

# EMERGING TRENDS IN THE U.S. PHYSICIAN WORKFORCE: IMPLICATIONS FOR LICENSURE AND PROFESSIONAL STANDARDS

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## ABSTRACT

During the past quarter century, demand for physicians has dramatically increased, yet the supply of trained allopathic United States medical graduates (USMG) has become fixed. Expansion of funded residency positions has allowed large-scale absorption of international medical graduates (IMG), but there is now growing competition for IMG from other Anglophone countries with developing shortages. Substantive expansion of allopathic USMG enrollment will have to overcome hard fiscal and political realities and an uncertain pool of additional qualified applicants. Although the numbers of osteopathic physicians and non-physician clinicians (NPC) have increased briskly over the last decade, particularly in primary care, their ability to address shortages of specialists appears limited. This conjunction of events could result in serious shortages of physicians, particularly of specialists and in areas that are traditionally victims of maldistribution. Although many corrective actions are theoretically possible, most are impractical, and increasing enrollment of allopathic USMG may be the most feasible immediate approach. There could also be important ripple effects on professional standards, procedures for licensure and the introduction of several important new initiatives in assessment relevant to licensure and certification.

## BACKGROUND AND INTRODUCTION

Determining the appropriate number of physicians for the United States is a difficult and imprecise enterprise. Reports in the 1980s and 1990s projected large surpluses of physicians (150,000 or more) and particularly of specialists, whereas more recent analyses have projected a major shortage of (200,000 or more) and notably of specialists.<sup>1-3</sup> The appropriate size of the workforce continues to be debated by organizations in the House of Medicine (e.g., American Association of Medical Colleges, the

American Medical Association, the Council of Graduate Medical Education), but indications are official positions are shifting towards contingency planning for a major physician shortage. Demand appears to be growing rapidly, while supply appears to be lagging behind. Absent any change, there is a growing belief that shortages are inevitable and could be severe in some areas, with some unpalatable consequences. Together with the increasing number of patients with insufficient health coverage, this could lead to further restriction of access and suboptimal care. It could also breed further deterioration in professional satisfaction, with large numbers of baby boomers reducing hours or retiring early and a negative recruitment image for any expanded enrollment of students. For organizations involved in education and professional regulation, these changes will likely exert pressure on the high standards traditionally followed. The view of licensure, certification and accreditation could turn rapidly from providing protection of the public to impeding the supply of physicians and access thereto. One example of this is the recent movement to introduce legislation in California that would allow Mexican physicians to achieve licensure without passage of the United States Medical Licensing Examination (USMLE) in order to increase the number of Spanish-speaking physicians in that state. The chief factors driving physician workforce service capacity during the past 50 years (1950-2000) are briefly summarized on the following pages.

## DEMAND FOR PHYSICIANS IS GROWING RAPIDLY

### Demographic Factors

The United States population has grown rapidly from 152 to 282 million (1950 to 2000), with a further increase of up to 40 million anticipated by 2010.<sup>4</sup> This reflects several components. Although the fertility rate in the United States declined from the mid-1950s to the mid-1980s, it

has subsequently remained higher than in many other developed countries. Second, infant mortality and average life expectancy at birth have continued to improve. Third, the United States continues to take in large numbers of legal immigrants and a substantial additional number probably entered without documentation. The foreign-born United States population has risen correspondingly, resulting not only in increased numbers but also a major expansion of cultural and linguistic diversity of patients. The number of elderly has expanded dramatically. This segment of the population is the most prone to chronic disease, and typically has both health coverage (e.g., Medicare) and free time to seek medical care. They are therefore positioned for robust consumption of health care resources.<sup>5</sup>

### **Economic Affluence**

Economic growth appears to be a powerful driver of health care expenditures.<sup>3,6</sup> Growth allows the investment of resources in research and development necessary for advances in treatment and care. However, economic prosperity also enables obesity, inactivity and other lifestyle consequences, with substantial morbidity. Increasing consumption of sensitive diagnostics and of medical services for non-urgent conditions or cosmetic procedures carry risks of false positives and complications requiring the attention of more physicians. The costs of defensive medicine also continue to rise inexorably. In the United States, health care expenditures have grown rapidly to a projected \$1.7 trillion or 15 percent of GDP in 2003.<sup>7</sup> Despite the best efforts of the managed care industry to decelerate the rate of growth in health care expenditures during the 1990s,<sup>8</sup> this upward trend currently shows no evidence of abatement.

