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TRENDWATCH

TEACHING HOSPITALS' IMPACT IN A
TRANSFORMING HEALTH CARE LANDSCAPE



Advancing Health in America

TRENDWATCH:

Teaching Hospitals' Impact in a Transforming Health Care Landscape

Introduction

Teaching hospitals train our physician workforce, a role that has taken on increased significance due to an aging population and predictions of a physician shortage. A well-trained physician workforce is essential for providing access to high-quality, high-value health care. The federal government has long recognized its role in supporting the physician workforce across the country and since Medicare's inception, Medicare graduate medical education (GME) funding has been a significant element in building and maintaining the physician workforce.¹ Teaching hospitals drive innovation in health care and

provide cutting-edge care to a diverse patient base, including vulnerable populations. Yet GME funding remains threatened.

Teaching hospitals follow a tripartite mission of clinical care, education and research. The three components are tightly interwoven through the organizations and, together, are imbedded into the fabric of teaching hospitals.² Clinical care is the primary focus of teaching hospitals and is bolstered by education and research.

In 2015, the American Hospital Association (AHA) published a *TrendWatch* report that provided background on GME and identified several key issues faced by

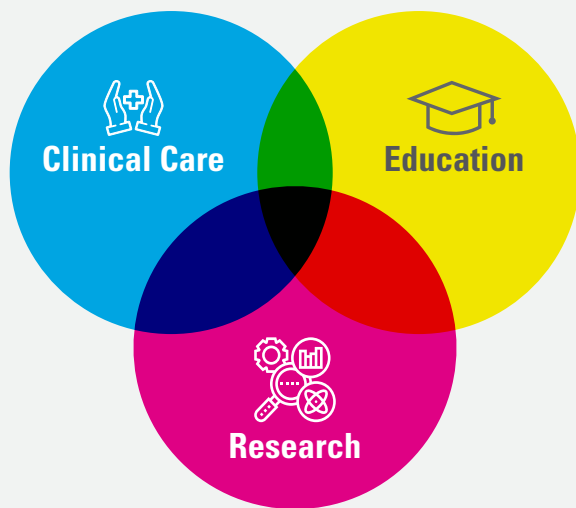
Federal Support is a Vital Component of Medical Education

Graduate Medical Education (GME). GME refers to any type of formal medical education, usually hospital-sponsored or hospital-based training, pursued after receipt of a medical degree. GME includes internship, residency, subspecialty and fellowship programs leading to state licensure and board certification. The federal government makes significant investments in GME funding. Funding for GME is primarily provided by Medicare with additional financial support from Medicaid, Health Resource & Service Administration (HRSA), the Department of Defense, the Department of Veterans Affairs (VA), and private funding.

Direct Graduate Medical Education (DGME). Medicare payments for direct costs of GME, such as resident stipends, supervisory physician salaries and administrative costs, are called DGME payments. DGME payments are sometimes referred to as "pass-through" payments in that they are not an adjustment to a Medicare reimbursement for an individual hospital discharge. Rather, Medicare DGME is an aggregate payment for Medicare's share of direct costs determined by a statutory formula.

DGME payments are calculated by multiplying the per resident amount (PRA) times the rolling weighted average of full-time equivalent (FTE) residents working in all areas of the hospital (and non-hospital sites, when applicable), and the hospital's Medicare "patient load," which represents the program's share of total inpatient days. The PRA is calculated by dividing a hospital's allowable costs of GME for a base period by its number of residents in the base period; it is updated each year. The FTE count is subject to the Medicare GME cap.

Indirect Medical Education (IME). Medicare payments for indirect GME costs are called IME payments. IME payments are intended to cover the higher costs of delivering health care services in teaching hospitals, such as costs associated with additional testing. IME payments are add-ons to both the operating and capital portions of the Medicare Inpatient Prospective Payment System per-discharge payment. The IME operating adjustment is calculated using a statutory formula, primarily based on the hospital's intern and resident-to-bed (IRB) ratio. Currently, the formula provides a 5.5% increase in IME payment for every 10% increase in the IRB. The IME capital adjustment is determined based on a residents-to-average daily census (RADC) ratio, utilizing a formula developed by Centers for Medicare & Medicaid Services. Both the IRB and RADC are subject to the Medicare GME cap.

Figure 1: Teaching Hospitals' 3-part Mission

Source: American Hospital Association 2020.

teaching hospitals in training the physician workforce: residency caps that limit funding for training programs; a shortage of residents pursuing primary care specialties; and a growing patient pool due to the newly insured and aging of the population.³ As these issues remain relevant today and new issues have emerged, including new challenges brought on by the COVID-19 pandemic, this paper serves as an update on GME and advances the policy discussion around teaching hospitals.

