only were excluded. Structured data extraction compared study population, design, data collection method, and outcomes.

Results: Fifty-three of 7445 studies reviewed met inclusion criteria. Included studies used behavioral analysis (28) to objectively measure communication behaviors using video or direct observation and pre-post or cross-sectional surveys to examine patient perceptions (25). Objective studies reported EMR communication behaviors that were both potentially negative (i.e., interrupted speech, low rates of screen sharing) and positive (i.e., facilitating questions). Studies examining overall patient perceptions of satisfaction, communication or the patient-doctor relationship (n=22) reported no change with EMR use (16); a positive impact (5) or showed mixed results (1). Study quality was not assessable. Small sample sizes limited generalizability. Publication bias may limit findings.

Conclusions: While physicians exhibited potentially negative communication behaviors with EMR use (i.e. increased gaze shifts and episodes of multitasking), the majority of studies examining patient perceptions reported no change in overall patient satisfaction, communication, or the patient-doctor relationship. Furthermore, some studies identified instances in which patients felt the EMR facilitated the process of communication, clarification, and discussion as well as some potentially patient-centered communication behaviors. These “best practices” may be taught to providers in order to guide them towards more successful and collaborative EMR use. Lack of change in overall patient perceptions may be surprising to clinicians given accounts of negative provider attitudes to EMR implementation. However, knowing patient perceptions did not suffer, providers and administrators should not be deterred by fears of its adoption and instead learn to actively use it in a more patient-centered manner and as a patient-educational tool. Future work should correlate observed physician behavior with direct patient perceptions rather than a trained observer as proxy in order to identify how to best use the EMR during clinical interactions to engage patients in their care. Objective studies should further explore how to integrate EMR use with patient care, particularly in academic
settings where trainees observe attendings use of the EMR, in order to help foster humanistic patient-doctor-EMR interactions in the digital age.

*This systematic review received funding from the Arnold P. Gold Foundation*

55. Evaluating the portfolio’s ability to identify behaviors that persist into clerkships  
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**Background:** Our medical school utilizes a portfolio-based assessment system to supplement its graded curriculum in hopes of measuring and developing behavioral competencies such as communication, professionalism and teamwork in students. The purpose of this qualitative study is to evaluate the ability of the portfolio to identify behaviors in the pre-clerkship phase that persist into clerkships, potentially influencing performance. Specifically, by analyzing narrative feedback, can we determine the relationship between behavioral performance in the pre-clerkship and clerkship settings? The portfolio is a longitudinal repository of all assessment data including ratings and narrative feedback from both faculty and peers in small groups, work-based clinical performance and OSCEs. Assessments are collected in multiple contexts, providing a more authentic portrayal of behavior. At the end of the pre-clerkship phase of our curriculum, a faculty committee reviews portfolios to assess performance. They also provide narrative feedback to each student summarizing strengths and weaknesses. In 2014, the committee reviewed 156 pre-clerkship student portfolios and found 80% of students were progressing appropriately while 20% demonstrated patterns of concerning behavior that had the potential to impact clerkship performance. These students were either required to create improvement plans or formally remediate. One year later, 137 of these students completed the required clerkships and received narrative feedback from clerkship directors on their performance. Quantitative analyses show that concerning behavior identified by the pre-clerkship portfolio review negatively predicted clerkship grades, even after controlling for academic ability (p<.001). These results suggest that the portfolio is identifying behaviors that persist into clerkships, but statistics alone cannot explain this process. A qualitative analysis of both pre-clerkship and clerkship narratives can identify specific persistent behaviors and will allow us to intervene earlier with struggling students.

**Methods:** Students were randomly selected from two groups: those with concerns and those without. Data consisted of narrative feedback from both pre-clerkship portfolio reviewers and clerkship directors for every student. Data were de-identified before analysis. Two independent coders identified emergent themes in the data before meeting to compare findings and agree on a common coding structure. The codes were then reviewed and refined by a third individual. We compared and contrasted themes in the feedback between student group (concerns and no concerns) and by setting (pre-clerkship and clerkship).

**Results:** The final sample consisted of 16 students, 7 (44%) of whom had concerns. In both the pre-clerkship and clerkship settings, students with concerns were more likely to receive negative feedback on their demeanor (“You can come across as a bit pushy”) and professionalism (“You did not complete evaluations in a timely fashion”) than those without concerns. In the pre-clerkship setting, they were also more likely to be told to improve their communication with peers, (“You are quiet in group discussions”) although this was not true of the clerkship narratives.

**Conclusions:** The results suggest problematic behaviors related to professionalism and demeanor may persist into clerkships and contribute to lower grades. In contrast, some communication deficiencies did not appear to persist, suggesting that the portfolio review process may have allowed for correction before clerkships. It is also possible that clerkship directors are less likely to focus their feedback on communication with colleagues. In the next stage of this research, we will attempt to replicate these findings with a larger sample of students and track individual performance across
time. We will also re-examine how best to intervene with students who demonstrate concerning behavior early in their medical education careers. *This research is funded by a CGEA grant.

*The research is supported by a CGEA mini-grant, awarded in 2015

56. Comparing a PBL Curriculum to an “Ideal” Social and Behavioral Sciences Curriculum

M.D. Warne-Griggs, K. Dryer, K. Hoffman, University of Missouri

**Background:** Learning and teaching behavioral and social sciences (BSS) in medical education can be challenging: students and faculty question relevance, managing a large volume of topics (setting priorities, availability of experts), finding optimal timing in the curriculum, and ways of teaching that make BSS content seem obvious to students (Benbassat, 2015). Peterson et al (2011) found that students felt BSS was not well integrated into the clinical years, not always supported by the overall organizational culture, and inconsistently modeled. They had particular difficulty seeing the clinical relevance of Institute of Medicine’s (IOM) Behavioral and Social Science domains of Mind/Body and Social/Cultural Issues. This is consistent with what Satterfield et al (2010) found when they asked faculty to identify priority BSS topics; more than 2/3 of the lowest rated items were in Mind/Body and Social/Cultural. Satterfield outlined a process for identifying an “ideal” social science curriculum. The purpose of this study is to compare our PBL-oriented curriculum to the high priority “ideal” topics identified by 204 experts in Satterfield et al’s study.

**Methods:** We completed a qualitative comparative analysis of our curriculum with existing literature. In phase 1, we mapped our M1-M3 objectives and assessments to IOM domains. All items were coded by two researchers as we developed coding definitions. After that, 20% of all items were double coded and any differences discussed to reach final code agreement of 100%. In the second phase of curriculum mapping, all core lectures and educational activities leading to a more complete view of BSS in our curriculum. Last, coded items and activities were mapped to the 13 high priority BSS topics identified in the Satterfield study.

**Results:** Of the 1788 objectives and evaluation items mapped, 45.7% were related to one or more IOM BSS domains. Physician’s role (21.7% of items) and Patient-Physician Interaction (20.4% of items) were most represented. Health Policy and Economics was least represented (1.6% of all items). Only 1 of the 13 high priority areas identified by Satterfield et al (related to biological mediators of stress) was found to be a gap area in our initial assessment of our BSS curriculum. Alternatively, 5 of 11 low priority topics were identified as gap areas by our faculty. In the second phase of curriculum mapping lectures and other educational activities were mapped to objectives thereby linking them to the related BSS domains. For 2013-2014, there were 272 educational activities related to BSS across the first three years (year 1= 41%, year 2= 29%, year 3=29%, longitudinal=1%). Of the 179 activities in the first two years, 154 (86%) were addressed in the Introduction to Patient Care. Of the 272 activities, 192 addressed IOM domains related to high priority “ideal” topics. The area with fewest activities was Mind-body Interactions: Psychosocial Aspects of Pain.

**Conclusions:** We drew three conclusions from comparing our BSS curriculum to related literature: 1) Unlike the literature, our school has a fairly even distribution across the first three years of study. One limitation of this study is that it looks at the core curriculum and so we do not have data regarding the distribution of behavioral and social sciences in the fourth year of study. 2) There were almost no gaps identified in “high priority” areas but several found in “low priority” areas. This would seem to indicate that in general, our faculty have set similar priorities to those indicated by the Satterfield’s faculty survey of BSS experts. 3) Although IOM provides domains topics, it does not prescribe how much or where topics should be located within the larger curriculum. Satterfield’s work helps identify priority areas to assess our school’s consistency with expert opinion.

*This work was supported in part by NIH-OBSSR RFA OD-05-001 – K07*
59. Patient Advisors Orient Medical Students to Patient-and-Family-Centered Care

J.A. Purkiss, K. Parent, K. Jones, A. Sullivan, J. House, University of Michigan

**Background:** Is there educational value in having patients and their family members provide medical students with instruction in patient and family centered care (PFCC) principles? While MD educators frequently provide training in this domain, their perspective and approach is influenced - at least in part - by their additional roles as healthcare professionals. Patients already contribute significantly to many medical schools’ curricula, e.g. by sharing the lived experience of injury or illness with students. But how might patients and their family members contribute to students’ training in patient and family centered care? The purpose of this study was to evaluate a patient and family centered care orientation program for first-year medical students, developed and administered through collaboration between patients and their family members, hospital staff, and medical school administration.

**Methods:** During summer of 2015, Volunteer Patient and Family Advisors (VPFAs) from our academic medical center’s Patient and Family Centered Care program collaborated with medical school curriculum administrators to develop and deliver a robust PFCC orientation to early first-year medical students. VPFAs have experience living with, or caring for family members living with, complex medical conditions. VPFAs are recruited, oriented and trained to collaborate with staff and faculty to create, implement and evaluate healthcare policies and practices that promote PFCC principles, and associated culture change, throughout the healthcare system. In collaboration with VPFAs, PFCC program staff developed the four-hour orientation to increase students’ understanding of the challenges and burdens of illness/injury on patients and their families, the benefits of partnership with patients and families at the point of care, and the key elements of patient and family centered care as applied in clinical settings. Learning activities included an overview of PFCC principles; a panel comprised of four patients/families and one MD; videos emphasizing empathy and patient safety; and student small-group sessions facilitated by the VPFAs to promote reflection and discussion on PFCC concepts. Following this program, students were surveyed and results were analyzed to evaluate student attitudes and opinions about the sessions.

**Results:** PFCC program staff and VPFAs from our academic medical center developed a valuable orientation to patient and family centered care, which was very well-received by early, first-year medical students. 57 of 85 students responded to a post-session evaluation survey, for a 67% response rate. Students evaluated the session very favorably, indicating the session achieved its goals. For each of the following, ≥94% of respondents either “Agreed” or “Strongly Agreed” that the sessions increased their understanding of: “the challenges of illness/injury for patients and families”, “the benefits of patient and family partnerships at the point of care”, and “the different elements of patient and family-centered care applied in clinical settings”. Narrative comments from students included the following: “The patient panel and videos were very moving. It felt like an honor to engage in such raw discussions. I greatly enjoyed this [session]”; “It genuinely provided me several new lenses through which I view the delivery of healthcare by a physician and the importance of individualizing care for each patient”; “Very eye-opening, powerful, and motivating. One of my favorite aspects of the [orientation week].”

**Conclusions:** Given these favorable program evaluation outcomes, we conclude that Patient Advocates - as patients and patients’ family members - provide important perspectives and extensive expertise in PFCC. In collaboration with hospital staff and medical school administrators, they can develop and administer excellent medical school curricula in this domain.
Background: For a variety of reasons, undergraduate medical education (UGME) programs endeavor to remain attuned to the nature and needs of graduate medical education (GME) programs. For example, residency match outcomes provide key metrics by which the quality of UGME programs are measured. In 2014, AAMC published Core Entrustable Professional Activities for Entering Residency, which specifies integrated activities all entering residents should be expected to perform on day 1 of residency. This publication has already proven deeply influential in shaping curricula at numerous US medical schools. While this type of formal guidance from GME leadership and national organizations provides critical insight for appropriately aligning UGME programs with GME needs, what related insights might be gained from learners who just experienced their first year of residency? This project aims to provide additional perspective on how UGME programs can best prepare their learners, by analyzing ten years of survey data from residents asked to identify the most important attributes interns should have during the first year of residency.

Methods: As part of its program evaluation processes, U-M Medical School administers a voluntary-response survey to its medical school graduates, following their first year of residency. One survey item asks respondents to “describe the top two attributes of a well-prepared resident at the end of year 1”; responses are open-ended text. Following combination of responses from the ten-year period 2004-2013, 875 text responses were available for coding. An MD and a PHD medical educator reviewed responses independently, each developing a list of descriptive-phrase codes representing the range of themes across all responses; their lists were then compared and consolidated to generate a final list for coding the data. Five coders then used the list to identify the most prevalent themes. Each response was coded twice, independently, by two coders blinded to the other’s work. The initial agreement rate was 79.2%; all discrepant codes were reviewed and reconciled. Coded results were then tallied to identify the most frequent themes.

Results: There was notable diversity in the attributes residents identified as important. Still, some were mentioned much more often than others. Among the ten most-frequently identified themes, the attribute specified most frequently was Efficient (17.5% of responses), with Sound Clinical Judgment (13.4%) and Knowledgeable (10.2%) coming next. The next tier of attributes occurred with frequencies less than 10%: Self-Aware of Limitations (6.2%), Hard-Working / Dedicated (6.1%), and Self-Directed / Lifelong Learner (5.0%). Four other attributes were in the top ten in frequency, though all occurred with frequencies less than 5%: Able to Integrate / Apply Knowledge (3.7%), Communication Proficiency (3.5%), Teamwork (3.3%), and Patient Management Proficiency (3.3%).

Conclusions: A notable finding from our study is that efficiency was the theme most frequently identified as a top attribute of a well-prepared resident. While other frequently-occurring attribute themes are ubiquitous, explicit goals of UGME curricula (e.g. knowledge and clinical judgment), or are covered with increasing scope and frequency (e.g. teamwork and self-directed learning), we know of no robust UGME curricula for fostering efficiency. This finding points to a gap in UGME preparation of graduates for residency. We were also struck by the diversity in attributes residents identified as important, and the broad distribution of frequency across them. The first step of our coding process identified 25 different attribute themes among 875 responses, and among the 10 most-frequently mentioned themes, only three occurred with frequency greater than 10%. This finding provides further illustration of the breadth of expectations for UGME. Future work will examine whether and how differences in residency specialty influence which attributes residents identify as most important.
Innovations in Medical Education (IME) Posters

1. **You Mapped Your Curriculum – Now What? Developing, Sustaining and Effectively Using a Curriculum Map**  
   
   *H. Hageman, C. Dufault, Washington University School of Medicine*  
   *R. Givens, University of Arizona*  
   *J. Mahoney, University of Pittsburgh*

**Objective/Purpose:** This presentation will provide a comparative overview of three innovative but unique approaches to curriculum mapping. The benefits and challenges associated with implementing each of the approaches will be described, along with a review of lessons learned and the emerging best-practices that allow all stakeholders to use products of an effectively designed and maintained curriculum map.

**Need for Innovation/Practice:** Nearly every medical school undertakes some form of curriculum mapping. They do so for school-specific reasons, including curriculum review, management and development; and for reasons common to all, such as compliance with accreditation requirements and participation in the AAMC Curriculum Inventory. At best, maps elucidate the key relationships and structures of the curriculum, including learning objectives, instructional methods, keywords and assessments. By making the “architecture” of the curriculum visible through mapping, it becomes a practical and useful tool for curriculum administrators, faculty, students, accrediting bodies, educational researchers and others. The extent of the utility of a curriculum map depends on a variety of factors including how the map is developed, who maintains it, where it lives, and its perceived value to the stakeholders. The specific processes by which schools map their curricula vary widely. Some institutional approaches to mapping are primarily administration-based, whereas others are student-driven, faculty-based, librarian-led, or a hybrid version that includes some or all of these approaches. This variety of methods allows schools to complete mapping in a way that is customized to their specific needs and constraints.

**Methods, Materials and Resources Used:** This presentation will share the benefits and constraints for each of three curriculum mapping models: a faculty-based mapping approach in which faculty served as the primary creators of a school-wide map that linked course objectives, session objectives and assessments to program-level objectives, and individual sessions to keywords; an administration-based approach led by the Office of Medical Education and reviewed and validated by the teaching faculty; and a librarian-led effort to maintain a map created initially through a collaboration of course directors, medical educators and librarians.

**Outcomes:** Drawing on the experiences of three schools’ varied approaches to curriculum mapping, participants will learn about the benefits and challenges associated with each of the three models.

**Strengths and Areas for Improvement:** The downside of the heterogeneity of mapping techniques is that sharing best practices and lessons learned from curriculum mapping can be very difficult. The issue is compounded by differences in how schools maintain, update and adapt their maps as needs and technology change. There also has been little discussion to date regarding the perceived and real utility of curriculum mapping, both by the mappers and those who use, or who have the potential to use, the products of a thoughtfully developed and maintained map. This review of three distinct mapping methods compares and contrasts the benefits and cons across them. One potential drawback is the lack of an in-depth discussion of student-led efforts, though the authors all considered that approach and will discuss why they chose not to pursue that method.

**Feasibility of Program Maintenance/Transferability:** Because most curriculum mapping methods encompass one or more of the three approaches discussed, schools will be able to choose which are best suited to their educational culture.
A Student-Centered Participatory Program Evaluation for Curriculum Reform: Two-Step Approach
A. Beason, E. Curry, M. Ginnetti, B. Kabat, J. Mool, S. Murray, E. Neumeister, L. Swale, H. Han, J. Koehler, Southern Illinois University School of Medicine

Objective/Purpose: Curriculum innovation within medical education directly impacts students. While curriculum reform often includes program evaluation, the process often does not involve those most directly impacted: students. Recognizing this disconnect, our goal was to develop an innovative approach to program evaluation that combines a student-centered, participatory design with action research.

Need for Innovation/Practice: Our school is undergoing a major curriculum reform for third-year clerkships designed to improve diagnostic reasoning development and foster socialization into medicine. The reform emphasizes coaching and long-term learning relationships between students and attending physicians, as well as prolonged engagement in the clinical setting working with patients and health care teams. In this relationship-based learning environment, students are expected to receive narrative feedback, prolonged direct observation, hands-on learning, and formative evaluation focused on learning gaps. To encourage an immersive, clinically-intensive experience focused on socializing into medicine, traditional didactic lectures are eliminated and shelf exams are no longer required. Given this major reform, it is important to assess fulfillment of the stated objectives and reform effectiveness. However, it has been reported that program evaluation in medical education is less developed than other fields. In designing program evaluation, internal or external evaluators often define program logic and gather data to make a decision on the evaluation process (e.g. Kirkpatrick’s model). While a traditional approach can be useful in decision making regarding program effectiveness, it is not sufficient to understand how and why a program worked or did not work. Moreover, in traditional program evaluation aimed at assessing curriculum reform, students are subjects for data collection rather than active participants in the evaluation process. Exclusion of students from the evaluation process prevents assessment of the full picture of their experience. Recognizing medical students as the primary stakeholders in curriculum reform, we set out to innovate and develop a student-centered, participatory program evaluation designed to understand the socialization and learning process. Students are seen as legitimate program evaluators who are currently socializing into medicine and can provide a unique perspective as active participants in the curriculum and the reform process.

