Medical Workforce Expansion in the United States– Commitment and Capacity

Edward Salsberg
Clese Erikson
Hisashi Yamagata

Center for Workforce Studies
Association of American Medical Colleges

9th International Medical Workforce Collaborative Conference

November 2005

Melbourne Australia

Overview

Recent reports and studies have concluded that the US is likely to face shortages of physicians and several have recommended an increase in US medical school enrollment. This includes the national Council on Graduate Medical Education (COGME) who recommended 3,000 new graduates per year by 2015 and the Association of American Medical Colleges (AAMC) who recommended a 15% increase (about 2,700 new graduates) by 2015. Several specialty associations and states have also conducted studies and concluded that future shortages were likely. To understand the response to this growing concern, it is necessary to have some basic background information on the sources of physicians and the funding for undergraduate and graduate medical education.

There are four distinct sources of physicians in the US: 125 allopathic medical schools offering a medical degree (MD); 20 osteopathic schools offering a doctorate of osteopathy (DO); foreign medical schools established primarily in the Caribbean mainly to educate US citizens (US-IMGs); and medical schools around the world educating physicians who migrate to the US (non-US IMGs). The different educational pathways face different issues, constraints and incentives to expand.

Funding for allopathic schools is primarily at the state level: about two-thirds of the schools are state-sponsored or heavily state-supported. A few of the osteopathic schools are also state sponsored but the majority are private, not-for-profit schools. There is no significant source of federal funding specifically for medical schools. However, most allopathic schools are part of academic medical centers that receive federal funding for research and funding for clinical services through Medicare, the insurance program for the elderly. For a variety of reasons, including the current federal budget deficit and the view that this is a state issue, new federal support is unlikely. Thus, a policy conclusion or recommendation that additional physicians will be needed in the future does not mean additional funds for medical school expansion.

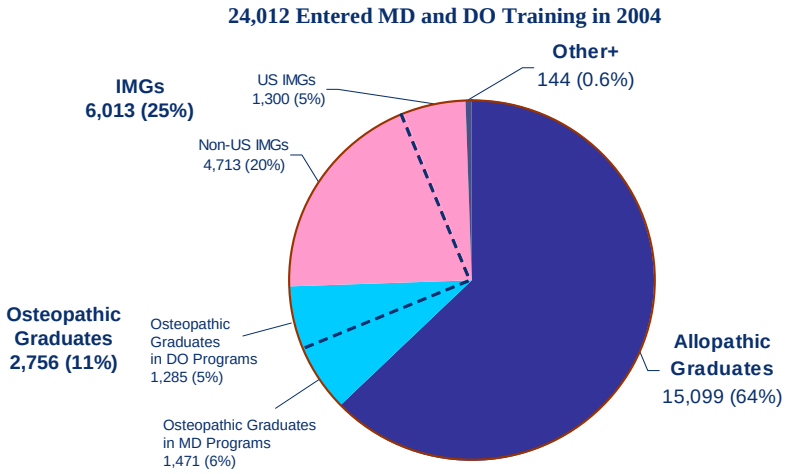
While Medicare hospital reimbursement includes funding for graduate medical education, there is a cap on such funding which may discourage expansion of training slots. Almost all physicians go through allopathic graduate medical education (GME). Congress capped – at the 1997 level - the number of physicians in training that Medicare will cover as part of its calculation of hospital payment rates[1]. Despite the cap, the number of residency and fellowship positions increased by about 3% between 1997 and 2004. However, there is concern in the medical education community that in the absence of additional funding for GME, the efforts of medical schools to increase capacity will lead to a substitution of US graduates for IMGs rather than increasing the total supply to meet future increases in medical needs.

[1] There were several reasons given for the freeze, including: the reports in earlier years that the nation was facing a surplus of physicians; concerns with the high level of payment per resident; and the rising costs to the government of the Medicare program.