National Snapshot of GME Programs

In 2018, America's hospitals and health systems treated 143 million people in emergency departments, provided 623 million outpatient visits, performed more than 28 million surgeries and delivered nearly 4 million babies. Teaching hospitals are a key component of caring for patients that often have complex medical needs or comorbidities.⁴ Also providing substantial advanced care, U.S. teaching hospitals:⁵

- Operate 108 burn units
- Staff 578 neonatal ICU units
- Provide trauma services for 608 centers

A recent study from the Association of American Medical Colleges (AAMC) projects a national shortage of 122,000 physicians by 2032, including shortages of primary care physicians and specialists. In addition to primary care, estimated shortages affect a number of specialty and subspecialty areas, including surgical, behavioral

health, medical, and pediatric specialties (e.g., child and adolescent psychiatry, pediatric neurology) as well as many other specialties.⁶ The physician workforce must grow to meet these needs.

Teaching hospitals are the nexus of research, education and clinical care for the American health care system.⁷ The nation's future health care workforce depends on teaching hospitals to train physicians as health care in the U.S. transforms. Teaching hospitals and spending on physician training are generally concentrated in urban settings, although 87 rural hospitals had medical residents in 2018.^{8,9} There are more than 11,700 accredited residency and fellowship programs in 181 specialties and subspecialties and the number is growing each year. Approximately 140,500 active residents and fellows provide care in the United States, and 1 out of every 7 active physicians in the country is a resident or fellow.¹⁰ The specialties with the greatest percentage increase of programs added over the past five years are psychiatry, internal medicine, family medicine and emergency medicine.¹¹

Funding for residency and fellowship programs comes primarily from Medicare and state Medicaid agencies, which together spend more than \$16 billion annually on GME. In 2015, the most recent year for which comprehensive data were available, the federal government spent \$14.5 billion (through five separate programs, described in detail below), and state Medicaid agencies spent \$1.8 billion.¹² In 2015, Medicare made \$3.7 billion in Direct GME (DGME) payments to teaching hospitals, supporting 85,712 full-time equivalents (FTEs).¹³ The same year, Medicare paid \$7.4 billion in Indirect Medical Education (IME) payments to teaching hospitals, supporting 85,578 FTEs. Total mandatory federal spending for hospital-based Medicare and Medicaid GME is projected to grow at an average annual rate of 5.5% from 2020 through 2028 (about 3 percentage points faster than the average annual growth rate of the consumer price index for all urban consumers, or CPI-U).¹⁴

Teaching Hospitals and the Physician Workforce

GME Accreditation of Teaching Hospitals

The Accreditation Council for Graduate Medical Education (ACGME) sets and monitors the professional educational standards for teaching hospitals.¹⁵ The current model

Teaching Hospitals and the Coronavirus Pandemic

The SARS-CoV-2 pandemic upended the health care system in early 2020. The pandemic left all hospitals under unprecedented financial and workforce pressures and brought about both temporary and likely lasting changes to teaching hospitals and their GME programs.

Teaching hospitals, located in many of the infection hotspots, were among the first to treat patients and continued to handle a high volume of the most severe cases in the fall of 2020. Teaching hospitals made enormous contributions to COVID-19 screening and treatment research. For example, some health systems developed their own COVID-19 tests before widespread molecular testing was available.¹⁶ Many academic medical centers have been testing new approaches to COVID-19 treatment, including research around the use and efficacy of remdesivir.¹⁷ These contributions will improve our nation's ability to respond to the COVID-19 epidemic.

In addition to caring for patients, teaching hospitals responded proactively to the threat to their workforce resulting from limited knowledge of the transmission of a novel virus compounded by shortages of personal protective equipment.

To address shortages in providers caring for COVID-19 patients, the federal government eased certain GME requirements making it possible for residents to join the all-hands-on-deck response to COVID-19.¹⁸ Residents and fellows were quick to set aside their studies and practice to assist in COVID-19 hotspots, and the Accreditation Council for Graduate Medical Education (ACGME) supported these efforts by allowing hospitals to self-declare Pandemic Emergency Status, under which medical education is reorganized to focus on patient care and most training requirements are waived.¹⁹

