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Individual and Systems Based Approaches: Introducing Quality, Coordination, and Patient-Centeredness Into the Health Care Education System

Health care education entails building the foundation of ushering in new generations of physicians and professionals to deliver quality care to patients on a global scale. The very notion of training doctors has experienced tremendous upheaval in the history of America. From the 1700s, medical education and licensure has undergone remarkable reform in the struggle to balance medicine as a business practice and a humanitarian pursuit. In the early 20th century, the Flexner report helped culminate a major upheaval to effect a radical change in perspective to bring about the professional ethic we see in the practice of medicine today. However, one can argue that another round of reform is now in order to enable the standard of continuous quality improvement expected in a discipline grounded in utilizing best practices to help alleviate suffering and promote good health. What type of initiative would best be put to use to fundamentally revolutionize the health care education system to empower the workforce to deliver coordinated and patient-centered medicine? Implementing this reform must be rooted in measures that tackle performance-based goals on both an individual and system-wide level. The most important change requires tackling this reform on both fronts simultaneously, recognizing that each goes hand in hand with the other. Unifying these various efforts can be federally galvanized via a newly established National Health Education Reform Taskforce (NHERT), jointly governed under the Department of Health and Human Services and the Institute of Medicine.

The first step in this paradigm shift includes acknowledging the benefits in providing a high-value team approach to coordinated and patient-centered care. There is true value to be found in fostering a culture of interdisciplinary teamwork amongst medical practitioners. For example, combining doctors and nonphysician professionals like nurses in primary care practices can increase patient satisfaction and improve health outcomes.¹ Oftentimes, patients feel more comfortable discussing issues to clinicians that are not physicians. However, teamwork success is contingent on cohesive health care teams that share divided tasks, clear communication, and straightforward goals. Instilling a sense of camaraderie in a health care setting as early as medical school can aid in facilitating the interactions necessary to engender this level of teamwork. A key point in progressing with these efforts is recognizing the value inherent in quality improvement. Recently, a study demonstrated that training in quality improvement lowered mortality rates caused by coronary artery bypass graft surgery.² The Institute of Medicine defines six aims for improvement in quality: safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity.^{3,4} These aspects are meant to highlight a means to deliver quality care that patients deserve on a daily basis. This kind of practice takes into account patient values and preferences and transforms medicine from treating merely diseases to the person as a whole. Clearly, providing coordinated and patient-centered care utilizing teamwork models is a fundamental facet of advancing health care systems to a new level in the 21st century.

Creating a National Health Education Reform Taskforce (NHERT) would prove instrumental in coordinating and effecting change from coast-to-coast because of momentum built at the federal level. The NHERT could act as a clearinghouse for approved medical education reform on both an individual and system-wide level. Measures focused on improving individual patient care on a case-by-case basis include the promotion of student-initiated learning and evaluation, problem-based learning, evidence-based medicine, and utilization of established clinical guidelines. Changes geared towards a holistic systems approach in improving health care delivery systems include supporting quality improvement approaches, coordinated care, health information technology, interprofessional learning, dedicated leadership, and valuing medical performance indicators.⁵

One of the first steps in realigning medical education objectives to those that are competence-oriented is empowering individual physicians to deliver quality care to individual patients. An important component of this method has already been incorporated in the form of problem based learning. Empowering students from year one with techniques that enable self-reliance on reviewing established medical practices for various cases is an effective method in applying medical knowledge for usage in treating individual patients. Along these lines, it is also important that medical schools base their third and fourth year curriculum on exposing students to a diversity of patients, because learning from different types of people can build cultural competence and awareness in a broad range of medical issues.

Another important component entails promoting evidence-based medicine to deliver care that is well-rooted in demonstrated best practices. Evidence-based medicine is implemented by setting two priorities: first, bridging the gap between scientific discoveries and clinical practice by making information more accessible to providers, and second, establishing the infrastructure of an agency such as the NHERT. Unfortunately, the health care model Americans follow today revolves around providers, but this focus needs to be quickly redefined to instead become patient-centered. Such steps include promoting the automation of patient-specific clinical information and tying this to decision-making that minimizes doubt according to a comprehensive set of standards that attempt to use tangible scientific evidence to best treat each individual. The Mayo Medical Clinic states that over half of the nation's medical care is not based on a consensus of best practices.⁶ In an approach to implement evidence-based medicine, which relies on the ideal that more care is not necessarily better care, the government must ensure the accessibility of conveying scientific evidence to both patients and clinicians. By using health information technology to analyze large sets of data from across the nation, the NHERT can delineate which variations in procedures should have the most desired effect on corresponding patients with differing conditions. Guidelines of best practices and outcome measures can restore a system beset with human mistakes. For example, preventing adverse drug reactions like installing hospital machines which only dispense chemotherapy medications within a safe guideline could be extremely effective, saving \$1 billion a year.⁷ In turn, providers must be trained to utilize health information technology and the Internet while other continuing education programs can train doctors in novel treatment methods suited for a wide range of cases. This process can be ingrained as early as in the first year of medical school, as utilizing programs like PaperChase and MedLine can be encouraged in analysis of case studies. Millions of new drugs, procedures, and tests have been released, and the NHERT will be responsible for evaluating comparable procedures to identify those that work best for particular conditions and

cases. These measures will leave as little to chance and variability and simultaneously aid clinicians in delivering medical treatment that is both evidence-based and patient-specific.

