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In 2005, the IOM released a report titled “Improving medical education: enhancing the behavioral and social science content of medical school curriculum” that pointed to deficiencies in medical school curriculum. In response, in 2006, the NIH funded 9 medical schools to integrate behavioral and social sciences education in undergraduate medical school or graduate medical education curricula.

In 2012, 8 medical schools received funding to renew their original award. Each of the 8 schools identified a partner medical school that would allow for the study of dissemination activities. [Click here for website.](#)

The [medical school consortium](#) meets regularly to share best practices, and is working to standardize data measures across all sites, develop a common data collection clearing house, and coordinate evaluation across all 16 medical school awardees.

**Accomplishments:**

Importantly, mechanisms to disseminate the consortium’s accomplishments are impressive, including well over 200 dissemination activities, including over 30 peer- reviewed publications.

**Consortium Member Medical Schools:**

**Albert Einstein University  
Baylor University  
Brown University  
Columbia University  
Cornell University  
Indiana University  
University of Missouri  
Oregon Health Sciences University**

**Stanford University  
Texas A&M University  
University of California Los Angeles  
University of California San Diego  
University of California San Francisco  
University of Texas Health Sciences at San Antonio  
University of North Carolina at Chapel Hill  
Wake Forest University**

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## RESPONSES FROM CONSORTIUM MEMBERS

### 1. What competencies and skills are needed in an era of increasing transparency and accountability with new payment and delivery models? (For example, cost conscious care, managing population health, use of data analytics)

Graduating physicians must be prepared for their careers with the tools to:

- Comprehend the systems of health care on a micro and macro level, that is, understand the value and significance of both the patient-physician relationship and the placement of that relationship in a national and global context.
- Model their learning in a prospective and retrospective stance, to be both life-long learners as well as life-long teachers and providers of care, research, experience and knowledge.
- Conduct the ever-changing, ever-evolving negotiations of the economic and political considerations that relentlessly attach themselves to medicine; to provide exemplary care, maintain the highest level of professionalism and understand the nuances of responsibility inherent in competing entities.

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Associate Professor of Public Health  
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- Greater familiarity with health systems design and health economics (and how these systems may differentially impact diverse communities).

- Teamwork and share authority. Physicians learn a great deal of biomedicine and some behavioral and social science. Very few learn business administration but still find themselves as clinic directors and leaders. "Areas of concentration" in law, business, and economics might be a nice adjunct to medical training.

-Improved mechanisms that promote community engagement and elicit genuine patient feedback and experiences.

- Improve inter professional education and collaboration.

Jason Satterfield, PhD  
Director, Behavioral Medicine

MU SOM answers that question in terms of the key characteristics we expect of our graduates.

These key characteristics are as follows.

- Able to deliver effective patient-centered care: Our graduates are able to deliver care that improves the health of individuals and communities. Effective patient-centered care:
  - **Respects** individual perspectives, beliefs, values and cultures.
  - **Shares** timely, complete, accurate and understandable information to inform health choices.
  - **Engages** each person as he/she prefers, understanding that care choices belong to that individual.
  - **Partners** in decision-making and the delivery of care.Our graduates are active participants in the creation of policies, programs and environments that promote care that is patient-centered, grounded in the best available evidence, and conserves limited resources. The care they provide is marked by compassion, empathy, cultural humility, and patient advocacy.
- Honest with high ethical standards: Our graduates' behavior reflects honesty in relationships with patients, colleagues and the broader healthcare system. In practice our graduates understand and adhere to the basic principles of medical ethics, including justice, beneficence, non-maleficence, and respect for patient autonomy.
- Knowledgeable in biomedical sciences, evidence-based practice, and societal and cultural issues: Our graduates possess a fund of knowledge that reflects current understanding in basic biomedical sciences, clinical disciplines, population health, and the social and behavioral sciences that impact patient care.
- Critical thinker; problem solver: Problem solving and critical thinking engage three interdependent components: knowledge base, processing skills, and insight (metacognition). Building from a strong knowledge base, our graduates seek, synthesize and evaluate information through intellectual curiosity and by questioning the status quo.
- Able to communicate with patients and others: Our graduates effectively communicate with patients, families and health care providers in order to establish professional, caring relationships and to facilitate the delivery of high quality, compassionate patient-centered health care.

- Able to collaborate with patients and other members of health care team: Our graduates are skilled in the collaborative processes by which patients and interprofessional teams create and implement integrative care plans. They work together through mutual cooperation, respect, exchange of information and meaning, sharing resources, and enhancing each other's capacity for mutual benefits.
- Committed to improving quality and safety: Our graduates work as members of the health care team striving for excellence in the quality of patient care and safety. They assess the results of current practice, analyze the literature to determine best practice, and take action to close any gaps. Our graduates recognize their own limitations and acknowledge their responsibilities in delivering safe and effective care. They problem solve and reconcile errors and near misses. They are committed to proactive systems improvement.
- Committed to life-long learning and professional formation: Our graduates are aware that the profession of medicine is a lifelong endeavor. They are committed to reflection, self-assessment and self-improvement. They continually appraise and assimilate evidence to keep abreast of changes in best practice

Linda Headrick, MD  
 Senior Associate Dean for Education  
 Helen Mae Spiese Distinguished Faculty Scholar  
 University of Missouri School of Medicine

Knowledge of costs of procedures, medical treatment options. How much does it truly cost to order an IV versus PO meds? Ability to manage risk without doing additional studies. Algorithmic approaches to common diseases to make management more uniform. Understanding of various approaches to outpatient care that may address same issues as inpatient. Removal of routine ordering of labs and radiographs - many are not indicated, just done because that is the way we do it.