Methods, Materials and Resources Used: Having medical students as program evaluators entails two steps. The first step involves educating students about the qualitative inquiry and data analysis process. Two faculty members facilitated this learning process. In the 2015-2016 academic year, eight third-year students in the traditional clerkship curriculum volunteered to keep reflective journals of each core clerkship experience. Each student volunteer plans to lead one focus group of peers discussing their clerkship experiences. With faculty guidance, the students will analyze the data collected. The other step involves students’ active participation in program evaluation. When the new curriculum is implemented in 2016, these students (then fourth-year students) will observe third-year students immersed in clinical settings and lead focus groups with students engaged in the new curriculum. The compilation of these observations, focus group discussions, and reflection on their experiences will highlight the nuances and general themes of the new clerkship experience. With this collected data, the original eight students will be able to contrast their experiences with those of their successors, critically evaluate the strengths and weaknesses of the new curriculum, and make recommendations for improvement.
Outcomes: Using qualitative inquiry and action-based research, participating students will develop an understanding of participatory program evaluation, create strategies to critically assess the learning process, and reflect on the curriculum reform process.

Strengths and Areas for Improvement: Strengths of this program evaluation approach include: (1) extending the process to include primary stakeholders (i.e., students) and empowering them through their participatory roles, (2) medical students gaining an appreciation for program evaluation and investing in their medical education, and (3) potentially outlining an effective, easily transferable process by which future curriculum reforms can be evaluated.

Feasibility of Program Maintenance/Transferability: This student-centered, participatory program evaluation approach will be effectively maintained with continued commitment of eight third-year medical students and guidance from two faculty members with expertise in qualitative analysis and program evaluation. It is expected that this innovative model of curriculum evaluation in the context of medical education will be readily transferrable.

3. What’s Lean Got to Do with It? Increasing Efficiencies and Reducing Costs in Medical Education

K. Rivera, K. Musak, S. Bayens, D. Simpson, Aurora Health Care, Milwaukee

Objective/Purpose: To improve efficiencies in medical education administrative-related processes by engaging coordinators and managers to tackle high frustration projects using lean principles.

Need for Innovation/Practice: Medical education coordinators and managers are often inundated with administrative processes, new expectations, and often report work overload. In today’s cost/resource constrained environment requests to increase staff and/or purchase new software/technology are often met with “be more efficient”. Adopting efficiency approaches already in use in our hospital/clinical settings provides an opportunity to streamline medical education and address administrative staff overload.

Methods, Materials and Resources Used: Lean focuses on enhancing satisfaction while reducing waste consistent with our goal to maximize our efficiencies and sustain high medical student/resident and faculty satisfaction. Lean involves identifying your target values, and then applying lean tools to continuously improve processes by eliminating all waste unrelated to those targeted values. A team of medical education coordinators enrolled in lean training identified high value and administratively frustrating projects (e.g., visiting student processes from application through orientation, medical education supply ordering and utilization). For each project we mapped the value stream to make visible the current work flows. We then applied bottleneck analysis and 5S’s tools (sort, straighten, shine, standardize, sustain) to identify waste and developed streamlined processes to reduce administrative burden focused on high value win-wins for medical education trainees, our faculty and organization.

Outcomes: Each process was streamlined with an average of 4 “stop doings” as they added no value to the project. All redesigned processes remain in place with continuous improvements as needed. Coordinators frustration levels have significantly decreased per self and manager reports while medical education trainees and faculty satisfaction remain high per evaluations. Overall coordinators report better workload balance and continue to apply lean tools to other projects.

Strengths and Areas for Improvement: Applying lean to medical education provides a systematic, step-wise process resulting in streamlined workflows, reduced staff time/costs, and improved workload balance. Key lessons learned include the: need to begin with high value and high frustration projects; use of value mapping to illuminate how many people were doing the same thing (but not knowing it); and to continuously remind coordinators that the added upfront burden work associated with lean would save them time and stress.
Feasibility of Program Maintenance/Transferability: The streamlined project workflows are easy to sustain as all stakeholders see win-wins. Lean process tools are readily applicable to medical education, simple to use, and if stuck help is readily available as almost every organization has a lean trained individual that can serve as a coach.

4. Crowdsourcing the Keys to Academic Career Success for Clinician Educator Faculty Development Program Graduates

D. Simpson, Aurora Health Care, Milwaukee
K. Marcdante, Children’s Hospital of Wisconsin

Objective/Purpose: To provide clinician educators (CEs) graduating from a longitudinal faculty development program with the “keys for academic success” - as crowdsourced by distinguished medical educators - to having a successful academic career.

Need for Innovation/Practice: CEs face multiple and often competing accountabilities each with their own performance metrics from clinical service (productivity, quality, patient experience/satisfaction) to teaching (learner evaluations) and scholarship (publications, presentations). Longitudinal faculty development programs for CEs often end with a session on next steps in your career. While a literature search revealed a plethora of recommendations for medical educators, they were often focused on educational research, scholarship and academic promotion (e.g., how to strengthen your CV) without acknowledging CEs’ competing priorities. However these CE career success keys do exist as they are often provided 1-on-1 during discussions with distinguished educators. Aggregating and sharing the collective wisdoms’ of distinguished medical educators (MEs) regarding keys to CE career success will further strengthen our faculty development efforts.

Methods, Materials and Resources Used: To obtain the collective wisdoms of colleagues nationally, authors e-mailed senior ME colleagues (sometimes as a list, sometimes as individuals) and asked them to hit reply and list their top five “keys to having a successful career as a CE”. Colleagues included CGEA Laureates, recipients of national education/teaching awards (e.g., professional society, AOA Glaser), ME related journal editors/editorial board members, clinical department chairs, deans/associate deans for education, faculty development leaders, and/or Society of Directors of Research in ME members. Results were independently reviewed by authors and cross-cutting themes identified.

Outcomes: 21 MD/DO CEs and 20 PhD educators responded. The topic themes focused on (1) learning about yourself (e.g., what brings you meaning, your passion, drivers and risk tolerances); (2) understanding your “fit” within your setting (e.g., what hired to do, what do you bosses need/expect); (3) setting goals and doing something (aim high but start small); (4) Teaching, learning and growing as ME is not a hobby (read widely in/out of ME; go to conferences; take risks; stretch/volunteer; engage learners in your questions); (4) join/form a community of educators to create meaningful relationships; (5) have the courage to “say no nicely” as “clinicians too quickly agree to help others out and sacrifice their own time and goals”. An unexpected result was the “group replies”, resulting in conversations amongst the list members affirming/exploring each other’s’ “top five keys”. Respondent comments revealed that this was a rarely discussed topic amongst senior educators and highly engaging as typified by one respondent: “What a treasure trove of recommendations, advice, and tips chocked full of wisdom and experience. They and the generosity of spirit with which they have been offered illustrate that an authentic community of medical educators is at hand to help continue a vital tradition”.

Strengths and Areas for Improvement: The crowdsourced wisdom of distinguished educators highlights features unique to CEs’ career success with future work focused vetting the findings with these educators and sharing results with our faculty development graduates to obtain their reactions.
Feasibility of Program Maintenance/Transferability: This innovation focuses on building and sharing the collective wisdom of distinguished educators to illuminate key features for CE’s career success. Features can easily be incorporated into faculty development and/or career advising sessions and/or used by CE’s with help from a colleague to frame their own career plans.

*Partial funding for this project is provided by the Health Resources & Services Administration (HRSA) of the U.S. Department of Health & Human Services (HHS), grant no. D55HP23197

5. Defining and Improving Medical Student Coachability: A Student-Led Curriculum Development Project
S.L. Murray, A. Ghareeb, C. Working Group, A. Cianciolo, Southern Illinois University School of Medicine

Objective/Purpose: The objective of this curriculum is to help second year medical students develop the skills and traits of coachability. Being coachable will allow students to be more proactive in their training and assume more responsibility for their professional self-development.

Need for Innovation/Practice: Coachability is a concept not directly addressed in many medical education curricula and often is expected to develop implicitly via clerkship experience. As our medical school transitions to a new clerkship model that relies heavily on coaching concepts centered upon personalized narrative feedback, it will become increasingly important that students understand how to partner with their mentors in identifying and addressing potential areas of improvement. This curriculum provides a direct way to foster these skills; it will allow clerkship students to focus more on the development of their clinical skills and professional identity, and less on managing their impression on faculty.

Methods, Materials and Resources Used: This student-designed and led coachability curriculum will begin approximately six months before students start the new clerkship and last for one year. It has three components. The main component comprises three, 1-hour, small-group (N = 6-7) sessions centered on fundamental concepts of coachability skill, including: goal-setting, feedback elicitation, and feedback utilization. Using an experiential learning format, these sessions start with an individual activity, followed by group discussion, brief didactics, and an application exercise. This component of the curriculum will culminate in a capstone exercise in which students will receive individual consultation on coachability skill immediately following examiner feedback associated with a required clinical competency examination. The second component of the curriculum comprises self-testing, group discussion, and one-on-one mentoring on attributes associated with coachability: emotional intelligence, feedback orientation, and growth mindset. Self-testing and group discussion will occur during the main component of the curriculum. Mentoring will occur as part of the monthly mentor sessions required in the new clerkship and will be guided by prepared curriculum materials. The third component of the curriculum is an online repository of all curriculum materials and supplemental resources, accessible anytime, anywhere throughout the curriculum and clerkship year.

Outcomes: Students are expected to be more receptive to feedback, accountable to feedback, effective at eliciting feedback, and engaged in self-reflective practices regarding feedback. Toward this end, the curriculum—to be implemented in Jan-Feb 2016—will be subjected to a comprehensive process-outcome evaluation. Measures of goal-setting, feedback elicitation, and feedback utilization that use a situational judgment testing approach will be administered prior to the curriculum and compared to follow-up assessments administered at three points during the clerkship year. Focus groups will be conducted immediately following the main curriculum to explore qualitatively how students engaged with the curriculum and intend to use its lessons.

Strengths and Areas for Improvement: This curriculum is based on best practices drawn from business and sports and on empirical educational research. In addition, the curriculum was
developed and administered primarily by medical students, thereby addressing coachability in a way that is engaging and pertinent to other medical students. The above-referenced process-outcome evaluation will be used to identify areas for improvement.

**Feasibility of Program Maintenance/Transferability:** The delivery of this student-led curriculum requires no additional faculty time. The materials were developed using software readily available to most medical school technology departments and could easily be packaged for online distribution, such as MedEd Portal.

*This project was supported by the Josiah Macy Foundation*

6. **Critical actions to ensure student wellbeing during curriculum change.**

_E. Simanton, W.H. Percy, J. Lindemann, University of South Dakota Sanford School of Medicine_

**Objective/Purpose:** Curriculum change is a time when faculty and curriculum leaders must juggle many issues. While ensuring that content is adequately covered and resolving issues pertaining to new instructional methods, implementing measures to reduce student stress and maintain their wellbeing could easily get lost in the process. In a recent curriculum change at the Sanford School of Medicine, University of South Dakota, two actions helped to protect student wellbeing in preclinical years 1 and 2. Periodic monitoring of student wellbeing in tandem with open communication between faculty and students were crucial in the rapid identification of curricular issues negatively impacting the class. Frequent communication among curriculum leaders provided the ability to make mid-stream content and/or scheduling changes, allowing for rapid adaptation to identified student needs.

**Need for Innovation/Practice:** Curriculum reform is a giant step into the unknown and predicting how students will react to new teaching and assessment methods presents numerous challenges. As student wellbeing is so important, having mechanisms in place to monitor wellbeing and rapidly adapt to student needs is vitally important.

**Methods, Materials and Resources Used:**

1. To monitor student wellbeing, Teaching faculty engaged students in classrooms and hallways on a daily basis, essentially asking “how is it going?”. Student feedback was discussed at weekly meetings at the curriculum management level and again at the Block teaching faculty level. During the first 12 weeks of our new curriculum (rolled-out in Fall 2013) there were 2 live town hall meetings with the entire class and 2 online feedback surveys. 2. To make changes as needed, Faculty teaching in the first Foundations Block met weekly to review the students’ academic progress and to instigate scheduling or content changes in response to student wellbeing issues. Block directors from the first two 2 Foundations Blocks and the following 8 system-based Blocks met weekly to review curriculum progress and incorporate successful strategies into the later Blocks, based on lessons learned during the early Blocks.

**Outcomes:** Student wellbeing issues were identified in the initial weeks of the first Foundations Block and small changes were implemented almost immediately; major changes were planned by the end of week 4 and fully implemented beginning in week 6. Examples of changes included: dropping the requirement for attendance at lectures, eliminating several hours per week of afternoon small group activities and having written and lab exams on consecutive days, rather than the same day.

**Strengths and Areas for Improvement:** Changes in academic scheduling are not the only solution to reducing student stress and improving wellbeing. Other initiatives in areas such as pedagogy, content sequencing and assessment methods also need to evolve to ensure academic rigor and optimum student performance. USD Sanford School of Medicine is currently in the process of developing a formal longitudinal assessment program to quantify the efficacy of initiatives that are introduced to maintain student wellbeing throughout the entire medical curriculum.
Feasibility of Program Maintenance/Transferability: Curriculum reform is an institution-specific process that has to be adopted for the long-term. Thus, although specific solutions to student wellbeing issues will likely differ by school, the need for frequent monitoring of student wellbeing and having in place processes that allow for rapid, adaptive schedule and content changes apply everywhere.

7. Developing Authentic Learning in an Online Environment

M. Holley, S. Cooper, S. Renshaw, Indiana University School of Medicine

Objective/Purpose: Online modules allow learners to learn material in a self-directed, asynchronous environment. These types of modules provide focused instruction based on individuals’ pace of learning. As such, the purpose of this session is to explore the integration of authentic learning practices within the development of online modules. In addition, this session will demonstrate how to take a traditional face-to-face delivered subject and convert it into an interactive, asynchronous, online module. Lastly, this session will describe the development of the online modules and corresponding assessment tools using best practices in teaching and learning, adult learning, and instructional technology.

Need for Innovation/Practice: Traditional undergraduate and graduate medical education is deeply rooted in didactic lecturing and hands-on clinical experience. Historically, a systematic instructional design process that utilizes instructional technology delivery methods has not been heavily utilized in medical education. In the early 2000s, funding opportunities for online learning projects began to emerge. Medical schools have been slow to take advantage of these opportunities to incorporate technology-based learning methodologies. While medical school administrators have praised online learning projects for convenience, flexibility, personalized learning, and expanded pedagogical practices there has still been a lack of widespread adoption of instructional system design principles in both undergraduate and graduate medical education curriculum development (Greenhalgh, 2001).

Medical education programs utilizing strong instructional systems design principles can potentially create educational experiences for learners that enable them to push their boundaries and build the diversity of skills required for a successful transition from the classroom to the clinic. Annually there are over 340 medical students completing their family medicine clerkship spread across the entire state. Nearly 28% of the students are in a clerkship placement that does not include didactics. Instead the students must engage in self-directed learning. In order to ensure that standardized learning occurs for all students, our clerkship developed an online learning module that teaches “motivational interviewing (MI) skills” that utilizes anytime/anywhere learning. Students are engaged with interactive modules that present scenarios, require reflection and utilize standardized patient encounters with decision-tree responses. Strong interpersonal skills are necessary for any successful physician. As such, MI and the understanding of health behavior change are helpful tools for physicians and medical students to understand. For example, using MI techniques can be helpful in discussing behavior changes in patients with chronic disease or who use tobacco products. As the frontline of preventive care, primary care physicians who utilize motivational interviewing may influence its success in helping patients achieve healthier outcomes. Furthermore, by developing new delivery models of teaching MI to medical students, it is our belief that as future physicians they will exhibit more confidence and necessary skills to help their patient population with behavioral changes. In any online learning environment, the key feature to effective learning is to ensure the interaction is meaningful to the learner. Mayer’s Theory of Multimedia Learning suggests people learn more and at a higher level from both words and images than just words alone, particularly in medical education (Mayer, 2010). This experience can be created by utilizing the different sensory modalities of the learners – through integration of text, images and sound. It is this multimedia
experience that allows for active participation in the learning experience, which in turn produces a more meaningful learning experience (Moreno & Mayer, 2000). While online learning technologies have been a part of medical education for several years interactive simulation of patient (ISP) cases have not been overtly utilized. There is limited research focused on the use of ISP encounters. When ISP encounters have been used, the outcomes have been quite promising. In their research on using ISP cases, Bergin and Fors (2003) found students had a positive learning experience with ISP and would like to see more in their learning experience. Triola, et al. (2006) compared using virtual and live standardized patients. The results of their study indicated there was no difference in the effectiveness between the live and virtual patients; they were both equally effective.

**Methods, Materials and Resources Used:** The online module related to motivational interviewing in the primary care clinical setting was developed to help students: define key principles of Motivational Interviewing (MI), recognize how principles of MI can be applied, and compare/contrast language used by physicians during patient encounters as being consistent with MI. As designed, there are four assessment tools associated with the MI module which include a pre-test, post-test, and two “what would you do” cases. The assessments as designed are examining gains in knowledge, application, and confidence in MI. The pre- and post-assessments were designed to compare what of motivational interviewing the student knew before and after completing the module. The assessments also determine confidence of the learner prior to completing the module as well. Additionally, the assessments gathers student perceptions of online learning and preferred learning modalities (online, hybrid/blended, and face-to-face). The post-assessment gathers other information, such as student perceptions of online learning as well as the curricular components and design of the module.

**Outcomes:** Analysis of the pre and post data indicates that the students demonstrated both significant gains in their confidence and perceived skill in Motivational Interviewing (MI) as well as evidence of statistically significant increases in content knowledge from pre to post. Prior to completing the VPE only 35% of students indicated (agree or strongly agreed feeling prepared to use MI with patients and that rate rose to 68.7% after completing the VPE. A pair-samples t-test confirms that that this increase is statistically significant at the p=.01 level. Content items confirm that student knowledge did increase from pre to post data collection. As shown in table 1 and table 2 below only 4.9% of students selected three correct responses prior to the VPE and 15.8% of students could not select any correct responses. In comparison post data shows that all students were able to select at least one correct response and 68.6% were able to select three correct responses. This over 60% increase from pre to post was confirmed by a pair samples t-test to be highly statistically significant at the p=0.001 level.

**Strengths and Areas for Improvement:** The strength of the online modules is their ability to be accessed at any time by the learner. In addition, the modality allows clerkship directors to present material that will complement the clinical experience. The area for improvement in using online modules is creating patient encounters that are more complex and more in line with the realities of their clinical experiences.

**Feasibility of Program Maintenance/Transferability:** The online modules produced by our institution were created within our learning management system (currently Canvas). In addition, the VPE was created with Articulate Storyline and is framed within constructivist theories. This VPE allowed the learners to be active participants where knowledge is constructed as they attempt to navigate this new experience (Ertmer & Newby, 2003). The VPE centered on using applied knowledge in a simulated patient experience in an independent, asynchronous online environment. These tools are widely available and can be easily adapted at other institutions.

*Elements of this project were supported by funds from HRSA and the IUPUI Center for Teaching & Learning*
8. **Championing the Cause - An Innovative Student-Led Curriculum**  
*S. Gupta, L. Gimbel, S.L. Rao, S. Dutta, Rush University*

**Objective/Purpose:** Recent developments in undergraduate medical education requirements have led to a greater emphasis on safety and quality improvement (QI) training. Training in QI has become a requirement during residency and an expectation for working clinicians. Students frequently witness safety events and they lack an understanding of the tools used to address these concerns. To develop a culture of safety it is prudent to start educating trainees early. The aim of this project is to empower medical students to recognize opportunities for improvement and to learn to implement change through a student led hands-on training program in QI.

