

International Medical Workforce Conference

The U.S. Physician Workforce
The Impact of Education and Training

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Introduction

Under ideal circumstances, a country's medical education system will produce a physician workforce that is: (1) sufficient in size and specialty mix to meet the needs of the population for physicians' services, and (2) composed of physicians capable of providing high quality care to the patients that seek their help. Although not all would agree, the preponderance of evidence suggests that to date the U.S. medical education system has produced a physician workforce of adequate size and specialty mix, although it is quite clear that the workforce is not well distributed across the country. It is important to recognize that the workforce is adequate in size only because the number and size of the graduate medical education (GME) programs existing in the United States have allowed a number of international medical graduates - graduates of non-U.S. medical schools - to undergo residency training in the country and thereby, to enter practice.

However, there is a growing body of evidence showing that physicians in this country do not always provide high quality medical care. The results of a number of well-conducted clinical studies show that doctors fail on occasion to use diagnostic and therapeutic approaches of proven value, do not always recommend health promotion and disease prevention practices of proven value, and do not always communicate adequately with patients and their families. These observations suggest the possibility that the medical education programs that prepare physicians for practice (undergraduate and graduate medical education programs) are not designed and conducted in ways that ensure that they will produce physicians who are highly competent in all of the domains of clinical practice.

In recent years, the Institute of Medicine (IOM) has published a series of reports outlining steps that should be taken to improve the quality of medical care in this country. Importantly, the IOM argued in its seminal report (*Crossing the Quality Chasm. A New Health System for the 21st Century*) published in 2001, that to achieve that goal fundamental reforms are needed in the ways doctors are educated. This view has been echoed in reports issued recently by other blue ribbon panels convened to examine the state of medical education in this country, including an ad hoc committee of medical schools deans convened by the Association of American Medical Colleges.

Until quite recently, concerns about the quality of medical education in the United States have been focused almost exclusively on the quality of undergraduate medical education. Indeed, during the 1980s and early 1990s, a number of blue ribbon panels convened to explore the quality of medical education in the country issued reports that limited their critiques to the structure and organization of the medical school curriculum and the educational strategies schools' employed to promote students' learning. However, when considering how the education of doctors affects the quality of medical care they provide, attention should be focused on GME, since it is during residency training that physicians acquire most of the knowledge, skills, and attitudes required to provide care in their chosen specialty. Recent reports – those issued by the federal Council on Graduate Medical Education (1999), the Commonwealth Fund (2002), and the Institute of Medicine (2003 – have raised concerns about the quality of graduate medical education.

In keeping with the general observations contained in those reports, special committees convened by the leadership of surgery, family practice, and internal medicine have recently issued reports expressing concerns about the design and conduct of training in their specialties.

There is a consensus emerging within the medical education community that the most important challenge it now faces is how to reform GME so that residency training produces graduates who are well prepared on entering practice to provide high quality care to the patients that will seek their help. Accordingly, this paper will focus on GME, but it is extremely important that those concerned about how the education of doctors affects the quality of the care they provide to recognize that it is through continuing medical education that physicians maintain their clinical competence throughout their careers. A number of studies have shown that most of the continuing medical education programs provided for physicians fail to achieve the desired effect on physicians' clinical behaviors. Thus, it is extremely important that this issue receive appropriate attention at a future time.

This paper will describe the nature of the U.S. medical education system, provide insight into how the system affects the design and conduct of GME programs, and explain why the ability of the country's GME system to produce graduates capable of providing high quality care is becoming increasingly problematic with each passing year.

The U.S. Medical Education System

The medical education system of the United States is composed of a number of institutions, organizations, and bodies that affect how doctors are educated. Medical schools and teaching hospitals are clearly the most visible components of the system because they conduct the undergraduate and graduate medical education programs that prepare doctors for medical practice. At present, there are 125 allopathic and 20 osteopathic medical schools in the United States. These schools enroll approximately 19,000 students each year. There are almost 8000 individual GME programs (allopathic medicine) in the country. These programs, which are sponsored by over 1,500 institutions, enroll approximately 24,000 new residents annually. Each year, approximately twenty-five percent of the new residents entering the system are graduates of non-U.S. medical schools.