Dave Manthey, M.D.  
 Associate Dean for Medical Education  
 Wake Forest University School of Medicine

Indiana University School of Medicine has identified a wide range of critical competencies and skills for physician education for the NIH grant domain/26 priorities. Most relevant are the objectives from Physician Role and Behavior and Health Policy and Economics Domains as follows:

- Describe the magnitude of the investment in health care services made by individuals and organizations in the United States, the impact of these expenditures on individuals and on organizations and the limited "return on investment."
- Understand why competition and other "market forces" may not work in health care.
- Appreciate how "delivery system" income is allocated to sectors of cost.
- Understand the use of state-of-the-art utilization controls in the allocation of financial resources to critical sectors of care.
- Skills to apply understanding of how patients' values and life circumstances may affect their motivations for health-supporting behaviors, health care utilization, and preference for outcomes of health care in patient care.
- Skills to apply understanding of how physician's values and life circumstances may affect their motivations and communications with patients regarding patient care.
- Understand magnitude of variations in practice, even in the presence of generally accepted evidence-based guidelines for care, what some of the determinants of those variations might be, and ability to apply knowledge to specific case examples, deciding what "unwanted" variation means in these situations, and designing a plan of action to eliminate this variation.
- Skills to respect, collaborate and communicate effectively with members of an interprofessional team.

Debra Litzelman MD  
 Professor of Medicine  
 Associate Dean for Research in Medical Education  
 Indiana University School of Medicine

In order to maintain the highest standards of clinical care in an evolving health care system, we believe future physicians should, by the time they graduate medical school, be able to:

- a. Evaluate population-based data, and explain how such data informs priority-setting and decision-making for preventive medicine (e.g., screening, chemoprophylaxis);
- b. Critically evaluate the medical literature, and practice evidence-based decision-making;
- c. Describe the current structure of the US health care system, the changes anticipated, and how these changes will affect patients and health care providers;
- d. Explain how health care is financed, how incentives vary under different payment models, and how incentives drive behaviors of providers and systems;
- e. Communicate effectively with patients while utilizing EMR systems;
- f. Identify the professional challenges of balancing the best interests of the individual patient and the overall interests of communities, populations, and society, and describe an acceptable approach to striking that balance.

Paul R. Marantz, MD, MPH  
Associate Dean for Clinical Research Education and Professor  
Director, Center for Public Health Sciences  
Albert Einstein College of Medicine

Training should emphasize a patient-centric use of technologies. For example students and faculty need training on how best to communicate with a patient while using a computer, how best to write responses to patients in a way that is understandable, how best to use technologies to involve patients in their own care. How best to use technologies in a way individualized based on a patient's culture social supports.

Training should emphasize hands on use of technology to help with the generation and use of reports that reflect quality of care of both an individual as well as the population involved. (if there is population care software, then we need to train students how to use that and we need to train them on the best ways to implement systems to use that).

Training should emphasize the need to have continual improvement in systems in order to improve communication with patients and amongst inter-professional teams, and to maximize patient safety, quality of care, and avoidance of errors.

Payment changes that would be very helpful for increasing communication with patients would include payment for electronic care - messages sent to care for patients based on their emailed complaint or question

Payment change so that payment is not based on a note, but rather the care that is given.

Payment changes so that the Team is emphasized. Currently the payment structure is not patient centric and does not encourage a team approach especially not with different professions in the same office (payment is declined if both medical issues and prevention are addressed at the same visit, payment is difficult if the patient sees more than one member of the team on the same day)."

Frances Biagioli, M.D.  
Associate Professor  
Oregon Health Sciences University,  
Family Medicine

Means of achieving, demonstrating, and noting personal accountability. Means of learning, articulating, internalizing such standards as "right-coding" for visits and services. Means of self-monitoring for accountability.

Skills in examining costs, querying costs, calculating risk/benefit for cost-savings in particular instances.

Communication skills to engage patients, families, colleagues in respectful conversations about cost-saving maneuvers.

Communication skills in addressing cost disagreements with payors.

Rita Charon, M.D.

Professor of Clinical Medicine and Director of the Program in Narrative Medicine  
Columbia University

### SELECTED YEAR ONE COMPETENCIES AT UNC CHAPEL HILL SCHOOL OF MEDICINE:

Category	Competency	Milestone
Practice-Based Learning and Improvement	28:Identify gaps in medical knowledge, clinical skills (including communication skills), and professionalism, and develop a strategy for self-improvement.	1081:Recognize that professionalism entails a process of continuous self assessment and improvement.
Practice-Based Learning and Improvement	29:Actively seek and respond to feedback about professional performance.	1085:Provide appropriate feedback to fellow medical students and faculty.
Systems Based Practice	33:Use electronic and other information tools [e.g., including electronic health records and computer order entry] for systems-based patient care.	1099:Describe HIPAA and security implications of electronic health information.
Systems Based Practice	35:Advocate for enhanced access to health care for members of underserved populations.	1106:List systems-based factors that limit patient access to health care.
Systems Based Practice	35:Advocate for enhanced access to health care for members of underserved populations.	1107:Describe venues (institutional, state, national) within which physicians can advocate for improved access to care.
Managing the Health of Populations	38:Describe and apply principles of population health improvement for specific populations with attention to access, cost and clinical outcomes including quality of care, morbidity and mortality, functional status and quality of life.	1110:Define relevant terms such as population, public health, etc, and describe key principles pertaining to population health improvement.

