Restructuring Medical Education to Meet Current and Future Health Care Needs
Suzann Pershing, MD, and Victor R. Fuchs, PhD

Abstract

U.S. health care is changing, and it will continue to change across multiple dimensions: a different mix of patients; more ambulatory, chronic care and less acute, inpatient care; an older population; expanded insurance coverage; a team approach to care; rapid growth of subspecialty care; growing emphasis on cost-effective care; and rapid technological change. These changes demand a corresponding evolution in physician roles and training.

However, despite innovation in content and teaching methods, there has been little alteration to the basic structure of medical education since the Flexner Report sparked widespread reform in 1910. Looking to the future, medical education might evolve to include preparation for a team approach to care via practical training for multispecialty collaborative practice and preparing physicians to be leaders of primary care teams that include nonphysician providers; shorter training for some physicians via flexible pathways and “fast tracks” at each phase of training; cost-effective care in clinical practice; increased training in geriatrics; and “on ramps” and “off ramps” along the physician career path for flexible training over a lifetime. Although the challenges facing the health care system are great, meeting changing health care needs must begin at the foundation, in medical education.

Medicine has undergone rapid evolution in recent decades, and further change is likely. Changes in care delivery will demand transformation in physician roles and training, including education over a lifelong career. Recent decades have seen innovation in content and methods of medical education, but its basic structure has not changed. The time has come to ask whether the duration, sequencing, and requirements of medical education are appropriate to meet current and future challenges to medical care.

To consider reform of medical education, 25 health care leaders met at Stanford University in November 2012. This commentary is our own reflections on the issues raised and is not a summary of the workshop. We did not seek or obtain consensus from participants.

U.S. Medical Education Is Not Meeting Current or Likely Future Needs

The nature of health care is changing rapidly across multiple dimensions, including demand, modes of payment, delivery, setting, and technology.

A different mix of patients

A larger proportion of patients present with chronic conditions, and a smaller proportion need acute care. Closely related, there has been an increase in ambulatory care and a decline in inpatient care. In 2011, inpatient days in short-term acute care hospitals per 1,000 population were only half of what they were in 1981. Per capita admissions have decreased, and so has average length of stay.1–4 Physician training, however, is still heavily based on acutely ill inpatients.

Patients with chronic health problems often use a great deal of medical care, sometimes requiring attention of one or more specialists, but frequently needing intervention by a nurse practitioner, health educator, or health aid.1

An older population

Older patients are not just like younger adults with gray hair. They usually present with a different mix of symptoms and syndromes, face different risks, have different functional problems, and sometimes respond differently to medications. The U.S. Census Bureau projects that the number of people over 65 years old will double by 2040—a total population increase of approximately 74 million, of whom 40 million will be over 65 years of age.5,6 The over-65 population uses roughly twice as many physician services per capita as those under age 65, and chronic conditions and comorbidities increase with age. According to 2010 Medicare data, 69% of beneficiaries had at least two chronic conditions, and 14% had six or more.1 Given the shift in the age distribution of the population, physicians-in-training need relatively more exposure to geriatric care and less to pediatrics. Also, partly because of the aging population, the demand for primary care is likely to vastly outstrip the supply of primary care physicians.7

Expanded insurance coverage

Increasing insurance coverage is the principal goal of the Affordable Care Act, which calls for substantial increases in Medicaid and expanded coverage in private insurance markets as through regulations and subsidies. Although difficult to forecast in detail, increased coverage is likely to place burdens on states, organizations, and providers because of increasing numbers of insured patients without a parallel increase in personnel available to treat those patients. The imbalance between demand and supply will be exacerbated as younger physicians put more emphasis on work–life balance with fewer annual hours devoted to work.
A team approach to care

As a strategy to meet the growing demand for care and keep up with changes in patient characteristics, many experts emphasize coordinated care by teams of providers, with greater reliance on nurse practitioners, physician assistants, and other “physician extenders,” especially in primary care. The goal is to keep patients healthier at lower cost by enabling providers to work efficiently at maximum license. The former ideal of the autonomous physician must be changed to better fit a health care industry that currently employs 10 million nonphysicians in hospitals and physicians’ offices.8

Rapid growth of subspecialty care

The trend toward more nonphysician providers is paralleled by rapid growth in subspecialization among physicians. There are currently 167 certified subspecialties in the United States, substantially more than in other developed countries.9 Although this number is difficult to measure accurately because even in the United States many specialties and subspecialties lack formal certification, there is a distinct trend toward more specialization, largely driven by technology and by physicians’ desire to feel competent in their practice. Board certification as a general surgeon, for example, implies competence across 16 broad procedural categories, ranging from pancreatic surgery to vascular surgery.10 Many of these are operations which the newly certified surgeon has possibly never seen, never performed, or performed in insufficient volume to achieve true competency. The need for restructured training to achieve sufficient surgical volume for specialized competency has resulted in a trend toward surgical subspecialization, with general surgery residency being a stepping stone to more training.