Although there is no overall policy on undergraduate medical education and no policy linking undergraduate and graduate medical education, many medical schools and several states in the US have begun to respond to the call to expand medical education capacity. However, the response by allopathic medical schools, the main educator of physicians, has been slow. Osteopathic schools, in general, have continued their rapid growth of the past 20 years but they are starting from a relatively small base. While not within the US proper, there has been a significant increase by the off-shore schools intended for US citizens who then come back to the US for their graduate training. Non-citizen IMGs from around the world continue at about 4,700 entrants into GME per year. Figure 1 presents the number of new entrants into GME in 2004.

The growing concern with potential shortages, along with the continued growth of graduates from osteopathic and Caribbean schools are challenging allopathic medicine to assess their role and responsibilities for medical education as well as their approach to medical education. The next several years are likely to be a period of re-assessment for allopathic medicine in the US.

Figure 1. Number and Source of Physicians Entering Training in 2004



The Response to Expected Physician Shortages

Allopathic Medical Schools: In response to concerns with possible surpluses and the end of federal subsidies which fueled the growth of schools in the 1960s and 1970s, allopathic medical schools all but stopped growing in 1980 as shown in Table 1 below. Graduations were 15,632 in 1980; in 2003 there were 15,521 graduates (AAMC, 2005a). In early 2005, the Association of American Medical Colleges (AAMC), which represents allopathic medical schools and teaching hospitals, recommended a 15% increase in enrollment. In addition to the national reports, local concerns about shortages and concerns about access to medical education are leading to a modest increase. In 2005, enrollment at allopathic schools was up 2%. A recent survey of allopathic schools indicates that one-third are planning to increase enrollment and several new schools are under active consideration (AAMC 2005b). However, the current level of activity appears likely to only yield an increase of 5% to 8% in additional graduates by 2015.

The hesitancy on the part of the allopathic medical schools to expand reflects a number of factors. Most states have been facing serious financial problems and have been unable or unwilling to expand funding for what is one of the most expensive fields of study receiving public support. The switch on the part of workforce researchers from predicting a surplus several years ago to now predicting a shortage has also contributed to the hesitancy on the part of state policy makers. Moreover, most allopathic medical schools are part of academic medical centers, consisting of major teaching hospitals as well as extensive research and clinical enterprises. While it is believed that this produces well-balanced and well-qualified physicians able to pursue multiple paths in science and medicine, it is usually costly and institutionally complex, making change difficult. Further, many of the existing schools have concerns about reducing the quality of education if they expand enrollment, both because they might need to take students with lower academic records and because their resources may become overextended.

Table 1. Number of U.S. Medical Schools and Graduates, 1980-2010.

Year	Allopathic	Osteopathic
1980-81	15,632 (115)	1,151 (14)
1985-86	16,117 (126)	1,560 (15)
1990-91	15,427 (125)	1,534 (15)
1995-96	15,866 (124)	1,932 (19)
2000-01	15,788 (124)	2,510 (19)
2010-11*	16,271 (128?)	3,380 (22?)

Sources: *AAMC 2004 Data Book* (Table B1), *AACOM 2003 Annual Report on Osteopathic Medical Education* (Figure 6)

*2010-11Osteopathic graduates projection is extrapolated from AACOM 2003-08 projections of graduates
+ Figures in parentheses are the number of full-accredited schools.

Osteopathic Medical Schools: While US allopathic schools have been slow to respond to the growing calls for expansion, not so other streams of new physicians. Osteopathic schools have been aggressively expanding for the past 25 years. Their model of medical education relies far less on large academic medical centers. They have also been far more

committed to expansion. The number of osteopathic graduates has risen from about 1,100 in 1980 to 2,700 in 2005 and it is expected to continue grow steadily over the next decade to perhaps 4,000 by 2015. There has also been substantial influx of DO physicians into ACGME-accredited programs. Currently, about 60% of osteopathic graduates enter ACGME training programs.