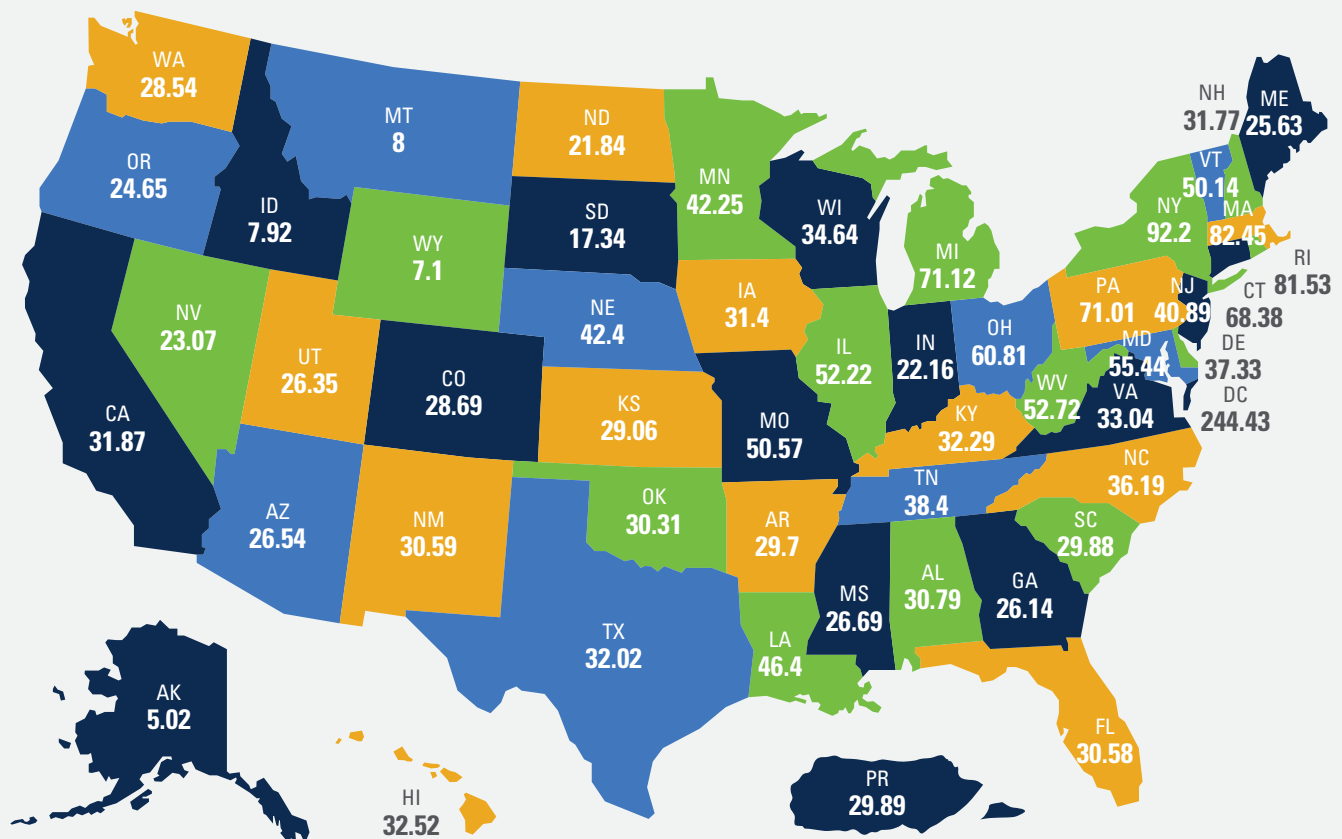
Beyond the deviation from training in a chosen specialty, residents and fellows in many specialties experienced fewer clinical opportunities overall because non-urgent procedures were cancelled or postponed, in part due to patients' trepidation to enter hospitals. At the same time, to protect residents and fellows from the virus, many medical schools and hospitals cancelled clinical clerkships and medical conferences and pulled most third- and fourth-year medical students from clinical environments.²⁰

The result has been a double-edged sword. While the long-term effects of the pandemic on teaching hospitals are uncertain, the pandemic has been profoundly destabilizing to hospital caseloads and finances. The AHA projected that all hospitals will experience more than \$300 billion in losses in 2020.²¹ Teaching hospitals continue to weather the financial impacts. As states have pushed to reopen and return to more normal function, hospitals must prepare for continued spikes in infections and the likelihood that increases in infection rates will prolong their financial and workforce challenges. Some have raised concern that the pandemic will result in a cut in the number of Medicare-funded training slots, given the large number of residents and now-fewer cases per resident. The reduction in specialty-specific education also has created concern about whether residents will be able to demonstrate competence in some procedures within the typical residency timeframe.

At the same time, teaching hospitals have provided residents valuable experience that many believe will lead to a physician workforce well-suited to the future of health care. Medical schools have leveraged technology to implement virtual and hybrid learning environments, resulting in new advanced simulation and collaboration resources. Residents can now interact remotely with patients online as faculty observe and provide feedback.²²

Decreased service volume led to an increased opportunity for attending physicians to teach during the procedure. And CMS is providing flexibility in resident supervision: While, historically, residents performing duties in their homes, or in the patient's home, cannot be counted as a resident for purposes of DGME and IME, CMS is now allowing physicians to supervise residents via telehealth.²³ To prevent hospitals from being unjustly penalized for increasing bed capacity during the pandemic, CMS is also providing flexibility in its IME calculations by using the pre-pandemic number of beds when calculating the resident to bed ratio.²⁴

Figure 2: Medical Residents Per 100,000 Population, by State



Source: Accreditation Council for Graduate Medical Education (2019). Data Resource Book, Academic Year 2018-2019. Available at www.acgme.org/About-Us/Publications-and-Resources/Graduate-Medical-Education-Data-Resource-Book.

of accreditation has shifted emphasis away from the traditional “time served” and compliance with minimum standards. In contrast, the new model, competency-based medical education (CBME), involves “competency-based assessment” facilitated by monitoring and evaluating real-time data that tracks residents’ and fellows’ education and achievements.²⁵ CBME can be characterized as having two distinct features: a focus on specific domains of competence, and a relative independence of time in training, making it an individualized approach that is particularly applicable in workplace training.²⁶