Finally, another important facet in the medical education reform movement on the scope of improving individual patient care entails implementing standardized clinical guidelines that are based in the evidence-based medicine previously mentioned. It is important to develop a uniform set of broad performance distributions that train allied health practitioners to follow practices that are well-grounded in best practices. Once established, proper means of assessment should be developed to encourage adherence. For example, Atul Gawande recently published a study detailing how adhering to a simple checklist for an operation can reduce infection rates in the ICU of a hospital, save lives, and consequently improve overall quality of care in the medical setting.⁸ If aspiring physicians, nurses, and technicians can learn to base their work in clearly delineated clinical guidelines from the very start of their medical education, they will build a foundation for taking advantage of these measures in the context of lifelong learning.

Types of systems-levels changes address aspects like organizational culture, education and training, work setting, equipment, teamwork, and interpersonal relationships. One of the most important means of promoting high-quality care in a setting based on patient-centeredness and teamwork is a massive mobilization of health information technology, access to clinical computing, and the utilization of skills and simulation facilities in medical education. Other initiatives would include quality improvement approaches, encouraging coordinated care, and expanding interprofessional learning opportunities.

As evidenced by the inclusion of a stipulation for electronic medical records in the recent federal stimulus bill, leaders everywhere are realizing the practical utility of health information technology. What is now the Center for Clinical Computing in Boston was one of the first academic divisions dedicated to using computers for patient care and research. It was started over 30 years ago at Beth Israel Deaconess Medical Center. Throughout the history of its inception and development, health information technology has been praised for its straightforward and cost-effective means to improve quality of care. This practice includes widespread best practices dissemination, allowing providers to access updated clinical information, cross-reference patient history and allergies, and evaluate drug interactions. Further, these simple measures halt preventable mistakes from occurring, such as prescription errors and procedural missteps. Furthermore, use of clinical computing initiatives are instrumental not just for physicians, but also for allied health professionals, such as nurses, therapists, and technicians. Government sponsored subsidies and market-based practices may assist in startup fees for hospitals that desire to implement such technology. Training health care professionals at an early stage in their instruction to make the most of such accessible forms of health information tools will encourage best practices and quality improvement.

Another initiative that is of the utmost importance to advocate is the widespread dissemination of access to Skills and Simulation Centers across the nation to all health care professionals in training.⁹ As of today, only about 1/3 of accredited medical schools in the nation offer convenient access to these facilities for their medical students. The Shapiro Simulation and Skills Center at the Beth Israel Deaconess Medical Center, a teaching affiliate of Harvard Medical School, opened in 2006 and offers interdisciplinary training opportunities for physicians, medical students, and nurses for a broad array of practices ranging from laparoscopic

surgery to central line insertions. Medical students in clinical rotations and residents have 24 hour access to its various training modules. It makes sense that health care professionals should be able to practice new techniques and gain confidence in various simulation settings to foster high-quality care in various stages of their training. This revolutionary approach to medical care has set the bar for patient safety and standard practices. NHERT could facilitate measures to simultaneously administer grants to allied health schools while increasing standards of certification in this respect. Another highlight of implementing change in this manner is the ability to train and facilitate interactions amongst health care professionals. While training an individual in a particular technique like gallbladder removal may be useful through simulation, it acts as an even more powerful tool by providing a setting for a team to work together. Nurses, anesthesiologists, surgeons, and assistants can all work together in a simulated operating room without risking or endangering a patient's life while perfecting a particular technique and procedural culture. Access to skills and simulation centers will be instrumental to medical education curricula of the near future.

The notion of continuous quality improvement has garnered great attention from seminal centers, such as the Institute for Healthcare Improvement (IHI) pioneered by Dr. Donald Berwick. The approach focuses on quality assurance through a systems-based approach rather than relying on penalizing individual providers.¹⁰ By combining objective data from evidence-based medicine with process management, this movement seeks to effect change from the top-down. Incorporating this approach's philosophical tenets into medical education means instilling a culture of continuous quality improvement in clinical rotations and patient-centered training. By highlighting performance indicators and quality improvement approaches, allied health schools can play on the approach's strengths of patient-centered care, holistic approach to quality, fact-based measures, and empowering practitioners to improve quality.¹¹