According to American Medical Association data, the number of subspecialty GME programs grew an average of 2.5% per year between 1999 and 2008, and the number of physicians in subspecialty programs grew at a rate five times higher than in specialty programs (3.7% versus 0.7% growth).11 From 2000 to 2012, more residents entered subspecialties (12.1% of residents in 2000, and 16.7% in 2012), and fewer entered specialties (87.9% in 2000, and 83.3% in 2012). Numbers of residents choosing primary care specialties (internal medicine, family medicine, or pediatrics) have steadily declined since 1997, with fewer U.S. graduates filling these residency slots than previously.12–14

Growing emphasis on cost-effective care

Because of the rapid growth of health care expenditures, health care now accounts for 17.9% of the U.S. gross domestic product compared with 4.4% in 1950.15 Both private and public payers are giving more emphasis to cost-effective care. The trend is toward altered payment strategies, such as bundling and capitation, formation of accountable care organizations, and selection of provider networks based on value (i.e., cost and quality, with an emphasis on transparency). Hospitals and health plans are acquiring physician groups, and health plans and physician groups are collaborating via long-term contracts. In these new relationships, health plans supply managerial expertise, risk assessment, and data analysis; the combined entities acquire more market power and (ideally) enable provision of more efficient care. Physicians who make most of the decisions that affect the cost of care are urged to be more value-conscious in their choices of diagnostic and therapeutic interventions and more efficient in their practices.16

Rapid technological change

The knowledge and technology required for medical practice have expanded dramatically over the past several decades and will continue to do so. Medical knowledge continues to grow exponentially, and case complexity increases as treatment successes and improvements in survival rates translate into a growing population of older patients with multiple comorbidities. And sophisticated telemedicine and the advent of electronic “visits,” as well as new medical technology like electronic health records, challenge the way physicians practice and communicate, both with patients and with other members of the health care team.

Keeping pace with these changes will be problematic for some providers, particularly older physicians. Although continuing medical education courses abound and many specialty boards have instituted recertification, currently there is no systematic retraining process for technology, electronic medical records, changes in payment and delivery systems, and the like.

Restructuring Medical Education

Responding to the many changes in health care will not be an easy task, but it is a necessary one. Here, we suggest some of the ways that medical education might evolve to meet these challenges.

Preparation for team approach to care

Many physicians will find that they are increasingly functioning as part of a patient care team. A specialist might intersect with other specialists for a patient with serious comorbidities, or a supergeneralist might coordinate the involvement of several specialists. More often, a physician may act as a leader of a primary care team whose other members might include nurse practitioners, physician assistants, medical educators, and health aids. The challenge is to find practical ways to offer training for such roles, preferably in hands-on clinical settings, not classrooms.

Some health plans and providers across the country have successfully put this team approach into practice—Caremore Clinic,17 Intermountain Healthcare,18 ThedaCare,19 Virginia Mason Medical Center,20 and the Clinical Excellence Research Center at Stanford,21 to name a few. But they are still rare exemplars. Spreading such modes of practice will require widespread changes in medical education at the ground level. Laudable initiatives include the Interprofessional Education Collaborative,22 which links six major health professional education associations to develop interdisciplinary training initiatives, and the University of Minnesota CLARION Initiative,23 which challenges interdisciplinary teams of students to solve system problems in health care delivery.

Shorter training for some physicians

Lengthy medical training contributes to workforce shortages, higher costs, and physician burnout, as well as delayed childbearing and associated fertility concerns among women physicians in particular. With the right innovative approach, training could be shortened by as much as 30% for some physicians without compromising quality.24 Each
phase of training presents opportunities to reduce the time from high school to certification as a subspecialist. For example, selected undergraduates could be admitted to medical school after two or three years of college instead of the customary four—possibly via streamlined “fast tracks” into medical school at universities having both undergraduate and medical programs. More generally, first- and second-year medical students could be offered an extensive range of seminars to become acquainted with various aspects of medicine—both research and practice, including the many specialties and subspecialties. The Stanford School of Engineering offers 37 such seminars in its undergraduate program, with enrollment priority for first- and second-year college students.