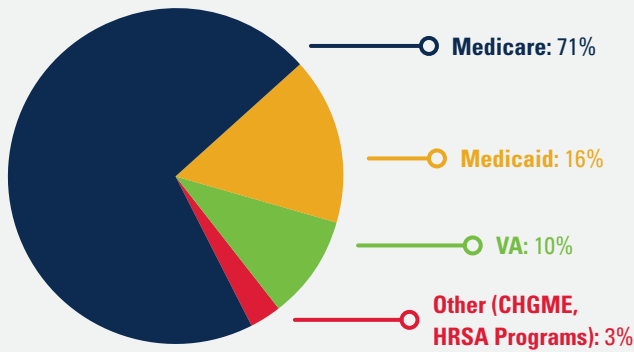
Residency training in some specialties may require more resources than in others, and accreditation requirements are one factor driving this variation. For example, compared to internal medicine programs, accreditation standards for family medicine programs require more faculty involvement and higher faculty-to-resident ratios. Therefore, some residency programs may incur higher per resident costs.²⁷

In 2015, ACGME assembled the 2025 Task Force. The Task Force is charged with better understanding teaching hospitals, to guide sponsoring institutions toward accreditation standards that are meaningful in today’s environment, and to assure quality and safety of care through various sets of requirements and related, high-stakes evaluations. The task force aims to change the future of GME with consideration of the patient care accreditation subject to regulatory oversight.

Financial Pressures

Teaching hospital margins have been decreasing for years, as they have been challenged to balance their traditional role serving as their community’s safety net against financial pressures that threaten the breadth and depth of the training program.²⁸ This pressure has been exacerbated by the COVID-19 pandemic, which has been destabilizing for hospital caseloads and finances (for more information, see “Teaching Hospitals and the Coronavirus Pandemic” box, above). Facing insufficient funding,

Figure 3: Federal Funding for GME Programs



Note: Some GME funding is specific to non-hospital settings, such as the Teaching Health Center Graduate Medical Education (THCGME) Program. See, e.g., bhwh.hrsa.gov/grants/medicine/thcgme.
Source: U.S. Government Accountability Office, "Physician Workforce: HHS Needs Better Information to Comprehensively Evaluate Graduate Medical Education Funding." GAO-18-240, March, 2018.

teaching hospitals experienced a Medicare margin of -9.6% in 2018, a -8.8% change (from -0.8%), just since 2010.^{29*}

In addition, some teaching hospitals find it increasingly difficult to fill residency and fellowship positions for lower-paying specialties, especially as medical students enter residency with significant educational debt. For example, one hospital interviewed for this report is only able to fill half of its pediatric endocrinology slots due to the comparatively low pay for physicians practicing in pediatric specialties.

Payer Mix

GME is funded from mandatory and discretionary sources. Mandatory government funding for GME programs does not require annual authorization and comes from Medicare GME payments, Medicaid GME payments and HRSA programs. Discretionary funding requires annual authorization and appropriation and is provided by the VA GME payments, Children’s Health GME (CHGME) and DOD GME payments.

Medicaid GME. Medicaid continues to be a major source of funding for GME. In the Medicaid program, GME payments are supplemental payments and states are allowed, but not required, to make Medicaid payments for GME. Each state determines its own level of Medicaid payments for GME and how those payments will be made. In 2018, the overall level of support for GME grew

*For hospitals with a ratio of interns and residents to beds of at least 0.25.

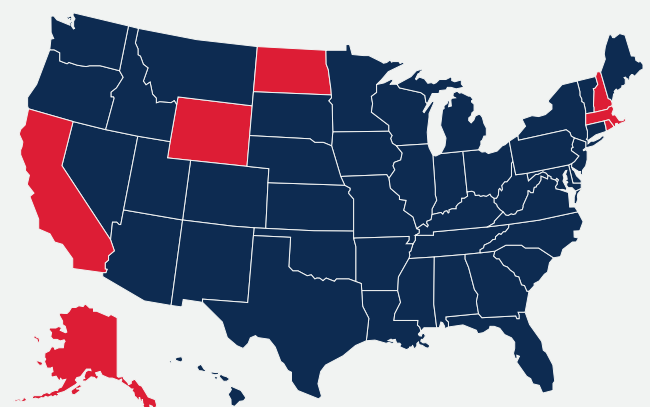
to \$5.58 billion. Forty-three states, including the District of Columbia, made GME payments under their Medicaid program in 2018. However, four states reduced their 2018 GME payments to 2015 levels – a cut of more than 15%. Moreover, two states reported in 2018 that they had recently considered ending Medicaid GME payments.³⁰

HRSA Programs. The CHGME program provides direct financial support to children’s hospitals to train medical residents and fellows. It is administered by HRSA and is authorized in Section 340E of the Public Health Service Act (PHSA). CHGME receives annual discretionary appropriations, and its funding has increased since reauthorization in 2018. Congress extended the program’s appropriations until fiscal year 2023 and increased the amount authorized to \$325 million.