Managing the Health of Populations	38:Describe and apply principles of population health improvement for specific populations with attention to access, cost and clinical outcomes including quality of care, morbidity and mortality, functional status and quality of life.	1111:Compare and contrast between health and medical care of populations.
Managing the Health of Populations	40:Describe various approaches to the organization, financing, and delivery of health care in the United States and other countries and the role of physicians in developing and implementing health policy.	1119:Describe the organization and financing of the health care system in the United States.
Managing the Health of Populations	40:Describe various approaches to the organization, financing, and delivery of health care in the United States and other countries and the role of physicians in developing and implementing health policy.	1120:Compare and contrast different health care organization and delivery models and describe the role of "safety net".
Managing the Health of Populations	40:Describe various approaches to the organization, financing, and delivery of health care in the United States and other countries and the role of physicians in developing and implementing health policy.	1121:Describe models of physician and hospital payment and approaches to controlling health care costs.
Managing the Health of Populations	40:Describe various approaches to the organization, financing, and delivery of health care in the United States and other countries and the role of physicians in developing and implementing health policy.	1122:Describe the impact of the health care system on health and illness in the U.S. and globally.
Managing the Health of Populations	40:Describe various approaches to the organization, financing, and delivery of health care in the United States and other countries and the role of physicians in developing and implementing health policy.	1123:Describe the roles of primary care physicians and specialists in the U.S. compared to other countries.
Managing the Health of Populations	41:Identify disparities across populations in North Carolina and nationally, and discuss physician roles in reducing these disparities.	1124:Define and contrast health care disparity and health disparity
Managing the Health of Populations	41:Identify disparities across populations in North Carolina and nationally, and discuss physician roles in reducing these disparities.	1125:Compare and contrast the role of physicians, health systems, and society in creating and maintaining disparities.



Managing the Health of Populations	41:Identify disparities across populations in North Carolina and nationally, and discuss physician roles in reducing these disparities.	1126:Identify major diseases in which there are disparities in terms of access, quality, and outcomes within NC and nationally.
Medical Knowledge	05:Identify the proximate and ultimate factors that contribute to the development of disease and illness, and, that contribute to health status within and across populations regionally, nationally, and globally.	1009:Discuss how the determinants of health and disease relate to the host immune system, its development, function, and possible dysregulation.
Patient Care/Clinical Skills	14:Identify and incorporate into the care of patient's appropriate prevention strategies for common conditions.	1036:Identify the levels of prevention.
Patient Care/Clinical Skills	14:Identify and incorporate into the care of patient's appropriate prevention strategies for common conditions.	1037:Describe available strategies of prevention (screening, vaccination, education/counseling, etc.) and their respective characteristics, limitations, and benefits.
Patient Care/Clinical Skills	14:Identify and incorporate into the care of patient's appropriate prevention strategies for common conditions.	1038:Discuss the use of national guidelines (e.g. US Preventive Services Task Force) in the care of individual patients.
Professionalism	25:Demonstrate personal accountability and admit professional mistakes openly and honestly with one's colleagues and instructors and critically evaluate these mistakes to promote professional development.	1071:Discuss the essential elements of the risk management process as it applies to patient care.
Practice-Based Learning and Improvement	29:Actively seek and respond to feedback about professional performance.	1083:Define feedback and list formative sources of feedback received during the academic year.
Practice-Based Learning and Improvement	29:Actively seek and respond to feedback about professional performance.	1084>List and describe proper methods to request and process feedback
Practice-Based Learning and Improvement	30:Demonstrate skills in retrieving, critically assessing, and integrating biomedical information into clinical decision-making.	1088:Retrieve pertinent biomedical information from electronic databases.
Practice-Based Learning and Improvement	32:Apply principles of patient safety and quality improvement to enhance patient care.	1096:Define medical error and discuss the incidence of medical error in the United States and the impact of medical error on patient outcomes.

	Systems Based Practice	34:Identify necessary elements for coordinated care of patients with complex and chronic diseases.	1103:Identify major community and on-line resources available to patients with chronic disease and their families.
	Systems Based Practice	34:Identify necessary elements for coordinated care of patients with complex and chronic diseases.	1104:Describe the different levels of care available to patients in the United States.
	Systems Based Practice	34:Identify necessary elements for coordinated care of patients with complex and chronic diseases.	1105:Discuss the rules and regulations impacting the coordination of care for patients (e.g. Stark).
	Systems Based Practice	36:Describe the principles underlying the delivery of high quality patient care and effective patient systems.	1108:Describe the major principles underlying high quality patient care.
	Systems Based Practice	37:Outline the roles of the various members of the healthcare team and describe how these roles can be integrated for optimal patient care.	1109:Discuss the roles and responsibilities of health care team member in the care of patients.
	Managing the Health of Populations	38:Describe and apply principles of population health improvement for specific populations with attention to access, cost and clinical outcomes including quality of care, morbidity and mortality, functional status and quality of life.	1112:Identify measures of cost, quality, and access and discuss how these measures are used at the population level.
	Managing the Health of Populations	38:Describe and apply principles of population health improvement for specific populations with attention to access, cost and clinical outcomes including quality of care, morbidity and mortality, functional status and quality of life.	1113>List national organizations involved with the development and application of quality measures.
	Managing the Health of Populations	39:Identify factors that place populations at risk for disease or injury, and select appropriate strategies for risk reduction.	1115:Define and contrast primary, secondary, and tertiary prevention.
	Managing the Health of Populations	39:Identify factors that place populations at risk for disease or injury, and select appropriate strategies for risk reduction.	1116:Discuss how population-level risk measures are applied to individuals.
	Managing the Health of Populations	39:Identify factors that place populations at risk for disease or injury, and select appropriate strategies for risk reduction.	1117:Compare and contrast methods used to evaluate the effectiveness of preventive strategies.

