

# Reforming Graduate Medical Education in the U.S.

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*The foundation of the U.S. health care system is a workforce of highly competent doctors who are prepared to provide the highest quality health care when they enter practice. However, there is increasing concern that the current system for training doctors following graduation from medical school falls short in terms of producing an adequate workforce to meet the nation's changing health care needs. Reforming the graduate medical education system will require accurate data on the true costs of training physicians, greater oversight and accountability, and a transition from the current outdated financing system that is based mainly on federal support to a system that is more equitably distributed among stakeholders and where the funding is controlled by the states and follows the trainee.*

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The U.S. health care system has some of the most highly qualified, competent doctors in the world, and the care that they provide is generally as good as—and in many cases, superior to—that in other nations. However, America's current system for training doctors after graduation from medical school needs substantial reform.

The primary deficiency is an uncoordinated and outdated financing system that fails to foster the kind of health care workforce needed to keep pace with the changing demographic and epidemiological profile of America's patient population. The graduate medical education (GME) system falls short in both the number of doctors trained and their distribution by specialty and geography.

The good news is that private accreditation and certification entities are already actively pursuing reforms to basic GME standards and training methods—without the need for government intervention. Yet, for

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## KEY POINTS

1. Although the U.S. graduate medical education (GME) system produces highly competent doctors, it is encumbered by a 50-year-old structure that is disproportionately based on federal funding and payment system that largely reflects the parochial interests of the institutions rather than national care workforce needs. GME financing should be consolidated into one funding stream that reflects the costs of training residents.
2. States will be more responsible to the federal government to local institutions. Therefore, government GME financing should be allocated to the ind

revised medical education standards and methods to be truly effective, those changes must be accompanied by complementary reforms to GME financing, governance, and accountability—all of which are still lacking. Federal and state lawmakers need to tackle this second set of issues because government funding heavily influences the basic structure and performance of America’s GME system.

Lawmakers should pursue a reform agenda based on four principles:

- **Government funding should be consolidated.** Any government support for GME should be in the form of a single payment stream, and payments should be based on the combined direct and indirect expenses associated with the training programs.
- **States should manage public GME funding.** While the vast majority of public funding for GME comes from the federal government, state governments are in a better position to manage public funding of GME more effectively.
- **Funding should follow the trainee.** The purpose of public GME funding should be to meet the public need for qualified medical professionals, not the parochial revenue needs of teaching institutions.
- **Federal funding should encourage, not supplant, state and private-sector support.** As appropriate, the burden of GME funding should be realigned across all relevant stakeholders.

## The History of Graduate Medical Education

Calls for substantial reform of GME are not new. Among others, the Commission on Graduate Medical Education in 1940, the Millis and Coggeshall reports in 1966, the Medicare Payment Advisory Committee in 2010, and, most recently, the Institute of Medicine (IOM) in a report published in July 2014 have called for reform. Given that the past century witnessed significant and rapid advances in medical science, periodic calls to reform medical education to keep pace should not be surprising.

Indeed, the first systemic redesign of American medical education dates back to the reformist era at the turn of the 20th century. In 1904, the American Medical Association (AMA) established the Council on Medical Education, which led to Abraham Flexner’s extensive survey of medical schools and their educational standards and practices. Flexner’s report was published in 1910 and became the catalyst for a sweeping transformation and standardization of what is now known as undergraduate medical education (UME), the period of study leading to a medical degree.<sup>[1]</sup>

states according to agreed-upon criteria.

3. Having the funds follow the trainee rather than directly funding teaching programs would force teaching institutions to be more rigorous and transparent in accounting for costs of training residents and would require them to demonstrate the value of their programs.
4. GME financing should be more equitable.

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Opportunities for postgraduate medical education existed as early as the mid-19th century, although widespread adoption of a period of training in a formal residency program as the preferred—and eventually the only—path to becoming a board-certified doctor was largely a post-World War II phenomenon. For instance, surgical residency programs existed as early as 1889. However, during most of the first half of the 20th century, the majority of surgeons entered general practice before gaining surgical expertise through informal methods such as apprenticeships, educational opportunities in Europe, short courses, or performing progressively more complex operations on surgical patients in their practices.[2]

In 1913, Pennsylvania was the first state to require a one-year rotating internship after graduation from medical school as a prerequisite for physician licensure—something that is now a minimum requirement in all states. Physician specialty boards began to proliferate in the 1920s and 1930s, and during World War II, board-certified doctors were given higher rank, better pay, and better assignments in the armed forces.

Before 1940, hospitals directly paid for physician internships and residency training, without government subsidies and passed the cost onto patients in the form of higher fees.