Competency-based curricula would allow education to be customized, but this may require a shift in the culture of medicine. Concepts of “the ideal physician” vary widely, but the idea of physicians as lone rangers is often romanticized, with primary care as a proxy for comprehensive patient-centered care. However, it is increasingly unrealistic for physicians to be all-competent solo providers, managing the full spectrum of disease across all ages. The old adage jack-of-all-trades, master of none, still stands.

General medical education, including clinically pertinent basic sciences needed by all physicians, could be accomplished in two years, after which students could select from differentiated tracks that would provide a transition to specialty and subspecialty training. Thus, most subspecialties could be approached more expeditiously, with minimal—and in some cases without any—prior specialty residencies.

Cost-effective care
Because regulatory agencies are prohibited from using cost in decisions and recommendations about care, it is all the more important that physicians consider cost-effectiveness in clinical practice. Independent/unbiased published recommendations, decision aids, and point-of-care tools offer a mechanism to provide cost-effective, appropriate care, but these require an understanding of cost-effectiveness at the individual and societal level. Basic instruction in these topics should therefore be incorporated into medical school didactics, and practical application should be demonstrated in clinical settings. The latter component may require changes in existing practice patterns as well as training students at multiple exemplary sites that represent different models of care.

Training in geriatrics
Responding to a growing elderly population, medical students and residents should receive more targeted training in geriatric care. Each year, fewer physicians enter geriatrics fellowship training programs; integrating geriatrics training in basic medical education would prepare physicians to better meet population needs.

On ramps and off ramps
Beyond changing criteria for advancement and shortening training in innovative ways, curricula must be designed to meet workforce needs across different systems of practice and to prepare physicians to keep pace with change over the duration of their careers. There is an unmet need for mid- and late-career education, including retraining programs as well as systems to assess competence, facilitate remediation, and/or help physicians reenter practice after a hiatus or a change in emphasis. This is an area in which academic medical centers can take leadership. The current system is analogous to a one-way country road, when medical education must be more like a modern highway system, with on ramps and off ramps, and multiple pathways from premedical to postgraduate medical education.

Planning for the Future
As U.S. medical education is currently structured, “one size fits none.” Those who are engaged in the current training system increasingly find they are not well prepared for the realities of practice. We need a much more agile system that prepares physicians to practice in a changing environment. This will require change at both the macro regulatory level (e.g., accreditation bodies and specialty boards) as well as the micro level of individual programs taking initiative in innovation.

Although our proposals are provocative, society may benefit from earlier medical specialization and training physicians to be effective leaders of primary care teams. Early training in team-based care in a clinical setting, increased training in geriatrics, and greater emphasis on delivery of cost-effective care in medical education may help to bring this about. In the face of broad challenges and no easy answers, there is an opportunity for innovation and meaningful change. The last major revolution in the structure of medical education in the United States happened in 1910 after the publication of the Flexner Report. We believe it is time for another change.

Acknowledgments: The authors are grateful to participants in the Stanford University FRESH Thinking 2.0 Workshop, Medical Education: It’s Time for a Change, sponsored by the Stanford Institute for Economic Policy Research, November 8–9, 2012: Kenneth J. Arrow, PhD; Mark R. Cullen, MD; Elliott S. Fisher, MD; Victor R. Fuchs, PhD; Arthur Garson, Jr., MD; Robert M. Golub, MD; Glenn Hackathorn, JD; David M. Irby, PhD; Darrell G. Kirch, MD; Sharon Levine, MD; Catherine R. Lucey, MD; Joseph P. Newhouse, MD; Susan Okie, MD; Suzann Pershing, MD; Deborah E. Powell, MD; Charles Prober, MD; William M. Sage, MD, JD; Alan R. Schroder, MD; Steven A. Schroeder, MD; Kelley M. Steff, MD; Mark D. Smith, MD; George E. Thibault, MD; Michael E. Whitcomb, MD; and Greg Zaharchuk, MD.

Funding/Support: Workshop funding was supplied by an unrestricted grant from the Blue Shield of California Foundation. Suzann Pershing is supported by grant number T32-HS000028 from the Agency for Healthcare Research and Quality, and Vic Fuchs is supported by a grant from the Robert Wood Johnson Foundation. The views within this text are solely the responsibility of the authors and do not necessarily represent the views of the NIH, the AHRQ, or the Robert Wood Johnson Foundation.

Other disclosures: None.

Ethical approval: None.

Disclaimer: The content of this manuscript reflects the personal views of the authors and does not represent consensus or individual statements of workshop participants.

References