	Managing the Health of Populations	39:Identify factors that place populations at risk for disease or injury, and select appropriate strategies for risk reduction.	1118:Describe the prevalence and impact of major diseases in North Carolina.
	Patient Care/Clinical Skills	14:Identify and incorporate into the care of patient's appropriate prevention strategies for common conditions.	1035:Identify the most common causes of morbidity and mortality in specific patient populations and discuss recommended screening test for these conditions.
	Interpersonal and Communication Skills	20:Demonstrate collaborative teamwork skills and the ability to work effectively with other members of the health care team.	1057:Work collaboratively with peers in team setting to solve basic science problems.
	Interpersonal and Communication Skills	20:Demonstrate collaborative teamwork skills and the ability to work effectively with other members of the health care team.	1058>List the major elements of highly performing teams and how these concepts can be applied to patient care.
	Practice-Based Learning and Improvement	32:Apply principles of patient safety and quality improvement to enhance patient care.	1095:Discuss the importance of patient safety and describe the basic elements of patient safety programs.
	Practice-Based Learning and Improvement	32:Apply principles of patient safety and quality improvement to enhance patient care.	1097:Identify quality measures and describe how these measures are validated.
	Practice-Based Learning and Improvement	32:Apply principles of patient safety and quality improvement to enhance patient care.	1098:Discuss the principles of quality improvement and describe the basic elements of quality improvement programs.
	Systems Based Practice	33:Use electronic and other information tools [e.g., including electronic health records and computer order entry] for systems-based patient care.	1101:Compose a patient care note in an electronic record.
	Systems Based Practice	33:Use electronic and other information tools [e.g., including electronic health records and computer order entry] for systems-based patient care.	1102:Access external software applications for use with patient care.
	Managing the Health of Populations	39:Identify factors that place populations at risk for disease or injury, and select appropriate strategies for risk reduction.	1114:Define and calculate risk (cumulative incidence) and define risk factors.
	Medical Knowledge	05:Identify the proximate and ultimate factors that contribute to the development of disease and illness, and, that contribute to health status within and across populations regionally, nationally, and globally.	1011:Discuss the effects of socioeconomic status, diet, exercise, gender, and age on health and disease.

	Medical Knowledge	07:Recognize the medical consequences of common societal problems.	1015:Describe the impact on health of life experiences, poverty, education, race, gender, culture, crime, and the health care system.
	Patient Care/Clinical Skills	11:Justify each diagnostic test ordered and management strategy proposed with regard to cost, effectiveness, risks and complications, and the patient's overall goals and values.	1030:Identify the key questions to ask when developing a risk to benefit ratio for any given diagnostic or therapeutic intervention.
	Patient Care/Clinical Skills	14:Identify and incorporate into the care of patient's appropriate prevention strategies for common conditions.	1039:Critically evaluate the benefits and limitations of the use of guidelines for common conditions.
	Professionalism	23:Recognize and discuss the implications of conflicts of interest inherent in various financial and organizational arrangements for the practice of medicine and in medical education and research.	1062:Discuss potential conflicts of interest experienced by providers and payers arising from the reimbursement for medical care.
	Professionalism	23:Recognize and discuss the implications of conflicts of interest inherent in various financial and organizational arrangements for the practice of medicine and in medical education and research.	1063:List potential conflicts of interest that need to be disclosed when giving a presentation.
	Professionalism	23:Recognize and discuss the implications of conflicts of interest inherent in various financial and organizational arrangements for the practice of medicine and in medical education and research.	1064:Describe potential conflicts of interest in the instructor-student, advisor-student relationship.
	Professionalism	25:Demonstrate personal accountability and admit professional mistakes openly and honestly with one's colleagues and instructors and critically evaluate these mistakes to promote professional development.	1068:Describe intentional and non-intentional mistakes.
	Professionalism	25: Demonstrate personal accountability and admit professional mistakes openly and honestly with one's colleagues and instructors and critically evaluate these mistakes to promote professional development.	1069:Outline methods of addressing mistakes (e.g. hospital, legal, government).

	Professionalism	25: Demonstrate personal accountability and admit professional mistakes openly and honestly with one's colleagues and instructors and critically evaluate these mistakes to promote professional development.	1070: Discuss appropriate responses to professional mistakes.
	Professionalism	25: Demonstrate personal accountability and admit professional mistakes openly and honestly with one's colleagues and instructors and critically evaluate these mistakes to promote professional development.	1072: Demonstrate ability to disclose and be accountable for mistakes with peers and faculty.

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Excerpt (below) from recent publication involving Consortium members

Change, A. et al. Transforming Primary Care Training—Patient-Centered Medical Home Entrustable Professional Activities for Internal Medicine Residents. *Journal of General Internal Medicine*, Published on line September 12, 2012.