After World War II, the Veterans Administration (VA) ruled that living expenses incurred during residency training of veterans pursuing careers in medicine were reimbursable under the GI Bill (Servicemen's Readjustment Act of 1944), thus providing the first government financial support for GME. In addition, the Hill-Burton Act of 1946 provided federal funding for expanding the number and size of community hospitals, with the side effect of enabling the hospital system to accommodate a growing number of interns and residents. Consequently, the number of positions available in graduate physician training programs in the U.S. expanded at a remarkable rate.[3]

With the passage of Medicare and Medicaid in 1965, federal funding for GME became part of the mandatory spending in those entitlement programs. However, Congress intended that to be a temporary measure until a more suitable source of funding could be found. A congressional report at that time stated:

Educational activities enhance the quality of care in an institution, and it is intended, until the community undertakes to bear such education costs in some other way, that a part of the net cost of such activities (including stipends of trainees, as well as compensation of teachers and other costs) should be borne to an appropriate extent by the hospital insurance program.[4]

Thus, the original congressional intent was twofold. First, the funding was meant to support both educational and patient care activities. Second, the arrangement was not meant to be permanent.

Between 1965 and 1983, Medicare supported GME through Direct GME (DME) payments to hospitals to defray the cost of resident and faculty salaries and related overhead expenses. In 1983, Medicare implemented the hospital Prospective Payment System (PPS), which reimburses hospitals for fixed amounts per case based on the patient's diagnosis and other factors, such as severity of illness. Medicare continued to pay for DME, but added an adjustment to the PPS rate, the Indirect GME (IME) payment, because it was felt that the PPS system did not adequately reflect the higher cost of caring for patients in teaching hospitals.

Partially in response to warnings of a physician surplus, as well as to address growth in the cost of Medicare GME funding, the Balanced Budget Act of 1997 (BBA) included several provisions related to GME. The most significant provision capped the number of Medicare-funded allopathic and osteopathic residency slots at 1996 levels. This cap has remained in place ever since.

In addition, the Medicare funding formulas for calculating each hospital's GME payments for both DME and IME include as a variable the share of the hospital's patients that are Medicare enrollees. This policy is consistent with the original congressional intent that the Medicare program should pay "to an appropriate extent" for GME costs associated with treating Medicare patients. However, trainees in Medicare-funded programs treat a substantial number of non-Medicare patients and are under no obligation to offer their services to Medicare beneficiaries once they enter practice. Furthermore, while this policy can be viewed as roughly equitable in relation to Medicare's share of total U.S. hospital spending, it also has the effect of placing residency programs in hospitals with few Medicare patients—most notably, children's hospitals and some safety net hospitals—at a distinct disadvantage.

Congress responded to some of those concerns by enacting the Health Research and Quality Act in 1999, which established the Children's Hospital Graduate Medical Education program, under which the Health Research and Services Administration makes DME and IME payments to freestanding children's hospitals with accredited residency programs. However, funding for the program is not mandatory and instead depends on the annual appropriations process. Congress must also reauthorize the program every five years.

GME funding also comes from Medicaid on a voluntary basis. If a state includes GME funding in its budget, the federal government will provide matching funds according to the Federal Medical Assistance Percentage, a formula that is based on state per capita income. In 2014, the federal government covered 50 percent to 69 percent of those costs.<sup>[5]</sup> However, not all states include funding for GME in their Medicaid budgets, and the number of participating states has declined in recent years due to fiscal constraints. In addition, many states are expanding their Medicaid managed-care programs, and the effect this will have on state-level support for GME remains unclear.<sup>[6]</sup>

Medicaid GME funds are mainly distributed through add-ons to payments for inpatient and outpatient services and managed-care capitation rates. However, states have greater flexibility than the federal government in determining the types of providers (physician and non-physician), organizations, and training settings that are eligible for support.

## **Current Financing of GME**

GME funding comes from several sources.

**Government Funding.** The most recent available estimates show that the single largest contributor to government funding of GME in 2012 was Medicare (\$9.7 billion), followed by Medicaid (\$3.9 billion) and the Veterans Administration (\$1.4 billion). The Health Resources and Services Administration also spends \$464 million per year on GME-related programs.<sup>[7]</sup>

As noted, since the adoption of the Medicare hospital prospective payment system in 1983, the program has provided two separate GME funding streams to teaching hospitals:

1. DME funding for a share of the residents' and faculty's salaries, benefits, and related administrative expenses; and
2. IME funding to help to defray the presumed additional costs of providing patient care associated with residency programs. Of the \$9.7 billion Medicare paid to acute care teaching hospitals for GME in 2012, about \$6.8 billion (70.8 percent) was via the IME adjustment and \$2.6 billion was in DME payments (29.2 percent).<sup>[8]</sup>

