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ABSTRACT There is growing consensus that the health care workforce in the United States needs to be reconfigured to meet the needs of a health care system that is being rapidly and permanently redesigned. Accountable care organizations and patient-centered medical homes, for instance, will greatly alter the mix of caregivers needed and create new roles for existing health care workers. The focus of health system innovation, however, has largely been on reorganizing care delivery processes, reengineering workflows, and adopting electronic technology to improve outcomes. Little attention has been paid to training workers to adapt to these systems and deliver patient care in ever more coordinated systems, such as integrated health care networks that harmonize primary care with acute inpatient and postacute long-term care. This article highlights how neither regulatory policies nor market forces are keeping up with a rapidly changing delivery system and argues that training and education should be connected more closely to the actual delivery of care.

Health care professionals are being challenged to find new ways to organize care and develop systems that hold providers accountable for the quality, cost, and patient experience of care.¹ The once incremental pace of change is accelerating, and there is evidence that long-standing paradigms are dramatically shifting.² For example, the relatively slow acceptance of prepaid and managed care systems is being replaced by the rapid adoption of bundled and risk-based payment models.³⁴ Early adopters of accountable care organizations (ACOs) are finding that their workforce is shifting from acute care to community- and home-based settings with increasing roles for physicians, nurses, social workers, patient navigators and outreach coordinators, and other clinicians in providing enhanced care coordination, better medication management, and improved care transitions.⁵

The training of health professionals, however, lags behind these reforms because it remains largely insulated from change behind the walls of schools of medicine, dentistry, pharmacy, and nursing. Medical training is done primarily in hospitals, while the greatest challenges are found in coordinating care in multiple outpatient settings. This article describes how health workforce policy was done in the past. It illustrates some of the specific changes under way and how they are changing the health care workforce. Further, it suggests that closer links should be built between the day-to-day caring for patients and the training of the people who deliver that care.

Workforce Policy Center Stage Again
Health workforce policy took center stage in an earlier Health Affairs thematic issue in 2002.⁶ Articles in that issue described future efforts to
shape the clinical workforce as a “dream” or subject to “hand-to-hand” combat. The “hands” in this case were described by Kevin Grumbach as the “heavy hand” of government regulation and the “invisible hand” of market forces that constantly pushed the United States into a rolling series of surpluses followed by shortages. The “dream,” as Uwe Reinhardt saw it, was that regulation and control could actually work. He offered in its place a change in policy to expose physicians to the actual costs of their training while pushing them to the right places and specialties with judiciously targeted tax-financed loan repayment.

In much of the rest of the world, coordinated workforce planning that develops national and regional goals has long been accepted as a legitimate policy exercise. This work is achieved by pairing technical workforce experts and policy makers with clinicians and patients to guide the structure of the health workforce—in both numbers and skill mix—to meet the needs of delivery systems and the population. In the United States a mix of government policies and professional guidelines combine with strong market forces to shape the health care workforce; the latter almost invariably dominates but with a recognition among most stakeholders that regulation is necessary.

As a result, the United States has forgone any substantial investment in workforce planning except for the veterans’ health system. The United States has left it up to states, professional associations, employers, payers, and other stakeholders to negotiate their interests via the market and the political process. The result is a complex and uncoordinated web of training institutions efforts, licensing board rules, placement programs such as the National Health Service Corps, and payment regimes. These are not compared or evaluated to determine if they are producing the right people for the right work to meet patients’ needs.

With many observers asking if there will be enough providers to meet the needs of rapidly innovating systems, this laissez-faire system is now in flux. The Centers for Medicare and Medicaid Services has funded numerous pilots to identify new models for workforce development and payment to support health system innovation. These pilots, however, are relatively isolated and have not been linked in any systematic way to broader systems or structures that govern the way we train, regulate, or deploy the health workforce.

The earlier Health Affairs thematic issue raised many familiar, unanswered questions, including a fundamental one: How many of what kinds of professionals with what competencies are needed to care for our population? This issue asks the same questions but adds another: What has changed over the past ten years?

The Affordable Care Act has created a new vocabulary to describe networks of providers tied together to offer enhanced care coordination. The ACO and the patient-centered medical home have become seemingly ubiquitous models for holding systems accountable for the care provided to patients across community, ambulatory, and acute care settings. These emerging models of integrated care have been abetted by increasing market concentration in health care delivery systems.

ACOs, which take on risk by having a portion of their reimbursements tied to the outcomes of care for a predetermined Medicare population, are seeking to reduce costs and improve care by ramping up screening and preventive care and the coordination of services. This restructuring will have far-reaching implications for how clinical work is organized and compensated, with more work shifting to lower-paid and allied health workers who provide care in less costly community- and home-based settings.