Table 1. A Sample Entrustable Professional Activity (EPA) and Related Competencies

Sample PCMH EPA:				
Facilitate a patient's participation in a health care decision using informed decision-making (or using formal decision-aid)				
Clinical Example:				
Shared decision-making for stroke prevention in a patient with atrial fibrillation and relative low stroke risk				
Specific behavioral elements of sample EPA	Solicit history, perform physical exam, and order/interpret laboratory tests for cardiovascular disease	Know the risk of stroke in atrial fibrillation	Identify relevant clinical questions	Work with health educators and other team members in helping patient make decision about stroke prevention strategies
	Educate patient/family about stroke prevention and outcomes	Know the effectiveness and risks of stroke prevention strategies	Acquire, appraise, and apply new information about primary stroke prevention in atrial fibrillation	Document patient assessment and decision-making process in medical record
	Solicit patient preferences for primary prevention of stroke	Know potential stroke outcomes	Solicit and respond to feedback about shared decision-making encounter with patient	Communicate risk for outcomes of stroke prevention options
ACGME competencies <sup>27</sup> Relevant ACGME sub-competencies	Patient care Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health	Medical knowledge Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care	Practice-based learning and improvement Identify strengths, deficiencies, and limits in one's knowledge and expertise  Identify and perform appropriate learning activities  Incorporate formative evaluation feedback into daily practice  Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems  Use information technology to optimize learning	Interpersonal/communication skills Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds  Communicate effectively with physicians, other health professionals, and health related agencies  Work effectively as a member or leader of a health care team or other professional group  Maintain comprehensive, timely, and legible medical records, if applicable
Relevant joint principles for PCMH education competencies <sup>39</sup>	Personal physician  Demonstrate knowledge about the definition of patient-centeredness the ability to provide patient centered care in their clinical encounters Whole person orientation Provide patient care that is compassionate, coordinated, appropriate, and effective for the treatment of health problems and the promotion of health		Quality and safety  Use point-of-care evidence-based clinical decision support and use information to make decisions within practice via interpretation of quality reports, patient and family engagement, self-assessment of one's own performance, knowledge of the principles of community health assessment, and awareness of the need for patient and family advocacy skills	Physician directed medical practice  Demonstrate collaborative care via leadership skills that result in effective information exchange and teaming with patients, their patients' families, and professional associates
CanMEDS*	Medical expert		Scholar	Communicator Collaborator

PCMH = patient-centered medical home; ACGME = the U.S. Accreditation Council for Graduate Medical Education  
 \*CanMEDS is a Royal College of Physicians and Surgeons of Canada initiative to define competencies needed in medical education and practice<sup>28</sup>

2. How are you currently training and educating the next generation of health professionals for the next generation of care delivery models/settings? How are you educating practicing clinicians for the evolving health care system?

Indiana University School of Medicine educational methods include guided student narrative and small group reflection designed to highlight behavioral and social science issues, including social, economic, psychological, communication, and interprofessional, involved in the care of a patient and patient population. The intent is to foster mindfulness and growth in our students' capacity to recognize and respond to the behavioral and social science related-issues present in their daily medical school activities and wider system of healthcare. We hypothesize that knowing that they will be asked to reflect *on* their actions and experiences enhances student ability to be reflective *in* their actions and experiences, and proactively mindful of their behaviors and communications. A sample of our learning experiences includes:

- **Immunology, Year 1**  
**Development of a Concept Map on Determinants of Health**  
Using a heuristic (such as Figure 1.1 from *Improving Medical Education, pg 17*) for the interacting forces that contribute to the health, functional status, and well being of an individual (or a population), students develop concept maps to visually represent a more comprehensive and sophisticated understanding of this model of the determinants of health. Students chart the complex relationship between cost, access, and effectiveness as part of a health policy and economics session.
- **Intersession, Year 3**  
**Interprofessional Simulation Session**  
The Medicine/Psychiatry/Neurology block includes a simulation of an adolescent with altered mental status in an ER setting with interprofessional EM personnel. The primary objectives of the case include behavioral objectives such as recognition of suicidality, deployment of teamwork behaviors, discussion of care with family members. Students discuss the importance of role recognition and 2-way communication among all team members.
- **Medicine Sub Internship, Year 4**  
**Reflection on Patient Quality and Safety Observations**  
During the required fourth year sub-internship, students are asked to write a personal observation of a patient quality and safety issue and provide an analysis of root cause and possible preventive measures. Students reflect on the various roles (including their own) of members of the health care team in ensuring optimal patient care.

Professor of Medicine  
 Associate Dean for Research in Medical Education  
 Indiana University School of Medicine

The MU SOM key characteristics listed above inform our medical student selection, curriculum and evaluation. For instance, since 2011, every medical student must pass a practical exam in patient-centered care (Patient Centered Care Objective Structured Clinical Examination) to graduate from our medical school.

An example of our work is the continuum of experiences in medical student education related to health care quality improvement and patient safety, summarized in the table below. Several of these experiences are interprofessional.

**MU SOM Continuum of Learning about the Improvement of Health Care Quality, Safety & Value**

Medical School Year	Curricular Element	Description	Outcomes
1	White Coat Ceremony  (Required)	Review of key characteristics of MU grads, including the ability to deliver effective patient-centered care, the ability to collaborate with patients and other members of the health care team, and a commitment to improving quality and safety. Illustrated with reflections from a fourth year medical student on what these meant in the context of a patient’s story.	This addition to the White Coat Ceremony introduced in 2004. Very popular among first year medical students and their families, so repeated yearly since.
1	Partners in Education-Partners in Care series in Introduction to	Longitudinal series of interprofessional small group sessions with students in accelerated	Content from these sessions included in course examinations