US Citizen IMGs: Entrepreneurs, sensing the growing concern with shortages and seeing that many US citizens have been unable to get into US medical schools, have opened more than 15 schools in the Caribbean in the past 5 years, often on small islands with little or no academic oversight. Over the past several years, the number of US citizens attending these schools (*US-IMGs*) has grown significantly with most graduates planning on entering graduate training in the US. Most graduates are in fact able to pass the examinations of the ECFMG and do enter graduate training. In 2004, about 1,300 US citizen IMGs entered GME up from less than 400 in 1996. The Educational Commission for Foreign Medical School Graduates (ECFMG) estimates that the number of US citizens entering the ECFMG certification process may exceed 2,800 in 2005. A wide range of questions and concerns have been raised regarding this approach to medical education and the quality of the graduates of these schools.

Non-US citizen IMGs: Non-US citizen IMGs have continued to be an important source of physicians with about 4,700 entering graduate training each year, constituting 20% of new GME entrants Combined with USIMGs, the proportion of physicians receive their undergraduate medical education outside the US amounts to 25% of those entering in the nation's graduate medical training. The vast majority of non-US IMGs stay in the US after completion of training. There are several concerns with this large number of IMGs: one is the potential drain of physicians from less developed countries; another is the dependency the US has developed on other countries for an essential part of our health care system.

Number of Physicians in Training: In the US, licensure is a state responsibility. While the requirements vary somewhat by state, most require 3 years of graduate training beyond the MD or DO for US medical school graduates as well as IMGs.

If US medical schools increase their graduates by 15%, the impact of the additional 2,700 graduates on GME slots would be significant. If additional GME slots are not provided to accommodate this increase in graduates, with other things being equal, it is likely that these physicians would simply displace IMG counterparts with no net increase in the size of new entrants to the US physician workforce. Accordingly, it is critically important to examine implications of increasing undergraduate medical training slots in conjunction with graduate medical education.

In 2004, AAMC surveyed the nation's 125 allopathic medical school deans and 20 osteopathic school deans regarding current and future enrollment plans. The allopathic deans were re-surveyed in 2005; the responses are currently being analyzed. The 2004 survey revealed that about one-third of the allopathic respondents and two-thirds of the osteopathic schools would either "definitely" or "probably" increase enrollment over the

next 6 years. The survey also asked the deans if they were aware of plans for new schools; this information was supplemented with a review of recent news reports. Based on this information, the AAMC concluded that the nation's schools were likely to increase graduations by 7% to14% by 2015, coming close to the goal recommended by AAMC (Table 2). This assumes a continuation of the 6,000 IMGs entering the US health care system each year. It also reflects conservative estimates of the likely future shortage. The bottom line is that increasing US medical school graduates by 15% will be a major challenge for US medical schools but may only begin to meet the future needs.

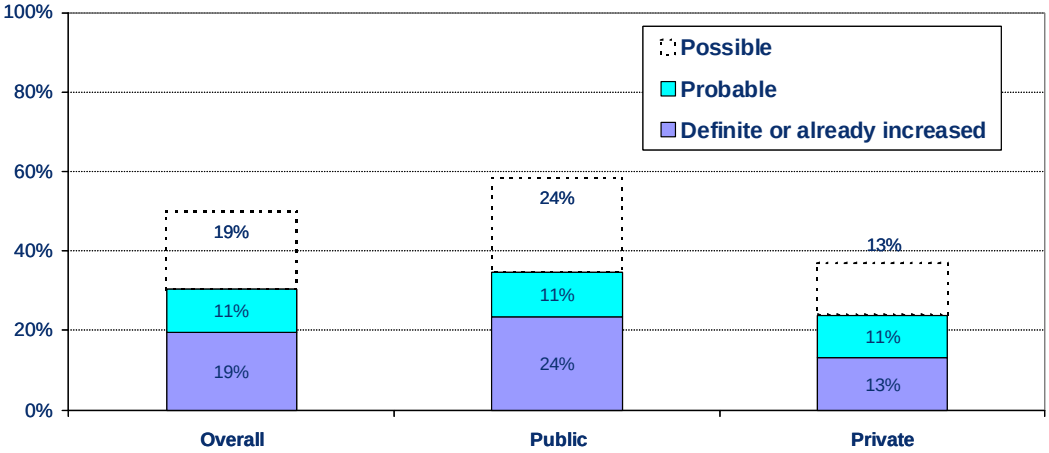
Table 2. Estimate of Additional First Year Enrollment from Expansion of Existing Schools and New Schools in 2010