HRSA’s program data indicate that CHGME plays a significant role in training nearly half of the pediatric physician workforce. More than 7,100 medical residents and fellows in the 2015-2016 academic year (the last year of final data available) received financial support from CHGME.³¹ Among those supported, 41% were pediatric residents, 33% were pediatric subspecialty residents or fellows, and 26% were residents training in other primary disciplines (e.g., family medicine).³²

In 2019, HRSA also announced a new \$20 million rural residency program.³³ Recipients across 21 states will receive up to \$750,000 to develop new rural residency programs while achieving accreditation through the Accreditation Council for Graduate Medical Education.³⁴

Figure 4: State Medicaid GME Programs



■ States With Medicaid GME ■ States Without Medicaid GME
Source: Association of American Medical Colleges, "Medicaid Graduate Medical Education Payments: Results From the 2018 50-State Survey." July, 2019.

Department of Defense (DOD). DOD uses GME programs to recruit and retain military physicians by providing specialized medical training through physician residencies and fellowships in exchange for active duty service obligations. In 2018, there were 3,189 residents and fellows enrolled in DOD GME programs, training in 70 specialties at military facilities.³⁵

Department of Veterans Affairs (VA). The VA enters into affiliations with medical schools and teaching hospitals to train physicians.³⁶ In 2014, Congress expanded the VA's medical training by requiring the VA to fund an additional 1,500 GME-funded positions. Congress extended the implementation period from five to 10 years (through 2024) because of difficulty in expanding GME in rural areas. This is due to a dearth of partnership options, infrastructure funding difficulties, and a lack of incentives for residents to train in rural and underserved areas.³⁷ The VA's physician training programs are focused primarily on patient care and education, with less focus on research.³⁸

Many teaching hospitals fund additional residency positions beyond those financially supported by the government. Hospitals interviewed for this report stated that their residency programs are self-funded, in some cases up to one-third, with funding coming from the hospital, philanthropy and even the physicians themselves. One example of philanthropic funding is the psychiatric residency program in Billings, Mont., established with grant money from the Helmsley Trust. It is the first psychiatric residency program in Montana, one of the few states that did not have such a program despite having one of the highest suicide rates in the country.³⁹

Impact of Residency Caps

Teaching hospitals are limited by the cap on Medicare support for GME imposed by the Balanced Budget Act of 1997. Specifically, the FTE count that is used to calculate a hospital's DGME and IME payments is capped at the number of allopathic and osteopathic FTE residents the hospital had in training in 1996. For rural teaching hospitals, the cap is set at 130% of the 1996 FTE count. Thus, teaching hospitals' Medicare-funded training positions have been frozen for nearly 25 years.

A new teaching hospital has five years to establish its Medicare GME funding cap. The cap is set at the number of residents at the organization five years after the first resident begins to work there.⁴⁰ (42 CFR 413.79(e) describes in more detail the process by which a hospital

with a new program can build its FTE resident cap.) However, many newer teaching hospitals have expressed concerns that the five-year window is insufficient for building a residency cap that is meaningful. For example, patient needs may shift as programs are being developed, and some residency programs require more than five years of training. Extending the cap-building timeframe would allow a new teaching hospital adequate time to complete training while funded, and assess and address the clinical needs of the community.

In 2018, a record 19,553 students graduated from medical school, an 18% increase from 2009. Subsequently, there was a rise in graduates applying for residency positions in 2019 – 38,300 compared with 33,167 in 2018. But due to limitations in the number of available posts, more than 3,100 applicants were left without a residency slot in 2019.⁴¹ Moreover, as caps have not responded to population shifts over time, the number of funded slots available may not align with community need.

Caps on federally funded residency positions have caused some graduates to seek positions out of state. For example, one hospital reported that residency candidates are forced to go out of state at a great loss to the community because there are not enough residency slots for their students. The hospital also reported that more than two-thirds of residents that leave do not return to the state where they attended medical school to practice medicine.

Federally imposed caps on Medicare-funded GME residency slots also force hospitals to make decisions on whether to self-fund residency positions. Hospitals recognize their responsibility to train physicians and often choose to fund additional slots. However, self-funding is not sustainable in the long run and policymakers must recognize the need to financially support the next generation of physicians.

Residency caps also affect the way teaching hospitals distribute their specialties and subspecialties.⁴² These limitations may contribute to a historical imbalance between primary care providers and specialists, as well as stifle growth in certain specialty and subspecialty programs in which there are clear needs.⁴³ Most hospitals face cost and financial pressures. In light of these pressures, caps on residency slots create difficult decisions for hospitals and health systems. Generally, hospitals have increased slots among specialties and

subspecialties that impose lower cost burden, or generate more revenue. Taking into account the widespread health professional shortage areas across the country, particularly for primary care, lifting the caps on Medicare GME-funded residency slots is a crucial step in improving health care access. The AHA strongly supports lifting the Medicare GME cap, and has long supported legislation that would increase the number of Medicare GME-funded residency slots. Increasing Medicare-funded residency slots would provide hospitals more flexibility to diversify and maintain more training programs, including both primary care and higher-cost residencies. For health systems, an increase in GME cap slots would also allow for bringing residents to smaller facilities, including those in rural areas, which may not be able to operate their own training programs. Overall, additional slots would enhance access to care and enable hospitals to better meet needs of the community.