**Need for Innovation/Practice:** During the M3 IM clerkship, students were surveyed on their attitudes regarding patient safety events. Of 62 respondents, 52 found value in discussing safety events, 42 in rectifying errors, and 26 in identifying the causes of safety events. This survey revealed a disconnect between discussion and action, contributing to the sense of disempowerment in seeking actionable quality improvement. As a result, a focus group consisting of third year medical students (M3) and teaching faculty from our division developed a longitudinal curriculum to allow practical skill development in QI, to foster a proactive dialogue in QI.

**Methods, Materials and Resources Used:** A group of QI champions were identified for each clerkship group, and trained on the basics of the Plan-Do-Study-Act cycle. The role of the champions is to facilitate discussions with the rest of their clerkship group as follows: 1. Group 1 identifies 3 topics of interest for a QI project proposal. 2. Group 2 finalizes one intervention. 3. Group 3 initiate the intervention. 4. Group 4 analyze the results of the intervention. 5. Group 5 study these results to plan next steps. The project builds on itself with each subsequent clerkship. Therefore, every 8 weeks faculty provide facilitation of basic QI training, as well as a handover of the previous groups’ work on the project. Each clerkship successively builds on the P-D-S-A cycle. At the end of each cycle, the QI champions provide a deliverable that outlines their discussions, their input for facilitating the project along the PDSA cycle, and their feedback on team-building, leadership, and curriculum design.

**Outcomes:** The primary goal is early dissemination of QI techniques with the intent to foster continuous QI in early learners. An implemented project has the potential for institutional change if the outcome has clinical utility. Scholarly presentation is also encouraged, with the QI champions working in concert to produce a poster for our institutional Quality Fair. The current class has chosen to study student attitudes towards contact precautions. Furthermore, leadership development within the M3 group will be fostered. With greater emphasis on viewing healthcare delivery as a product, it is imperative that clinicians take a leading role in identifying, understanding, and implementing change to deliver the highest quality product.

**Strengths and Areas for Improvement:** In this rapidly progressing field, there has developed a need for innovation in healthcare. The current learners face a vastly different landscape in terms of clinical leadership, technological advancement and quality product delivery. To train competent, successful clinicians in this developing environment, specific emphasis must be placed on leadership development, self-empowerment and continuous quality improvement. By transitioning the project between clerkships, the program aims to encourage student communication, teamwork and engagement, vital components in preventing medical errors. A better understanding by medical students of how to enact change through QI will ultimately create a lifelong investment in patient care and the health care system as a whole. Specific guidance is necessary to keep students engaged, in picking a specific project and specific outcomes. Appropriate timing for basic QI training has also been a challenge, and in the next year, we plan to recruit QI champions prior to the start of their M3
year. We plan to provide instruction in the basics of QI during their orientation week so as to create a shared vision of the intended outcome early on.

**Feasibility of Program Maintenance/Transferability:** The time required from faculty is approximately 3 hours per clerkship group (every 8 weeks). The time is used to orient the incoming QI champions and follow-up with the groups. The QI champions spend approximately 4 to 6 hours during their 8 week clerkship in organizing, facilitating and writing up their project. Costs have been minimal, with some administrative support for room bookings and food. The intent is for the program to disseminate to all core clerkships so that students have the opportunity to participate in projects across disciplines, and under the guidance of faculty from all disciplines. Quality improvement techniques are easily transferable. The opportunity for growth for this program lies in all clerkships placing greater emphasis on using QI as a tool for leadership and self-improvement among students.

9. **Managing Future Expectations — A Partnership in Medical Education**

*J. Nellis, C. Paul, D. DeMik, S. Sciengienka, M. McHugh, University of Iowa, Carver College of Medicine*

*A. Reed, University of Iowa Hospitals and Clinics*

**Objective/Purpose:** To develop an early understanding of healthcare delivery science and management within the traditional medical school curriculum

**Need for Innovation/Practice:** The field of medicine constantly changes. Breakthrough medical advances, business practices, legal precedents, and political policies continually influence the way physicians are expected to practice medicine. As we move into a new era of medicine and reimbursement, these influences will become innumerable, and sound physician leadership will become vital. Dual degree programs exist, although they carry specific barriers to entry (e.g. time and cost). At this time, traditional medical education fails to incorporate topics essential to leadership development.

**Methods, Materials and Resources Used:** The University of Iowa Carver College of Medicine (CCOM) currently provides students with ancillary training programs in the form of distinction tracks. These distinction tracks are elective and are built upon formal classroom learning as well as the completion of student driven capstone projects. At this time, students have the option of graduating with distinction in research, teaching, global health, service and humanities. Such distinction tracks offered a proven platform for content delivery specific to healthcare delivery science, management and leadership development. To gauge students’ interest in this content, a 2-day seminar in business and leadership was offered through the CCOM and Tippie College of Business (TCOB). Students were asked to complete a survey in exchange for the opportunity to attend the seminar. 49 seats (maximum capacity) were filled based on the order of initial survey submission. A follow-up survey was distributed to seminar attendees. Pre- and post-seminar views were assessed.

**Outcomes:** Within 12 hours of releasing the seminar sign up survey, 20% of the CCOM student body registered. Of the respondents, 6% were prior business majors, 25% had completed some business coursework during undergrad, and 12% were currently or planning on completing a dual degree program either with an MBA or MPH. 61% of respondents were already working towards their research distinction track and 29% towards teaching. When asked if they would consider a healthcare delivery leadership distinction track, 54% responded yes, 40% were unsure and 6% said no. Following the seminar, 94% of attendees agreed or strongly agreed the provided lecturers should be better represented during medical school. 84% of attendees stated that they would be interested in participating in a provided distinction track, and 65% would be interested in completing a healthcare administration clerkship rotation. Of the content provided, students were most interested in learning more about the Affordable Care Act, overview of the insurance industry, financial accounting, and medical law and ethics.
Strengths and Areas for Improvement: Program strengths included: ● Identification of sought after topics that had not been previously addressed within the traditional curricula ● Development of formal interdisciplinary programming ● Within the time frame of the traditional 4-year medical school curriculum ● Free of charge through a generous alumnus donation

Areas of improvement included: ● Decreasing the density of the content delivered ● Increasing the availability of the material to more students

Feasibility of Program Maintenance/Transferability: Following the enthusiastic response from the CCOM student body, faculty and alumni, the CCOM and TCOB jointly funded a Healthcare Delivery Science and Management Distinction Track, scheduled to begin January 2016. Provided other institutions have both a business college and a medical college, the assessment of student interest in healthcare delivery and leadership through a pilot seminar is possible. The creation of long-term interdisciplinary programming requires detailed planning and institution support.

*This project received early financial support from a single alumnus

10. Online Anatomy Cases: Building Clinical Context into Gross Anatomy Education
A. Grayev, L. Gonzalez, A.S. Becker, K. Krabbenhoft, C. Seibert, University of Wisconsin, Madison

Objective/Purpose: National trends have brought clinical opportunities and relevance earlier into the preclinical medical school learning experience. The University of Wisconsin School of Medicine and Public Health has created a series of online anatomy cases intended to engage first year medical and physician assistant students in applying gross anatomy content to patient scenarios.

Need for Innovation/Practice: Given the time constraints of preclinical medical education, there is a growing need to find ways to teach gross anatomy in more efficient and more integrated ways. We have piloted a series of interactive online anatomy cases that highlight a range of health topics such as breast cancer, pneumothorax and intracranial hemorrhage. The cases connect clinical medicine with basic anatomy coursework to emphasize the relevance of the material and provide important context for learning. They are intended as a learning tool to engage students, allowing them to apply their foundational anatomy content to a patient scenario.

Methods, Materials and Resources Used: During the summer of 2014, we piloted initial cases with first year physician assistant students and will continue the pilot during the spring 2015 semester with first year medical students. During the 2014 pilot, students completed the online cases after completion of the related anatomy unit. During the 2015 pilot, students will complete each online case during protected time prior to a related radiology correlation lecture, serving as a starting point for the discussion of basic anatomy and clinical medicine integration.

Outcomes: Students evaluate the cases through an online survey, rating five identified goals. Initial results indicate that the cases are largely successful in actively engaging students in learning, helping them apply anatomy content and better understand the clinical relevance of anatomy.

Strengths and Areas for Improvement: Preliminary data indicates that students are engaged by the introduction of applied anatomic knowledge into clinical scenarios. Next steps include incorporating evaluation of learning from the clinical scenarios, as well as looking at ways to develop vertical integration of these anatomic concepts into the clinical phases of education.

Feasibility of Program Maintenance/Transferability: These cases, although time intensive to originally create, are easily incorporated into the curriculum at appropriate points during dissection. In addition, they can be potentially revisited by students during clinical rotations to reinforce basic science concepts or could be further developed to focus on clinical management or treatment options.

*Our research was supported by an Educational Innovation grant from the University of Wisconsin
11. Vertical and Horizontal Alignment of the Gross Anatomy Curriculum with the Core Entrustable Professional Activities (EPAs)
B. Giffin, P. Baker, L. Lukin, University of Cincinnati College of Medicine

Objective/Purpose: To align our four-year Gross Anatomy curricular content with the core Entrustable Professional Activities (EPAs) using the Backward Design model (Wiggins and Tighe 2005) and free up curricular time to incorporate point-of-care ultrasound training into the Gross Anatomy curriculum.

Need for Innovation/Practice: For the past 10 years there has been an increasing impetus for implementation of point-of-care ultrasound training in the medical school curricula. Our institution made a decision to implement point-of-care ultrasound training into the curriculum without adding additional time to the schedule. In addition, we wanted to align the Gross Anatomy curriculum to the EPAs and the associated PCRS (Physician Competency Reference Set). A task force was established to review the Gross Anatomy curricular content to determine (1) if we could reduce Gross Anatomy content to free up time for ultrasound training activities and, (2) the feasibility of mapping the Gross Anatomy curricular outcomes to the EPAs and the associated PCRS.

Methods, Materials and Resources Used: A task force consisting of anatomy faculty and clinicians (1) described what a student should be able to do or understand without direct supervision upon completion of the Gross Anatomy curriculum, in preparation for residency; (2) defined Gross Anatomy curriculum standard outcomes that are applicable to all the anatomy courses; (3) mapped Gross Anatomy curriculum standard outcomes to twenty-one of the PCRS competencies mapped to the thirteen core EPAs; (4) used the five levels of supervision described by ten Cate (2013) to indicate how each competency described in the Outcome/Competency Alignment Map will be assessed; (5) reviewed the detailed Gross Anatomy curricular content (a compilation of anatomical structures currently taught in all the organ system courses, clerkship intersessions and fourth year electives) and determined whether the structure must be taught (dissection, prosection, lecture, assigned reading, imaging, team-based learning, etc.) or can be dropped; (6) drafted a four-year ultrasound curriculum as an adjunct to the teaching of Gross Anatomy.

Outcomes: The process of aligning the Gross Anatomy curriculum with the EPAs and the associated PCRS improved vertical and horizontal coherence of Gross Anatomy in our curriculum. Additionally, this process enabled us to identify gaps and redundancies, ultimately guiding strategic improvements. The analysis of the Gross Anatomy curricular content resulted in elimination and/or consolidation of course material enabling the scheduling of ultrasound sessions without adding additional time to the schedule.

Strengths and Areas for Improvement: The faculty learned—especially the anatomists— that a partnership with clinicians is extremely important for determining what should be included in the curriculum. Moving forward we need to evaluate the alignment of particular competencies and assessment methods used to measure student performance. Further work is needed to develop ultrasound competency assessment and ensure that medical students can demonstrate entrustability in a particular application.

Feasibility of Program Maintenance/Transferability: Our use of the Backward Design framework has the potential to offer other institutions a model for aligning their curriculum to the EPAs and designing both formative and summative assessments to effectively measure progression to entrustment.

12. Video Questions add Interest to Medical Neuroscience Examinations
B.B. Krippendorf, D. Wilke-Zemanovic, R. Treat, Medical College of Wisconsin, Milwaukee
Objective/Purpose: Video was incorporated into multiple choice questions (MCQs) on computerized Medical Neuroscience examinations to determine ease of use and educational value, and to prepare students for video-based questions on USMLE Step 1.

Need for Innovation/Practice: Medical students may encounter video- and audio-based questions on USMLE Step 1. Although students may have access to video-based questions in self-assessment programs, video-based questions were not being used in institutional exams. A brief assessment of the technical feasibility of using video-based questions, students' perception of those questions, and a psychometric analysis comparing video-based and non-video-based questions covering similar topics has not been widely reported.

Methods, Materials and Resources Used: Institutional adoption of ExamSoft® as the secure examination platform allowed for incorporation of audio and video into MCQs used for course examinations. During 2014/15, five videos of movement disorders, eye movement abnormalities, reflexes and somatosensory tests were incorporated into MCQs administered using ExamSoft. Video files were downloaded from YouTube for recorded with an iPad 2. Final Cut® (Apple Inc.) and QuickTime Pro® (Apple Inc.) software were used to shorten video clips, remove audio tracks when necessary, and convert them to MPEG-4 format. A student survey was administered with seven questions using a four-point Likert scale (1=strongly disagree, 4=strongly agree). Students rated video MCQs for ease of use and educational value. Additionally, students were asked to comment on video MCQs. Statistical analyses were performed on exams and individual questions

Outcomes: 206 M1 students completed the exams; 153 students (74%) completed the survey. All students strongly agreed (SA) (88%) or agreed (A) (12%) that video MCQs uploaded quickly. Nearly all students saw the video portion of the questions clearly: SA (83%), A (16%). Most students (88%) heard the audio portion clearly, and most students (95%) watched the video more than once. Students indicated that video MCQs were not more challenging than other questions, but 98% of students reported that video MCQs made the overall exam more interesting. Most students felt video questions simulated a physician/patient interaction: SA (45%), A (51%). Students preferred video without an audio track. Students commented favorably regarding video exam questions: “a terrific way to test understanding, and apply clinical examples to basic science knowledge”, “a realistic way for how we will need to think as physicians,” “left an impressionable memory of the disorders in my head,” and “innovative and creative!” Exam reliabilities ranged from 0.70-0.78. The percent of students answering video questions correctly ranged from 80-96%, discrimination indexes ranged from 0.11-0.31.

Strengths and Areas for Improvement: Computerized examination software and readily available personal devices allow for easy incorporation of video into MCQs. Videos are clearly viewed, heard and may be viewed multiple times. Overwhelmingly, students indicated that video MCQs simulate a physician/patient interaction and make the overall exam more interesting! The challenge for faculty is to develop a larger pool of high-quality video-based MCQs for students across several courses. Video-based MCQs must be repeatedly analyzed so they are at an appropriate level of difficulty and contribute favorably to the inter-item reliability.

Feasibility of Program Maintenance/Transferability: Maintaining the use of video-based exam MCQs in the Medical Neuroscience course will continue as long as the institutional exam platform is capable of delivering media files. The pool of video- and audio-based MCQs is expected to grow. Presentations and publications will be used to promote the use of video and audio in MCQs on exams within and beyond our institution.

13. Compass: a Longitudinal Course Addressing Medicine, Patients, Self and Society
Objective/Purpose: To foster the development of patient-centered physicians in relation to patients, self, and society.

Need for Innovation/Practice: Medical education substantially impacts students’ professional formation, effectiveness in inclusive practice, and mental health and wellness. The AAMC’s statement on learning environment emphasizes high quality, safe, and effective care for patients founded in respect, resilience, integrity, and collaboration amongst others. We present a novel curricular program called COMPASS that seeks to build upon an educational structure with these aspects of the medical student’s development, awareness, and mental health in mind.

Methods, Materials and Resources Used: Introduced in 2013, the Contemplating Medicine, Patients, Self and Society (COMPASS) course is a unique small group program composed of medical students from all 4 years. The goal of the course is to develop and foster skills of a physician with a focus on self-awareness and personal well-being. COMPASS meets for 2 hours, five times per year. Within the sessions, students have the opportunity to reflect, mentor, and discuss topics that are meaningful to each individual through storytelling, reflective writing, and group discussion. Two faculty members, at least one of whom is a clinician, guide students in topics such as personal transitions, values, and cultural awareness. Due to the novelty of the COMPASS course, feedback is currently being collected to assess student and faculty input which allows for improvement of the course. There are also two levels of student assessment: formative and summative. Students receive formative feedback twice yearly from their small group faculty guides. During the M4 year, students complete a critical reflection and analysis of a personal experience during medical school. Faculty graders provide feedback to aid in professional development. Finally, faculty guides complete evaluations of the overall course. Through these various forms of evaluation, the course is consistently being monitored for progress and improvement.

Outcomes: Upon completion of the course, students are to demonstrate the following course competencies: (a) recognize personal and professional stresses and develop and use effective coping strategies to deal with them, (b) recognize and thoughtfully discuss when faced with breaches of professionalism or unsafe practices, (c) understand that assuming the identity of doctor is both a process of personal development and a social enterprise, (d) understand how to provide individualized care without stereotyping, recognizing how cultural, health literacy, linguistic, socioeconomic, sexual orientation, gender and historic factors impact care, and (e) demonstrate self-reflection and awareness of one’s own culture, assumptions, stereotypes and biases, and understand how this impacts the medical encounter.

Strengths and Areas for Improvement: To maintain COMPASS as an effective course requires extensive collaboration from faculty and students. The commitment of the faculty to participate as guides has been a strength of our program. To date, over 79 faculty members have participated in the program, and our guide retention rate has been 90% or higher each year. Faculty and students also serve on the course’s curriculum committee to plan and vet upcoming sessions. Furthermore, we have also been working to improve our distance education infrastructure to ensure high quality participation from students who happen to be out of town for various reasons, such as away rotations and residency interviews. We believe the need for participation during all four years of medical school allows for older students to mentor the rising students within a safe space to discuss important topics.

Feasibility of Program Maintenance/Transferability: The COMPASS course addresses needs which can be found at many other medical schools. In addition, the time invested by faculty and students...
throughout the year is reasonable and therefore may very well be transferable for use within other schools’ curricula.

14. Creating a Student-Led Service-Learning Advisory Council to Facilitate Integration of Extra-Curricular Service-Learning within the Curriculum

J. Kiesler, Family and Community Medicine, University of Cincinnati College of Medicine, J. Riddle, University of Illinois-Chicago College of Medicine

**Objective/Purpose:** To integrate and improve curricular and extra-curricular Service-Learning educational experiences across the four years and create a mechanism for community partner curricular feedback through the development of a student-led Service-Learning Advisory Council.

**Need for Innovation/Practice:** The LCME has recognized service-learning as a priority and requires that faculty provide opportunities and support participation for accreditation. The challenges for schools include varied definitions for service-learning, tracking of experiences, assessing quality and risk of student initiated experiences, community partner burden, blurring of oversight between student affairs and medical education as well as missed opportunities for integrating extra-curricular service-learning within the curriculum.

**Methods, Materials and Resources Used:** Initial key informant interviews were conducted with medical student leaders of service-learning student organizations, service-learning faculty advisors and service-learning community partners to discuss the service-learning experience at University of Cincinnati College of Medicine. Topics included service-learning barriers and how/if a service-learning student council could be of benefit. From those interviews we decided to conduct three focus groups focused on the concept of developing a student-led Service-Learning Advisory Council at the College of Medicine in order to broaden the perspectives represented by the interviews. The three focus groups represent each of the key stakeholders – medical students, medical school faculty, and community partners. Focus groups will answer the following questions: (1) What should be the mission of the council? (2) How could the council help extra-curricular and curricular service-learning and what should be the priorities? (3) Who should be members of the council? Results from the three focus groups will shape the structure, function and future charter of the council.