### **Changing Scope of Practice**

During the 20th century, Western medicine scored notable successes with much acute disease, and the health burden has tilted dramatically towards chronic disease and palliation, particularly as populations have aged. A slow shift from cure to prevention may also be underway, with prediction of serious disorders and primary prevention through lifestyle changes, medication and eventually by genetic interventions facilitated by new knowledge of the Human Genome. Consequent increases in demand might be blunted by involvement of patients in self-management activities, by savings from disease prevented and not treated, and by expanded use of non-physician clinicians (NPC). Nevertheless, these thrusts will involve new attention to healthy people not otherwise consuming medical services, and will lead to more genetic counsel-

ing, dealing with false positives and almost certainly more involvement of physicians.

### **Growth of New Technologies**

New technologies are often introduced into medical practice in the absence of prima facie evidence for use. Doubtless, technological innovations can turn out to enable effective care for previously incurable or fatal disorders – to wit the \$15 billion Medicare end-stage renal disease program. Safer or less invasive new procedures can also free physicians to do other work. The downside is the potential for a medical-industrial complex with a technology spiral that involves: availability of new services; effective advertising; increased demand for services; new procedural opportunities for physicians; expanded provision of services; more investment in technology; availability of new services; and so on. Physicians then spend additional time answering patients' questions about the new technologies, providing follow-up and fixing complications. The end result is that supply of technology may directly create demand, testing the economic axiom that demand drives supply. Equally important, such a technology spiral can still churn even when economic times are hard.

### **The Growing Population of Patients with Partial Coverage**

Approximately 75 million Americans under the age of 65 were uninsured at some point in 2001 and 2002, and 49 million for at least six months.<sup>9</sup> Such patients do use some medical services, and may contribute to over-utilization of emergency room visits and of hospitalizations for acute care. However, equity and societal issues aside, this group provides a real hindrance to accurate workforce projections, since the advent of any effective coverage would presumably add substantial demand for medical services.

### **Summary of Demand Issues**

The conjunction of factors summarized above constitutes a gathering storm of demand, and potential moderating forces do not currently appear equal to the task of containment.

### **THE SUPPLY OF PHYSICIANS MAY BE LIMITED**

The traditional view of the United States physician workforce is of allopathic male USMG who work without interruption until age 65 or later. However, the reality is clearly changing, and fast. Practicing physicians are increasingly drawn from sources beyond allopathic schools in the United States, women now form a majority of the appli-

cants to allopathic schools, and average weekly work hours and years in practice appear to be declining.

### **Availability of Allopathic USMG**

From 1950 to the mid-1970s, first year enrollees in and graduates of medical school more than doubled. For the past 25 years numbers have been essentially constant – around 16,900 for first-year enrollees and 15,800 for graduates. These changes parallel the number of medical schools which increased in number from 75 in 1960 to 126 around 1980, but thereafter have remained more or less unchanged in number.<sup>10</sup> Similar numbers are apparent for graduates completing residency training.<sup>11</sup> In sum, the overall number of trained USMG available to enter practice – around 15,000 annually – has been static for almost a quarter of a century.

### **Availability of Osteopathic USMG**

The historical pattern for enrollees in osteopathic medical schools is the obverse of that for allopathic USMG. The number of trainees remained stable from 1960-1990, and then grew substantially throughout the 1990s. Four new schools were opened in the 1990s, bringing the total to 20; annual enrollment increased by 50 percent from 1,951 to 2,927, and the number of graduates annually increased by 70 percent from 1,534 to 2,598.<sup>12</sup>

### **Availability of IMG**

The growth of IMG enrolling in residencies has been impressive and IMG constituted a full third of physicians entering the United States workforce during the 1990s.<sup>13</sup> Some countries produce more graduates than can find satisfactory employment, while others are subject to unstable political or economic conditions. The number of IMG with English skills may also be increasing, mirroring the dominance of English in electronic communications and medical literature. English has also been adopted for medical students in most of the Arabic-speaking countries in the Middle East; there are also English language tracks available in Israel and former Soviet republics and in state medical schools in China. There is also a progressive seepage of English into medical education in non-Anglophone countries in the European Union. Increased global migration of physicians also parallels that of the general public; in 2000 an estimated 175 million people were living outside their country of birth, as compared to 100 million in 1995.<sup>14</sup> Equally important, the numbers of United States citizens graduating from international schools (designated USIMG) and matching to United States residency programs increased rapidly during the 1990s.