Section 5506 of the Affordable Care Act (ACA) provided some relief by authorizing the resident cap redistribution program for closed teaching hospitals. Under this program, the ACA directs CMS to first distribute the slots to hospitals within the same or a contiguous core-based statistical area (CBSA) as the closed hospital, then, in this order: to hospitals located in the same state, hospitals located in the same general region and, finally, to all other hospitals.⁴⁴ More information on redistributing residency slots from closed teaching hospitals may be found in CMS' fact sheet, which describes the process for the temporary movement of residents immediately following closure as well as the permanent redistribution.⁴⁵ The ACA also allowed for redistribution of unused residency slots.

CMS also permits hospitals that share residents to elect to form a Medicare GME affiliated group if they are in the same or contiguous urban or rural areas, are under common ownership, or are jointly listed as program sponsors or major participating institutions in the same program by the accrediting agency. Medicare GME affiliated groups provide flexibility to hospitals in structuring rotations under an aggregate FTE resident cap when they share residents.⁴⁶

Burnout

As reported in a 2020 AHA *TrendWatch* on the health care workforce, between 35% and 54% of U.S. physicians have symptoms of burnout as a result of an imbalance between the demands of a clinician's job and the resources available to perform their duties effectively.^{47,48}

Residents at teaching hospitals are particularly susceptible to burnout. As described by one hospital, residency is hard and occurs at a stressful stage in life for many residents (new independence, new profession, starting a family, etc.). According to a recent study, the pressures of the medical profession resulted in 45% of second-year residents reported having at least one symptom of burnout. Resident physicians in urology, neurology, ophthalmology, general surgery and emergency medicine specialties reported the highest prevalence of burnout, while dermatology, pathology, radiology and family medicine residents had the lowest prevalence.⁴⁹ Residents maintain heavy workloads in normal circumstances, and now residents in COVID-19 hotspots are facing even longer hours and additional risks for the same pay.^{50,51} To reduce the risk of burnout, hospitals are implementing wellness strategies such as counseling and massage. Other teaching hospitals operate focus groups with chief residents to steer residents toward a good work-life balance.



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Teaching hospitals must think critically about issues caused by structural racism, which has resulted in inequitable care.
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Increased use of health information technology, such as telehealth, may also reduce burnout. Telehealth in medical education can provide support for residents through interactive small groups, interaction with other practitioners and clinical case discussions. One teaching hospital interviewed for this report uses telepsychology and telegenetic counseling to avoid the time residents would otherwise experience driving through congested urban areas to provide care to outlying areas.

Diversity and Inclusion

According to the AHA's Institute for Diversity and Health Equity, as of 2015, hospitals had increased diversity in

first- and mid-level management positions to 19% but that Black, Indigenous and people of color represented 32% of patients.^{52,53} Representation of women and people of color remains especially low in certain specialties, including surgery, where women represent less than 25% of residents and fellows, African American and Latinx residents each represent less than 4% of surgical residents and fellows.⁵⁴

Traditionally, residency programs implemented diversity efforts in parallel to the core institutional processes, rather than incorporating diversity efforts into the core institutional processes. However, researchers agree that to provide effective care to a diverse population, the institution must incorporate diversity directly into its core operations, just as hospitals have now incorporated technology as necessary to organizational success.⁵⁵

The quality of health care is greatly enhanced and health inequities are diminished when the workforce is representative of the populations they serve. One way to increase representation is to engage with undergraduate and post-baccalaureate programs as a means for increasing women, Black, Indigenous, people of color and disadvantaged students' acceptance to medical schools.⁵⁶ Teaching hospitals can offer pipeline programs, such as community college pathways given their higher proportion of minority and low-income matriculants.⁵⁷

Patient and Community Impact

Access to Care: Teaching Hospitals and Their Communities

Teaching hospitals provide advanced, technologically intensive and experimental clinical services that are seldom available elsewhere. Through their residency and fellowship programs, teaching hospitals stand apart in their ability to offer some of the most specialized and technical procedures.

For instance, organ transplants are only performed at teaching hospitals. And because teaching hospitals



Teaching hospitals are the only option for 'one and only' conditions.