**Outcomes:** Results showed that 18/56 student organizations offer service at UCCOM. Initial themes from key informant interviews demonstrated a need to better link students with service opportunities - “Wild West out there now”; need to quantify impact; need to engage upper level students in discussion of service-learning needs; students do not have time to develop own partnerships. All key informants were positive about the concept of a student council. The process of assessing attitudes from students, faculty and community partners from focus groups in order to shape the council will provide a richness of perspectives and include the key stakeholders. Initial results of the focus group findings will be presented at the CGEA meeting. The final outcome will be a student-led Service-Learning Advisory Council.

**Strengths and Areas for Improvement:** The three focus groups will allow for the engagement of and deliberation by key stakeholders in order to provide insight into the role and function of a student-led Service-Learning Advisory Council at a medical school. Further work is needed to develop methods to assess effectiveness of the council.

**Feasibility of Program Maintenance/Transferability:** The use of the student, faculty and community partner focus groups to develop a Service-Learning council is a potential model for other institutions wanting to address ways to improve Service-Learning education. The process of integrating extra-curricular service-learning and the curriculum is valuable to share with other institutions and learn from internally as well. Achieving a student-led Service-Learning Advisory Council will also aid
Objective/Purpose: We became the School of Medicine and Public Health (SMPH) in 2005, launching a transformation to integrate public health across all missions. Innovative curricula with explicit public health competencies were created; programs to address health issues in rural, urban, and global underserved communities were established; community-based learning opportunities were prioritized; and an MPH program was developed. In 2012 we further accelerated transformation by launching a multifaceted HRSA-funded innovative educational program, “the UW-Public Health and Primary Care Innovations in Medical Education (PRIME) Program,” to “shape a new generation of health professionals who will value primary care and incorporate health promotion and disease prevention into their practice.”

Need for Innovation/Practice: Integrated health promotion and disease prevention approaches are predicted to positively impact the health of individuals and communities. To meet broad goals that address these integrated public health approaches while serving students with diverse backgrounds and interests, we needed to build a novel tiered educational approach to train students to engage in health promotion and disease prevention practices at different levels.

Methods, Materials and Resources Used: We created PRIME to (1) support all MD and PA students’ development of core public health competencies, (2) provide some students (> 35% per class) additional expertise to address needs of future patients and communities, and (3) create robust dual degree programs leading to an MPH for > 10% of students. We built a strong leadership team, a diverse steering committee, quality community sites, new educational programming, and dedicated assessment/evaluation. A longitudinal Path of Distinction (PoD) provided additional public health courses and immersive community-based learning experiences (e.g. PoD MD students complete > 8 public health credits and 160 hours of relevant fieldwork). MD and PA students may apply to the MPH dual degree program when applying to or during their other degree program. The MPH is year-long immersive and interprofessional program. Launching PRIME required leveraging of institutional resources, external funding, close collaboration with existing educational programs, dedicated partnerships with community organizations, and committed faculty and staff.

Outcomes: AAMC Medical Student Graduation Questionnaire data demonstrated that our outcomes relevant to public health are better than national (N) outcomes (i.e. in 2015, 59.2% SMPH vs. 26% N report community based research, 87.8% SMPH vs. 73.5% N report free clinic for the underserved experience, 74.8% SMPH vs. 61.7% N report experience with health disparities, and 83.1% SMPH vs. 69.2% N report good/excellent biostatistics and epidemiology education). Outcomes of MD grads 3- and 6-years post-grad demonstrated positive trends. When asked, “Do you feel you approach patient care issues differently because of the public health knowledge and skills you acquired?” 16.7% of ’05 grads vs. 30.7% of ’09 grads 6-years post-grad and 18.7% of ’08 grads vs. 34.7% of 2012 grads 3-years post-grad said “Yes, frequently.” PoD enrollment within MD graduating classes from 2015 to 2018 increased from 7%, to 31% of the class and is even higher for PA students. Most PoD students who completed field experiences during 2014 reported an increase in their understanding of: public health practice (77%), cultural and social factors impacting health outcomes (81%), health disparities (88%), and how they could make a difference in community/population health (85%). They reported increased interest in: public health field work (92%), working with underserved populations (81%),
becoming a health advocate (92%), and obtaining an MPH (27%). The number of MPH applicants for MD and PA students has increased, with >10% of the newest PA class enrolled this year.

**Strengths and Areas for Improvement:** While early outcomes for our public health innovations are favorable and enthusiasm among PRIME students - especially for the PoD and MPH dual degrees - has exceeded expectations, we lack data to truly assess the significant long term impact of the program on careers and health outcomes. Such impact will be hard to accurately assess due to multiple influential variables over time. Enhancing longitudinal and sustainable programming with academic and community partners while keeping costs low, especially for students and communities, are also recognized challenges.

**Feasibility of Program Maintenance/Transferability:** The three-tiered approach of PRIME serves as a progressive, transferable model to enhance broad public health training - from core competencies to MPH-level expertise - at what is relatively low cost for predicted high potential benefits. This program can be sustained through cultivating and nurturing strong existing academic and community partnerships under dedicated leadership. It may be implemented in phases and with other existing health professional programs to enhance efficiencies and benefits at other institutions.

*This work was supported by a grant from HRSA/DHHS, grant no. T85HP24472*

16. **An Effective Approach to Train Future Physicians to Address Health Needs of Underserved Rural Communities: The Wisconsin Academy of Rural Medicine (WARM)**

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**Objective/Purpose:** To address the existing and predicted health disparities and physician shortages in underserved rural communities in Wisconsin, we created a unique immersive educational program in partnership with statewide health systems, the Wisconsin Academy of Rural Medicine (WARM), to train medical students to effectively address rural health care needs.

**Need for Innovation/Practice:** The changing demographics and growing health care shortages in rural regions of Wisconsin, as well as in rural areas throughout the United States, since the last decade of the 20th century prompted an urgent need to address disparities in underserved rural areas. Innovative approaches were needed to create a pipeline of dedicated health care providers in multiple specialties (including primary care, behavioral health, and surgical fields) who were interested in serving and well-trained to address health needs in these rural communities.

**Methods, Materials and Resources Used:** We launched the WARM program, a four-year rural medicine education program within the MD Program curriculum at the University of Wisconsin School of Medicine and Public Health, in 2007 with a cohort of 5 students and now admit 26 students per year. Applicants apply directly to WARM, which is identified as a distinct program in our medical school admissions process. WARM recruits prospective students who intend to practice rural medicine and provides them with training and education that is tailored to meet the needs of rural communities. WARM students are provided with unique curricular elements throughout their four years of medical school that focus on rural practice and health care issues, with an emphasis on health disparities in rural populations. WARM students develop relevant clinical and community engagement skills through immersive learning in rural clinics and training at community centers during their final two years of medical school. WARM is dependent on the dedicated partnership of three major health systems in Wisconsin and several rural community clinics and organizations. The WARM program is unique among rural programs in supporting student interest in all specialties where shortages exist in our rural communities.

**Outcomes:** Of the 75 WARM students who have graduated from the program so far, 60% have entered residency programs in primary care (Internal Medicine, Family Medicine or Pediatrics), compared to 39.5% of non-WARM medical students in the same time period. In addition, 55% of
WARM graduates have entered residency programs in Wisconsin, compared to 29% of non-WARM graduates in the same time period. Putting those two factors together, the 41% of WARM graduates from 2011-15 doing Wisconsin Primary Care residencies is three times the rate of UW’s other MD graduates (13%). Since completing both medical school and residency education in Wisconsin highly predicts practicing in Wisconsin, 54.7% (41/75) graduates of the WARM completing their residency education in Wisconsin indicates the success of the WARM program in expanding the pipeline of physicians who are likely to practice in our state. In fact, as of August 2015, seven WARM students from the graduating classes of 2011 and 2012 have now completed their residencies, and five of those are now practicing in WI, with one more just over the border in Duluth, MN. Six of these graduates are in Family Medicine (with one now doing a sports medicine fellowship) and one is in Internal Medicine. Student academic progress reports and student evaluations demonstrate academic success in the later years of the program that is equivalent to non-WARM students and a high degree of student satisfaction with the program.

**Strengths and Areas for Improvement:** To date the WARM program has demonstrated success in meeting the goals of the program - from recruitment goals to program outcomes. Major strengths are the institutional commitment to serve statewide needs, collaborative leadership with dedicated faculty leadership at each of the three major statewide training hubs, and the unique, strong clinical and community training opportunities associated with each site. Challenges include maintaining equivalent opportunities across sites in underserved areas of the state where patient volumes within specialties vary, the potential for students feeling isolated when living in small rural communities, and recruiting clinical training faculty to teach across multiple rural sites who may already be stressed with clinical capacity and time issues due to the small number of providers in an area.

**Feasibility of Program Maintenance/Transferability:** The development of rural training programs to address future health care shortages and optimize health in rural underserved areas is essential. Our unique WARM program shows several early signs of success and, as such, is an excellent model. Development of similar programs are possible with a commitment of resources, recruitment of invested faculty and students, and dedicated community partnerships.

*This work was supported by a grant from HRSA/DHHS, grant no. T85HP24472

17. Integrating Assessment of Food Insecurity into the Medical School Curriculum as an Important Health Indicator

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**Objective/Purpose:** Food insecurity is associated with an increase in chronic disease risk and negative health outcomes. Gaining an understanding of how to assess for food insecurity is an important skill for health care professionals to integrate into their clinical practice. The objective was to design problem-based clinical patient case scenarios and allowed students an opportunity to review how social determinants of health impact the nutrition status and health of patients.

**Need for Innovation/Practice:** Medical students need to have the opportunity to learn how to integrate the assessment of food insecurity within the context of the doctor-patient relationship and clinical assessment. The implementation of the Affordable Care Act will increase the probability that more individuals at risk for food insecurity will enter the health care system, further emphasizing the need for this important assessment skill.

**Methods, Materials and Resources Used:** To integrate the assessment of food insecurity into our medical school curriculum, we developed and implemented problem-based longitudinal clinical patient case scenarios and a lecture based presentation in partnership with our local Health department which identified community health programs that were designed to help address food insecurity into our second year Promotion and Maintenance of Health course. We present here an
overview of this innovative curriculum. Medical students were required to review their assigned case scenario and to assess their patient’s nutrition risks and identify community health resources that would help support their patient’s nutrition and health needs.

**Outcomes:** A review of our medical student’s completed case responses indicated that this problem based longitudinal clinical patient case scenario approach was successful in allowing our student’s the opportunity to integrate food insecurity into a clinical assessment and further they were able to incorporate community resources to help address the social determinants of the health of their assigned patients. We conclude that providing problem-based longitudinal clinical case scenarios is an effective way to integrate skill based food insecurity and associated social determinants of health assessment into the medical school curriculum.

**Strengths and Areas for Improvement:**

**Strengths:** The assessment of food insecurity allowed the students to reflect on how socio-economic, cultural, policy, behavioral, environmental and biological factors contribute to specific individual and population health outcomes. In addition, because these are longitudinal cases, we had the opportunity to update and change parameters within each of the clinical case scenario, which we believe promoted greater medical student understanding and empathy of the hurdles that patients requiring nutrition assistance must overcome.

**Areas for Improvement:** Possibly allowing the student’s the opportunity to actually visit the location(s) of the patient’s environment would provide additional benefits for this exercise, but due to time constraints we used the "windshield" view of the community via internet resources.

**Feasibility of Program Maintenance/Transferability:** This problem-based longitudinal clinical patient case scenario approach can be easily adapted to other medical school curricula.

18. Poverty Simulation: A Psychosocial Learning Experience for Interprofessional Healthcare Students

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**Objective/Purpose:** The interprofessional poverty simulation is designed to allow medical and nursing students from Wayne State University the opportunity to explore the various pressures people face when experiencing poverty. Using standpoint theory, this provides students an opportunity to better understand the perspectives of their patients, and provide a basis for establishing rapport and creating common ground with those patients.

**Need for Innovation/Practice:** Participation in the poverty simulation provides students with a better appreciation of the struggles faced by vulnerable populations. It also creates an opportunity for interprofessional experiential learning between medical students and nursing students. The students develop an increased understanding of their self-perception of their feelings regarding vulnerable populations. It also helps students acquire various core competencies for medical education, including interprofessional communication, interprofessional teamwork and team-based care, as well as values/ethics for interprofessional practice. This program offers students the opportunity to better understand the ways in which the outcomes of patients with low socioeconomic status can improve by using interprofessional connections. All students complete a pre-and post-test to analyze their perceptions of vulnerable populations.

**Methods, Materials and Resources Used:** For this poverty simulation, the Community Action Poverty Simulation kit from the Missouri Association for Community Action is used. This kit cost $1975. Using this kit, the poverty simulation is designed so students are given roles within families experiencing poverty. The simulation requires students to spend a month within their family, during which time they pay for transportation, rent, utilities, work, and go to school. Each family has a set amount of bills and income. There are volunteers who act in various community roles, including social work, law enforcement, healthcare, businesses, banking, pawn shops, nonprofits, and criminal enterprise. After
this, all the students and volunteers come together for a debriefing session in which they discuss their opinions, feelings, and experiences from the activities.

**Outcomes:** For this simulation, sixty-eight medical and nursing students participated over the course of two sessions. Interprofessional education was achieved by mixing the families with both med students and nursing students. They had to work together to make it through the 4 weeks of poverty. They had to collaborate from 2 different worldviews (medicine/nursing). Between the pre- and post-tests, most students did not report a big change in their self-perceptions of vulnerable populations. However, many students began the exercise unsure as to whether social services had a positive impact on those it serves, but after this exercise students were more confident in their beliefs as to the efficacy of social services on low income populations (p=0.0025). Furthermore, amongst students that were confident in their knowledge both pre and post simulation, students significantly (p=0.0336) shifted their view toward an insufficiency of income “from welfare, food stamps, and other social services” to survive. A significant (p=0.0029) shift in attitudes away from a perception of excessive spending on “junk and fast food” amongst low income populations was also noted. Finally, a significant (p= 0.0107) shift in views away from the belief that “poor people watch too much TV” was observed. These data suggest that the poverty simulation managed to shift the biased views of students about low income individuals toward a more realistic view of the resources available as well as spending habits of low income individuals.

**Strengths and Areas for Improvement:** The poverty simulation had many strengths. The diversity of roles available offered students a multitude of ways to engage with the various challenges faced by people of low socioeconomic status. Furthermore, since each student was assigned a different role, this offered a unique experiential learning for each student. This also created the opportunity for students to be innovative and find ways to use their resources. Many students resorted to criminal activity as a way to make ends meet. However, others found creative solutions, such as combining households in order to reduce costs. Many students who were assigned the roles of teenagers pursued part-time employment with the nonprofit vendors as a way to earn extra cash. These strategies and responses to the pressures of poverty mirrored actual strategies used by people experiencing poverty. There are several areas for improvement with this exercise that can be implemented in future sessions. This poverty simulation would benefit immensely by including people who have experienced poverty as vendors in roles like quick cash, banker, employer, etc. However, this would require a budget to implement. In addition, the simulation triggered some negative feelings, particularly for students who had personal experience with poverty. Furthermore, the simulation could be expanded to increase the number of disciplines involved, providing students with the opportunity to benefit from other interprofessional connections. Finally, some minor changes could be made to the simulation to make it geared more towards healthcare. For example, the simulation participants might experience more healthcare crises or events, in order to help students better understand the connections between health and poverty. Similarly, a health insurance provider could be added to the simulation so that students learned more about the barriers to access healthcare for vulnerable populations.

**Feasibility of Program Maintenance/Transferability:** This program is very feasible to maintain and transfer to other schools. The cost of the kit is approximately $1975. The volunteer vendors (18 actors per session) is a challenge to recruit, especially if one wants to find people who are or have experienced poverty. Although it is recommended that the volunteer force be comprised of individuals who have experienced poverty, this is not necessary for the success of the simulation.

19. **Classroom to Community Initiative: Medical Students Supporting the Efforts of a Public School District in Need**
Objective/Purpose: Through the Medical Student as Educator series, our medical school has the capacity to support the efforts of classroom teachers in promoting health education of school children and is a required component of the doctoring course. First year medical students teach a health lesson in local area elementary schools. While the focus of this assignment is to assist medical students in communication and patient education, the district also benefits through a focused program, which may improve the learning climate.

Need for Innovation/Practice: As part of a renewed commitment of the university to support a local underserved community, this initiative represents the work of a partnership aimed toward reinvigorating a community in need and a school district facing a financial emergency. Community members, along with the Board of Education and school district staff, highlighted the need for support in health education as well as character and health development.

Methods, Materials and Resources Used: Instructional materials used for character and health skills lessons were developed from the Michigan Model for Health curriculum, the model program for K-12 health education. The adapted lessons were aligned with the Grade Level Content Expectations in Health Education.

Outcomes: Twenty-seven Pontiac schools elementary classroom teachers participated in the Medical Student as Educator series with 65 medical students presenting to about 500 students. More than one-third of classroom teachers (n=10) selected the Managing Strong Feelings lesson. Lessons from the Nutrition and Physical Activity thread were also popular with six classroom teachers selecting the Physical Activity, Rest, and Sleep lesson and five classroom teachers selecting the Finding the Balance lesson. The selection by classroom teachers of the Managing Strong Feelings lesson demonstrates teachers’ commitment to improving the learning climate for students while equipping them with the tools to make healthy choices. Upon completion of their teaching, medical students submitted reflections that are being analyzed.

Strengths and Areas for Improvement: Previous studies have indicated significant benefits associated with implementation of social and emotional intervention programs in schools. Continuation of the Medical Student as Educator series in a community in need provides the district with an extremely cost effective avenue toward benefitting the learning climate. The next step in program evaluation includes development of clear outcomes-based benchmarks in consultation with the district. Specifically, the researchers aim to identify any perceived impact of the initiative on the learning climate and student behavior.

Feasibility of Program Maintenance/Transferability: The Medical Student as Educator series is easily replicable and supports classroom teachers’ goals of improving the health and wellness of classroom students while positively impacting the learning environment at no cost to the district.

20. Classroom to Community Initiative: Development of a Medical Student-Led Infectious Disease Module for High School Students

Objective/Purpose: Physicians are being increasingly called on to focus on teaching for the promotion and maintenance of health and specifically to play a major role in the education of community members and students in schools in particular1. While resources aimed at assisting classroom teachers with teaching complex biomedical topics have been developed, it is less clear whether such materials might be adapted for use by healthcare professionals in training, such as medical students. This pilot project aimed to determine whether an infectious disease curriculum
developed for use by high school classroom teachers could be adapted for use by medical students to teach health-related information during a summer enrichment program for high school students.

Need for Innovation/Practice: The need for medical schools, as the centers for biomedical education and research, to interact with elementary or even high schools to develop curricula or to train teachers has been documented. Yet, medical students and those pursuing careers in medical education are rarely encouraged to work with elementary and high school teachers or content experts in biomedical sciences. This gap between medical experts and medical student teachers limits learning for students across the spectrum, and ultimately slows the progress of biomedicine as a field of study.