Medical School Year	Curricular Element	Description	Outcomes
	Patient Care course	nursing program. In 2011-12, sessions included Interprofessional Teamwork & Communication, Introduction to Quality and Safety, Health Literacy, Culturally Sensitive Interviewing, Health Ethics	
1	Summer Externship in Patient Safety (Elective)	Six week summer experience in Office of Clinical Effectiveness, conducting patient safety research.	Each student produces a final product appropriate to the project. Some have led to abstracts at peer reviewed national meetings.
2	Interprofessional Curriculum (Required as part of Introduction to Patient Care course )	Four week curriculum involving medical, nursing, respiratory therapy, pharmacy and health management students. Interprofessional student teams 1) analyze an adverse event and propose improvements and 2) work through a simulation experience on teamwork, patient safety and patient-centered care.	Many attitudes re: patient safety and QI improved post-training. Students' self-perception of safety skills improved. Students report increased knowledge of other professions and greater awareness of the importance of teamwork.
3	Patient Safety Internal Medicine Conferences (Required)	Two one-hour sessions imbedded in Internal Medicine third year clerkship. At second session, students report safety issues they have	Students report increased comfort in analyzing cause of an error and increased reporting of safety issues to supervising

Medical School Year	Curricular Element	Description	Outcomes
		observed while on clerkship, as well as proposed innovations to improve safety. Faculty members from school of medicine and health care system facilitate discussion.	faculty following this conference. student recommendations for improvement are more robust and reflect more “system thinking” than similar recommendations submitted by practicing health professionals.
3	The Integrated Patient Safety (TIIPS) Curriculum (Required as part of Internal Medicine clerkship)	Collaboration with School of Nursing, started with funding from the Josiah Macy Foundation and Institute for Healthcare Improvement. Dyads of medical and nursing students learn about patient safety and perform a falls risk assessment on a hospitalized patient.	Improved student confidence in assessing falls risk and positive patient response. Student-collected data reported to health system falls prevention team. Positive response from patients, who report that the students’ work adds value to their care.
4	Achieving Competence Today Curriculum (Elective)	Fourth year students are imbedded within interprofessional QI teams consisting of other learners (including residents) and staff of MU Health Care. Just-in-time QI training provided to teams by interprofessional faculty team.	Enhanced QI knowledge compared to matched controls as measured by QI Knowledge Assessment Tool. End of course presentations to system leaders regarding improvements made.

Medical School Year	Curricular Element	Description	Outcomes
4	One-Month Elective in Quality/Safety	One month elective in the Office of Clinical Effectiveness, working on QI or patient-safety project.	Each student produces a final product appropriate to the project.

Linda Headrick, MD  
Senior Associate Dean for Education  
Helen Mae Spiese Distinguished Faculty Scholar  
University of Missouri School of Medicine

UCSF has a longitudinal health policy theme that begins with a dramatic case re-enactment of an uninsured man who has a motorcycle accident. Students follow his care (and examine his hospital bill) as the case progresses. Didactic lecture and small groups follow but the bulk of the training experiences come during an "intersession" period that occurs in the 3rd year between clinical clerkships. We've found that students are far more interested in policy and systems once they've worked in contrasted medical systems as clerks.

Jason Satterfield, PhD  
Director, Behavioral Medicine  
Professor of Clinical Medicine  
University of California San Francisco

Poorly. We often train them to escape risk rather than reign in cost and use. Making this a requirement of medical schools and residencies would add importance to the concept.

Working in interdisciplinary teams that review all options available like the Tumor Boards would allow a larger variety of more economical approaches to evolve.

Dave Manthey, M.D.  
Associate Dean for Medical Education  
Wake Forest University School of Medicine

Current training and education involves integrating the classroom and clinical skills learning throughout the four years of medical school. Some of these activities currently include problem-based learning sessions beginning in the first year as well as pairing first year students with clinician-preceptors to begin the acquisition of knowledge and experience of direct patient-provider involvement. The LEAP program

matches students with patients to follow longitudinally through their four years. Reflective writing activities are a part of several different levels and courses, including Narrative Medicine sessions for fourth year medicine subinterns who link their acquired skills in close reading to their experiences on the wards.

Susan C. Ball, M.D., M.P.H., M.S.  
Associate Professor of Medicine  
Associate Professor of Public Health  
Assistant Director, Bernbaum Unit Center for Special Studies  
New York-Presbyterian Hospital  
Weill-Cornell Medical College

We believe the future will require physicians and advanced practice nurses will need to work together as partners, so for the past 5 years we have been working towards that goal at UCLA David Geffen School of Medicine. We now have a full-year course in which third year medical students and second year advanced practice nursing students meet together in small groups of 8 students and two tutors. The tutors are also from a variety of professions, including medicine, nursing, psychology, and social work. This course meets once or twice a month for 3 hours at a time. Students read and report to the group on papers which include policy statements, recent peer-reviewed journal articles, articles in the New Yorker, and current ballot initiatives. Each student writes a reflective essay each session, joining the topic of the day with experiences they have had in their clinical training or personally. The topics address social and behavioral science competencies: What is medical error, how do we prevent it, and what do we do when it happens? How do you think about it and what do you do when a patient or colleagues wants you to do something you feel is morally wrong, such as perform an abortion, prescribe medical marijuana, assist in a suicide or speed a death? How can we make sure patients are getting enough, but not too much, of expensive health care services? How do we help individual people to die with dignity, without spending their last month of life in an intensive care unit, but without giving up in general on people who could be saved or losing our ability to ever expand what we can do for seriously ill people?

In the process of teaching the students we are educating the faculty, by having them read the current literature, and discuss the issues like medical decision-making and population medicine within their own small group of faculty.

Our medical students do Quality Improvement projects on their clerkship rotations, although at this point this is not done at all sites.

