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Perspective

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The Residency Mismatch

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For generations, the supply of practicing physicians in the United States has swung from too small to too large and back again. In 2006, alarmed about a growing physician shortage, the Association of American Medical Colleges (AAMC) recommended that medical school enrollments be increased by 30% over the next decade. Now, entering classes are projected to reach 21,434 students by the 2016–2017 academic year, almost a 30% increase over 2002 (see table). Colleges of osteopathic medicine have been growing for the past 20 years, doubling in number from 15 to 30 and increasing enrollments from 6892 students in 1990 to 21,743 in 2012. And every year, approximately 12,500 U.S.-citizen and foreign students earn degrees from international medical schools and apply for entry into U.S. graduate medical education (GME) programs. But there's another barrier to creating enough practicing physicians: there are insufficient residency posts to accommodate all these medical graduates.

After two decades (1980 to 2000) when the number of U.S. medical school graduates remained steady (about 16,000 annually), a burst of activity has led to the expansion of existing medical schools, the development of new ones, and rapid growth of colleges of osteopathy.[1] In 2002, there were 125 U.S. medical schools; today, there are 141, and about one third of the recent growth in enrollment derives from new schools. Moreover, several additional schools, granted applicant status by the Liaison Committee on Medical Education, will probably begin enrolling students in the next year or two. State and local concerns about physician shortages have combined with national factors (population growth, the aging of the baby boomers, and an increasing number of retiring practitioners) to drive this growth of medical school capacity. Although the federal government was the major source of funding for the doubling of the number of medical schools in the 1970s, it did not lend direct financial support to this recent expansion.

Indeed, federal funding is a key factor limiting the number of GME positions, which, in contrast to medical school seats, has increased remarkably slowly — at an annual rate of 0.9% from 2001 through 2010.[2] The major stumbling block over the past 15 years has been a payment cap that Congress imposed on Medicare's funding of advanced training in the Balanced Budget Act of 1997. Medicare is the primary supporter of GME programs, contributing $9.5 billion to fund

Growth of First-Year Enrollment in U.S. Schools of Medicine and Osteopathy since 2002.*

Degree	2002 Base	2012 Current			2017 Projected		
	Enrollment	Enrollment	Increase since 2002		Enrollment	Increase since 2002	
	no.	*no.*	*no.*	%	*no.*	*no.*	%
M.D.	16,488	19,517	3029	18	21,434	4946	30
D.O.	2,968	5,804	2836	96	6,675	3707	125
Total	19,456	25,321	5865	30	28,109	8653	44

* Data are from Association of American Medical Colleges and the American Association of Colleges of Osteopathic Medicine.

a share of the costs of 100,000 positions in teaching hospitals and to offset the costs of services that are unavailable elsewhere in the community, such as trauma and serious burn care. About two thirds of Medicare's GME support is a payment adjustment for patient care, which was mandated by Congress to "account fully for factors such as severity of illness of patients requiring the specialized services."

Efforts by the AAMC and its allies to persuade Congress to increase Medicare GME support — funding an additional 15,000 positions — were thwarted during the debate over the Affordable Care Act (ACA). Newer bills that include a similar increase have been introduced in Congress, but they are long shots, given the emphasis on constraining government spending and a 2014 budget from the Obama administration calling for reducing Medicare GME support by $11 billion over the next decade. AAMC chief executive officer Darrell Kirch notes that medical schools have done their part to reduce the shortage of "more than 90,000 primary care and specialty doctors . . . . However, this will not result in a single new practicing physician unless Congress acts now to lift the cap on residency training positions."

For the 2009–2010 academic year, 27 states still had more GME positions than they had undergraduate medical and osteopathic students to fill them; the states with the highest ratios of GME positions to medical graduates were Connecticut, Minnesota, Rhode Island, Massachusetts, New York, Michigan, Washington, Utah, New Mexico, and Oregon.[3] Many of the remaining states are rural, small, or both and have limited GME capacity; 6 states without medical schools have negotiated agreements for their residents to receive medical training in neighboring states. In general, governors and state legislators view their in-state medical schools (both public and private) as pipelines for creating physicians to practice in their state, but they are increasingly recognizing that where new physicians do their GME training is often more determinative.