**Teams And Workforce**

Almost all of the new arrangements include plans or structures that call for more “team-based care” and make use of “enhanced” roles for various professions, despite a lack of consensus on what those two terms really mean. Teams have been described as groups of people whose roles continuously shift in response to internal and external forces, including patient expectations; policy and payment changes; organizational factors; geographic proximity of other providers; and professional regulation, training, and attitudes. Broadly conceptualized, roles within teams fall into two categories: lower-cost health professionals acting as substitutes for higher-cost ones (for example, nurse practitioners for physicians), or lower-cost health professionals functioning as supplements who extend and enhance the work of others (for example, navigators to coordinate care or discharge planners to help patients make the transition from acute to postacute care). Despite the numerous calls for more team-based models of care, relatively little attention has been given to how to prepare physicians, nurses, therapists, technicians, and others already in the workforce to practice in accountable or reformed teams.

Health care professionals have been seen more as parts of a puzzle that need to be carefully fit together into a transformed system of care than as fungible resources that can be crafted or remade to help build a truly reformed and more
effective health care delivery system. For example, although the use of electronic health records (EHRs) has burgeoned with the implementation of the federal program to certify and reward the meaningful use of health information technology, there is limited understanding of how health professionals can work with EHRs to change the flow of work or how work should be reconfigured and reallocated among team members. EHRs are reshaping the work of clinicians as much as they are being adopted for and adapted to current practices. To be optimally effective, EHRs require broad and rapid adoption, practitioners must pay constant attention to data entry, and care patterns have to be reengineered to accommodate EHRs’ use.14,15

Projecting Supply, Demand, Need, And Requirements
That workforce projections are controversial should come as no surprise; any projection will inevitably be ambushed by unknown or unexpected factors and events that affect future workforce supply and demand. The surprising thing is that projections, whether based on empirical models or “expert” opinion, are criticized for not correctly predicting the future when their purpose is almost always to change policies and practices. Projections, when accepted as roughly correct, are often followed by policy shifts that, in turn, change the future supply or pipeline of workforce production.

Projections turn out to be wrong either because it is not known how many physicians there are30 or because there is a lack of understanding of the true relationship between physician supply and health outcomes.17 They are, in one sense, “ projectiles” shot across the bows of policy makers to stimulate action; they paint a picture of what is likely to happen if some desirable policy is not implemented. If a policy is changed, then the projection is likely to turn out wrong because it helped cause changes in the factors that drove the model.

For example, the Graduate Medical Education National Advisory Committee’s 1980 projection of a physician surplus was used to justify cutbacks in federal support to medical education, thus changing medical school growth trends. That policy shift reduced production and eventually led to a perceived shortage.18 The more recent Association of American Medical Colleges forecasts of shortages of physicians have similarly prompted the expansion of existing and the opening of new medical schools and have put strong pressure on the debate over how to support graduate medical education to provide the additional training necessary to produce practicing physicians.19

Recent work has focused on developing dynamic projection models that are amenable to changes in the assumptions on which they are based and that allow policy makers to simulate the effects of potential policy scenarios20 on workforce supply and demand. This type of work is supported by the National Center for Health Workforce Analysis in the Department of Health and Human Services, but the center struggles with a lack of both up-to-date inventories of existing health professionals and a common data set to measure practitioner capacity or simply identify the location of practice.21,22

The modeling field in the United States and other countries23 is moving toward using projections not as a method for generating one “right” answer but as a way to educate health professionals and their associations, policy makers, and other workforce stakeholders about the complexity of projecting future workforce needs and the effects of the policy options they have at hand. Engaging stakeholders—particularly clinicians—in the modeling process can generate numerous desirable results, including a better understanding of how rapid health system change affects workforce deployment and improved communication between the professions and policy makers. Having clinicians involved in modeling can also serve as a check on the “face validity” of model outputs and can generate clinical input in areas where data inputs are weak. Stakeholders engaged in modeling can also help identify ways to redesign care processes to address workforce shortfalls or surpluses.

Models and projection thus cannot provide a single “right” answer in a system that is rapidly changing. The important thing is to have a model that can be used to simulate the effect of policy change and educate stakeholders about the effects of policy options. For example, a model might show that increasing graduate medical education slots will likely have a relatively small effect on the overall match of supply to need compared to increasing productivity and delaying retirement.

Efforts to model the nursing workforce have been complicated by nursing’s persistent sine-wave pattern of shortages prompting policy actions that, in turn, stimulate rapid growth leading to surpluses.24 Analyses of nurse supply and demand remain doggedly unconnected to physician workforce projections. There are no examples of national models that simultaneously project the supply of both professions despite their substantial overlap in providing care. Combining the two in projections is now an imperative given nurses’ complementary and supplementary roles in delivering or supporting
comes through better coordination and greater intensity of care. Whether the system is becoming more or less efficient in terms of value for money because of the addition of new specialties or new professions has seldom been asked and even less often answered.