Margaret L. Stuber, M.D.  
Assistant Dean of Student Affairs for Career Development and Well-Being  
Vice Chair for Education in Psychiatry  
Daniel X. Freedman Professor, Psychiatry and Biobehavioral Sciences  
David Geffen School of Medicine at UCLA

At the University of Wisconsin School of Medicine and Public Health, we are the only fully integrated school of medicine and public health in the country. We have integrated population health into every course in all 4 years of our curriculum. We believe that it is vital to prepare our students for their work as physicians in the practice of medicine for both this country, and the globe, in the 21st century. To do that, physicians will need education and training in both medicine and population health. This means an understanding in health systems, health policy, health management, public health, epidemiology, and biostatistics. We are educating our students on health leadership, health advocacy, health care reform, new health care models, and working in a variety of health care settings and models to gain experience. We teach them about health care disparities, cultural competency, and the effects of poverty. They receive basic health care economics as well. There are opportunities for many health care electives, and students can opt for a dual degree in MD, MPH, and MD, MBA, or a PhD in population health sciences, in addition to the MD degree.

Patrick McBride, MD, MPH  
Professor of Medicine & Family Medicine  
Associate Dean for Students  
Associate Director, Preventive Cardiology  
University of Wisconsin School of Medicine and Public Health

At Oregon Health & Sciences University we are using a simulated Electronic Health record with standardized patients to train both students and clinicians in the art of maintaining rapport while using an EHR in a safe manner.

We are also using this Sim-EHR tool to give learners virtual patient care experience. This allows them to learn to evaluate patient social and medical history and then apply evidence based quality guidelines for the prevention and management of disease.

We use both of these educational modules for educating community and university clinicians.

Frances Biagioli, M.D.  
Associate Professor, Oregon Health Sciences University,  
Family Medicine

We have initiated Inter Professional Education at Columbia University Medical Center, co-taught by faculty from our 4 schools (dental medicine, medicine, nursing, public health) and attended for credit by students from all four schools. From the start, the perspectives of the public health professionals are explicitly in the picture as individual clinical situations are considered. For students AND faculty clinicians, the insistence of all members of these teams being heard means that clinical decision-making requires ingredients from population health and health care systems orientation. We have adopted narrative means of teaching in these seminars,

since engaging students and faculty in writing responses to depictions of clinical situations (from hospital charts, from poems, from fiction, from movies) is a short-cut to get them all representing what they perceive, and hence to perceive more.

Rita Charon, M.D.  
Professor of Clinical Medicine and Director of the Program in Narrative Medicine  
Columbia University

At Einstein, we have developed an educational program that provides our students with a robust skill set to understand the evidence base for practice. (This addresses competencies [a] and [b] above.) The most recent innovations include: a popular and effective (albeit brief: the equivalent of a 1.5 credit course) first year course in the fundamentals of epidemiology and biostatistics; a recently expanded second year course in 'evidence-based medicine' (also about 1.5 credits, spread across the entire year) with clinical context coordinated with the students' pathophysiology modules; and the recent integration of these first and second year courses into an integrated and coordinated program entitled "Epidemiology, Population Health, and Evidence-based Medicine" (EPHEM 1 and 2).

We have an extensive curriculum in communication skills (addressing competency [b]), spanning years 1, 2, and 3, that includes peer-practice, standardized/simulated patients, and formal skills assessments (both at the bedside (with real patients) and in our clinical skills center (with simulated patients)).

We have developed a novel third year course (Patients, Doctors, and Communities) where students bring real-world challenges they experience during their clerkships back to the school for exploration, discussion, and skills development. This provides an opportunity to take advantage of real-world 'teachable moments' to address the types of challenges (like that described in competency [f]) that do not lend themselves to lecture, lab, or 'paper cases.'

Competencies [c] and [d] are approached through various elective opportunities of which the students may or may not avail themselves; bringing these competencies effectively into formal/standard curriculum is a major goal of this R25 grant from OBSSR.

Paul R. Marantz, MD, MPH  
Associate Dean for Clinical Research Education and Professor  
Director, Center for Public Health Sciences  
Albert Einstein College of Medicine

At UNC-Chapel Hill School of Medicine, medical anthropology and sociology, political science, philosophy, history, law, and comparative literature directly relevant to a complex view of health, illness, and health care form the basis for required courses for years 1 and 2. In Year 1, faculty from these disciplines along with clinical, basic

science, and dual degreed physician scholars apply the research and concepts to understanding illness experience, gender and sexuality, health disparities and inequalities, ethnicity and race, critical analysis of evidence, bioethics in clinical, research, and sociocultural contexts, and health care organization and finance with an emphasis in distributive justice. In Year 1, our students study the organization and finance of their community clinical learning settings, and participate in a mock senate hearing on how to cover the uninsured.

Students choose among seminars in health disparity, health policy, bioethics, chronic illness and disability, doctor patient communication, history of medicine, literature, writing and medicine, law and medicine that are given in Year 2. Clinical Epidemiology and Prevention are currently taught in Year 2. In years 3 and 4, students engage in elective study of social medicine topics with faculty mentors. Nearly one third of UNC School of Medicine students take an extra year to complete the MPH degree in a program coordinated with the School of Public Health.

Our curriculum in Social Medicine is closely integrated with The Clinical Skills Development and Integration sequence during Years 1 and 2, and is designed to prepare future physicians to understand the social and behavioral foundations of medical practice, the health of populations, and the engaged, multi-dimensional care of patients.