While Medicare has funded GME since the program's inception, the stability of that funding is increasingly in doubt. Recent reports have proposed significant cuts to GME funding as part of deficit reduction strategies.<sup>[9]</sup> In addition, although the Congressional Budget Office projects a slightly less dire outlook for the Medicare Trust Fund, it still forecasts that the fund will be depleted by 2030.<sup>[10]</sup>

Furthermore, because Medicare accounts for approximately two-thirds of all federal and state government funding of GME, Medicare's payment policies have a substantial, if not disproportionate, effect on the cost and structure of America's entire graduate medical education system.

**Private Funding.** GME is also supported to an unspecified degree by private sources, including hospitals, universities, physician organizations, and faculty practice plans. Private insurers also support GME indirectly when they pay teaching hospitals at rates higher than those paid to other hospitals.

Although private funding of GME is difficult to track precisely, there are indications that it is substantial and has grown significantly over the past 15 years. A key piece of evidence is that the number of residency slots has increased significantly since 1997 despite the BBA cap on the number of Medicare-funded residency positions.

According to a 2013 report by the Rand Corporation, although the total number of residents slowed when the Medicare limits were first put into effect, the number of GME programs and residency slots have steadily increased since the 2002 academic year at a rate similar to the rate before the Medicare residency cap in 1997. Between 2003 and 2013, the number of programs increased by 16 percent, and the number of residency slots grew by 17.5 percent.<sup>[11]</sup>

While support for GME from private payers is assumed to be included in their reimbursements to teaching hospitals for patient care—that is, higher payments for services furnished by teaching hospitals relative to payments for the same services furnished by other hospitals—information on aggregate funding amounts, payment differentials, payment trends, and how the funds are used is entirely opaque. Consequently, it is currently impossible either to definitively assess the equity of public versus private GME funding or to accurately identify any trends in private GME financing.

Indeed, the need for more comprehensive and reliable data on private GME funding has taken on new importance since implementation of the Affordable Care Act (ACA), commonly known as Obamacare. The legislation's expansion of Medicaid and requirement that lower-income exchange enrollees be offered plans with very limited patient cost sharing has resulted in a number of insurers adopting narrower provider networks, which in some cases exclude teaching hospitals. <sup>[12]</sup> While the extent and duration of this phenomenon are still unclear, it would negatively affect private funding of GME if it proves to be a significant and long-term change in private insurer behavior.

### **Problems with the Current System**

On a fundamental level, there are ongoing and reasonable discussions about the policy goal of including GME funding in the original Medicare legislation, whether the current level of funding is appropriate, and whether the government should continue to finance GME. The case has been made that government support of the training of doctors may not be appropriate since the government does not support the training of other professionals, such as architects or engineers. In fact, if Medicare had not been a funder for the past 50 years, current discussions would not likely recommend that the federal government should now assume that role.<sup>[13]</sup> Aside from debates about the proper role of government, the issues in GME funding include not merely those of aggregate size or the division of responsibility among public and private payers, but also the effects of GME payment policies on medical education in general and on the health profession's workforce.

**Geographic Disparities.** Among the effects are wide geographic variations in GME funding that produce significant differences among states in the number of Medicare-funded residents, even after adjusting for differences in population density. For instance, the number of Medicare-funded

residents per 100,000 population is 77 in New York, but only 19 in California, 14 in Florida, and just three in Arkansas. In addition, when viewed on a state-by-state basis, Medicare GME payments do not reflect, for example, recent population growth in the South and West.

Furthermore, the current formula also results in widely different per-resident payments depending on the state. For example, the federal government pays Louisiana teaching institutions \$64,000 per year to train each resident while the per-resident payment in Connecticut is \$155,000.<sup>[14]</sup>

**Workforce Needs.** Another major concern is that the specialty mix of residency positions, particularly those added in recent years, may not match health care workforce needs. For instance, between 1996 and 2011, the number of primary care residents increased 8.4 percent compared with a 10.3 percent increase in residency slots in other pipeline specialties and a 61.1 percent increase in subspecialty residents.<sup>[15]</sup>

In fact, GME funding flows are generally not linked in any way to current or future health care workforce needs. This issue has become even more salient in recent years because the number of Medicare-funded residencies is still subject to the 1997 cap, which was based on an assessment of workforce adequacy that is now nearly two decades out of date. The resulting mix of specialty and subspecialty training slots is the aggregate product of decisions made by the various teaching institutions—each pursuing its own interests—rather than a response to any overarching national or state assessment of workforce needs. Furthermore, so long as Medicare remains the dominant source of government GME funding and continues essentially automatically to pay contingent only on a program being accredited, teaching institutions will lack incentives to adjust their mix of residency slots to meet workforce needs.