Methods, Materials and Resources Used: The Great Diseases program was developed by Tufts Medical School and Boston public school teachers in 2009. With guidance from curriculum co-developer Dr. Berri Jacque, we adapted five lessons from the longitudinal Infectious Diseases unit for medical students to teach during a two-week-long summer program for high school students. We presented our partitioned modules to 30 students over four sessions. The sessions focused on the spread of infectious disease and basic virology.

Outcomes: In general, we found that the summer program participants responded favorably to the course teachings and activities. This feedback indicates the medical student teaching module is a feasible option for medical students teaching in similar subjects and scenarios. Programmatic outcomes were evaluated with an end of program survey completed by attendees. Attendees were asked to rate if they felt they could teach their friends about the basics of infectious disease and their interest in learning more about microbiology and infectious disease, as a result of participating in the infectious disease modules. Survey analysis is ongoing.

Strengths and Areas for Improvement: We found that teaching a module centered on infectious disease is ideal for a medical student as medical students are expected to master core concepts in epidemiology and virology as a part of their first-year coursework. Providing medical students with the opportunity to teach these concepts to high school students is mutually beneficial—concepts are reinforced for the medical student as they teach and the high school student can be eased into the subject matter in a peer-oriented environment. At the conclusion of this pilot program, it was determined that some activities should be modified or eliminated for medical students teaching the module. Feedback indicated participants appeared to have difficulty making the connection between the activity and the content as well as some activities taking longer than anticipated. For medical students familiar with teaching in traditional classrooms, these activities may be more feasible. Additionally, facilitating the activities as written for classroom teachers may be beneficial with additional time allotted.

Feasibility of Program Maintenance/Transferability: During the fall semester, 2nd year medical students successfully used one of the adapted activities to reinforce infectious disease topics at a local high school. This illustrates the ability to transfer this modified teaching program to similar populations.

21. Doctors of Tomorrow: Leadership and Collaboration through an Innovative Mentorship Curriculum
K. Heinze, K. Steenbergh, D. Mohan, L. McIntosh, H. Gits, J. Finks, G. Sandhu, University of Michigan

Objective/Purpose: Doctors of Tomorrow (DoT) program is a novel pipeline program that aims to inspire high school students from underrepresented communities to pursue careers in healthcare and increase diversity among medical students. At the heart of DoT is mentorship between first-year medical students (mentors) at the University of Michigan Medical School and freshman students (mentees) at Cass Technical High School in Detroit. By engaging mentees in hands-on clinical experiences, collaborative community-health service projects, and leadership development, DoT
creates a rich environment for learning about health professions, promoting cultural awareness, and reducing bias in the medical field. While mentees relish in the medical exposure they gain, program evaluation revealed the immense value they place on mentoring relationships.

**Need for Innovation/Practice:** “I think it’s great just having a mentor, somebody you can talk to, somebody that seems genuinely interested when you want to talk about school work or just how is life going for you as opposed to friends sometimes will be like great, but we don’t really care about your homework.” These words from a DoT student reflect similar feedback from other mentees and spurred DoT leaders to purposefully design a curriculum for mentorship development. In fall 2015, medical student mentors began to engage in instructional workshops and attend presentations from physicians that address the role of mentorship within medical education. Reaching beyond DoT, this curriculum also guides development of mentors for their careers as physicians.

**Methods, Materials and Resources Used:** Training in the DoT program enables mentors to support mentees in their development as students and maturation as individuals. One of the core components of the mentorship curriculum, a “How to Mentor” workshop, capitalizes on a common bond described by a previous DoT mentee as, “She’s in the same boat I am. I’m a freshman. She’s a freshman in college.” Although mentors and mentees are separated in age and educational level, the shared freshman experience provides a foundation on which to grow. Through this workshop, medical students learn effective ways to establish their roles as mentors and identify commonalities to encourage mentees to participate in meaningful conversations. Using the freshman experience as a springboard, mentors are encouraged to relate openly about educational experiences they share with their mentees such as adjusting to new schools, making new friends, and meeting increasingly difficult educational demands.

**Outcomes:** Subsequent topics in the curricula include: unconscious bias; communication; coaching junior learners; teaching and learning; and teamwork. While many medical students are already talented mentors, instructional workshops can hone mentorship skills and enhance relationships with mentees. Since implementing the new curriculum, we have observed that mentees have more quickly felt at ease with their mentors and their relationships have flourished.

**Strengths and Areas for Improvement:** Throughout DoT’s four-year history we have witnessed the strong bonds that develop between mentors and mentees to be the most essential and influential aspect of the program. To gauge the effectiveness of the mentorship curriculum and to ensure the DoT program continues to meet its goals, we have integrated mixed methods evaluation. This includes surveys and focus groups with mentors and mentees that track learning outcomes for mentoring skills, knowledge about health disparities, and socio-cultural attitudes. Future direction for DoT includes longitudinal mentorship development.

**Feasibility of Program Maintenance/Transferability:** Through the implementation of a purposeful mentorship curriculum, we aim to provide mentors with skills in communication, leadership, and the ability to relate across diverse relationships both within the DoT program and in future healthcare teams. Because the strength of the mentorship program lies in engaged medical students and revitalizing existing resources within the health system, the program can readily be adapted by other institutions.

*The Doctors of Tomorrow program has received funding from Jeffrey Cappo and the Victory Automotive Group*

22. **Pilot ENT Mentorship Program for Second Year Medical Students**

*R. Sethia, C. Sheehan, D. Danforth, G.F. Essig, T.N. Teknos, C.A. Elmaraghy, The Ohio State University*

**Objective/Purpose:** The objective of the ENT Mentorship Program is to provide second year medical students at The Ohio State University College of Medicine (OSUCOM) opportunities to learn about
the specialty of Otolaryngology – Head and Neck Surgery. This unique pilot program provides early access to Otolaryngologists to facilitate the acquisition of clinical skills and provide valuable mentorship.

**Need for Innovation/Practice:** The ENT Mentorship Program was formed due to a lack of medical student exposure to the field of Otolaryngology both in the pre-clinical and clinical years. The program was designed so that medical students interested in Otolaryngology could benefit from early clinical exposure and receive help navigating through the process to matching into this highly competitive field. The program not only offers students advancements in longitudinal clinical experience, but also encompasses guidance with research opportunities, networking, professionalism, and career advising. To the best of our knowledge, no formal, individualized mentorship program exists at OSUCOM, and very few exist nationally that provide medical students in their first two years access to a formalized mentorship program within a surgical specialty.

**Methods, Materials and Resources Used:** Program applications were sent to all second year medical students at OSUCOM. After review by a faculty advisor and program directors, eight students were selected into the program. Students were matched with a single mentor from the Department of Otolaryngology – Head and Neck Surgery at The Ohio State University based on subspecialty preferences listed in their applications. This is a six-month program in which students were required to spend a minimum of eight hours per month with their mentors. Student experiences varied due to the diversity of mentor practice schedules, but most had the opportunity to spend time in both the clinic and the operating room. In addition, the students were required to attend one lecture every month given by a faculty member from the Department of Otolaryngology. The lectures provided students with formal didactics in Otolaryngology. The didactic series also encompassed professionalism topics relevant to all surgical specialties providing the students with perspective of life as a surgeon. The mentors provided a reading assignment (article, book chapter, etc.) used to assess the student’s medical knowledge during each session. Finally, the students were instructed to give a final presentation in an area relevant to Otolaryngology. The students’ grades were pass/fail. 50% of the grade was based on evaluation of the student’s clinical performance, professionalism, and teamwork as assessed by the mentor in bi-monthly evaluations, and 50% was based on the final oral presentation. A minimum score of 70% on both assessments was deemed necessary to receive a passing grade.

**Outcomes:** As this is a pilot program, we will ask students and faculty to evaluate their mentorship experience via surveys following completion of the program. We plan to collect data on the number of program participants who match into Otolaryngology residencies.

**Strengths and Areas for Improvement:** As there is a significant attrition rate of residents entering surgical specialties, we are seeking to provide students early exposure to a surgical specialty to allow them to make a more well-informed career decision. This unique program offers second year medical students hands-on, longitudinal clinical exposure in a field of interest, as well as guidance and support through the residency application process into a highly competitive surgical specialty. The program allows medical students to gain insight and formal evaluation prior to the core clinical rotations. Eventually, we hope that the foundation and framework of this program will be adopted by other medical schools seeking to offer a similar early mentorship experience for their students.

**Feasibility of Program Maintenance/Transferability:** Currently within the OSUCOM curriculum, medical students have limited exposure to the Department of Otolaryngology. Therefore, the department contains the resources of surgical faculty with willingness to teach and train medical students that has been underutilized. This program is sustainable due to the large faculty of surgeons who do not have an overlap of students from other core rotations in the department. The program will be offered again next year and is in the process of expansion to first year medical students. The
structure of this program can easily be applied to other competitive surgical specialties if the individual departments contain adequate resources of teaching faculty willing to participate.

23. **Advanced Clinical Track in Pediatrics: A Milestone Based Curriculum for the 4th Year in Undergraduate Medical Education**

*N. Liao, A. Splinter, J.D. Mahan, The Ohio State University/Nationwide Children’s Hospital*  
*J. McCallister, M. Khan, The Ohio State University*

**Objective/Purpose:** To create a pediatric milestones based curriculum for the 4th year of medical school to guide students in obtaining pediatric specific skills and knowledge base. To graduate medical students who will enter residency having already achieved a number of milestone competencies similar to that of an intermediate resident.

**Need for Innovation/Practice:** The instructional design of the 4th year of medical school varies greatly from institution to institution. This represents a useful time that can be structured so that students can gain the clinical experiences needed to be successful in their next graduate medical education role. At the Ohio State University College of Medicine, we implemented Advanced Clinical Tracks in various specialties to help 4th year students become more proficient intern physicians in areas of specialty specific knowledge base, professionalism, self-reflection, and organizational skills.

**Methods, Materials and Resources Used:** The Advanced Clinical Track in Pediatrics is a year-long curriculum based on the American Board of Pediatrics and Accreditation Council for Graduate Medical Education’s Pediatric Milestones. A subset of the milestones that overlap with the 4th year Entrustable Professional Activities were selected for assessment. The track provides students with a guide for rotations and course work, simulation sessions for skills training, expert educator sessions to hone pediatric history and physical exam skills, and mentorship that focuses on guided reflection and life-long learning skills. Assessments are competency based and are to be completed near the end of the each academic year (to start at the end of the 2015-2016 academic year).

**Outcomes:** The advanced clinical track in pediatrics is within its first year of implementation. We believe the Advanced Clinical Track in Pediatrics will enable students to start a pediatric residency with an appropriate foundation. Students who graduate this track will enter residency having already mastered a number of milestone competencies similar to that of a PL-1 resident and will have the advanced skills necessary to excel as a pediatric resident. Going forward, we plan to track our students into residency to assess their internship readiness.

**Strengths and Areas for Improvement:** The strengths of this novel curriculum includes pediatric milestone based assessment that directly maps to Entrustable Professional Activities, organization of the fourth year to more adequately prepare entering residents for pediatric internship, formal mentorship, and individualized learning. As this curriculum is in its inaugural year, we are fine tuning operations and assessments. We also will need to collect data once students graduate the program to assess efficacy.

**Feasibility of Program Maintenance/Transferability:** This program is generalizable to all specialties and institutions. Program initiation requires support from college of medicine and department leadership. It is ideal to identify a clinical tract director who can design the tract, oversee operations, complete progress meetings and final assessments, and serve as a mentor to the students. Administrative support is recommended to assist with tracking of competency mastery. Simulation center involvement is helpful but not required in establishing skills sessions. Finally, participation from departmental faculty is crucial to the success of the track.

24. **Leadership Development Across the CGEA: From Micro to Macro**

*Jeffrey Pettit, Carver College of Medicine, University of Iowa*
Sabrina Neeley, Wright State University  
Philip A Cola, Case Western Reserve University  
Carol Kamin, University of Illinois, Chicago  
Sheila Chauvin, Louisiana State University School of Medicine  
Joseph Nellis, Carver College of Medicine, University of Iowa  
Charles J. Paul, Carver College of Medicine, University of Iowa

Methods/Session Format: Time Topic Panel/Audience 5 minutes Introductions, Goals and Aims of session Panel 45 minutes Brief description of leadership programs by institution Panel (8 minutes/member) 10 minutes Brief description of programs at participants’ institutions and nationally Panel/Audience 15 minutes Collaborative efforts across institutions - small group activity Audience 10 minutes Debrief the small group activity Panel/Audience 5 minutes Conclusion Panel/Audience Details: A. Introductions of panel members and brief description of the panel session; collection of participants’ names. B. Each of the panel members will have approximately 8 minutes to describe the types of leadership programs currently being used or in development at their own institutions. C. Audience members will be given an opportunity to briefly describe the types of leadership programs currently being used or in development at their institutions. D. Audience will be separated into small groups and be assigned a focused question/challenge to brainstorm; each group will have a panel member join it to observe/listen; a volunteer scribe will collect the outcomes to be collated for distribution to participants after the conference; possible questions to be used: 1. What are the challenges for working across the CGEA network of institutions related to leadership development? 2. What would be more efficient/effective methods of delivering the content across the CGEA network of institutions? 3. Recommendations for tapping into the resources/experts across the CGEA network of institutions? 4. What are the common leadership competencies that should be emphasized across the CGEA network of institutions? 5. What would a continuum model (from students to faculty) look like for leadership development across the CGEA network of institutions? E. Opportunity to debrief small groups; collection of note from scribes. F. Outline next steps and summary of session. G. Debriefing of panel members to review small group activity and reflect on panel discussion post session.

Objectives: Participants will be able to: - Identify the focus and scale of leadership programs at institutions within the CGEA; - Debate the pros and cons of cross-pollinating leadership programs across institutions; and - Propose ongoing efforts to collaborate in leadership development within the CGEA-Rationale: With so many changes and forces impacting healthcare, there is a strong need for effective leadership (Stoller, 2009 and Fairchild, et. al., 2004). The future leaders in medicine are currently in the pipeline. Unfortunately, the primary method for developing these future leaders is by osmosis, trial and error, or observing role models. Institutions are attempting to fill this void through formal leadership programs (Fairchild, et. al., 2009 and Stoller, 2008). At the micro-level, departments are creating mini-courses utilizing local and limited resources to create leadership courses. At the mezzo-level, institutions are collaborating with multiple departments to develop more formal leadership training (Kaplan & Feldman, 2008). At the macro-level, national organizations are delivering leadership training to limited numbers of participants. Is there a way for institutions to take advantage of local efforts in order to be more efficient and effective regarding leadership development? The focus of the panel discussion will be to learn what some institutions within CGEA are doing related to leadership develop at various levels of learners and investigate ways to collaborate across institutions to improve efficiency and consistency.

References:

25. The Initial Clinical Experience (ICE): A Novel Approach to Interprofessional Education through Early Immersion in Healthcare Teams

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Objective/Purpose: The Initial Clinical Experience (ICE) course offers a new and innovative model for interprofessional education (IPE) as a pillar of the University of Michigan’s redesigned medical curriculum. ICE provides learners with an immersive, longitudinal exposure to interprofessional medical practice in an array of clinical settings. ICE introduces students to team-based healthcare environments early in their career, develops skills and awareness around respectful and professional communication, and provides a clinical context to support learning from other components of the curriculum.

Need for Innovation/Practice: The Association of American Medical Colleges (AAMC) lists the ability to collaborate as a member of interprofessional teams as a core entrustable professional activity (EPA) for entering residency.[i] Although the practice of medicine has become increasingly team-based, few undergraduate medical education curricula deliberately expose learners to longitudinal interprofessional experiences in a meaningful way.[ii] The Liaison Committee on Medical Education (LCME) broadly defines IPE as curricular experiences that include practitioners and/or students from other health professions.[iii] Yet most IPE activities are limited to either a single day or a small series of events that draw students from different healthcare disciplines for discussion, or simulation sessions that are distinct from their respective core professional curricula.[iv] Few, if any, curricula take advantage of longitudinal immersion with practitioners on interprofessional teams.

Methods, Materials and Resources Used: Through ICE, 168 first-year students are placed at one of 18 clinical sites where they engage in biweekly “active observership” of different members of healthcare teams including, but not limited to, nurses, physical and occupational therapists, social workers and pharmacists. Following each session, students receive feedback from providers and engage in reflective exercises. The course also includes several classroom-based sessions to introduce different healthcare professional roles through guest speakers, group discussions, and simulations.

Outcomes: As the course nears the end of its inaugural semester, the student experience has been largely positive. Sixty-eight (68%) of students either agreed or strongly agreed that ICE meaningfully contributed to their learning. One student wrote, “I noticed when I shadowed in the ED that I was paying a lot of attention to the roles of the physician assistants, pharmacists, paramedics, nurses, and social workers. I am 100% sure I would not have done that had I not been in ICE. It was really informative to see how people were involved and during which stages of the patient’s stay in the ED.” Another student noted, “The healthcare professionals involved in ICE have been enthusiastic about teaching and I have gotten to see a variety of interesting facets of patient care.”

Strengths and Areas for Improvement: Student evaluations demonstrate the educational and experiential value gleaned from the curriculum so far and suggest that ICE is meeting its stated goals.
Students raised some concerns over the relative quality of a few clinical sites, lack of student choice in placements, and challenges with transportation logistics for off-site locations. Future directions include introducing learners from other health professions in the clinical environment, and including them in classroom based simulations.

**Feasibility of Program Maintenance/Transferability:** Identifying participating clinical sites for student placements presented an initial logistical challenge to establishing the course. However, once the sites and respective coordinators were confirmed, the course has since been easily managed by a small team of administrators. As medical schools around the country look to infuse team-based, interprofessional learning in their curricula, the University of Michigan’s ICE course provides a highly-functional and replicable template.

**References:**


*Funding from the AMA “Accelerating Change in Medical Education” grant, received by the University of Michigan Medical School, was used in the development of the ICE course*
help learners recognize their own biases regarding veterans specifically, but for all patients in general and learner assessments for each week.

**Outcomes:** At the end of the course, learners will be able to: Understand the principles of veteran-centered care Distinguish the importance of military service and veteran culture in health care Detect causes of health disparities for U.S. veterans Recognize the value of patient-centered communication skills Identify subtle cues involved in the assessment and triage of patients with Post Traumatic Stress Disorder (PTSD) and Traumatic Brain Injury (TBI) and Military Sexual Trauma (MST)

**Strengths and Areas for Improvement:** The strengths of this course are: Relevance of topic for healthcare professionals Application of course concepts to meet the needs of today’s veterans Improvement of understanding of the Veterans Affairs (VA) Healthcare system Explores the various roles of the healthcare team

**Feasibility of Program Maintenance/Transferability:** In the MOOC format, programs will be able to easily access the course. This course is ideally suited for a completely on-line format as it incorporates key domains of e-learning: lessons that communicate information and lessons that build on procedural skills. This content is much needed by health professional trainees in many schools.

The views expressed in this poster are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the U.S. government

*This work was supported by the Arnold P. Gold Foundation

27. Starting on Day 1: An Interactive Role Play for Incoming Interns on the Importance of Interprofessional Practice

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**Objective/Purpose:** This study describes the development, implementation, and evaluation of a novel interprofessional interactive role-play for incoming interns during Graduate Medical Education (GME) Orientation. Need for Innovation/Practice: The goal of the Accreditation Council for Graduate Medical Education (ACGME) Clinical Learning Environment Review (CLER) program is to optimize the clinical learning environment for trainees, including improving interprofessional practice. It is unclear how to best prepare new interns for interprofessional practice (IP) because all intern physicians enter training receiving varying degrees of prior IP training. A needs assessment of residents and staff nurses at the University of Chicago on this topic highlighted the importance of “orienting interns from day 1” to the importance of these skills. Results of the needs assessment led to the development of this exercise.