Among the large states with too few GME training positions, Florida and Texas face major challenges: between them, they have developed four new medical schools in the past decade but have added very few advanced training posts. In the 2011–2012 academic year, Florida had 4037 medical students but only 3606 GME positions and ranked 43rd among the states in the number of residency posts per capita. The obstacles to growth have included a decline in state GME support and an unwillingness of large community hospitals to create training programs because of the additional costs and staff reluctance to take on teaching responsibilities.[1] One exception is a program at Florida Atlantic University, which began enrolling medical students in 2011. The university created a consortium of five Boca Raton–area hospitals that will serve as clinical training sites, with their community-based physicians serving as faculty. In his latest budget proposal, Florida's Republican governor, Rick Scott, proposed to increase state GME support by $80 million — but that's only a fraction of the amount by which Medicaid patient care reimbursements for the state's teaching hospitals had previously been reduced.

Texas, which ranks 42nd among the states in the number of practicing physicians per 100,000 residents, must create approximately 400 new GME positions to reach a 1.1-to-1.0 ratio of first-year residency positions to graduates of the state's medical schools. According to a consensus statement prepared by academic and medical organizations for the state legislature, physicians who complete their GME in Texas are three times as likely as those who do so elsewhere to end up practicing in Texas. In a dramatic swing, the legislature in-

creased state funding for higher education, including an $8.76 million increase in its GME-funding formula and additional sums for brain-injury research and psychiatric services.

On a national level, the American Academy of Family Physicians (AAFP) argues that the administration's cut to Medicare GME funding could imperil family-medicine residency programs. Glen Stream, chair of the AAFP board, said, "If GME funding must be reduced, we call on Congress to preserve explicit support for primary care residency programs to make sure we continue to reverse the downward spiral." The 2013 results of the National Residency Matching Program continued the pattern of only small increases in applicants opting to train in family medicine, although primary care activists report that some of the best medical students are now applying for primary care residency positions. By comparison, of the 11,764 advanced-practice registered nurses who graduated in 2012, 84% specialized in primary care,[4] but only about one third of students who become physician assistants pursue careers in primary care after graduation.

Given enrollment growth, it may soon be impossible for all graduates of U.S. medical and osteopathic colleges to secure GME slots unless there is a sizable increase in the number of training positions. Currently, there are 117,604 residency-training posts accredited by the Accreditation Council for Graduate Medical Education. In the 2013 main residency match, according to the National Resident Matching Program, 25,463 positions were filled with 17,119 graduates of U.S. medical schools, 6307 graduates of international medical schools (2706 U.S. citizens and 3601 non-U.S. citizens), 2019 graduates of colleges of osteopathic medicine, 14 graduates of Canadian schools, and 4 from Fifth Pathway programs.[5] The large cohort of international medical-school graduates who seek U.S. training positions every year will be in even greater jeopardy. The absence of health-workforce planning, a hallmark of the free-wheeling U.S. market economy, may come back to haunt policymakers, particularly when physician shortages become more apparent as the ACA's coverage expansion takes hold.

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Accountable Prescribing

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Physicians spend a lot of time treating numbers — blood pressure, cholesterol levels, glycated hemoglobin levels. Professional guidelines, pharmaceutical marketing, and public health campaigns teach physicians and patients that better numbers mean success. Unfortunately, better numbers don't reliably translate into what really matters: patients who feel better and live longer. Often the health benefit gained by reaching a goal depends on how it is reached. When physicians strive for numerical goals without prioritizing the possible treatment strategies, patients may get less effective, less safe, or even unnecessary medications.

Many quality measures reinforce a focus on numerical goals. For example, performance-measure targets for hypertension control, as defined by the Healthcare Effectiveness Data and Information Set (HEDIS) and the Physician Quality Reporting System (PQRS), are met if a blood pressure below 140/90 mm Hg is reached after treatment with any antihypertensive medication, without a trial of dietary and exercise interventions (see table). Medications are the quickest and easiest way to reach the goal. Targets for cholesterol-control measures are met if a low-density lipoprotein (LDL) cholesterol level below 100 mg per deciliter is achieved in patients with coronary artery disease using ezetimibe before trying simvastatin, even though only the latter has been shown to reduce myocardial infarction risk. Simi-