**Paucity of Data.** A glaring deficiency in the current GME system is the absolute scarcity of data. Much of the data needed to answer even basic questions, much less to make informed recommendations for the future, remain either uncollected or inaccessible. Undertaking meaningful reforms of GME will require, at a minimum, data on the true costs and benefits of residency programs to their sponsoring organizations, detailed analyses of current funding sources, better assessments of current and future health care workforce needs, and analyses of the trends in health care payments, delivery system structures, and new technologies that are reshaping the health care marketplace in ways that affect GME.

**Lack of Oversight and Planning.** The recent Institute of Medicine report also pointed out the lack of a federal entity with the responsibility to coordinate and oversee all federal GME funding and the corresponding absence of a plan for ensuring that the \$15 billion in annual taxpayer funding for GME is spent in ways that will meet the nation's health care workforce needs.<sup>[16]</sup> The current federal coordination and planning are limited and fragmented and include the following entities:

- The Council on Graduate Medical Education is a federal board established in 1986 to advise the Secretary of Health and Human Services and Congress on relevant GME issues, but it has no supervisory or regulatory authority.
- The Medicare Payment Advisory Commission is an independent advisory commission that provides analysis and advice on all aspects of Medicare spending, including GME funding. Yet GME funding is a relatively minor focus for the commission because it constitutes only about 2 percent of Medicare spending.
- The National Health Care Workforce Commission was created under the ACA to analyze and offer policy advice on the health care workforce, including GME. However, Congress has not appropriated any funding for this new commission, so it remains inactive.
- The Bureau of Health Professions in the Health Resources and Services Administration is also involved in analyzing the health professions workforce, but does not have a direct link to the Centers for Medicare and Medicaid Services (CMS) and has had minimal influence on GME policy.
- The CMS plays a largely passive role in GME governance. Although training programs must be accredited to receive funding from Medicare, the funding is determined by payment formulas and thus essentially operates on autopilot.

Involvement in GME by private-sector organizations focuses on standards and accreditations for GME programs and related board certification of physicians.<sup>[17]</sup> The U.S. GME system trains graduates of American medical schools and U.S. citizens who are international medical graduates, attracts other medical graduates from around the world, and largely produces highly competent physicians. Recently, however, there has been some concern that graduates of American residency programs “often lack sufficient training and experience in care coordination, team-based care, costs of care, cultural competence, and quality improvement.”<sup>[18]</sup> The private entities involved in accreditation and certification have been responsive to these criticisms and have introduced core competencies and other initiatives into the training process to address deficiencies—without the need for direct government oversight or regulation. The principal private organizations in this area are:

- The Accreditation Council for Graduate Medical Education (ACGME), which sets standards for residency education programs “in 140 specialty and subspecialty areas of medicine” and enforces those standards through an accreditation process conducted by its 28 Residency Review Committees;<sup>[19]</sup>
- The American Board of Medical Specialties, which assists the 24 approved medical specialty boards in developing and using standards for the evaluation and certification of physicians;
- The Bureau of Osteopathic Specialists and the Council on Osteopathic Postdoctoral Training—both funded by the American Osteopathic Association—which performs similar functions for Doctors of Osteopathy; and
- The Educational Commission for Foreign Medical Graduates (ECFMG), which oversees international medical graduates in American postgraduate training programs.

While these private organizations perform essential roles in establishing, enforcing, and updating standards for postgraduate medical education, they are not in a position to directly guide either public or private funding of GME, although their standards and decisions indirectly influence funding decisions made by public and private payers.

**Insufficient Accountability.** Given the lack of data, it is not surprising that there is little accountability attached to the substantial government funding of GME programs. Ideally, GME programs should need to demonstrate that they are producing not only physicians with the appropriate level of knowledge and skills to enter practice in their chosen disciplines, but also the proper number and mix of physicians required to meet the nation's health care needs.

With respect to the first part of this two-part test, the positive news is that the private accreditation and certification bodies seem to be doing a good job of training competent physicians and responding to deficiencies when they arise. It is encouraging that educational reform efforts are underway—through initiatives such as the ACGME's Next Accreditation System—to develop outcome measures for GME programs that supplement or even replace the process measures currently used to evaluate programs. This project envisions permitting GME programs sufficient flexibility to innovate in *how* they achieve the desired outcomes.<sup>[20]</sup> If program improvements are linked to funding, they also have the potential to accelerate the overall pace of change in GME training. Moreover, moving to competency-based, rather than time-based, training standards should generally result in better and more efficient GME programs.