**Methods, Materials and Resources Used:**Incoming interns from all specialties were required to participate in this exercise as part of GME New Intern Orientation. Interns were divided into groups of 10 to participate in a 30-minute interprofessional 3-character role-play (nurse, intern, patient) exercise. Following the role-play, all interns participated in discussion with 2 facilitators, a nurse and a physician. All participants and facilitators were surveyed post-exercise and participants again 30 days into internship. The role-play highlighted difficulties in communication surrounding the potential discharge of a patient. This scenario was selected for this role-play exercise based on an institutional priority that was identified by nurses and residents as a situation where optimal communication is paramount. An interprofessional team of educators developed the case, facilitator guide, and discussion checklist. Although physician faculty members facilitate group activities annually during New Intern Orientation, this was the first time nurses were asked to participate and facilitate at New Intern Orientation. Descriptive statistics were used to summarize the data.
Outcomes: Of the 32 interprofessional facilitators, half (16) were nurses and half (16) were physicians. All facilitators found the role-play exercise to portray a realistic scenario, were satisfied with the post-case discussion, and felt their opinions were valued. Of the 133 incoming interns surveyed, nearly all (91%, 121) reported receiving prior IP education training, and three-quarters (76%, 101) were satisfied with their training. Over three-quarters (84%, 112) felt the role-play scenario was realistic. Most (86%, 114) interns were satisfied with their performance, and nearly all (94%, 125) were satisfied with the post-case discussion. Almost all (93%, 124) interns reported they would be more thoughtful of how they interact with health professionals. Qualitative comments from participants included: “I enjoyed having nurses and physicians represented,” “loved including nurses,” “This was a great way to open up discussion with attendings, new interns, and nurses,” “very useful—favorite thing from orientation so far,” “the attending and nurse were great and made the session very interesting,” and “would love to have more representation of other groups like physical therapy and nutrition.” Qualitative comments from nurse facilitators included: “great discussions” and “I’m so pleased to have had this opportunity.” Qualitative comments from physician facilitators included: “good session” and “I love the concept of team facilitators.” Thirty days into internship, 128 interns were re-surveyed and over half (52%, 69) reported that they were communicating more effectively with interprofessional team members as a result of the role-play. 

Strengths and Areas for Improvement: In this first rendition of an interprofessional interactive role-play for incoming interns (of all specialties), satisfaction of interns and physician and nursing facilitators was very high. Nurse facilitators felt their opinions were valued, which was supported by robust qualitative comments from interns. Over half of the interns reported this exercise improved their ability to effectively communicate with interprofessional team members during internship. Participants and facilitators agreed the exercise was valuable, which was reinforced by qualitative feedback. Although the actual impact on patient care of this short exercise is unclear, the return on investment to GME is high with high learner and facilitator satisfaction and high levels of commitment to change. Following the intern physicians through intern year and re-surveying at 6 and 12-months would lend further information on the impact of this exercise. Surveying staff nurses regarding communication encounters with interns may provide insight into the clinical impact of this exercise. Including other interprofessional team members such as physical therapy or nutrition would also add to the diversity and collaborative nature. Future work should reinforce these skills as well as ascertain whether this exercise results in improved interprofessional communication.

Feasibility of Program Maintenance/Transferability: This program will continue to be a part of the annual GME New Intern Orientation with the hope of adding a wider variety of interprofessional team member facilitators. Communication challenges arise during transitions of care, and occur throughout all specialties, making this exercise applicable to trainees of all specialties.

28. Patient Safety Room of Horrors
L.G. Broutman, M. Stout, Rosalind Franklin University

Objective/Purpose:
The student will identify medical errors and potential sources of medical errors in a simulation of a patient’s room.

Need for Innovation/Practice: At the Chicago Medical School, there is a required course in the second year called Patient Safety. There are approximately 190 students in our second year medical student class. The need for innovation came from wanting to teach these students about patient safety in a small group setting in which they were active participants in the learning process. The Patient Safety Room of Horrors was added to the course in 2015.
**Methods, Materials and Resources Used:** The Patient Safety Room of Horrors was held on two afternoons, with one-half the class attending each afternoon. On each afternoon, there were two identical simulation lab horror rooms set up. Each room had an adult patient simulator. Prior to entering a patient room, each student was given one paper which summarized the patient’s reason for admission, medical conditions, allergies, hospital course, current medications and a summary of the most important orders. It was the 7th day of the patient's hospitalization. Students worked in groups of 5 people. Each group had 15 minutes to find as many hazards or errors as they could in the patient’s room. There were approximately 50 hazards / errors set up in the rooms, but the students were not told how many there were. The students were told that the team with the most correct hazards / errors identified would win a prize. After the fifteen minutes, the ten students who had been in the patients' rooms then had a debriefing session in an adjacent room with the course director and 2 M4s. Each team mentioned hazards or errors they identified. A PowerPoint consisting of photographs of the hazards / errors was used to show any hazards / errors not found or to explain hazards / errors with which the students were not familiar. An example of a hazard was that the patient who had dementia was on fall precautions, but one of the bedrails on his bed was down. An example of an error was that the patient had a history of an allergy to penicillin, but piperacillin / tazobactam was hanging at the bedside and being administered. After five students left each patient room, a new group of 5 students entered each patient room. After each 15 minute debriefing session, a new group of 10 students had a debriefing. This went on for 3 hours and 15 minutes on each of the 2 afternoons to get each student through a patient's room and the subsequent debriefing.

**Outcomes:** We were surprised that the second year medical students were able to identify the majority of the hazards / errors. The students found the Patient Safety Room of Horrors to be a valuable and fun learning experience. The fourth year medical students participating in the debriefing said that they wished that this learning experience had been a part of the Patient Safety course when they took the course.

**Strengths and Areas for Improvement:** The most important strength was to introduce or reinforce some hazards and errors that can occur in the care of a patient. The second year medical students were asked to try to look for such hazards / errors when they were involved in patient care in the future and to mention any hazards / errors they noticed to their medical team. We had each student in a group write down errors, rather than just one person write down the errors. When all students recorded errors, we found the debriefing sessions to be livelier and not just involve 1 student from each group. As each team put in sufficient effort and was vested in the learning experience, we declared all the teams as winners and gave each student credit for getting one additional question correct on the exam for the course.

**Feasibility of Program Maintenance/Transferability:** While the Patient Safety Room of Horrors was set up, other programs in our university, such as the Physician Assistant Program, came to look at the set up and expressed interest in adopting a Patient Safety Room of Horrors for their program. The Room of Horrors would be relatively easy to transfer to another university because we have a list of all the hazards / errors. The order of the list corresponds to the order of the photographs of the hazards / errors in the PowerPoint.

**29. Can a Capstone Course Provide Entering PGY-1 Residents Competence, Confidence, and Reduce Medical Errors?**

*M. Hansen, M.R. Smith, I. Ali, S. Raja, The University of Toledo*

**Objective/Purpose:** Providing senior medical students with appropriate interpersonal communication and clinical skills necessary for patient care may not only increase positive patient
outcomes and improve patient safety but may instill confidence and competence in them as residents.

Need for Innovation/Practice: Medical errors are the third leading cause of death in the United States (2). The Journal of Patient Safety recently published a study which concluded that as many as 440,000 people die each year from preventable medical errors in hospitals (2). While some mistakes may be inevitable in medicine, providing appropriate tools to increase competency, communication and clinical skills in graduating medical students will serve as a critical means to aide in the reduction of medical errors. Medical Mistakes are 3rd Leading Cause of Death in U.S. (2014). Retrieved November 15, 2015, from: http://www.sanders.senate.gov/newsroom/press-releases/medical-mistakes-are-3rd-leading-cause-of-death-in-us

Methods, Materials and Resources Used: Our institution’s Capstone- Bridge to Residency Course consists of online education coupled with simulation experiences developed to prepare students for residency based on Accreditation Council for Graduate Medical Education (ACGME) core competencies. Online Education Online education is supported by required modules divided into two groups: General GME Topics and a Lecture Series. The General GME Topics consist of required core topics devoted to vital issues such as Communication and Team Building, Patient Safety, Resident as Teachers, and Transitioning to Residency, among others. The Lecture Series consists of (25) fundamental topics and Emergency components which include approaches, management, and evaluation methods of the critically ill patient in multiple disciplines. Students are required to complete a self-assessment after each module. Simulation Experiences In addition to the online modules, students are required to complete an interprofessional communication skills training/evaluation session which assesses the focused history and physical, informed consent, team care and communication skills. Students are required to complete at least (1) specialty-specific clinical skills training session of their choice to support their academic career. Students choose one cluster and complete four hours of hands-on education to receive credit. In addition, bag/ mask ventilation, nasogastric tube placement, and peripheral IV placement stations are available for additional skills practice as optional competency assessment is offered at the end of the year.

Outcomes: This course was piloted in Spring 2013, completing its first full year in 2013-2014. Opinion surveys are provided to students following the course and again three months into their PGY-1 year. Post-course surveys reveal the course is clinically relevant to (91.37%, n=139) and helped prepare students for residency (85.61%, n=139).

Strengths and Areas for Improvement: Strengths This institution’s course is unique in that students receive two weeks of clinical credit for a course which spans the duration of the semester, allowing students increased flexibility in the fourth year. Given that the two weeks of credit can be assigned to any open block during a semester, this course allows greater flexibility during the interview season. In addition, this course allows students to tailor their learning to their specified area of interest, which is not seen in other models. Areas for Improvement The goal of this institution is to enhance clinical skills training, providing competency assessment in all disciplines using both faculty evaluations and self-directed courses embedded in simulators. In addition, programs capable of providing greater interactivity within the modules are being sought out.

Feasibility of Program Maintenance/Transferability: Due to demands on fourth year students as they interview for residency, it is important to consider innovative ways for students to complete course requirements while allowing them some flexibility. Online learning provides a platform in an era of technological advances which fosters self-directed learning with equally perceived student satisfaction and educational outcomes (1). Human resources are necessary to maintain web-based learning modules to adapt to ever changing curriculum components. As more schools look toward simulation as a means to provide hands-on training for medical education, centers should have the capability to provide advanced procedural skills training universal to PGY-1 training. Adams J. The
Objective/Purpose: A priority in US healthcare is the development of effective care teams linked to systems for improving quality of care. New LCME competencies rightly necessitate that students gain experience in working with interprofessional teams and quality improvement (QI).

Need for Innovation/Practice: Currently our medical students have minimal education related to these domains. To address this need we are piloting an experiential curriculum to introduce this content to 1st and 2nd year medical students with the goal of developing students that are more effective team members that embrace QI. First year implementation and assessment data will be disseminated.

Methods, Materials and Resources Used: Our curriculum imbeds sequential educational modules regarding healthcare teams and QI into a required longitudinal ambulatory clinical experience for 1st and 2nd year students. First semester year 1 modules orient students to clinic systems, from the interprofessional team and patient perspectives. The second semester year 1 modules introduce how clinic leadership coordinates team care to meet QI and patient satisfaction goals. Two ways of implementing these modules were explored: a prescriptive format (PF) and a self-directed format (SDF). Students were randomly assigned to the PF (n=22), SDF (N=20), or the traditional curriculum (TC) (N=135). All M1 students and a comparison cohort of M2 students completed baseline and end-of-year assessments. In addition, we conducted focus groups to debrief 1st year pilot students and to capture their perspectives on the effectiveness of the pilot curricula.

Outcomes: All assessments use 5-point Likert scales rating the importance of 6 different physician roles (including “communicating with team members” and “systems improvement within a clinical setting”), and self-reported skill in 12 activities (including “analyzing the clinic as a system” and “contributing to quality improvement”). Assessments included 5 questions about how connected students feel to various staff at the clinic, and 4 questions about how comfortable they feel raising or addressing quality improvement issues within the clinic. At baseline there were no differences in M1 students assigned to PF, SDF and TC conditions at the end of year 1. PF and SDF students reported increased comfort asking team members questions about clinical care (p=.045), and the local clinical system (p=.021), and reported significant connections to the team MA (p=.006) and clinic manager (p=.001) compared to TC and historical controls. There were no differences reported between groups for connectedness to their MD preceptor or involvement in QI. End of year focus groups reported immersion in teams was highly effective.

Strengths and Areas for Improvement: Our curricular modules allow for implementation in varied ambulatory clinical settings and can be imbedded within a variety of existing longitudinal clinical experiences. Based on similar outcomes in the PF and SDF formats we have moved to a single format for the pilot curriculum. Likely the introduction to QI was insufficient to allow for pilot students in either group to yet feel involved in QI. As we introduce more QI curricular modules in year 2, we anticipate that students will report a greater sense of involvement in QI at their preceptor clinic. Continued assessment of the impact of the curriculum will direct future areas for improvement and innovation.
Feasibility of Program Maintenance/Transferability: Based on current results, we anticipate this curriculum will be expanded to include all entering medical students in 2016. The modular aspect of the curriculum will allow for flexibility so that other institutions can determine best fit based on their existing curriculum in the ambulatory setting.

*Funding for this project was provided by the Wisconsin Partnership Program of the UW School of Medicine and Public Health

34. Using Instructional Design Theory to Develop a Clinical Reasoning Curriculum

M. Daniel, M. Cole, R. Huang, N. Theyyunni, S. Cinti, University of Michigan School of Medicine

Objective/Purpose: Clinical reasoning is a core component of medical education, yet few curricula grounded in instructional design theory have been described to teach this complex task to preclinical learners.

Need for Innovation/Practice: The designs of many current preclinical curricula can lead to knowledge compartmentalization through the separation of cognitive (basic science) from affective and psychomotor (clinical skills) domains, and encapsulation and fragmentation through organization into organ system blocks, creating an inability for students to think across systems when presented with real-life clinical problems.[1] Whole task approaches to teaching clinical reasoning may overcome these barriers and optimize transfer of this complex skill into clinical practice. Four component instructional design (4CID) is one whole task approach to curriculum development that has recently been applied to other areas of medical education, including teaching evidence-based medicine and communication skills.[2], [3]

Methods, Materials and Resources Used: A case-based curriculum comprised of common chief complaints was developed and implemented using the guiding principles of four-component instructional design (4CID) theory[4] at two institutions (Brown University and University of Michigan School of Medicine). The curricular blueprint contained four task classes with 1) learning tasks, 2) supportive information, 3) just-in-time information, and 4) part task practice. The curriculum employs variable whole task practice with cases sequenced from simple to complex along several dimensions (i.e. number of presenting problems, breadth of possible systems involved, extent of the past medical, social and family histories, case ambiguity, complexity of the diagnostic and treatment plans, etc.) This deliberate sequencing aims to reduce cognitive overload on novice learners by keeping them just in their zone of proximal development. The curriculum was first implemented in 2013-14 at Brown for second year medical students, and the case sequencing and complexity were revised based on feedback for 2014-15. A similar curriculum was started for first year medical students at Michigan beginning with the 2015-16 academic year, with minor modifications to accommodate more novice learners.

Outcomes: Students at Brown consistently rate the clinical reasoning curriculum as highly valuable (4.41 / 6, n = 103 in 2014, 4.58 / 6, n = 118 in 2015) and asked to be introduced to clinical reasoning cases even earlier in their training. Clinical reasoning, as demonstrated in student case write-ups and on OSCE post-encounter notes appeared more robust after curriculum implementation, and scores improved compared to historical controls (3.55 versus 3.78/5.0 p<0.03, and 3.65 versus 4.0 p<0.001, respectively).

Strengths and Areas for Improvement: The strengths of this curriculum lie in its grounding in a theoretically sound instructional design model, 4CID. The true test of success will lie in student performance on clinical reasoning tasks in the clinical arena. It can be more challenging to measure outcomes in this setting, but a systematic review of case write-ups, and oral presentations during clerkships may provide indirect evidence of curricular success.
Feasibility of Program Maintenance/Transferability: The curricular blueprint may be easily modified to align with other institution's preclinical curricula, as demonstrated by the ability to roll out a similar curriculum in Michigan to what was utilized at Brown. By adjusting the content and complexity of the learning tasks, and the degree of scaffolding offered by the supportive and just in time information, the curriculum can accommodate different learner levels, and fit within a multitude of curricular structures. Ideally, a faculty lead familiar with 4CID, and the cognitive theory upon which it is based should champion implementation to ensure adherence to the model.

References:

35. Critical Clinical Competencies (CCC): An Online Video-based Curriculum to Develop Clinical Reasoning Skills
H. Han, A.T. Cianciolo, D. Klamen, Southern Illinois University School of Medicine
N. LaVoie, Parallel Consulting

Objective/Purpose: Clinical reasoning is one of the core competencies expected of medical school graduates. Developing these skills requires deliberate practice on developing differential diagnoses and diagnostic justification using contrasting cases, yet traditional curricula do not provide sufficient opportunity to do this.1,2 We aim to address this issue by introducing a new curriculum modality designed to develop medical students’ clinical reasoning skills through deliberate practice on contrasting cases.

Need for Innovation/Practice: Evidence suggests that medical school does not produce graduates who are competent at clinical reasoning.2-5 Multiple studies have shown that fourth-year medical students’ diagnostic justification performance is case specific.3, 5 Many fourth-year students demonstrate borderline or poor clinical reasoning on more than half of cases at the final year of medical training.3 This deficiency in clinical reasoning skills suggests an ineffective learning environment, especially in clerkship.2, 4, 6 For example, clinical decisions tend to be made very quickly, which makes it hard for medical students to observe physicians’ diagnostic thinking and practice their own.6 These studies unanimously stress the need for curriculum innovation that ensures medical students’ deliberate practice of clinical reasoning and access to experts’ cognition while diagnosing.

Methods, Materials and Resources Used: To address this curriculum need, Southern Illinois University School of Medicine developed an online, interactive, video-based curriculum streamer named ‘Critical Clinical Competencies (CCC).’ The CCC curriculum is designed to provide learners the opportunity to diagnose 144 discrete conditions associated with one of 12 chief complaints (e.g., headache), accompanied by observation of experts’ clinical reasoning process, for the first three years of medical training. It allows students to develop an individualized and self-regulated approach
to developing clinical reasoning that is supported by expert role modeling. For CCC, we adopted online learning as a curriculum environment because asynchronous online learning process can deconstruct clinical reasoning practice as learnable and teachable objects while utilizing patient encounter simulation. The online curriculum is designed to create a learner-controlled environment where a clinical reasoning process can be slowed down, and students have opportunities to stop to think about their diagnoses and justification. Patient information is gradually provided in a standardized patient video format in the order of CC, HPI, PMH/SH/FH, ROS, PE, and lab/test. At each step, students are prompted to use new information and revise their differential diagnosis and justification. They can also compare their clinical reasoning with an expert panel’s reasoning at each time. Due to this asynchronous nature, students’ learning can go into a deeper level as they are asked to compare and contrast cases and their reasoning relative to experts.

Outcomes: The CCC curriculum enables us to guarantee that students see and reason through 144 diagnoses associated with 12 chief complaints they will likely encounter as general practitioners. As a result, we expect to see improved clinical reasoning at the end of the first, second, and third year of training relative to historical controls. In addition, we expect to see a steady increase in reasoning development throughout all three years of the curriculum. To explore these outcomes, we are instituting a 12-case standardized patient exam based on the 12 chief complaints to be delivered at the end of the first and second years of medical school and at the end of core clinical clerkship training. Clinical reasoning will be assessed using diagnostic justification essays.