In addition to those institutions, the system includes the bodies that independently accredit the undergraduate and graduate medical education programs that prepare doctors for practice, those that accredit the institutions and organizations that sponsor continuing medical education programs, those that license physicians, those that certify physicians as specialists, and the institutions and professional organizations that sponsor and provide continuing medical education programs. Reform of medical education is difficult because the system is in reality a virtual system – that is, in establishing policies and practices that affect how doctors are educated, the entities tend to act independently, largely in the interests of their particular constituents. There is at present no mechanism for evaluating how a particular entity's proposed actions may affect the functioning of the system as a whole if they are adopted. It is important to note that while government (state

or federal) scrutinizes and sanctions to a degree the activities of each of the entities that compose the system, it plays no significant role in the design or conduct of educational programs per se.

Graduate Medical Education System

There are currently two major factors that affect to a very great extent the nature of residency training in individual specialties – the program requirements established by the body that accredits GME programs and the mechanisms in place for financing the costs of conducting residency programs. In considering how to bring about the reforms needed in GME, it is important to understand how each affects the design and conduct of residency training.

Program Requirements

The Accreditation Council for Graduate Medical Education (ACGME) is the body responsible for the accreditation of allopathic residency programs. The ACGME accredits programs that provide training in one of the twenty-five primary specialties recognized by the American Board of Medical Specialties (ABMS). The ACGME also accredits the overwhelming majority of programs that provide training in subspecialties recognized by the member boards of the ABMS. In its role as an accrediting body, the ACGME establishes the requirements that residency programs must meet to be accredited. With few exceptions, the program accreditation requirements correspond to the training requirements that an individual physician must fulfill to be certified as a specialist by one of the specialty boards. The minimum length of training required for initial certification is as short as three years in some specialties (internal medicine, pediatrics, and family practice), and as long as seven years in others.

For practical purposes, specialty-specific subcommittees of the ACGME, referred to as Residency Review Committees (RRCs), establish the specific requirements that must be met for accreditation purposes. The RRCs determine the length of training required, designate clinical experiences that must be provided during the training, and designate in general terms the content that must be covered in a program's didactic curriculum. In doing so, the RRCs mandate the nature of the training that physicians must complete to be considered qualified to enter clinical practice in a specific clinical discipline. The RRCs not only establish accreditation requirements; they also review individual programs to determine the programs' accreditation status. The Board of Directors of the ACGME must approve any actions taken by the RRCs – both the establishment of accreditation requirements and the determination of the accreditation status of individual programs – before they become final.

Clearly, for any effort aimed at reforming GME to be successful, it must affect how the RRCs determine the design, content, and conduct of residency training in the individual specialties. In this regard, it is important to recognize that the members of an RRC are appointed by the certifying board for the RRC's specialty, by the primary professional society for the specialty, and by the American Medical Association. In virtually all cases,

individuals appointed to the RRCs are certified in the relevant specialty and most are directly involved in the education of residents in that specialty.

Given the membership of the RRCs, it is not surprising that the program requirements are heavily influenced by the tradition and culture of the individual specialties. The individuals who compose the RRCs naturally bring to those deliberations views shaped both by their own training experiences – regardless of how long ago they may have been in training - and by their current involvement in residency training. They cannot help but be influenced by those experiences when considering the possibility of making changes in existing program requirements. Since many RRC members have a vested interest in the status quo, changes in program requirements tend to occur in a very deliberate and incremental fashion.

Two related factors affect the dynamics involved in making changes in program requirements: (1) most of the RRCs do not have members who are in the full time practice of medicine – individuals who by virtue of their own experiences might challenge the relevance of the accreditation requirements under consideration, and (2) the decisions made by the RRCs are not informed in any systematic way by contemporary analyses of the kinds of patients that program graduates will encounter most often when they enter practice or of the scope of practice that they will be expected to provide. As a result of these factors, the program requirements almost certainly do not reflect the training needed to prepare program graduates for the realities of contemporary medical practice.