Producing the right mix of physicians is the more challenging part of this two-part test. Simply increasing the number of residency positions will not address the issues of specialty and geographic maldistribution.

Without question, medicine has become increasingly sub-specialized in recent years. Between 1999 and 2013, the number of different specialty certificates issued by the American Board of Medical Specialties increased from 84 to 145.<sup>[21]</sup> However, simply discouraging sub-specialization is not the answer because sub-specialization produces true experts who can provide cutting-edge treatments and many important clinical breakthroughs occur in the sub-specialties.

Addressing geographic disparities will require both offering the appropriate number of residency slots to prepare doctors to work in rural and other underserved areas of the country as well as attracting doctors to practice in those areas. Accomplishing the latter will likely entail introducing incentives and identifying candidates before they enter residency training, i.e., during medical school or even earlier.

## **A GME Reform Agenda**

The good news is that many of the necessary GME reforms—particularly those involving program accreditation, curriculum development, and assessment of individual trainees—do not require new legislation or regulations. Private organizations are already undertaking much of what is needed in these areas.

Federal and state lawmakers should instead focus on making the public financing and governance of GME more transparent and accountable. In designing these reforms, lawmakers should be guided by four basic principles:

1. **Government funding should be consolidated.** Any government support for GME should be in the form of a single payment stream, and payments should be based on the combined direct and indirect expenses associated with training programs.
2. **States should manage public funding of GME.** While the vast majority of public funding for GME comes from the federal government, state governments are better positioned to manage public funding of GME more effectively. Because states license and regulate health care professionals and institutions, states are better able to coordinate training standards with licensure and practice standards. States also have stronger incentives to align medical training programs with current and future health profession workforce needs in ways that accommodate their differing geographic and demographic profiles.
3. **Funding should follow the trainee.** The purpose of public GME funding should be to meet the public need for qualified medical professionals, not to meet the parochial revenue needs of teaching institutions. The best way to improve funding accountability is to link all payments directly to the trainees. This would force teaching institutions to be more rigorous and transparent in accounting for the total costs of training residents. It would also spur teaching institutions to compete on the basis of demonstrating value in their programs.
4. **Federal funding should encourage, not supplant, state and private-sector support.** In any area, there is always the risk that public funding will supplant private funding if the program is not properly structured. The long-term goal should be an appropriate realignment of the burden of GME funding across all relevant stakeholders.

## **Reform GME Financing**

The longer-term objective should be to transition to a more stable and balanced funding system that spreads the costs of GME equitably among relevant stakeholders and is less reliant on federal government financing.

The short-term goal of GME financing reform should be to restructure existing government funding to make it more direct and accountable. In particular, continuing Medicare's practice of providing indirect GME payments to sponsoring institutions is not appropriate. Any government funding of GME should be based on the true, total costs of residency programs, and residents should be trained to be more, not less, resourceful in providing care. If it is agreed that some teaching hospitals provide valuable high-cost, low-volume services such as trauma care and burn units, those services should certainly be supported. However, this should be done through an explicit process in which the funds are tracked, not through the current, opaque process.

Government support for GME through Medicare, Medicaid, the Health Resources and Services Administration, and the VA totals approximately \$15.5 billion.<sup>[22]</sup> While this includes some state Medicaid funding, the vast majority is federal spending. Because accurate data on other non-federal government spending and private funding are not available, it is impossible to know either the total amount from all sources or the relative shares contributed by each. However, data on the distribution of spending for medical care by payer type could be a proxy estimate for future recommendations. For instance, according to national health expenditure data, the division of health care spending by payment source is currently about 53 percent private, 29 percent federal government, and 18 percent state and local governments.<sup>[23]</sup>

**Combine Current Federal GME Support into a Single Funding Source.** As the first step, Congress should combine federal GME funding into a single payment program. Initially, Congress should simply maintain total federal funding at its present level for the first several years. This would be both practical and prudent, since a sudden decrease in support would be disruptive and politically untenable. Later, after other reforms have had time to take effect and after gathering better data on the true cost of residency programs, Congress can then adjust the federal GME support with the longer-term goal of bringing it into line with the federal share of national spending on medical care.

**Distribute Current Federal GME Funds to States.** Congress should then structure the new program to apportion federal funding equitably among the states and distribute it according to agreed-upon measures, such as population, resident-to-population ratios, physician-to-population ratios, number of medical school graduates, or projected workforce needs. Congress could allow for future adjustments to the formula as data and experience dictate.