	2003-04 First-Year Enrollment	Enrollment Increase		Total First-Year Enrollment Increase	% Increase from the 2003-04 Level
		Existing Schools	New Schools		
Allopathic Schools	16,528	650-900	100-500	750-1,400	4.5-7.3%
Osteopathic Schools	3,078	450-900	150-450	600-1,350	24.6-43.8%
Total	19,617	1,100 – 1,800	250-950	1,350-2,750	6.9-14.0%

Source: 2004 AAMC Survey of Medical School Enrollment Plans

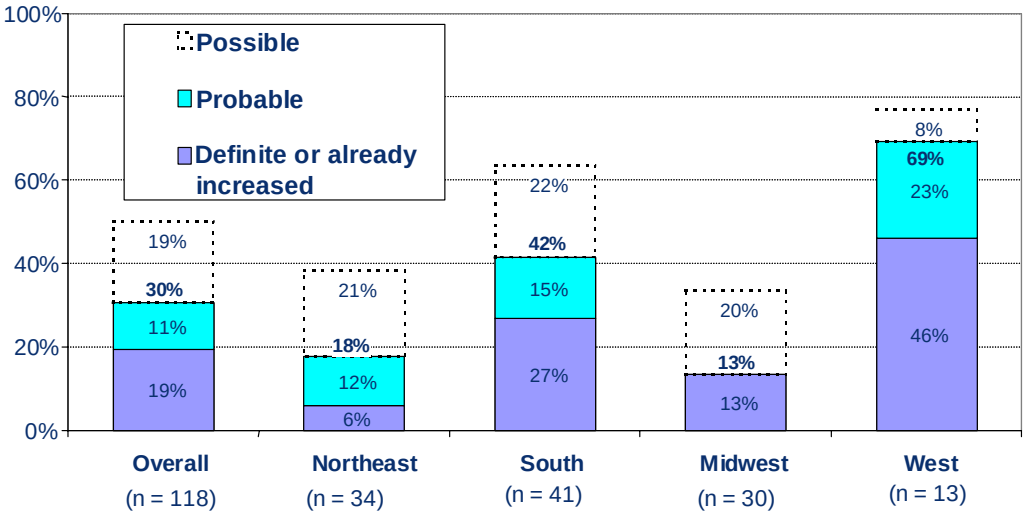
Figures 2 and 3 indicate that the plans to expand are not uniform across region or type of sponsorship. Consistent with higher need for educational capacity in regions that have grown rapidly in the past 20 years, schools in the West and South are more likely to be planning to increase capacity. In terms of the number of new graduates, 83% of the increases would come from medical schools in the South and West. Public schools are more likely to increase enrollment (35%) than private medical schools (24%) Since public schools represent the majority of medical schools in the U.S. and their expected increase per school is greater than private medical schools, the net effect is that public schools would produce 81% of the likely increase in new graduates.