Several barriers to entry of IMG into the United States may also have been lower during the 1990s. These include changes in J-1 visa waiver rules, and the continued availability of more funded residency slots than available USMG. In addition, the United States was previously alone among Anglophone countries in requiring IMG to pass a licensing exam and an English test, but parallel exams are now required for IMG entering Canada, the United Kingdom, Australia and New Zealand. In this regard, it is notable that the addition of a clinical skills component to the USMLE in 1998 was followed by a >50 percent drop in the number of IMG applying to take USMLE.<sup>15</sup>

Reservations have been raised about the quality of IMG education, since this lies outside the formal accrediting and monitoring systems of the United States. Differences may also be perceived in relation to citizenship and cultural experience (i.e., United States versus non-U.S. origin) and facility with English. Despite this, the net result has been the percentage of the physician workforce constituted by IMG has increased, from 20.9 percent in 1980 to 24.2 percent in 2000. In a very real sense, the United States has “outsourced” the undergraduate education of between one-quarter and one-third of physicians joining the workforce. Further, the lack of growth in trained USMG during a period of robust increase in demand appears to have resulted in functional dependence on IMG to make up the shortfall.

### **Work Output of Physicians**

The assumption that all physicians will work full time until 65 or older is no longer tenable. There are anecdotal but clear indications of declining physician work hours. Increasing attention is being paid to lifestyle issues. Practitioners, and especially younger physicians, are increasingly rejecting the long work hours accepted as a matter of course by their predecessors, and controllability of lifestyle is an increasing influence upon career choice. Generational differences in balancing work and play, and the growing number of women physicians, may also be relevant. The growth of managed care has meant many physicians have moved from self-employed to full-time employee status on relatively fixed salaries. In parallel, pressures exist for restricting work hours. In the EU, new government regulations restricting the work week to 48 hours for all physicians are in the process of being implemented.<sup>16</sup> In the United States, maximal weekly work hours for residents have recently been limited to 80. It is too soon to know the effect of these changes on the hours

worked by physicians or the quality of patient care, but overall work output of physicians seems destined to fall.

Physicians also appear to be increasingly leaving active practice altogether. This involves a mix of issues: costs of practice; threats to autonomy; professional dissatisfaction; declining incomes; malpractice costs; intrusive regulation and litigation and lifestyle concerns. The 1990s bull market facilitated the exit of many physicians with sufficient financial reserves. Large numbers of baby boomers are now of an age to ponder early retirement, assuming favorable economic conditions. More physicians may be gravitating to non-clinical work in government, administration, insurance, pharmaceuticals, education or in regulatory and professional organizations. Moreover, the physicians leaving the clinical workforce are often in their professional prime.

### Summary of Supply Issues

In essence, the domestic supply of allopathic physicians is currently fixed. Although supplies of osteopathic physicians and IMG increased rapidly over the last decade or two, it is unclear for how long this rate of growth can be sustained.

### WHERE ARE WE NOW? DEMAND AND SUPPLY

Demand for medical services during the 1990s increased at a rapid pace, but growth of physician supply (30 percent) was also strong and substantially stronger than growth of the general population (12 percent). Ignoring the serious issue of maldistribution of physicians, overall the workforce expanded from 2.4 physicians per 1,000 population in 1990 to 2.8 in 2000.<sup>6</sup> As to whether supply and demand are in balance, there is very little agreement. The increase in physicians/1,000 population is viewed by some as evidence of a burgeoning physician surplus, with full employment maintained through marketing and inflated demand for unproven procedural services. Others project an impending and serious deficit, driven by runaway demand and the escalating complexity of modern medical care, with deteriorating access to specialists and an army of around 50 million underinsured. The middle ground holds that the large increase in physician workforce of the 1980s and 1990s was market-driven and occurred more or less in balance with strong growth in demand.