Financing GME

For the most part, the funds used to finance the costs of GME are derived from revenues generated by non-federal teaching hospitals. The only payers that explicitly provide funds for GME are the federal Medicare program and some of the state Medicaid programs. Although private payers recognize that sponsoring GME programs adds to a hospital's total expense budget, they do not explicitly recognize GME costs as a legitimate expense for reimbursement purposes. For a teaching hospital with a typical patient population, approximately 30-40% of its GME costs will be covered by direct payments from the Medicare program, 10% or so will be covered by direct payments from its state's Medicaid program, and the balance will be derived from payments for patient care services provided by a variety of third-party payers. To a very great extent, the funds teaching hospitals receive from the Medicare program to compensate them for the extra services provided by those institutions – the so called Indirect Medical Education Adjustment – covers the GME costs not recovered through explicit funding for GME by the various payers. It is important to be clear, however, that those funds are not intended for that purpose.

A significant amount of residency training does occur in the clinical facilities operated by the Veterans Health Administration (VHA). VHA facilities may operate their own independent residency programs, but more often than not they provide rotations for residents enrolled in programs operated by a non-federal teaching hospital closely

affiliated with a medical school. The central VHA office provides funds to cover all of the costs of the training. Thus, unlike other teaching hospitals, VHA facilities do not have to use a portion of the funds generated by providing patient care services to fund their GME programs.

Several years ago, the federal government established a separate funding mechanism to cover a portion of the GME costs incurred by freestanding children's hospitals. The funds provided by the program are directly awarded to the hospitals by an agency of the federal government (Health Services and Resources Administration). The funds, which are provided independent of any payments for patient care services, cover a relatively small percentage of the GME costs incurred by children's hospitals. The program was established because children's hospitals have limited access to Medicare funds to help cover the costs of their residency programs. This situation exists because very few of the patients cared for in those institutions are Medicare beneficiaries.

In combination, these funding mechanisms provide a generous amount of support for residency training. The funds cover the stipends and benefits received by the great majority of residents, support a portion of the salaries of program faculty engaged in certain program-related activities, and cover the costs of maintaining certain educational facilities important to the programs. Best estimates suggest that the amount of funding provided to support residents' education and training exceeds 10 billion dollars each year. But it is important to understand that the funding mechanisms have an important negative affect on the design and conduct of GME, because, in essence, they link the training of residents to sites associated with hospitals - primarily the institutions' own inpatient services and clinics. As a result, most of the clinical experience residents gain while in training results from caring for patients who receive their care at those sites even though it is widely recognized that those patient populations are not representative of the kinds of patients that residents are likely to care for once they enter practice.

GME Reform

Since the design and conduct of GME is largely determined by the program requirements adopted by the ACGME RRCs and by the mechanisms for financing the costs of GME, any effort aimed at reforming graduate medical education will have to address both of those factors. The specific reforms that may be needed to enhance the ability of program graduates to provide high quality care on entering practice must be designed to address the shortcomings of training that exist on a specialty specific basis. For example, the shortcomings that may exist in pathology training programs will be quite different than those that exist in an internal medicine program, and they will have to be addressed quite differently.

Since the major challenge facing American medicine is providing high quality care to patients with chronic disease, reform of GME in the disciplines of family practice and internal medicine – the two disciplines that provide most of the care received by those patients - can be considered most urgent. The reasons for this are clear: (1) there are over 130 million American who are afflicted with one or more chronic diseases, and (2) 75

percent of all health care expenditures are spent providing care to those individuals. In considering the nature of the challenge this presents, it is important to be aware that most of the care those patients receive is provided in ambulatory-care settings, not hospitals, and that if they require hospitalization, they are infrequently hospitalized in a teaching hospital. In reality, then, rotations in teaching hospitals – the sites for most GME experiences – do not provide adequate exposure to the kinds of patients that residents will encounter after entering practice and, therefore, to the kinds of conditions they will be expected to manage. There can be no doubt that in certain specialties, particularly the generalist fields of general internal medicine and family practice, residency training should provide much greater experience caring for those patients on a continuous basis over a longer period of time than is now the case.

An examination of some of the issues involved in reforming GME in the specialties of internal medicine and family practice will provide insight into the kinds of challenges facing those intent on promoting GME reform.

Family Practice

At present, a medical school graduate must complete a three-year residency program in family practice to become certified in that discipline. Despite the fact that only a minority of family practice physicians provides obstetrical care, all family practice residents must spend time receiving training in obstetrics. Similarly, family practice physicians no longer provide any substantial amount of surgical care, and yet family practice residents are required to spend time receiving training in surgery. Clearly those who aspire to practice in rural communities may need training in obstetrics and surgery, but this is generally not the case for those who plan to practice in most urban or suburban areas within the country.