Initial federal funding should be set at the level of the index year and adjusted for inflation going forward. Any additional funding would need to come from sources other than the federal government. For the first two years following implementation, states would be allocated the same amount of funding as they currently receive. This would allow for the establishment of state GME oversight boards, data collection, and other necessary infrastructure groundwork. From year 3 to year 5, allocation to the states would be based on the agreed-upon criteria. To minimize disruption, this should be phased in. For example, in year 3, one-third of federal funding would be tied to the criteria; in year 4, two-thirds; and by year 5, all federal support.

Beginning in year 6, federal support for GME would slowly and gradually be readjusted. Better data are needed to estimate the appropriate level of annual readjustment. For example, if federal funding currently represents 75 percent of GME financing and if it is agreed that the proper federal share should be one-half, federal support could then be transitioned to other sources at a rate of 5 percent per year. This would complete the transition within a decade (and within the budget

window). Maintaining federal funding at current levels indefinitely is inappropriate and unrealistic, and this time line would be less disruptive than what would likely occur if GME financing remains on the table in future deficit reduction debates.

The recent IOM report also discusses shifting GME support away from the federal government. However, the approach described here differs from the IOM recommendation. The IOM proposes diverting a portion of current funding to a GME Transformation Fund to finance demonstrations of innovative GME payment methods and other interventions to produce a physician workforce “in sync with local, regional, and national health needs.”<sup>[24]</sup> The Transformation Fund would receive 10 percent of GME funding initially, increasing to 30 percent, and then falling back to 10 percent over a 10-year period. The idea is that providing financial support for demonstrations and pilots would produce enough viable models to allow for a substantial reduction in government GME support. However, the grant application, approval, and demonstration process is long and arduous; the results would likely be uneven at best; and maintaining current funding levels is unlikely to provide enough incentive for change.

State control of the funds is important because this would give them greater leverage in developing alternative financing, and states are in a better position to make the case for why hospitals, faculty practices, and private funders at the state and local level should support GME.

**States Should Focus Their Programs and Policies on Meeting Workforce Needs.** The strongest rationale for GME reform is the need for a workforce of medical professionals that better aligns with the changing demographic and epidemiological profiles of America’s patient population in number and distribution by geography and specialty.

Reforming federal GME funding and distributing those funds to the states are just the first steps. The ultimate purpose of these changes is to create the necessary preconditions for state lawmakers to align medical training with state and local workforce needs.

As noted, because states license and regulate health care professionals and institutions, they are better positioned to coordinate training standards with licensure and practice standards. In addition, there is a well-known geographic correlation between where physicians train and where they subsequently practice. According to AAMC data, in 2012, states retained nearly half of the physicians (47.4 percent) that graduated from their residency programs, and even more (66.6 percent) of those who completed both undergraduate and graduate medical education in a state, went on to practice in that same state.<sup>[25]</sup>

While availability and location of training are important, they are not the only factors. Despite widespread concern that there are not enough primary care physicians, many primary care residency programs have had difficulty filling their slots with qualified candidates.<sup>[26]</sup>

Of course, differences in reimbursement rates have a major effect on physicians' decisions on both specialization and practice location. A physician's personal preference for different types of practice settings can be another key determinant. Quality-of-life considerations influence the location decisions of medical professionals just as much as those of prospective employees and business owners in any other economic sector. These are all issues that states are better positioned to address, and the inherent differences among the states will likely lead to a variety of solutions.

Indeed, a number of states have already developed innovative ways of financing GME and linking the funding to outcomes, such as in-state retention and the proportion of residents who practice in a needed specialty.<sup>[27]</sup> For example, while Medicare GME subsidies are limited to physicians, dentists, and podiatrists, states may use Medicaid funds to train other clinicians. In 2012, 12 states used Medicaid funds to support training of other health care professionals, including advanced-practice nurses, physician assistants, emergency medical technicians, chiropractors, dentists, pharmacists, and laboratory personnel.<sup>[28]</sup> However, Medicaid funding represents only a small fraction of GME funding, and some states have reduced or eliminated GME from their Medicaid budgets. States have limited resources and leverage to support these initiatives. That will change once states control a larger pool of funds.

In addition, the state is the level where important workforce issues, such as licensing and scope of practice, are decided. However, where training programs are affiliated with state universities and their medical schools, appropriate safeguards may be needed to ensure that funding flows equitably to both public and private institutions.