Figure 2. Percentage of Allopathic Schools With Plans to Increase First-Year Enrollment by Ownership, 2004



Source: 2004 AAMC Survey of Medical School Enrollment Plans

Figure 3. Percentage of Allopathic Schools Plans to Increase First-Year Enrollment by Region, 2004



Source: 2004 AAMC Survey of Medical School Enrollment Plans

Undergraduate Medical Training

1. What are the primary challenges facing medical schools in any planned expansion?

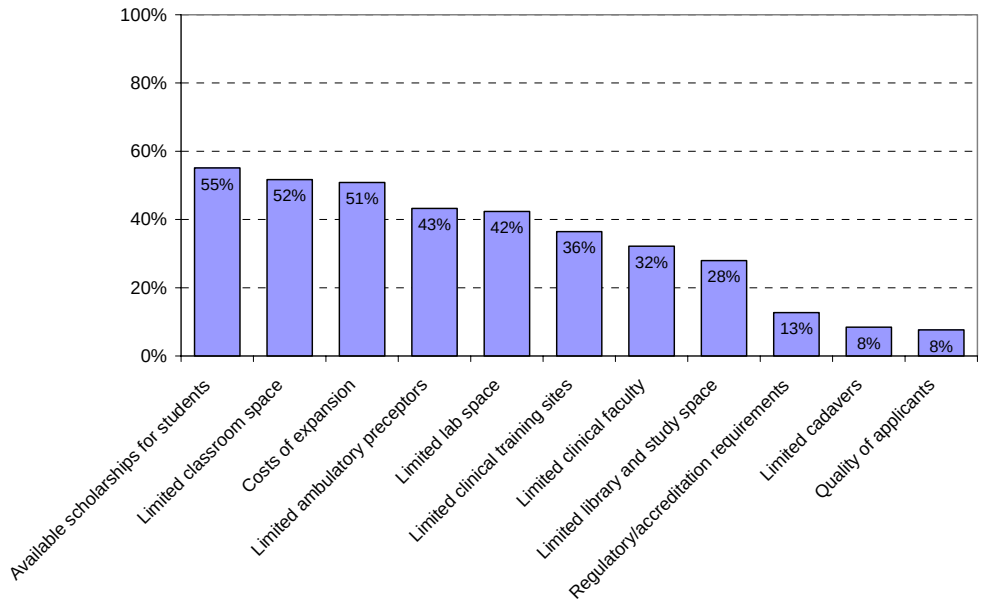
The 2004 and 2005 surveys of US medical schools also asked deans to identify major barriers toward increasing enrollment. Infrastructure and financing needs topped the list with over half of the participating deans citing availability of student scholarships, limited classroom space and the cost of expansion as major barriers. (See Figure 4)

Allopathic medical schools often have multiple missions of research, clinical care and teaching which can make it difficult to devote additional faculty and lab space to teaching when those resources are needed to help generate clinical practice revenue and NIH grant funding.

While public schools were far more likely than private schools to be planning on increasing, the deans at public schools were particularly concerned with the cost of expansion (57% of public schools compared to 41% of private schools) as state budgets are getting tighter due to sharply reduced revenues and increasing demands for state funds, largely driven by the growth of Medicaid expenditures[2]. A large number of deans also expressed concern with having limited ambulatory preceptors, lab space, clinical training sites, clinical faculty, and study space.

[2] National Center for Public Policy and Higher Education Policy Alert: "State Shortfalls Projected Throughout the Decade: Higher Education Budgets Likely to Feel Continued Squeeze", February 2003

Figure 4. Potential Barriers to Enrollment Expansion*



* Based on the 108 schools responded to the survey. Percentage represents the respondents citing "Major" or “Significant” Problem

While the deans generally cited strong support from university presidents, boards of directors, the community and alumni, the two stakeholders identified as being opposed to enrollment increases were faculty and students. This may reflect concern that schools would be asked to increase enrollment without adequate funds. In order to remain competitive in terms of faculty and student recruitment, many medical schools are acutely aware of their national rankings such as the US News and World Report rankings of the top medical schools. If the school increases enrollment but cannot increase faculty or class space, this could negatively affect their rankings and their ability to devote resources to research or patient care.

The deans also cited the quality of applicants as a major concern. Most deans consider their applicant pool adequate to support a 10% increase in enrollment, but become progressively more concerned when contemplating increases beyond 20%.