The primary reason why this situation persists is that those in the specialty who have the greatest influence over the development of residency program requirements insist on adhering to an approach for training residents that was adopted to prepare residents for a model of family practice envisioned when the discipline was established as a distinct specialty almost forty years ago. Despite the fact that changes have occurred in the nature of family practice, the leaders of the discipline have been unwilling until relatively recently to consider changing the requirements for residency training so that they are more clearly aligned with the realities of modern family practice. As a result, time that residents might profitably spend gaining more experience in caring for patients with serious chronic disease – the kinds of patients they will encounter in large numbers after entering practice – is spent learning rudimentary skills in domains of practice they will not use once in practice.

Internal Medicine

The situation in internal medicine is more complex, because residency program graduates may pursue additional training in one of the subspecialties of medicine, seek a career as a hospital-based generalist (hospitalist), or enter office-based practice as a general internist.

Despite the fact that the quality of the care provided by a general internist will be determined almost exclusively by the quality of the care provided to patients in ambulatory care settings, internal medicine residents, including those who play to become general internists, spend most of their time in training caring for hospitalized patients. And the care they provide is for complex conditions they are unlikely to manage once they enter practice. Moreover, the kind of ambulatory care experiences that are provided during their residency training are unlikely, because of the nature of the experiences, to provide the experience needed to learn how to adequately manage chronic diseases over the course of an afflicted patient's life. There can be little doubt that more of the time spent during internal medicine residency training should be spent in the kind of ambulatory care settings that would allow the residents to gain the experience needed to care for those conditions.

The current situation persists because those responsible for the development of program requirements in internal medicine have been unwilling to mandate needed changes in the nature of the training programs. This unwillingness can be traced to two distinct, but related forces. On the one hand, the current leadership of the discipline is somewhat wedded to the notion that residents should spend the majority of their time training on inpatient services – a reflection of the culture and tradition of the discipline. But on the other hand, there are significant implications for the clinical faculty and for the sponsoring hospital if more of the residents' time and effort was shifted from the inpatient setting to outpatient settings. Most important, who will provide the inpatient services now provided by residents if they are reassigned to ambulatory care settings and how would the costs of training residents in those settings be financed. Those in leadership positions who recognize the need to redesign internal medicine residency programs tend to take the position that reforms cannot be adopted until those issues are addressed.

Obstacles to GME Reform

The key obstacles to GME reform have been identified in previous sections of this paper: (1) program requirements established by the ACGME, (2) mechanisms for financing the costs of GME, and (3) the culture and tradition of the individual clinical disciplines. But even if those could all be successfully overcome, the reform of GME would still present a formidable challenge because of the lack of a system of community-based sites where residents could be trained. The recent experience with ambulatory care-based education of medical students suggests that practicing physicians may be willing to allow residents to spend time in their practices gaining experience in caring for the kinds of patients they will encounter on entering practice. But, residents need very different kinds of clinical learning experiences than do medical students and the financial implications of having residents involved in the practice are certainly more profound. Based on this consideration alone, it is clear that an entirely new system for educating and training residents will have to evolve if future doctors are to be better prepared on entering practice to provide high quality care to the patients that seek their help.

Conclusion

As noted in the introduction, a country's physician workforce should be composed of doctors capable of providing high quality care to the patients that seek their help. In the United States, the country's GME system is responsible for seeing that doctors entering practice can meet that standard. There are good reasons for believing that at present, the country's GME system is not preparing doctors adequately in all specialties, particularly in the generalist fields of family practice and general internal medicine. There can be little doubt that the design and conduct of residency programs are not adequately informed by an understanding of the kinds of patients those in training will encounter when they enter practice or the scope of practice they will be expected to provide. As a result, the length of training required in individual specialties and the specific clinical rotations that residents are required to complete are to some extent quite arbitrary. There is also no question that the system of hospital linked training sites cannot continue to serve as the predominant sites for gaining clinical experience, at least in some disciplines. If the United States GME system is to provide medical school graduates with the education and training required to prepare them to provide high quality care to the patients that seek their help, the system must undergo a major transformation.

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