**States Should Ensure that the Money Follows the Trainee.** A number of states—including Arizona, Florida, Michigan, Pennsylvania, and Texas—have attempted to address projected workforce shortages by making substantial investments in undergraduate medical education. In the past decade, the number of medical colleges (both allopathic and osteopathic) and the size of medical school classes have increased markedly.<sup>[29]</sup> However, these efforts fail to recognize that increasing UME capacity will not address workforce issues without the appropriate number and mix of residency training positions. Identifying additional funding sources for GME will also not solve the problem if the funds continue to flow to training institutions with no link to desired outcomes.

Training institutions tend to make decisions about which specialty training programs to sponsor according to their own institutional needs, such as expanding service lines that generate revenue, not according to community workforce needs.<sup>[30]</sup> The national scope of the graduate medical education marketplace is an additional factor that contributes to the geographic and specialty maldistribution of the health care workforce. Training programs recruit residents from a national pool of applicants, and their graduates practice throughout the country.

Instead of paying the training institution, the flow of money should follow the trainee. This will allow for a simpler, more transparent tracking of both the true costs for each trainee and, importantly, how the money is spent—data that are not currently available.

While applicants would still be free to apply for the residency position that best fits their career interests, states could give priority to applicants who are most likely to meet their workforce needs. For instance, a state might award priority points to candidates based on whether they reside in the state, graduated from an in-state medical school, are applying to a residency program in the state, or are pursuing training in a specialty for which the state has identified a critical need. Some states may find that they will need to recruit more out-of-state applicants to meet their workforce aims.

Once funding is linked to trainees, states will likely find that they can meet most of their workforce needs for specialties—such as adult primary care, general surgery, and psychiatry—from in-state applicants and accommodate them by placing programs and rotations in a variety of venues throughout the state. That would also promote more training in non-hospital and rural settings. On the other hand, candidates applying for residency positions in highly specialized fields may need to go out of state to receive that training since certain fields—such as neurosurgery, cardiac surgery, and pediatric subspecialties—require large patient volumes that are only available at tertiary referral hospitals in metropolitan areas, and national recruitment for these specialties is generally needed. If the funds follow the trainee, states can also add incentives—such as student loan repayment or differential per-resident amounts, including salary increases or living expenses—to trainees who agree to practice in shortage specialties or rural locations.

### **Establish Oversight and Governance**

Given the current financing arrangement in which federal funds go directly to teaching institutions with no accountability for meeting workforce needs, it is not surprising that most states do not have an entity that collects relevant data or informs decisions on the number, location, or specialty of residency positions. A key priority of GME reform should be to establish independent state entities (GME oversight boards) to collect relevant data on GME development and to make financial, structural, and, where indicated, regulatory recommendations on GME policy. A federal administrative entity would also be needed to analyze data submitted by the states and to allocate funding.

**Data.** A primary function of the state GME oversight boards would be to collect accurate and regularly updated data on ongoing workforce needs, training costs, changes in the medical marketplace, and health care reform, such as payment and delivery policies that impact GME. States are in a better position than the federal government to produce up-to-date information on their health care workforce and to identify specialty and geographic shortages to aid in GME funding decisions.

The boards should also function as coordinating bodies throughout the continuum of medical education from pre-medical through UME, residency training, and practice placement. The boards—whose membership should include representatives from medical schools, training programs, public and private insurers, patient and trainee organizations, and other GME stakeholders—could also be a resource for state-level policymakers on GME-related issues.

**State-Level Oversight.** In most states, teaching entities make important decisions regarding GME, and those decisions reflect institutional needs, not state workforce needs. However, a few notable exceptions can serve as examples once states have greater control over the flow of GME funding.

Georgia has two statutory entities that influence state appropriations for GME. The GME Regents Evaluation and Assessment Team (GREAT), a subcommittee of the Georgia Board of Regents, determines which hospitals will receive start-up funding for training programs and has oversight responsibility for those funds. A second state agency, the Georgia Board for Physician Workforce (GBPW), founded in 1976, is a legislated board that conducts workforce studies of the state physician and physician assistant workforce. In addition, it tracks placement of graduates from medical schools and residency training programs, provides a job-matching service for physicians, administers a medical school scholarship program, and administers loan repayment programs for practicing physicians.<sup>[31]</sup>

The Utah Medical Education Council (UMEC), created in 1997 by the state legislature, conducts surveys to ascertain the number and mix of providers (e.g., physicians, advanced practice nurses, physician assistants, dentists, pharmacists, and podiatrists) and project the demand for and supply of these providers over the next two decades. These data are then used to influence GME financing policies at the state level.<sup>[32]</sup> Other states—including Idaho, Montana, New Jersey, New York, North Carolina, and Texas—have either established GME oversight entities or enacted policies with varying levels of influence over GME decisions.