Osteopathic schools seem to face fewer barriers to expansion as evidenced by their rapid growth over the past 25 years. The top three barriers cited in the 2004 survey of deans were limited lab and classroom space and scholarships, but none of the barriers were listed as a major barrier by a majority of the responding deans. Most strikingly, none of the deans listed cost of expansion as a major barrier.

2. **How can medical schools address these challenges?**

One of the keys to successful medical school expansion will be innovation. In the 2005 AAMC survey of deans, 35 of the respondents[3] indicated they are considering innovations in medical education related to expansion. The top four options being considered are: 1) simulations; 2) IT-based self-directed/independent learning; 3) interdisciplinary courses; and 4) telemedicine, distance learning or video conferences.

According to the 2004 dean's survey, schools are approaching increases through three main routes: nineteen indicated they were definitely going to increase enrollment by expanding existing campuses; six schools were definitely going to create new clinical affiliations; and five were definitely going to open a new satellite/regional campus.

The University of Central Florida and Florida International University in Miami have submitted separate requests to the state to start a public medical school[4]. Both will require significant private contributions in addition to state funding in order to get off the ground. Despite strong data documenting that the current medical school per population capacity in Florida is very low, it is not certain if the schools will be approved. Both requests are going before the State Board of Governors November 17, 2005, but the vote is likely to be delayed to allow additional time to analyze the data.[5]

Allopathic medical schools will also need to do a better job documenting the need for additional medical education capacity in the US and in their states. While there is a general consensus on the need for additional physicians in the US, there are still a few researchers who argue against increasing supply; this combined with the rapid shift from the prevailing wisdom of the 1990s that the nation was facing a surplus, has led some state officials to challenge requests for additional funds for medical education.

The osteopathic and for-profit models are clearly able to more quickly ramp up and get new medical schools and major expansions on-line quickly. They do have clear advantages over the allopathic model in that they do not have to undergo LCME accreditation, nor do they have to devote faculty and space to research needs. However, the approaches being used by osteopathic and off shore medical schools warrant closer review by allopathic medical schools.

3. **Beyond challenges relating to increasing capacity should current expansion be linked to changes in the content or structure of the curriculum in order to ensure that new graduates are best prepared to meet the needs of society?**

Several states, such as Texas and California are targeting their expansions to underserved areas and communities with racial and ethnic groups that are under-represented in medicine. Some schools are actively linking expansion plans with curriculum. For example, at FSU's new medical school, the clerkship programs are designed to foster

[3] The 2005 Survey of Medical School Deans is still in the field – final results will be available in 2006.
[4] "UCF Readies its Pitch for School of Medicine" Orlando Sentinel, Sept 22, 2005
[5] "FIU, ICF Pushing for Medical Schools," Tallahassee Democrat, November 6, 2005

geriatricians and primary care physicians. The school also actively recruits students from rural backgrounds with the goal of increasing the likelihood that their graduates will practice in rural areas. In fact, about 20% of the schools indicating on the 2005 AAMC enrollment survey that they were planning to increase capacity also indicted that the expansion would be targeted to meet other workforce goals.

The University of Central Florida is partnering with the University of Puerto Rico with an eye toward Central Florida's growing Puerto Rican population[6]. FIU representatives note that its future graduates could produce doctors that are likely to mirror the state's growing minority population.[7] FIU also plans to offer scholarships to students who agree to practice in the area for five years after they graduate.[8] As scholarship funds were noted as a barrier to expansion in the dean's survey, linking the scholarships with practice requirements that benefit the community might help schools to obtain additional local or state scholarship funds.

Graduate Medical Training

1. **Is the length of training through longer post-graduate programs and the addition of fellowship training a positive trend? If not what are the potential solutions?**

Increasing sub-specialization in physician workforce has implications for graduate medical training in the US (Grover 2005). First, it significantly contributed to the observed increase in GME slots through creation of fellowship programs and addition of newly accredited specialty programs. Second, since training in subspecialization is normally available for physicians who have completed general specialty training(s), it also led to the increased length of GME training.