Although there are major caveats in such comparisons, physician:population ratios are currently higher in the United States than in the five other Anglophone countries

**Table 1.**

Number of Physicians per 1000 Population by Country (1990 and 2000)			
	1990	2000	% Increase 1990-2000
Australia	2.3	2.5	9
Canada	2.1	2.1	0
Ireland	1.6	2.3	44
New Zealand	1.9	2.2	16
United Kingdom	1.4	1.8	29
United States	2.4	2.8	17
Mean Anglophone Countries	2.0	2.3	16
Mean Non-Anglophone European Countries*	2.8	3.2	17
Mean All Countries	2.4	3.1	17

\*Non-Anglophone European countries include Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Sweden and Switzerland.

(see Table 1).<sup>6</sup> It is also noteworthy the mean physician:population ratio in Anglophone countries is lower in the United States than in the 19 other non-Anglophone European countries. Indeed, only three of the latter have ratios lower than in the United States. Interestingly, with the notable exception of the U.S., the other Anglophone countries have initiated planning and policy changes designed to ramp up medical school building and enrollment (especially in the United Kingdom), or to deliberately attract qualified IMG, or both.

### WHERE ARE WE GOING?

Given the above, it is hard to escape concern that demand for physician services is steadily outstripping supply.

### Managing Demand

Controlling demand was a major impetus for managed care. Despite some successes, the industry has been bruised by adverse public opinion, a steady trickle of legislative and legal reverses, and revelations of corporate malfeasance. Annual premium increases remain above cost-of-living. It is unclear if demand can be reined in



with political and fiscal levers. Medicare and other large payors have muscle to influence utilization through major changes in payment mechanisms. However, concerted action that smacks of explicit rationing at a time when politicians are scrambling to expand health care benefits (e.g., prescription coverage for the elderly) seems implausible. State governments could also curtail utilization by reducing eligibility for Medicaid, but their ability to do this is limited. Many forces driving demand seem simply to be realities that are here to stay. Managing demand also requires willing and active participation by physicians, who are hardly disinterested. In short, this option does not look like an especially plausible solution absent major reform in payment mechanisms.

### Managing Supply

Theoretically, expanding supply ought to be possible — the number of allopathic physicians has been static for 25 years. However, achieving real increases rapidly will be problematic. No clear consensus has yet emerged to fuel a concerted drive to increase enrollment. Both federal and state governments are confronting ballooning deficits, medical schools have suffered large dents in their endowments, and academic health centers are on the fiscal sick list. Another issue is the minimum of seven years or more in lag time in training before additional physicians can be added to the workforce. Accreditation of any new schools may constitute another speed bump. Experience during the past decade has indicated that osteopathic enrollment may be more amenable to expansion, in that the political environment is more favorable and educational costs are generally lower. However, the proportional contribution of any additional graduates is numerically small.

There are also likely to be unintended consequences in expanding medical school enrollment. It is not certain there are sufficient additional qualified United States applicants, at least without lowering entry standards.<sup>17</sup> During the past 25 years, national ratios of applicants:matriculants have ranged from around 1.5:1 to 3:1; some individual locations have experienced lower applicant ratios. Moreover, current pervasive dissatisfaction with health care as a career does not project a positive image of the profession of medicine to potential applicants. Another complicating factor is that any expansion could simply allow more enrollments of IMG, and particularly USIMG into Liaison Committee on Medical Education-approved schools within the United States. This would be beneficial in that trainees would

be exposed to the undergraduate quality framework experienced by USMG. However, a net workforce gain would only occur if such physicians are not already coming here.

The supply of physicians could also be increased by attracting additional IMG, for example by further expanding available residency slots. In essence, this amounts to more outsourcing of undergraduate medical student training, and the desirability of this will be debated. Concerns over the quality of undergraduate IMG training also remain. Increased absorption of IMG may provoke criticism from several source countries, particularly if enrollment of USMG is not expanded in parallel. More to the point, Anglophone countries with emerging physician shortages are now actively competing with the United States for IMG. In Canada, IMG have “favored status” as immigrants, and Britain has already launched an aggressive physician-recruiting campaign in several countries. The United States may no longer have its pick of the IMG pool.

We should not overlook other supply-side interventions that do not directly involve expanding the physician workforce. It is conjectural to what extent the trend for physicians to reduce the intensity of practice could or should be reversed by carefully crafted incentives and measures that might arrest the slide in professional satisfaction. However, health care delivery ought to be amenable to improvement such that the existing physician workforce could do more with less, for example by reducing unnecessary visits; minimizing physician time devoted to administration; and increasing the efficiency of information management and communication. Another complementary option would be to shift more physician responsibilities to NPC. The difficulty with the latter approach is while physician assistants and nurse practitioners are increasingly viewed as an important addition to the primary care workforce, it is unclear they can replace all specialists.<sup>3</sup> To this should be added the serious and deepening shortage of nurses. In comparison with expanding IMG or medical enrollment, these options currently seem even more daunting.