Strengths and Areas for Improvement: Strengths of the CCC curriculum include: (1) students’ deliberate practice of clinical reasoning, (2) students’ ability to observe expert physicians’ clinical reasoning process, (3) facilitating students’ self-directed learning in clinical reasoning skills development on 144 diagnoses, (4) ability to detect struggling students in clinical reasoning skill development earlier, and (4) creating a performance assessment culture that emphasizes diagnostic justification.

Feasibility of Program Maintenance/Transferability: The CCC curriculum is a web-based online curriculum that can easily be utilized by other medical schools. It also has a web-based case authoring and management system, which allows an admin to edit cases without programmer help.

*Funding from the Josiah Macy Jr. Foundation was used for this project

36. Groundschool: A Week-long Multidisciplinary Experience for Our Clerkship Students
H.R. Cronau, A. Harzman, C. Hoyle, K. Tartaglia, Ohio State University College of Medicine

Objective/Purpose: Effective integration of a week-long multidisciplinary experience for our third year, multi-disciplinary clerkships.

Need for Innovation/Practice: As our college of medicine has moved to a new, more integrated curriculum, the third year of our medical school is now structured as three, 16-week clerkships. Each clerkship or “ring” begins with a one-week groundschool, followed by fourteen weeks in clinical rotations, finishing with one week of assessments.

Methods, Materials and Resources Used: The concept of groundschool comes from aviation. Students would be better prepared to perform, or “fly,” in their clinical rotations if we conducted a one-week onboarding experience before entering the clinical rotations. The three integrated clerkships have common themes for each groundschool, along with sessions unique to their clinical experiences. Common themes for each groundschool include: advanced physical diagnosis skills, advanced communication, procedural skills, informed consent, cost-effective care and clinical radiology. Each rings then rounds out the week of groundschool emphasizing key themes for their ring. The sessions vary in style from clinically-based large group and small group sessions, to panel discussions and workshops.
Outcomes: Overall, the three weeks of Groundschool have received mixed reviews. The ring involving surgery, obstetrics-gynecology and the peri-operative specialties had the highest-rated groundschool with 62% of the students rating the overall experience good or excellent. The ring involving the inpatient experiences for internal medicine, psychiatry and neurology received good or excellent ratings from 35% of the students while the pediatrics, family medicine and ambulatory subspecialties ring received a 36% good or excellent rating. Within each groundschool, individual sessions varied widely in ratings. Students were pointed in both their positive and negative feedback. The highly-valued sessions were more hands on, either involving simulation or specific skills advancement (urinary catheter insertion, obstetrical skills.) Workshop sessions that involved hands-on training regarding physical diagnosis skills or key technical skills were highly-rated sessions. Large group interactive sessions on highly valued topics delivered by strong presenters (clinical radiology topics, sessions on electrolyte management in pediatrics and adults) were also well received. Finally, sessions focused on strategies for success on the wards delivered by residents were highly valued. Sessions not receiving high marks were typically large group sessions in which the application of knowledge did not translate quickly to a clinical setting. If large group sessions were also held in succession, the students lost interest, even in clinically relevant topics the students valued.

Strengths and Areas for Improvement: What lessons were learned? Interactive groundschool sessions that were skill building, using simulations or workshops as delivery methods tended to be highly rated. Large group, interactive sessions on highly valued topics can be efficient and very effective. However, the number of large group sessions needs to be limited to enhance student engagement. Based on feedback, we are developing facilitated focus groups to “re-design” our groundschool experiences with a focus on optimizing length, content, and format. Although we originally designed groundschool according to what we thought students needed to know to “fly”, we realize students perceive a different set of needs to help them succeed in early clinical clerkships.

Feasibility of Program Maintenance/Transferability: The groundschool experience will continue to be part of our integrated, third-year clerkship model. The lessons learned from this one-week experience will be used to enhance our local curriculum and can be applied and utilized by other school offering integrated clerkships.

37. Women Leading Healthy Change: Improving a Student-Led Health Curriculum for Women Recovering from Prostitution or Substance Abuse
S. Prasad, E. Garfield, S. Kerlakian, S. Reimer, University of Cincinnati College of Medicine

Objective/Purpose: Women Leading Healthy Change (WLHC) is a student-led program at the University of Cincinnati College of Medicine in which medical students teach physical and mental health to women recovering from prostitution and drug addiction. Students, in turn, learn to approach this otherwise neglected population with compassion and empathy. This year, our goal was not only to study the efficacy of these classes, but also any changes in health beliefs during the program.

Need for Innovation/Practice: WLHC works with women who struggle with mental illness, addiction and poor self-esteem, who have had to make difficult choices for survival on the Cincinnati streets. Our community partners, Off the Streets and First Step Home, provide housing, education, and job resources, as well as a supportive community to empower the women to live independently. By providing classes within the context of these programs, we strive to create a non-judgmental environment encouraging conversation around their experiences and health. The students are provided with a rare opportunity to better understand the barriers and challenges that these women face, ideally giving them the confidence to interact with this population and advocate for them in their future practices.
Methods, Materials and Resources Used: This year, we expanded to twelve medical students to co-lead sessions and a new weekly class. Each student is paired with a graduate of the program to conduct a five week course on women’s health or mental health, utilizing a curriculum guide that outlines relevant topics in each of these areas. The women’s health sessions discuss female anatomy, gynecological exams, sexually transmitted illnesses, and contraceptive methods, with powerpoints, pelvic models, and contraception kits. The mental health sessions focus on the biologic basis of mental illnesses, common mental illnesses (Depression, Bipolar Disorder, and PTSD), medications, and healthy living. At the conclusion of the ten week course, a reflection session is held for the women to share their previous medical experiences and growth through the program with medical students who did not teach, in an effort to encourage their confidence in expressing themselves to health care professionals and provide a platform for them to share their stories to a wider network of students.

Outcomes: Quizzes are administered before and after each lesson to assess improvement in knowledge and efficacy of the classes. Additionally, matched surveys are distributed to assess both the women’s and student’s change in health behaviors, attitudes, or sense of empowerment over the course of the program. Of the quizzes from the first 7 weeks, 6 show significant (p<0.05) improvement in scores. Student surveys thus far show a positive shift in learning to understand this population, but also an improvement in comfort and confidence with information about their health and interacting with their own doctors. Classes will continue into the spring semester and quizzes and surveys from both students and our participants will be analyzed with this larger sample size for statistical significance of results.

Strengths and Areas for Improvement: With edits over the summer, the curriculum guide continues to be a strength of the program, providing a detailed outline for each session, new instructional powerpoints, responses to frequently asked questions, and activities for group engagement. The presence of our co-leaders, previous graduates of the program, allows the class to move beyond the outline provided into real life situations and application of the knowledge they gain. Areas of improvement include the potential for this curriculum to be edited and improved upon by members of the community itself - while we have feedback from both teaching medical students and our community partners, it would be beneficial if we could sit down and gain even more insight from our participants as well. Additionally, fitting our classes into the schedule of the existing community program doesn’t allow for consistent attendance from the women throughout the length of the program, which takes away from the efficacy of the integrated material of the curriculum.

Feasibility of Program Maintenance/Transferability: City grants and a long standing relationship with our community partner programs have enabled our sustainability. Our program is now focused on ensuring its expansion both within and outside of Cincinnati. Another medical student adapted the curriculum to serve homeless youth at two locations in Dallas, Texas during the summer, creating interactive powerpoints and shorter sessions. She, and we, are looking into reaching out to other medical schools interested in working with similar populations, and believe that this program can easily be integrated into other communities to ensure an important learning experience for medical students and community members alike.

*The grant funding supporting the development of our submission comes from The Academy of Medicine of Cincinnati

38. Baby steps: An innovative Mom-Baby newborn home visit program in a Family Medicine residency program.
A. Zack, MetroHealth Medical Center, Case Western Reserve University
J. Zhou, Case Western Reserve University
**Objective/Purpose:** The Mom and Baby Postpartum Home Visit Program is designed to meet the needs of an underserved and very high risk population in Cleveland, OH. This geographical area has a very high infant mortality rate and low rates of environmental safety and breastfeeding. Additionally much of the maternal patient population is young, often in the late adolescence, which compounds the risk and difficulty in reaching both the mom and baby with appropriate care. The medical visit, done by a resident in Family Medicine, a medical student and a supervising attending, includes the traditional newborn visit, an added earlier post-partum visit for mom, as well as environmental and safety assessments. Resident education in Family Medicine is required to provide home visit experience. Traditionally this has been done in a geriatric or multiple medical complexity situation. However this home visit model provides a fantastic canvas for the care of the youngest patients as well. We focus the educational elements on providing quality newborn care which must include the home situation and the health of the mom including postpartum depression screening as well as contraceptive care, and state targeted issues such as SIDS prevention and lead level risk reduction and breastfeeding education and assistance. The patients are resident continuity OB patients, and have a well established relationship with the trainees, providing a great example of how to design and affect true team-based care in the setting of a medical home.

**Need for Innovation/Practice:** The Mom and Baby Home Visit Program was borne out of dual issues: 1. A need for improved resident education in home visits, team care, disparities of care and newborn infant care and 2. The disproportionately high infant mortality rate in Ohio, particularly in the high-risk underserved population served by our institution. As described in the objectives, this new program was designed with these two goals in mind, however meets many additional educational goals as well.

**Methods, Materials and Resources Used:**

- **Methods and Materials:** The background research was completed showing the need for this program. The method of this program was then laid out. --Residents all administered a survey about comfort level with postpartum care, newborn care including breastfeeding, home visits, and environmental assessments. --Forms were developed to be used to document the visits for mom, baby, with environmental survey on the baby form --Pilot visit done with a resident and medical student, reviewed how it went and any changes to be made --Patients identified following delivery, and home visit time (approximately 3 days following discharge) is arranged prior to discharge from the hospital. All efforts are made to ensure the continuity primary provider for the patient is scheduled to do the home visit --Attending, resident and medical student do home visit, bringing the equipment to perform vitals, measure infant weight, length, head circumference, draw labs including bilirubin if needed. --All visits are documented in Epic --Additional home visits are scheduled if needed/desired --Interventions are arranged, including social work referrals, resources for safe infant sleeping, breast feeding, tobacco cessation, etc. --Residents take post-home visit survey to document any change in their comfort and perceived knowledge-base

**Outcomes:** The outcomes are just beginning to come forward, as this program was started in September of 2015. Based on a small number of received surveys, the residents report improved comfort across all parameters. We do not yet have the data on the length of breastfeeding and patient show-rate for subsequent office visits. However this data will be available in the coming months, and prior to the CGEA conference. Regardless of the above objective outcomes, we are clearly having an improved educational structure to meet the requirements of milestone-based education and ACGME accreditation. This program has filled an educational need for our program and is working towards individual and population health goals of our patient community.

**Strengths and Areas for Improvement:** Strengths: The program targets goals that are held to important by all involved. The need to meet the educational goals of our residents and the health goals of our population are often difficult to combine into a single package. We have been able to do this, and meet many more educational targets than initially planned. The insight a home visit affords
is unparalleled, and having an extended time allows for a great deal more anticipatory guidance than
the short office visit. There are no transportation or weather issues for patients and no worry about
illness exposure for newborns. Additionally, there are no other services in the metro area offering
anything similar, and this program complement existing resources. Areas for Improvement:
Scheduling remains the most cumbersome part of the program. Fitting home visits into busy provider
schedules is a challenge, and sometimes makes this type of visit impossible. We are working on
strategies for bringing in additional attending provides to improve schedule access. Additionally, the
flow of scheduling from the resident discussing the home visit with the patient to approval with
attending and then scheduling in the system, is time-intensive, and begs for a more lean approach.
The patient population is largely unaccustomed to home visits, and this maybe a cultural barrier that
is more evidenced with time. We suspect it leads to some patients declining home visits.

**Feasibility of Program Maintenance/Transferability:** Feasability: The Mom and Baby Home Visit
Program is a very feasible program with great possibility for longevity. The cost is small, requiring
very little capital investment, only for equipment for vitals. The visits are covered by insurance under
home visit coverage, which in most states is included by medicaid. Any attending trained to provide
care to moms and babies can supervise the resident medical care, and of course, this model could
potentially be extrapolated to other specialties. The benefits are great, meeting goals for both
education and medical care, with the potential for baby steps toward an improvement in infant
mortality in a high risk population being the penultimate target.

39. Medical Student Views on HPV Vaccination

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of Medicine

**Objective/Purpose:** The purpose of the current study was to survey medical students on their
knowledge and attitudes regarding the HPV vaccine.

**Need for Innovation/Practice:** Background Nine years after it was first approved in June 2006, the
HPV vaccine still continues to have a dismal acceptance rate. In 2013, just over one third of
adolescent girls (37.6%) and 13.9% of boys received all 3 doses of vaccine (Williams et al., 2015).
Despite high rates of efficacy (CDC, 2012), little has been done in undergraduate medical education
to equip our future physicians with the needed knowledge, skill and attitudes. One factor that could
aid in the implementation of training would be to obtain a better understanding of the prevailing
knowledge and attitudes toward the HPV vaccine among future providers; the majority of whom are
in the target age group for receiving the vaccine.

**Methods, Materials and Resources Used:** 214 of 390 medical students completed an anonymous
survey of HPV knowledge and attitudes. Students were asked about mandatory HPV vaccination and
asked to comment on their views about the vaccine. Content analysis of open-ended data was
performed using a grounded theory approach (Strauss & Corbin, 1994). Key themes were identified
from the textual data and were also compared to various demographic factors (i.e., gender, age, etc.)
to identify any possible associations.

**Outcomes:** Of all participants (N=214), 113 responded to the question “What are your views on HPV
vaccination?” revealing several themes related to HPV knowledge and attitude. Nearly 60% (N=65)
agreed that the vaccine is helpful and important and overall, 54% (N=112) believe the vaccine should
be mandatory. Of students sharing their views about HPV vaccination, most were younger than
twenty-five years of age (N=35) and female (N=35). Although many students did not believe they
have sufficient knowledge of HPV to provide effective patient vaccination counseling, the majority
felt that “patients need to be counseled appropriately about the benefits of the vaccine.” In addition,
medical students believe vaccines should be encouraged for both genders, with comments such as
“There should be an emphasis on vaccinating men as well as women” and “I think that promoting vaccination of males is essential. Many people, even fellow medical students, were unaware that males could and should receive the vaccination.” Interestingly, a number of students identified moral implications associated with the HPV vaccine as an area of potential counseling focus, with comments such as “I think we need to educate providers about the best ways to provide the information to not make it sound like an STD vaccine,” “…some parents are worried about the connection between HPV and increasing interest in sex,” and “Though I would recommend my patients to receive the vaccine, I do not think it would be ethically wise to force it upon them.”

**Strengths and Areas for Improvement:** The main strength of the current study was that it assessed prevailing knowledge and attitudes in that subgroup of future health care providers who would have been among the first to have received widespread recommendation for the HPV vaccine. As the current study is a pilot, the authors wish to use the current results to design a larger, more detailed assessment with the aim of using those results to update and improve curricula.

**Feasibility of Program Maintenance/Transferability:** As the current study was based on an online survey, future data collection will be relatively straightforward. As the data pool increases and more indepth analysis ensues, it is hoped that insights gained may offer direction for more generalizable ways of communicating with and educating this cohort of learners.

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40. How communication skills are modeled and reinforced during early clinical experiences: Analysis of Medical and PA Student reflections

_A. Brenneman, M. Rosenbaum, C. Bernat, University of Iowa Carver College of Medicine_

**Objective/Purpose:** A first year course introduced early clinical experiences (ECE) for medical and physician assistant students to explore how communication skills taught in formal sessions are used in the context of real clinical practice. Students write formal reflections to deepen and integrate overall learning about communication skills. Analyses of these reflections are utilized to identify impact of formal sessions upon communication within the clinical setting.

**Need for Innovation/Practice:** Classroom lectures provide foundational material for students in multiple areas. One challenge is in communications where most students perceive the material as “soft” in comparison to the hard sciences they are learning. ECE utilizes “just in time” experiences to place communication skills learned from formal curriculum within the realities of actual clinical practice. Student reflections identifying the impact of variable use of these skills and the impact on patient encounters is critical in helping learners internalize core skills and anticipate challenges to their consistent application.

**Methods, Materials and Resources Used:** Students are assigned to a clinician mentor and each clinic visit focuses on observation and application of communication skills learned in class. Student reflection after each visit centers on three questions: “What” (what happened); “So what” (what was the importance of what was described); “What now” (what are the implications for your future communication practice). Each student (Total N=183) completed reflection papers on 5 sequential ECE experiences. Thematic analysis was applied to 1/3 of reflections (305/915) to identify common insights from student observations of real clinical interactions.

**Outcomes:** Recurrent themes in student reflections included: - If and how skills being formally taught were used by practicing clinicians. - Impact of use or omission of effective skills (rapport building, open ended questions, seeking patient perspective, etc) on the diagnostic and relationship building process. - Insight on patient needs and experiences in healthcare encounters. - Variable application of recommended skills depending on context (new/return patient; specialty; nature of complaint). - Pushing students to consider the implications of what they observed resulted in self-identification of key learning points they hoped to apply to their own future practice.
**Strengths and Areas for Improvement:** ECE provides an opportunity for students to apply classroom learning in real time. This highlights for learners the challenges and strengths of learning effective communication tools on the patient-clinician relationship and directly on the clinical reasoning process. Additional longitudinal analyses will help to determine if these insights and skills are carried forward into actual performance.

**Feasibility of Program Maintenance/Transferability:** This program requires a dedicated program assistant to schedule students in clinics, approximately an equal number of clinician mentors to students (some take more than one student) and space within the didactic schedule to allow learners to participate in a clinic setting. We have been able to sustain this to date with the usual challenges of maintaining enough clinician mentors. This program would transfer easily to other programs if resources were available.

41. **Alternative Clinical Education Sites for Year 1 & 2 Students**

*N. Nartker, B.E. Ueberroth, H. Maqbool, A. Burkat, J.C. Mendez, Wayne State University School of Medicine*

**Objective/Purpose:** Increase student clinical exposure and empathy for underserved patients. Foster access to health care. Provide opportunities for interprofessional team training.

**Need for Innovation/Practice:** In the past, many patients from under-served and impoverished backgrounds have found it difficult to secure employer-backed or other affordable health insurance, leading them to seek care at volunteer healthcare clinics staffed by medical students. With the implementation of the Affordable Care Act, patient healthcare options have expanded. As an increasing proportion of these patients now seek care with primary care physicians, opportunities for undergraduate exposure to clinical care have decreased, especially for students in the first and second years of medical education. Therefore, adaptive methods to increase student clinical exposure are needed. Two clinics at Wayne State University School of Medicine target patients who still lack access to care, allowing students to gain key primary care medicine exposure while also benefiting the community: Amigos Medicos All Saints’ Clinic and the Diabetes Education and Wellness Clinic (DEW Clinic).