Given the rapid advancement of biomedical research and medical innovations, sub- and super-specialization of physician profession and thus longer graduate medical training are likely to stay. While obtaining subspecialty training generally means a higher income, the lengthy training period means that income will be delayed. If the length of GME training continues to increase in some specialties, medical students may eventually decide to opt for specialties where they can enter practice sooner.

There are several solutions to the lengthy training. One is to start undergraduate medical education early with an accelerated program that combines general undergraduate education and medical education. Second, medical schools could consider creating combined undergraduate and graduate programs that would allow students to complete both earlier. Another approach would be to allow for more individualized learning and progression and the ending of summer vacations. However you go about reducing the length of training, it will only yield a one-time net increase in the number of graduates.

---

[6] "UCF, ICU Plans for Medical School Money", Orlando Sentinel, July 24, 2005
[7] ibid.
[8] "UCF Readies its Pitch for School of Medicine" Orlando Sentinel, Sept 22, 2005

The real solution to increasing the future workforce is to be able to train more physicians simultaneously, regardless of the length of training.

2. What is the correct ratio of post-graduate: medical school positions?

The number of GME slots for new entrants in the US is currently about 34% higher than the number of US medical school graduates. The difference is filled by IMGs. There are several concerns with our reliance on IMGs, including 'brain drain'(Mullan 2005), international political instability, concerns regarding the lack of accreditation standards of for-profit schools, and mixed evidence that IMGs are filling gaps in healthcare shortage areas.

However, there is no consensus on what would be an appropriate number or percent of IMGs. In addition, if the US were to reduce its dependence on IMGs, then US medical schools would need to increase the number of graduates beyond current projected growth in order to simply maintain current physician workforce levels – an unlikely prospect given the above listed challenges and known expansion efforts.

The number of IMGs entering the US appears to be greatly influenced by GME reimbursement policies. Although allopathic medicine basically froze the number of graduates in response to the concerns with potential surpluses in the 1980s and 90s, open ended reimbursement for GME at teaching hospitals in the late 1980s and early 1990s provided an incentive to recruit IMGs.

In 1995, COGME recommended that international medical graduates (IMGs) entering GME be equal to 10% of the total number of US medical graduates. However, no formal policy or incentives were ever put in place to reduce the number of IMGs. While there is no right IMG ratio, the United States can set a policy objective of becoming increasingly reliant on domestically trained physicians and then allow IMGs to fill any gaps that remain.

The number of IMGs entering the US has been in the 6,000 per year range for the past several years. Most observers believe this too high. On the other hand, the US believes it is appropriate to provide educational opportunities for physicians from around the world, especially less developed countries as well as opportunities for immigrants which have played a central role in the development of the nation.

Thus, while there is no consensus on a "correct" number or percent, it would seem to be reasonable to have IMGs equal to10 to 20% of the number of US medical school graduates. In fact, this number might vary between these two percentages according to current needs in the US as it is far easier to adjust immigration than it is to vary medical school production within the US.

Conclusions

Medical schools in the US have begun to respond to the concerns with likely future physician shortages, but in the absence of clear public policies supporting expansion, including financing, the response has been slow. Furthermore, the more rapid response by osteopathic schools and off-shore for-profit schools is challenging allopathic medicine which has been dominant in the US for the past 100 years.

It is possible that the growing demand for medical services and additional physicians will contribute to major reassessments and innovations in both medical education and health care delivery in the US over the coming decades.

References

AAMC. 2005a. *AAMC Data Book: Statistical Information Related to Medical Schools and Teaching Hospitals.*

AAMC, Center for Workforce Studies. 2005b. *Medical School Expansion Plans: 2004 AAMC Survey of U.S. Medical Schools.*

Grover, A. 2005. Personal Communication.

Mullan, M D. 2005 “The Metrics of the Physician Brain Drain” *NEJM* 353:17