University of Washington

University of Washington School of Medicine's WWAMI residency program is named after the states it serves (Wyoming, Washington, Montana and Idaho) – reaches rural and underserved communities throughout the Pacific-Northwest. For example, its Target Rural Underserved Track (TRUST) places residents in rural areas in the WWAMI states to help meet the workforce needs of a region that has 28% of the United States' land mass but under 5% of its population. TRUST has brought internal medicine, family medicine, pediatrics and psychiatry residencies to the partner states, with the majority of residents remaining in the rural communities post-residency.

can draw on the expertise of numerous specialty and subspecialty programs, they are able to provide specialized procedures such as diabetes-based retinopathy and quaternary-level urology procedures. As a result, teaching hospitals receive high volumes of patients transferred from non-teaching hospitals.⁵⁸ In 2016, while teaching hospitals only accounted for less than one-third of all hospitals, four out of every five transfer cases were treated at teaching hospitals. Teaching hospitals are often at the center of the first-responder system given their roles as trauma centers and leaders in disaster and pandemic infection response.⁵⁹

Most teaching hospitals are anchor institutions in their communities, contributing significantly to the health, economic and social well-being in their community.⁶⁰ Many teaching hospitals provide social services and interventions that are targeted to address health disparities and other needs that are unique to their community. These needs are generally identified by a communities needs assessment, or other process that includes community and stakeholder engagement. Teaching hospitals can develop their social mission with input from these processes, creating actionable steps that will improve social well-being in their community. Accountable care organizations, primary care medical homes, inter-professional education and teaching health centers are all present to some degree in the curricula of health profession schools and teaching hospitals, and all have dimensions of social mission.⁶¹ For example, one hospital interviewed for this report operates sexual abuse

treatment and counseling centers as well as an adolescent and young adult cancer center. Teaching hospitals also treat a disproportionate share of uninsured persons. Although they account for about 20% of all hospital admissions, they are estimated to provide at least 40% of all uncompensated care.⁶²

Teaching hospitals also use their role as research organizations to focus on providing cradle-to-grave care in a community, which is particularly important given the increase in chronic diseases with lifelong impacts. According to the Centers for Disease Control and Prevention, more than 14% of children have asthma, 14.7% have diabetes, 30.2% have hypertension and 71.3% are overweight or obese.⁶³ One hospital interviewed for this report stated that 28% of the children it treats have a chronic disease. Prevention of and care for chronic disease in children is critical, because children with untreated chronic diseases have an increased risk of worse educational and job-related outcomes.⁶⁴ Hospitals and health systems must have the capacity to manage expensive conditions from childhood into adulthood.

The care provided at teaching hospitals is consistently recognized as high quality. Specifically, studies have found teaching hospitals to be associated with lower mortality rates for common conditions and lower total cost of care (when observed over a 30-day period).^{65,66}

Teaching hospitals in rural areas serve an essential role in recruiting providers to their communities. Moreover, these organizations often focus their research on growing the limited body of rural-focused medical studies. Because small rural hospitals are often not tied to a medical school, they frequently partner with larger urban hospitals to offer rural rotations or a rural track. While these programs are smaller, policymakers considering funding for rural teaching hospitals must take into account that the hospitals' remoteness precludes them from sharing resources like their urban counterparts.

Teaching Hospitals as a Driver of Health Care Innovation

Adopters of New and Emerging Technology

Teaching hospitals are known for medical innovation. Not only do many of them offer the latest treatments and cutting-edge technology, they also often support and develop population health innovations.⁶⁷ Teaching hospitals develop curricula and hands-on learning

opportunities for residents to experience the elements of value-based care: systems design, population health, quality of care, appropriate utilization, social determinants of health and costs.⁶⁸

While the majority of providers now use electronic health record (EHR) systems, many physician residents use these along with additional, more advanced technology; some develop innovative uses for EHR systems and introduce artificial intelligence to drive efficiency and improve patient outcomes. For instance, residents may look at new ways to measure severity of illness, the complexity of patients' social needs and the use of resources. At one interviewed teaching hospital, residents take advantage of sophisticated EHR systems to observe and identify patients needing an intervention for pediatric populations that would otherwise go unnoticed. Another hospital interviewed for this report uses artificial intelligence to predict readmissions for high-risk patients.

Through increasing adoption of telehealth services, such as telestroke, teleneurology and even teleintensive care, teaching hospitals are increasing access to specialized care, which is driving better patient outcomes.⁶⁹ Telehealth can also be used as a tool to increase access for some rural patients by enabling teaching hospitals to use virtual care strategies to bring certain specialty or subspecialty care to patients that would not have otherwise been available locally. One rural teaching hospital interviewed for this report created a telehealth network, utilizing faculty and residents to establish rural patient centers that serve as medical homes.

Academic Research

Many faculty researchers have training and experience in measuring care quality and health care outcomes as well as in advanced statistical analysis, skills that can also be used for quality-improvement initiatives.⁷⁰ Researchers at medical schools and teaching hospitals have also helped develop "everything from less-invasive angioplasty procedures to robotic surgery to surgeries that don't require stopping the heart or using a heart-lung machine."⁷¹ However, the competition for research funding drives teaching hospitals to emphasize return on investment and the ability to compete for larger-scale, complex and team-based funding opportunities.⁷²

Moreover, research at academic medical centers is limited by the lack of stable multi-year funding sources. One hospital interviewed for this report noted that they cannot

conduct longitudinal studies, which typically provide the most meaningful results, because of the uncertainty of funding from year-to-year. Nonetheless, teaching hospitals remain committed to advancing care through research and consider it an indispensable component of their tripartite mission.