Sue Estroff, Ph.D.  
Professor of Social Medicine  
UNC-Chapel Hill School of Medicine

### 3. How can we partner together to ensure training and education is evolving in parallel with the changing payment and delivery landscape?

It will be important to integrate multiple sources of data, including data obtained through educational training, into the organization review process. Academic medical centers collect large volumes of data which could be used to improve understanding of the environments in which patient care and medical education take place. Weaving together data from the numerous microsystems involved in the administration and delivery of care could result in information that would allow us to understand more deeply the organizational environments in which we teach and learn, to inform institutional intervention, and identify needs for education and training.

Debra Litzelman MD  
Professor of Medicine  
Associate Dean for Research in Medical Education  
Indiana University School of Medicine

The EMR and its assimilation into the fabric of the clinical experience is well-recognized by today's doctors-in-training for its many levels of contribution. More than just a financial tool, the EMR serves as a centralized location for information, inter-disciplinary dialogue and continuity. Ideally the EMR can reduce duplication, prevent errors, provide data and facilitate care. The EMR also runs the risk of isolating the patient from his or her disease, as a history becomes so many checked boxes and cutting and pasting replaces eye-contact and personal connection. It is part of our task to work together so that the many strengths of the EMR are not diminished by these drawbacks.

Susan C. Ball, M.D., M.P.H., M.S.  
Associate Professor of Medicine  
Associate Professor of Public Health  
Assistant Director, Bernbaum Unit Center for Special Studies  
New York-Presbyterian Hospital  
Weill-Cornell Medical College

- Better specify relevant competencies via LCME and/or AAMC special emphasis panel.
- Create curriculum development and leadership grants to promote new innovations and build a critical mass of faculty capable of doing this work.
- Develop a bridge between various stakeholders working in this area (e.g. PCORI, AHRQ, NIH, RWJ, etc).

Jason Satterfield, PhD  
Director, Behavioral Medicine  
Professor of Clinical Medicine  
University of California San Francisco

Patient input as well as clinician input is critical to help evolve the education on an ongoing basis. This requires monitoring of common issues that arise and developing new education to address those issues. For example when patients complain about how the new delivery methods have affected their care (my doctor no longer looks at me during a visit, they are distracted by the computer), then we need to measure this and address this with education. As this health care change evolves new issue will likely crop up. If there are trends that require education they should be addressed with new curriculum as soon as possible.

Frances Biagioli, M.D.  
Associate Professor, Oregon Health Sciences University,  
Family Medicine

Both sides have to know what both sides think and want and need. There should be no daylight between the educational planning and the context planning. Put health professional faculty/students on your brainstorming teams and your operations teams. We must consider enlarging our curriculum



planning processes with members of at very least our own local clinical centers. The part that policy at a national level wants to play in the individual institutions will depend on the balance between federally uniform guidelines and local preference guidelines. The Mayo Clinic/Mayo Medical School is a great model for this. They know for what they are training their students, both to work in and to come to believe in.

Rita Charon, M.D.  
Professor of Clinical Medicine and Director of the Program in Narrative Medicine  
Columbia University

First, come up with solutions that not only decrease cost but also address risk. Telling physicians to stop ordering CT scans for abdominal pain to save money, but then allowing them to get sued based on some zebra that was missed by not ordering the CT will never change outcomes. Reform the malpractice arena so that we stop practicing defensive medicine.

Develop programs to train the trainers. Students cannot learn from physician educators who have no experience or guidance in a new program. A lot of conjecture will lead them in various directions instead of a unified voice.

Dave Manthey, M.D.  
Associate Dean for Medical Education  
Wake Forest University School of Medicine

In November 2012 the Association of American Medical Colleges will release the “Teaching for Quality” recommendations. At the center is the belief that *competency in quality and safety is essential for every physician if we hope to improve the quality, safety and value of health care in the US*. The current state, in which most physicians do not have these abilities, threatens the success of upcoming health care reforms.

To achieve a future in which every physician is prepared to improve the quality, safety and value of health care, every US academic health center needs a core group of expert educators who can create learning opportunities for students, residents and faculty. The gap between that vision and the current reality is enormous. Closing that gap will require a major national faculty development initiative. We must move quickly. The federal government can play a critically important role in helping to convene interested parties and identifying required resources.

Linda A. Headrick, MD  
Senior Associate Dean for Education  
Helen Mae Spiess Distinguished Faculty Scholar  
University of Missouri School of Medicine

Our academic faculty need to hear from the ‘real world’ to know what skills and competencies are required and lacking. Insofar as clinical faculty are actively engaged in curriculum planning and in teaching, we do have meaningful real-world input, but the stakeholder perspective is that of the provider (in our case, the physician).

Medical educators also need to hear from other stakeholders: patients, communities, hospitals and delivery systems, and payers.

An ongoing opportunity for interaction and information exchange between the medical education community and the health care delivery community would be valuable. On the medical education side, the AAMC would be an appropriate organization to convene this; I do not know who would be appropriate to bring in stakeholders from the care delivery side.

Paul R. Marantz, MD, MPH  
Associate Dean for Clinical Research Education and Professor  
Director, Center for Public Health Sciences  
Albert Einstein College of Medicine

Disseminate and continue to share curricular materials across medical school communities. Export innovation and explore other schools’ ideas. Utilize national organizations such as American Medical Association (AMA), Association of American Medical Colleges (AAMC), National Board of Medical Examiners (NBME), and Accreditation Council for Graduate Medical Education (ACGME) as links for sharing of materials. Also, try to influence these national organizations toward expansion of BSS curricula across the country.

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