### SOME IMPLICATIONS FOR ASSESSMENT AND PROFESSIONAL STANDARDS

The occurrence, or the perception, of a developing physician shortage will highlight several questions for organizations engaged in professional regulation. Three of the more important questions are considered below.

## Why Not Lower Professional Standards for Licensure and Certification?

National standards control entry into and passage through training, and could quickly become viewed as an unwelcome constriction in the physician supply pipeline and an irresistible target for relaxation, either at entry into medical school (e.g., MCAT, SAT), graduation (e.g., USMLE) or postgraduate training (e.g., USMLE, specialty board certification). Relaxing standards is simply a bad idea, for several reasons. The organizations involved invest substantial effort and gather broad input to establish consensus professional standards consistent with good practice. In addition, public pressure is in the direction of raising existing standards, related for example to consumer activism and better access to medical information, revelations about patient safety, concern over impaired physicians, and a steady drip of ethical, professional and communications issues. Plus, the effectiveness of relaxing standards to expand the physician workforce remains to be seen. The number of willing USMG who fail to enter the workforce is already miniscule, with the eventual USMLE failure rate at around one percent and medical school attrition rates at historic lows.<sup>18</sup> Liberalizing standards in USMLE could only really affect IMG, and the use of a lower cut point for a selected class in a single licensure pathway is untenable.

## Is Summative Assessment Actually Predictive of Future Performance?

Theoretically this appears to be an eminently reasonable proposition, but there is scant evidence linking scores in licensing and certifying examinations with actual competence throughout a lifetime of practice. Demonstrating predictive validity over the long haul is not a trivial undertaking, but it is not helped in the United States by a lack of appropriate longitudinal data sets. Since continuous measures (e.g., maintenance of certification and/or maintenance of licensure) are still on the drawing board, measurement of competence in practicing physicians continues to rely upon initial licensure with or without certification, followed by episodic measures of potential performance (e.g., examinations of cognitive knowledge and management skills). In addition, such data as does exist is fragmented across a patchwork of organizations in the House of Medicine, and usually unavailable for viewing across the continuum. The longitudinal educational data set collected over the past decades at Thomas Jefferson University, and more broadly across the six allopathic and two osteopathic medical schools in Pennsylvania since 1982, are important initiatives in this regard.<sup>18</sup> In addition, some evidence of predictive validity may be extracted from studies of longitudinal data

collections in Canada.<sup>19</sup> Questions about the predictive validity of current assessment approach seem likely to be magnified in the event of any serious shortage of physicians. Some may go so far as to argue that current high stakes, summative, national examinations typical of licensure and certification should be discontinued in those who have completed their training in properly accredited schools and programs (e.g., USMG). However, the fact is this approach does provide some assurance about physicians at the time of examination. The paucity of predictive validity data argues less for de-emphasizing existing episodic summative testing than for adding newer approaches involving continuous assessment (see below).

## Why are We Adding More Assessment Initiatives?

A series of new physician assessments is under development across the entire training/practice continuum. Such broadening of the base of individual assessment includes addition in 2004 of Step 2 CS to the USMLE to test clinical skills. Other initiatives are more formative and lower stakes in nature.<sup>20</sup> They are particularly important because they represent the first real steps towards assessment of competence and quality of care longitudinally, and possible use for professional self-regulation. However, additional measurement activities, and especially pay for performance (e.g., large payors), will inevitably raise legitimate concerns amongst physicians around added accuracy, cost, time and inconvenience. They may also reduce the numbers of physicians who are adjudged fit to enter the workforce, or increase the number who leave or are required to undergo remediation. Additional measurements could also have a chilling effect on the number of those entering or traversing the training pipeline. Even though the public is clamoring for this type of assessment, it is not hard to envisage concerted opposition from the medical profession to addition of new assessment.

In summary, although rigorous summative assessment of individual trainees and evaluations of training programs and organizations are generally believed to be major contributors to the high quality of physicians in the United States, professional standards may be seriously scrutinized and at risk in the event of workforce shortages.

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