**Professions Unto Themselves**

The United States accepts in policy and practice the idea of “sovereign” and self-regulating professions that have substantial control over their place in the health care system. This approach has meant that workforce policy has been largely shaped around the demands of the professions and not around the needs of the patients. The question of whether the professions should control entry into their respective realms through self-regulation remains largely out of the mainstream of debate but is raised from time to time by libertarian thinkers. There are very intense battles over scope-of-practice rules, with advanced-practice nurses making strong claims on primary care, nurse anesthetists being challenged over their contributions by anesthesiologists, and the development of dental therapists’ work being challenged by dentists. These conflicts are becoming sharper despite a body of evidence that shows that most of these work and professional roles are effective in saving money and maintaining or improving quality.

New and different types of health professionals—community health workers, patient navigators, health coaches, care coordinators, and more—are attempting to create their own space in the health care delivery system as their contributions to the new payment and organizational models become more apparent. The emergence of new professions runs counter to theories of how health care workers should function in teams adapting and “upskilling” existing professional or paraprofessional roles to meet patients’ needs.

The progressive division of labor and the creation of specialized labor categories that are able to do one focused job more efficiently than a range of work has been the pathway to greater productivity in manufacturing and other sectors but to a lesser extent in health services. In the health care realm, increasing specialization is reflected in the growing complexity of how a hospital is staffed to care for patients—a process that has given us hospitalists, intensivists, nocturnalists, and other types of practitioners who are defined by their functional role as much as by their disciplinary specialization. The proliferation of new professions and professional roles does not necessarily lead to greater efficiency because, as David Meltzer and Jeanette Chung...
Training professionals for the future of team-based care has been recognized as a real challenge.

Innovations In Training And Education

The ways in which health care professionals are taught are changing rapidly. Additionally, there is pressure to streamline pathways into professions. Online courses, clinical simulators, and learning teams have made education more flexible. Still, little is known about what constitutes efficient and effective clinical training. The true costs of preparing health professions are being revealed by the rapid growth in the number of private, including for-profit, health professions institutions that have sprung up to meet demand from prospective students. These include osteopathic medical schools and physician assistant programs and umbrella “Health Science” schools that provide training for nurses, therapists, and technicians. Public community colleges in some states fill this niche, but the market...
has also responded vigorously to train workers, especially allied health workers, for reformed, if not fully coordinated, systems. The “safety net” of public clinics, hospitals, and private charity caregivers is one place where innovation in role assignment and integration of multiple professions has been welcomed, but the benefits are difficult to calculate. Community health centers (also known as federally qualified health centers) have become testing grounds for a new approach to graduate medical education through the Teaching Health Centers Program. Through this program, the new centers are funded as temporary demonstrations whose long-term outlook depends on future appropriations. They do offer a new approach to meeting the growing need for locations to provide graduate medical education given the recent rapid rise in the number of US medical school graduates and the apparent “bottleneck” that has slowed growth in residency training and thus physicians’ progression into the workforce.

Revolutionary changes in the nature and form of health care delivery are reverberating backward into medical education as leaders of the new practice organizations demand that the educational mission be responsive to their needs for practitioners who can work with teams in more flexible and changing organizations. In the face of this pressure, the traditional response of health educators—that they should have autonomy in defining the educational mission—is no longer viable. Instead, more explicit, formal, and systemic linkages between practice and educational institutions that are coordinated with maintenance of certification and licensing are inevitable. There are proposals to base certification and licensure on actual performance and patient care outcomes instead of on simply meeting additional education and training requirements. This new pressure to make medical education at all levels more accountable to public and patient needs means that we must measure how medical education affects medical care outcomes, not just the outputs of the programs and institutions.

**Conclusion**

We often hear how the United States has a non-system of health care—a fair characterization of a very adaptable sector of the economy that combines rigid professional norms, rapid shifts in staffing and deployment of workers to capture funding streams, and the constant creation of new work roles and employment opportunities. It is largely these characteristics of the workforce that have both constrained the coordination of health care and allowed the system to grow very rapidly. To blunt rising costs, it seems necessary to find ways to temper this professional and occupational exuberance to achieve both greater efficiency and effectiveness.

To anticipate these changes and prepare the workforce for new roles, it will be necessary to invest in workforce planning but not solely at the macro level of overall supply. Investments are needed in research and implementation studies to help foster greater understanding about the actual content of care that is required in the new systems. Investments in research are also needed to identify how best to allocate new caring roles among a set of professions and disciplines that are trained and deployed in a coordinated fashion. Workforce planning needs to be more “bottom up” as it seeks to identify the “right kind” and the “right number” of workers.