**Methods, Materials and Resources Used:** The All Saints’ Clinic is run concurrently with a weekly soup kitchen at the All Saints’ Catholic Church in Southwest Detroit. Every week the All Saints’ Church serves lunch to more than one hundred people, and the food pantry provides goods to about 50 households. The students provide patients with basic health assessments, blood sugar and blood pressure monitoring, health and community resource education, and refill prescriptions under the guidance of a faculty physician. In this way, the basic yet critical needs of the under-served are met at one consistent time and place each week while students continue to hone basic clinical skills with real patients. The DEW Clinic provides the metro Detroit area with no-cost, high-quality diabetic patient education through an interdisciplinary team approach. The clinic’s goal is to provide support and assist patients with managing or preventing diabetes and its potential complications by providing personalized, holistic treatment plans. The clinic is run twice a month at two separate locations across Detroit and nearby suburbs. At each clinic date, four to six students from the school of medicine volunteer for a one-time clinical experience. Volunteer salaried and adjunct Wayne State faculty supervise the clinics. Clinic materials are donated by alumni of the Wayne State University School of Medicine. These clinics prepare students for service as community physicians and broaden their understanding of challenges experienced by under-served communities. Through these clinics, first and second year medical students gain direct clinical experience, which is increasingly difficult to secure in the changing healthcare system.
Outcomes: Preliminary student feedback shows that over 90 percent of students felt that the clinic helped them improve clinical communication skills, technical skills, and gain an appreciation for patient cultural and socioeconomic diversity. 100 percent of students believed that the patient population served by the clinic benefited from its services. Patient feedback is also being collected to determine clinic outcomes. All data will be reported during the presentation.

Strengths and Areas for Improvement:
Strengths Consistent opportunity for first and second year medical students to interact directly with patients. Provide care for under-served populations in the surrounding community. Promote interdisciplinary collaboration between medical students and other healthcare fields. Areas for Improvement Continuity of care can be difficult to establish with a transient patient population. Transferring patients from intermittent care at student clinics to long term primary care via insurance sign-up can be daunting and difficult to encourage.

Feasibility of Program Maintenance/Transferability: Transfer of these principles to other schools and programs requires only a few components to be successful: 1. A community partnership advocate to provide the environment (i.e. soup kitchen) and guidance needed to best serve the patient population. 2. An under-served patient population to allow students to interact with patients who do not have adequate medical care. 3. A faculty member to supervise and enhance the students' learning experience in the clinic.

42. Teaching Medical Students about Medication Adherence
J. Stojan, S. Buckler, J. Kahn, M. Wolff, University of Michigan

Objective/Purpose: To determine if an educational exercise designed to heighten awareness of the patient experience could change a medical student’s attitudes regarding medication adherence.

Need for Innovation/Practice: Medication nonadherence is a pervasive issue in health care that contributes to poor outcomes. In spite of this, physicians often don’t ask patients about medication adherence, believe it is the patient’s responsibility for being adherent, and become deeply frustrated when patients are not adherent. To appropriately counsel patients, physicians must appreciate the barriers to adherence rather than assign blame, recognizing that adherence is influenced by individual, social and environmental factors.

Methods, Materials and Resources Used: One hundred and sixty seven first year medical students enrolled in a course teaching history taking, physical exam skills, clinical reasoning and socio-behavioral issues in medicine participated in an exercise designed to demonstrate some of the challenges a patient may encounter when taking a prescription. Each student received a mock prescription for a medication with instructions to take it four times daily for 7 days. The “pharmacist” dispensed the medication (Tic Tac® mints) and was only available during business hours. After the activity, students and faculty participated in a debriefing session focused on the experience and medication nonadherence. Students completed a 9 item survey designed to assess the primary outcome of change in knowledge and attitudes surrounding medication nonadherence before and after the activity. Responses were graded on a 5 point Likert scale (1 = strongly disagree and 5 = strongly agree).

Outcomes: 154 students completed the survey. Prior to the exercise, students rated their understanding of the meaning of the word noncompliance as a 4.2 and their perception of it as being a derogatory term as 3.1. Following the exercise they rated their understanding as a 4.6 (p-value <.0001) and 3.5 (p-value <.0001) respectively. There was a difference in the ratings of student attitudes about the acceptability of labeling a patient as noncompliant before and after the exercise (2.7 vs 3.0 p-value <.0001). There were also statistically significant differences in student attitudes before and after the exercise when asked if patients should be able to follow medication instructions as prescribed (1.9 vs 2.3, p-value <.0001), remember to take medications as prescribed (2.3 vs 2.7, p-
Strengths and Areas for Improvement: After the exercise, students’ understanding of the challenges that patients face in taking medications as prescribed increased from a mean of 3.8 to 4.4 (p-value <.0001). These results suggest that participating in an active learning exercise simulating medication adherence can change the attitudes of medical students regarding nonadherence and improve their recognition of the myriad of barriers to medication adherence. Future iterations of the exercise could include a wider variety of prescription instructions, including the “pharmacy” denying a medication due to insurance coverage.

Feasibility of Program Maintenance/Transferability: One of our goals was to create an exercise that could be repeated in subsequent years. Additionally, this exercise would be easily exportable to other institutions.

49. Just in Time Resident as Teachers Development using Teaching Tokens

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Objective/Purpose: To design and implement effective and efficient strategy for developing residents’ clinical teaching skills.

Need for Innovation/Practice: Residents play a vital role in medical student education in the clinical workplace with those teaching students in the ambulatory setting facing unique challenges as patients are scheduled every ten-twenty minutes. Resident as Teacher (RAT) programs have emerged to support residents, but are increasingly at risk as residency curricula time is allocated to meet competency, milestone and CLER requirements. To support our residents as ambulatory teachers, we developed a “just in time” approach that provides residents with on the job teacher training following a brief orientation session.

Methods, Materials and Resources Used: Teaching tokens provide just in time learning focused on efficient teaching behaviors to enhance the ambulatory educational experience for residents and students. Tokens are small cards/ “strips” of paper (<¼ page) with a “header” identifying a specific teaching method/approach (“Priming” learner for a specific patient visit ) or topic (social determinants of health) with 3-4 specific features associated with each teaching method or topic. Teaching strategies content was derived from literature with topic content drawn from MS clerkship requirements/syllabi. Residents receive the tokens from their MS. During clinical site orientation the token purpose/process and expectations are reviewed including the expectation to give their resident at least one token during each clinic session to focus their teaching/student learning. To prepare residents to receive the tokens, a brief 20-minute orientation was incorporated into an existing Family Medicine Program’s RAT ambulatory precepting workshop attended by all PGY1-3s. During the session, residents received a brief presentation on the teaching tokens (background, purpose, process) and then divided into dyads/triads to practice giving and receiving the tokens and discussing “What worked or didn’t?” and “How to make it more effective?” At the end of the session, residents completed a brief quiz regarding the token purpose, content, process and then generated their own teaching token to assess their grasp of the approach.

Outcomes: All attendees correctly identified at least one of the token’s primary purposes with > 90% correctly identifying the token distribution process. All participants successfully generated a NEW medical student token with foci including “direct observation” (Hx, PE), student access, and student role/responsibilities in “EHR documentation. Residents’ feedback post token implementation is highly
positive indicating that token use has prompted them to do more clinical teaching and residents are now requesting additional tokens as they have “mastered” original tokens.

**Strengths and Areas for Improvement:** Tokens provide point-of-care evidence-based teaching strategies for residents and highlight key curriculum topics for learners creating a “win-wins” for both residents and trainees. Process requires minimal orientation time with preliminary findings demonstrating that residents value and adopt the strategies for efficient teaching. Resident requests for more tokens is an area for improvement and opportunity for expansion to other programs. Student rotation evaluations and resident as teacher data will provide further understanding of the token approach strengths and areas for improvement.

**Feasibility of Program Maintenance/Transferability:** The teaching token approach is brief, engaging and perceived as high value by residents, requiring minimal time and resources for training and implementation. While targeted to ambulatory residents, teaching tokens may be an effective strategy with preceptors, in other settings, and/or specialties.

*Partial funding for this project is provided by the Health Resources & Services Administration (HRSA) of the U.S. Department of Health & Human Services (HHS), grant no. D55HP23197*

53. Adapting a Faculty Development Workshop on Patient-Centered EMR Use for Busy Clinicians using a Group OSCE

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**Objective/Purpose:** Electronic medical record (EMR) use in exam rooms can distract providers from their patients. Despite rapid EMR adoption in academic institutions, few faculty receive training or feedback on how to integrate patient-centered communication skills while managing the demands of the EMR. We developed a four hour patient-centered EMR use workshop for primary care faculty at the Cleveland Clinic (CC), which was then adapted for University of Chicago (UC) faculty in 90 minutes. We aimed to assess 1) faculty learner satisfaction 2) post-training self-assessed knowledge, attitude, skills 3) efficacy of longer vs. shorter patient-centered EMR training.

**Need for Innovation/Practice:** Given the important function faculty serve as role-models for resident and student trainees, succinct, effective education on EMR best communication practices is critically important.

**Methods, Materials and Resources Used:** After literature review, we developed a faculty workshop to improve patient-centered EMR use which consisted of: (1) a lecture highlighting barriers and best practices for patient-centered EMR use; (2) a Group-Objective Structured Clinical Exam (GOSCE) to practice skills with a standardized patient (SP) and mock patient chart in an EPIC training environment. Faculty interacted with the SP to take a history, integrate the EMR for chart review and document a HPI. Groups consisted of 2-4 faculty, 1 facilitator and 1 SP with immediate performance feedback. At CC, training was completed during a dedicated 4h block routinely reserved for Continuing Medical Education (CME). At UC, because such a block did not exist, time constraints necessitated a 90 minute session (1h of lunch with 30 additional minutes of time donated by the clinic). All faculty received CME credit. The longer CC workshop included; 75 minute lecture, 100 min GOSCE, two 20 min breaks, 25 min of closing feedback. The shorter UC workshop included; 20 min lecture, 60 minute GOSCE, 10 min of feedback.

**Outcomes:** 32 academic primary care faculty [Family Medicine (FM) and General Internal Medicine (GIM)] at two academic medical centers completed training [13 CC faculty (5 FM; 8 GIM) and 19 UC
All faculty completed a 23 item post-workshop evaluation assessing knowledge, attitude and skills. Responses to Likert items were dichotomized at the high end of the scale to denote agreement (i.e. agree/strongly agree). Descriptive statistics were summarized and compared between sites. We analyzed 30/32 (94%) post-workshop evaluations. Overall, the majority (67%, 20/30) of respondents were female (CC 50% vs UC 72%, p=0.22), with mean age of 48 (range 31-65) (CC 47 yo vs UC 45 yo, p=0.59). Overall, 100% (30/30) of faculty agreed it was ‘important to receive training,’ ‘relevant to their practice,’ and enabled them ‘to better teach and role model patient-centered care for trainees’, with no difference in mean ratings between CC and UC faculty (4.75 vs 4.72, 4.64 vs 4.89, 4.42 vs 4.50, p >0.05 for all). Overall, 97% (29/30) agreed that the workshop should be ‘required for all health care providers’ with no difference between CC and UC (4.75 vs 4.56, p=0.40). There were significant post-workshop increases in mean scores of 'awareness of barriers' and 'best practices' at both sites with no site differences (pre vs. post; 3.7 vs 4.5 and 3.1 vs 4.3 respectively, p<0.001 for both).

Additionally, there was a significant post workshop increase in mean ratings on ability to ‘implement best practices’ and ‘teach trainees how to implement best practices’ (3.3 vs. 4.2 and 2.9 vs 4.1 respectively, p<0.001 for both) with no site differences. While almost all faculty (29/30, 97%) agreed the GOSCE was an ‘effective way to practice skills,’ the CC mean ratings were significantly higher than UC ( 4.58 vs 4.12, p=0.04). However, more faculty at the UC agreed that the workshop was ‘informative and effective’ and that they ‘gained new knowledge’ (4.45 vs 4.83 p=0.04; 4.12 vs. 4.67 p=0.21 respectively).

**Strengths and Areas for Improvement:** We were successful in developing faculty training on patient-centered EMR use for busy faculty at two academic medical centers, which included adapting a 4 hour workshop into a 90 minute session. Faculty reported training in patient-centered EMR use was important, relevant and should be required for all providers and no difference was found between the longer and shorter training curricular. Faculty participating in longer training reported higher GOSCE efficacy, however the shorter workshop appeared more informative and effective with higher reported rates of gaining new knowledge.

**Feasibility of Program Maintenance/Transferability:** Given busy primary care clinician schedules and demands, shorter patient-centered EMR training may be a feasible and effective way to spread this model to other institutions and other levels of trainees.

*This project received funding from the AAMC CGEA Collaborative Grants*

### 57. Including Simulated Medical Students in the Training of Portfolio Coaches

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**Objective/Purpose:** To develop optimal methods for the training of faculty portfolio coaches in order to promote reflective learning in medical students

**Need for Innovation/Practice:** Faculty coaching has been recognized to be an essential element for reflective portfolio learning in undergraduate medical education. Best practices for training these “portfolio coaches” have not yet been determined. In this project, we evaluated the effectiveness of an innovative method for training portfolio coaches using simulated medical students.

**Methods, Materials and Resources Used:** In July 2015, prior to entering into coaching relationships with their students, 27 faculty portfolio coaches attended a full-day training which concluded with a two-hour “coaching skills development session” which utilized simulated coach-student encounters. Initial (pre-training) data was collected prior to the session by eliciting written responses from each coach to three student vignettes. Coaches were asked to describe their approach to coaching the student in each vignette. Six fourth-year medical students had been recruited and trained to play one of three roles, all based on first-year medical students meeting with their portfolio coach. The
scenarios were developed to expose coaches to students with either cognitive issues, personal/wellness issues, or issues with interpersonal communication. During the coach training session, each coach spent 20 minutes with the simulated student with instructions to build rapport, review the student’s performance report and reflective writing assignment, and help the student establish new goals and plans. At the completion of each simulated encounter, coaches completed a self-assessment and a peer observer, i.e. fellow coach, and the simulated student provided written and verbal feedback. Each coach then observed their peer meeting with another simulated student who portrayed a different case and they likewise provided feedback. Immediately after the training session, coaches provided written responses to the same three paper vignettes (post-training) and also completed a survey to evaluate the coach’s self-reported knowledge, awareness, skills, confidence, attitudes, and behaviors before and after the training. Pre- and post-training written responses to the vignettes were coded based on the presence or absence of four skills (creating a safe environment, explicitly utilizing performance data, asking questions that elicit reflection, and guiding student to develop future goals and plans) to determine if coaches documented a plan to incorporate behaviors promoted during the course of training.

**Outcomes:** Of the four desired coaching behaviors exhibited pre-training, all coaches documented an action plan on at least one vignette; however, 12 coaches did not document use of performance data, 9 coaches did not try to create a safe environment, and 2 did not try to foster insight for any vignette. 12 of these 23 (52%) did document the desired behavior for at least one vignette after the training. Results of the survey revealed that coach perceptions of one’s ability to demonstrate coaching behaviors were most improved for assessing the level of reflection (18% to 100%), deciding how to enhance reflection (28% to 100%), utilizing performance data (36% to 100%), and guiding students to develop goals and plans (39% to 100%). Areas in which coaches perceived high levels of ability prior to training did not significantly improve, including creating a safe environment (89%), giving positive feedback (93%), and giving corrective feedback (75%).

**Strengths and Areas for Improvement:** Faculty perceived the training to be effective and missing behaviors were more likely to be included in responses to vignettes after training. However, coaches did not document use of the four desired coaching behaviors with each vignette. Of the desired vignette behaviors, 49% were missing from post-training responses. It is unclear if increased perceived ability or awareness of missing behaviors will result in improved coaching of students. Further work is needed to understand the value added by the training program.

**Feasibility of Program Maintenance/Transferability:** This was our fourth year of implementing this training program. The cost of maintaining the training program is $900 per year. The program would be adaptable to other schools seeking to enhance training related to coaching skills.

58. A Milestone-based tool for faculty evaluations: Meaningful Data about Teaching Practice

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**Objective/Purpose:** To provide more meaningful data to faculty on their teaching practice, we developed a milestone faculty clinical teaching evaluation tool based on the nine points of the Stanford Teaching model, with an added professionalism question. Data from the American College of Graduate Medical Education (ACGME) resident survey was also used to ensure core teaching faculty were provided with more meaningful data about their teaching practice.

**Need for Innovation/Practice:** Traditional faculty evaluations have several drawbacks. Faculty members are not consistently evaluated on the same factors that residents respond to on ACGME exit surveys. There tends to be little discrimination between scores on 5-point Likert scales
instruments used in this setting. Finally, to protect trainee anonymity data is not given in real time if there are less than 3 completed evaluations. Lack of meaningful individual faculty teaching evaluation data can impact the quality of teaching. The data is a critical component for self-reflection and in effective faculty development programing.

**Methods, Materials and Resources Used:** The evaluation tool was modeled after the milestone language for resident evaluations. It was based on the nine points of the Stanford Teaching model, with one added professionalism question. ACGME annual resident survey data was used to identify areas for potential improvement such as giving effective feedback and allowing progressive autonomy. This data was used to help align milestone language to provide faculty with more meaningful teaching evaluations. The milestones were assigned a numerical scale ranging from 1 (Inadequate skills); 2 (Variable skills); 3 (Effective skills) to 4 (Exemplary skills/Role Model) with level 3 (Effective skills) considered to represent teaching proficiency. There was an option to use 1.5, 2.5 and 3.5 as an intermediary score. Example milestone for giving effective feedback for level 3 was "Provides timely and specific feedback to most learners. Appears comfortable giving constructive feedback to most learners but less effective with some difficult learners." Level 4 was "Provides constructive and positive feedback frequently, timely and to all learner types. Routinely encourages learner participation in the feedback process." The tool was developed through an iterative process using input from residency program leaders and our faculty development committee. Resident feedback was also obtained and used to refine the instrument. Pilot data was collected and analyzed and both faculty and residents. The College Promotion and Tenure committee was provided with a letter outlining how to interpret the new milestone based evaluation data. The proposed new evaluation tool was presented to the Graduate Medical Education Committee (GMEC) for final modifications and was approved for universal adoption starting in July 2015. Core faculty members were asked to complete a self-assessment using the new tool to familiarize faculty with the new tool, to evaluate the tool for reliability, and to gather baseline self-assessment data. Evaluation surveys were administered through the E*Value system.

**Outcomes:** Over 1300 trainee evaluations have been collected to date. Data comparing the resident evaluations in the traditional format compared to the milestone based format showed increased variability in scores, which was considered beneficial for giving faculty more meaningful teaching evaluation data. Residents found the new evaluation easy to use and felt more comfortable providing meaningful data to faculty using this tool compared to standard evaluations. Across all questions, faculty self-assessments were more critical than resident evaluations of faculty. However, similar variability was seen. The lowest score and greatest variability by both faculty self evaluation and trainee evaluation was for giving formative feedback. Faculty self-evaluation score for feedback was 3.29 out of 4, with a standard deviation of 0.66, and resident score for faculty was 3.69, with a standard deviation of 0.67, which was consistent with ACGME annual survey data.

**Strengths and Areas for Improvement:** This is a relatively simple innovation that could be easily adopted and modified, and provides an opportunity to give faculty members more meaningful teaching evaluations. Giving data to faculty in real time about their strengths and weaknesses teachers can seek faculty development programs to target the areas where they would like to improve.

**Feasibility of Program Maintenance/Transferability:** This innovation is feasible to implement and adapt by other institutions and programs. It leverages a familiar milestone construct, common GME systems and reflects current ACGME resident exit survey questions.