To further the concept of patient-centered care, allied health education must advocate the concept of coordinated care. Health care should involve a well-orchestrated team of medical professionals working together in an integrated fashion. Financial incentives can foster a sense of interdependency among providers to help them coordinate a more patient-centered health delivery system. This teamwork can be encouraged by sharing reporting and electronic medical records between physician groups and hospitals. In an attempt to further the patient-centered model, clinicians must move beyond the historical focus on just treating diseases case-by-case and instead focus on improving health holistically by conducting preventive, acute, and chronic care on all fronts. Utilizing computer-based patient-specific records will increase portability, enhance consistency, and enable the network of physicians participating in a broad number of cases to more effectively communicate with each other. Relying on HIT for chronic care and disease prevention efforts could result in up to \$147 billion in savings per year.¹²

Finally, any discussion on medical education reform must acknowledge the numerous obstacles that stand in the way of future development on a practical level.¹³ First, any significant progress made in quality improvement is contingent on extending coverage of care throughout the nation. Currently, approximately 47 million Americans are uninsured, making one in six vulnerable should serious health conditions arise. Second, problems arise from the absence of standardized sets of aims amongst the hundreds of allied health schools in the nation. Without these uniformly recognized goals, it is difficult to measure performance and achievement

between schools. Third, because facilities are sitting on the cusp of a revolutionary change in system redesign, more capital must be invested to support adequate health information technology. Finally, professional education has not centered on enough of a systems-level reform that is necessary to enact a paradigm shift.

Fortunately, solutions exist to enable the change we need to see in health care education. First, strong leadership supportive of the individual and systems-based measures listed above need to be in place at each university to facilitate reform. Second, centers like the Agency for Healthcare Research and Quality and Institute for Healthcare Improvement have tremendous experience in researching best practices and should be relied on to lead the path in new directions. Third, preliminary steps should center around consensus-based change, meaning that practical measures that everyone can agree on will set standards on change to come. Finally, while momentum needs to be generated at all levels of society, the federal government should play a large role in encouraging medical education reform in this respect, like through the formation of the National Health Education Reform Taskforce.

Although significant hurdles remain, consensus-based solutions will lead the way for progressive change. It is time that health care education addresses both individual provider and systems-level reforms in an attempt to promote coordinated, patient-centered care. For quality of care, the adherence to evidence-based medicine, use of clinical guidelines, and assessment of subsequent performance will result in consistency and improved results. In terms of coordinated care, continuous quality improvement and student-initiated learning and evaluation will facilitate the patient-centered model that needs to command the provider relationship. Finally, health information technology and access to skills and simulation centers will foster the interdisciplinary teamwork and high value care that patients need and deserve in a 21st century health care system. Medical education may leave much to be desired, but just as the Flexner report prompted a century ago, a thorough evaluation today may drive us towards a better health care delivery system in the near future.

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Works Cited

1. Grumbach K, Bodenheimer T. Can health care teams improve primary care practice? *JAMA*. 10: 1246-1251, 2004.
2. O'Connor GT, Plume SK, Olmstead EM, et al. A regional intervention to improve the hospital mortality associated with coronary artery bypass graft surgery. The New England Cardiovascular Disease Study Group. *JAMA*. 275: 841-6, 1996.
3. Berwick, DM. A user's manual for the IOM's 'Quality Chasm' report. *Health Affairs*. 21(3):80-90, 2002.
4. Institute of Medicine. "Crossing the Quality Chasm: A New Health System for the 21st Century." Report Brief. Washington, D.C.: National Academy Press. 2001.
5. Davidoff F., Focus on performance: The 21st Century Revolution in Medical Education. *MSM*. 6:29-40. 2008.
6. Mayo Clinic Health Policy Center. Building Upon the Cornerstones: Recommendations, action steps, and strategies to advance health care reform.
7. "[Health Care Fact Sheet](#)." Hillary for President. 21 Dec. 2007.
8. Haynes AB, Gawande AA, et al. A surgical safety checklist to reduce morbidity and mortality in a global population. *NEJM*. 360(5): 491-9. 2009.
9. Griner PF. Leadership strategies of medical school deans to promote quality and safety. *Journal on Quality and Patient Safety*. 33(2). 2007.
10. Blumenthal D, Kilo CM. A report card on continuous quality improvement. *The Milbank Quarterly*. 76(4): 625-48, 511. 1998.
11. Shortell SM, Bennett CL, Byck GR. Assessing the impact of continuous quality improvement on clinical practice: what it will take to accelerate progress. *The Milbank Quarterly*. 76(4): 593-624. 1998.
12. Hillestad R. et al. Can electronic medical record systems transform health care? Potential health benefits. *Health Affairs*. 24: 1103-1117. 2005.
13. The Academic Medical Center Working Group of the Institute for Healthcare Improvement. The imperative for quality: a call for action to medical schools and teaching hospitals. *Academic Medicine*. 78(11): 1085-1089. 2003.