In addition to the state-level GME boards, a federal entity would be needed to analyze the information provided by the states and administer the funds. Since the allocation of funds will be based on agreed-upon criteria, this entity should not require substantial financial support.

### **Increase Accountability**

Programs should demonstrate the value of training. Training programs need to be accountable to state GME oversight boards for the value of the training they provide in order to qualify and compete for funding. Making funding for GME contingent on meeting quality metrics is necessary if GME goals are to be achieved. However, given the current lack of meaningful quality measures for GME, as well as the less than successful early experience with pay-for-performance initiatives, it will be challenging to make this approach more successful when applied to GME.

One suggestion has been to link funding to the quality of care provided by graduates of residency programs.<sup>[33]</sup> However, measuring the performance of graduates would be exceedingly difficult, and it seems inappropriate to hold programs accountable for the performance of physicians once they have entered practice and are no longer under the program's influence. Another option is to track the placement of training program graduates according to where and in what specialty they practice in order to evaluate how well the program is meeting workforce needs. Although most training programs and their sponsors do not track these data, the VA and the Children's Hospitals GME programs are notable exceptions, suggesting that this is a viable approach.<sup>[34]</sup>

In spite of the current difficulties in assessing training program performance, with appropriate input from relevant stakeholders, meaningful measures can and should be developed. This process should be transparent and overseen by the state GME boards. Information on program performance and educational innovation initiatives should be available and used to compete for funding as well as to attract the best and brightest prospective trainees. Existing programs as well as program applicants should be assessed according to the measures.

Dr. David Goodman, director of the Dartmouth Institute for Health Policy and Clinical Practice, has outlined a proposed mechanism, based on the National Institutes of Health's competitive peer-review process that could be used to introduce competition for GME funding. In such a system, funding requests could be scored for performance measures such as training in evidence-based medicine, shared patient decision making, chronic illness management, efficient delivery, and care provided in an underserved area. Money could also be allocated to support primary care or other high-priority specialties.<sup>[35]</sup>

Program accreditation, curriculum development, assessment of individual trainee competencies, and requirements for certification should remain the exclusive purview of the accrediting and certifying bodies. However, this should be a transparent process with the goal of making training better and more efficient, i.e., improving the value of GME.

### **GME Transformation in the Context of Payment and Delivery Reform**

When restructuring GME to meet health care workforce needs, it is important to realize that recent analyses likely overestimate the need significantly. For example, reports from the American Association of Medical Colleges (AAMC) and others in the past several years predicted a physician shortage of at least 63,000 by 2015 and 130,000 by 2025, evenly divided between primary care providers and specialists.<sup>[36]</sup>

However, basing future needs on past provider-to-patient ratios and the current payment and delivery environment may vastly overstate the projected shortage, at least in the nation's primary care physician workforce. Expanded roles for physician assistants and advanced practice registered nurses, use of electronic communication and telemedicine to reduce the need for face-to-face visits, and other health care delivery innovations could help to meet the demand. According to an

analysis published in *Health Affairs* in 2013, “most if not all of the projected primary care physician shortage could be eliminated” by working in practices of two or three doctors, shifting as little as 20 percent of patients to a non-physician provider, and using an Electronic Health Record.[37] Planning for the future of GME should take into account the potential impact of these changes in health care delivery.

Decisions about how to structure the future GME system to produce the right number and mix of physicians to meet future needs must be flexible enough to implement these rapid changes, while considering fundamental reforms of Medicare and the overall health care system.

## **Conclusion**

Without well-trained, highly competent doctors, there would be no health care system. However, the current system of GME financing, oversight, and accountability needs to change.

Combining current GME funding into a single pool, allocating the money to the states rather than directly to teaching institutions, and allowing the money to follow individual trainees would promote the development of a system of training programs that will achieve regional, state, and local GME goals. Transitioning to an equitable, stable financing structure in which the burden of support is spread among relevant stakeholders should be a long-term goal.

One of the main deficiencies in the current system is the absolute paucity of necessary data. State GME oversight boards could collect and disseminate accurate data relevant to GME and the health care workforce and could coordinate the administration of GME among programs, teaching institutions, funders, trainees, and other relevant stakeholders. State GME boards could also assist doctors and other health care providers throughout the undergraduate, postgraduate, and practice phases of their careers and support better informed GME policy decisions.

Finally, reforming GME in the context of ongoing reforms to Medicare and the broader health care system, including the rapid changes in payment and delivery reform, would promote a Graduate Medical Education system capable of producing the proper number and mix of the world’s most competent doctors in the most efficient way, in a patient-centered, high-quality, fiscally sustainable health care system in which those doctors can heal, teach, and discover.

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