Participants in Alternative Payment Models

Alternative payment models, such as bundled payments and accountable care organizations, encourage hospitals to take responsibility for total health care spending. Teaching hospitals are well-positioned to participate in new payment models. Faculty are often motivated to advance care in their fields through innovation and invest in advancing high-value care.⁷³ Some teaching hospitals also have been early adopters of value-based care through accountable care organizations and as CMS Health Care Innovation Award grantees. Through these efforts, teaching hospitals are advancing population health and health equity, improving the quality and effectiveness of care, and upholding the social mission of medicine.⁷⁴

Medical Education Policy Options

Congress is looking at ways to address the predicted physician shortage, and Medicare GME is a key lever for doing so. In February 2019, bipartisan members of Congress introduced the Resident Physician Shortage Reduction Act in the House and Senate, which would increase the number of residency positions eligible for Medicare DGME and IME support by 15,000 slots above current caps (Medicare-funded residency slots would increase by 3,000 each fiscal year from 2021 through 2025).⁷⁵ The AHA supports this legislation, under which at least 50% of the additional slots would be directed to a shortage in specialty residency programs.⁷⁶ The Resident Physician Shortage Reduction Act of 2019 is the most recent legislative effort to address physician shortage through GME, and legislative efforts date back to the mid-2000s.

Additionally, in September 2020, CMS finalized helpful changes to its current policy regarding Medicare GME slots available for transfer following a teaching program or hospital closure.⁷⁷ These changes will make it easier for residents to qualify as “displaced residents” for Medicare temporary FTE resident cap transfer purposes, ultimately providing increased financial support for hospitals receiving those residents.

Recently, Medicare Payment Advisory Commission (MedPAC) commissioners discussed possible changes to the IME portion of the Medicare GME program, including shifting some IME funds to the outpatient setting and eliminating capital IME payments, among other changes. The total aggregate IME funds would remain the same but they would be redistributed in a manner that could have a significant effect on hospitals' total Medicare reimbursements. MedPAC noted that the proposed changes could lead to some teaching hospitals experiencing substantial decreases in their IME payments. The AHA has cautioned against reforms that would disrupt IME payments, noting the need for a more granular analysis by MedPAC of the impact of any modifications to the IME program on teaching hospitals and the communities they serve.⁷⁸

In addition, MedPAC and the Congressional Budget Office have looked at an option to consolidate all mandatory federal spending for GME into a grant program for teaching hospitals. Payments would be apportioned among hospitals according to the number of residents at a hospital (up to its existing cap) and the share of the hospital's inpatient days accounted for by Medicare and Medicaid patients. Total funds available for distribution in 2020 would be fixed at an amount equaling the sum of Medicare's 2018 payments for DGME and IME and the federal share of Medicaid's 2018 payments for GME. Total

Methods

This paper was informed by (1) structured interviews with five hospital executives from hospitals of different sizes, focus and geographic regions; and (2) a literature review supported by a trained research librarian and supplemented by materials contributed by subject matter experts. Quotes from the interviews have been anonymized. The literature review was driven by a systematic search of academic databases and legal databases, and search engine reviews of trade and general news publications, government publications and resources, nonprofit and research organization materials, and health care consulting reports. The search yielded approximately 75 sources that were sorted across 13 topic areas. Each was reviewed prior to developing this *TrendWatch* report. The report does not cite all materials reviewed.

funding for the grant program would then grow at the rate of inflation. The AHA has long expressed its opposition to proposals that would essentially cut GME funding and limit opportunities for physician training.⁷⁹

Further, teaching hospitals disagree with any suggestion that Medicare is overpaying for IME and highlight that a portion of these payments is frequently used to care for uninsured patients. IME payments also do not account for expenses such as faculty benefits and malpractice insurance. One hospital noted that its teaching physicians often provide instruction for little or no pay. Teaching hospitals and health systems have expressed concern that reducing federal subsidies for GME could result in a shift away from high-cost or low-revenue areas, such as primary care, toward low-cost or high-revenue specialties and sub-specialties, given underlying financial pressure.

Such action would exacerbate the shifts made by hospitals as a result of the residency caps. Alternatively, hospitals might respond to the reduced subsidy by lowering residents' compensation and making them responsible for more of the cost of their medical training.⁸⁰ As a result, over time a reduction in IME payments may exacerbate the shortage of physicians, especially in primary care disciplines.

The Congressional Research Service has identified other areas for possible legislation, including accounting for any potential cost savings or revenue generated by the hospitals' use of medical resident labor in calculation of Medicare GME payments and revising the program to enable a new GME program to more quickly recover the hospital's up-front investment.⁸¹ GME policies will continue to be the subject of legislative debate as policymakers look to balance reducing health care spending with strengthening the physician work force.

Conclusion

Teaching hospitals are essential to building and maintaining a physician workforce that can meet our country's health care needs today and into the future. Through patient care, education and research, they innovate across all specialties and subspecialties to provide both breadth and depth in clinical care. Teaching hospitals need sufficient and reliable GME funding to carry out their mission. Without this funding, communities risk losing a critical source of inpatient care provision and physician training.

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