





Benefits of developing graduate medical education programs in community health systems

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ABSTRACT

The creation of new CMS-funded Graduate Medical Education (GME) cap positions by the Consolidated Appropriations Act 2021 offers a unique opportunity for systems in community and rural settings to develop and expand their training programs. This article provides a review of the evidence behind the value proposition for system administrators to foster the growth of GME in community health systems. The infrastructure needed to accredit GME programs may reduce the cost of care for both the patients and the system through improved patient outcomes and facilitation of system efforts to recognize and mitigate social determinants of health. Residents, fellows and medical students expand the capacity of the current healthcare workforce of a system by providing coverage during healthcare emergencies and staffing services in difficult-to-recruit specialties. Those trainees are the nucleus of succession planning for the current medical staff, can facilitate the creation and expansion of service lines, and may elevate the profile of the system through scholarly work and equity and quality improvement activities. While creating GME programs in a community health system may, at first glance, be perceived as cost-prohibitive, there are robust advantages to a system for their creation.

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1. Introduction

At the time of the passage of the Patient Protection and Affordable Care Act (ACA), it was estimated that 34 million more patients need new primary care physicians, but the act provided no specific provisions to increase physician supply[1]. The American Association of Medical Colleges (AAMC) now predicts a physician shortfall that could reach 139,000 by the year 2033, with severe shortages in primary care, a trend that could worsen due to effects of the COVID-19 pandemic on physician supply[2]. The rapid expansion of advanced practice providers (APPs) in primary care has not been enough to bridge this ever-widening gap[2]. The Consolidated Appropriations Act (CAA) 2021 created the first new allotment of Medicare-funded graduate medical education (GME) positions in approximately 25 years. Though the overall number of new positions available was relatively small (200 positions per year for 5 years, a 1% increase in funded slots), the prioritization of these positions to hospitals in rural and underserved areas as well as states with new medical schools creates a rare opportunity for community health systems to potential build or expand their own GME programs. [3] Additionally, provisions in the CAA allow for adjustments to low Per Resident

Amounts (PRAs) that were generated by inbound rotators, enhancing the capabilities of hospitals with artificially low PRAs to better finance residency program overhead and faculty salaries [2,3].

The majority of physicians spend their careers practicing in ambulatory community-based settings [4]. Unlike academic medical centers, which receive approximately 12% of their total funding from research grants, community-based hospitals and systems are more reliant on revenue from primary care and secondary care level services. [5,6] Recent data indicate that the Institute of Medicine and MedPAC proposed decreases in IME (indirect medical education) funding would lead community systems to prioritize primary care-based programs while larger systems and universities would prioritize tertiary and quaternary care training. [6,7] Therefore, to meet the projected primary care specialty physician workforce shortfall, community health systems will need to expand their current programs and create new ones. [4] Little data exist on the optimal size of GME programs relative to hospital size. It is also not known what the optimum staffing resources are needed to develop and grow new or expand residencies in community programs, and whether those

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resources can be shared. [8–11] This article will explore the advantages of creating GME programs in a community health system.

2. The value proposition

2.1. Cost reduction with improved patient outcomes

One advantage of creating GME programs in a community health system is that GME programs may reduce health system costs and improve patient outcomes. Numerous studies describe the additional costs in time, throughput, and other productivity metrics that come with involvement of resident and fellow learners [12–21]. However, these studies narrowly focus on a particular aspect of a hospital profit and loss statement, failing to reflect the full scope of the contribution to the hospital and community within which these programs are situated [9,22,23]. For example, replacing residents with advanced practice providers actually increases cost to an institution with no change in patient outcomes, resulting in net financial loss [9,21–28]. However, these studies were similarly limited in scope, and it is difficult to separate the costs of providing patient-based education in the setting of patient care, especially given the lack of agreement over the appropriate metrics to use to determine this cost [29]. Seven-, 30-, and 90 – day mortality rates across more than 21 million Medicare admissions in 15 common medical and 6 common surgical conditions are significantly lower in teaching hospitals than non-teaching hospitals, with a linear inverse relationship between volume and mortality [30,31]. This finding was replicated in specialty-specific studies focusing primarily on general surgery admissions, vascular surgery admissions, acute myocardial infarction, heart failure, and pneumonia. [32,33] These studies also found significant reductions in re-admissions and ICU utilization, but length of stay was marginally longer, resulting in an estimate that total admission cost was increased by 427 USD for each 1% mortality improvement in a teaching hospital[33]. The authors of that study concluded that the effort of teaching returns excellent value for the extra resources utilized [32,33]. Additionally, Medicare patients treated at teaching hospitals had lower total Medicare cost of care at 30 days compared with matched Medicare patients at non-teaching hospitals [30,31]. Therefore it appears that, in a more broad and holistic view of direct and indirect costs, GME programs may reduce overall cost to a health system.

2.2. A focus on patient safety and social determinants of health (SDOH)

A second advantage of creating GME programs in a community health system is that GME programs

are required to focus on patient safety and social determinants of health (SDOH), which encourages health systems to increase their focus on these areas. Since Clinical Learning Environment Review (CLER) program visits by the Accreditation Council on Graduate Medical Education (ACGME) began in 2012, GME programs have been required to formulate patient safety curricula and provide training in quality improvement methodology. [34,35] The increased focus by CLER programs on patient safety, quality and resident supervision have led to greater integration between teaching and quality departments [36,37]. The magnitude of the benefits of the CLER process appears to be greatest at smaller teaching institutions that may not previously have had mature quality departments in place to address the CLER focus areas prior to development of graduate medical education at that facility[38]. Those programs were able to solve long-standing problems in their sponsoring institutions through their work, which augmented the staffing and skillsets of the previous quality teams. Therefore, the residency and fellowship programs facilitated the growth towards the provision of high reliability medicine in their sponsoring institutions.

In addition, the CLER process requires GME programs to train faculty, residents and fellows to recognize and address social determinants of health. [36–38] It has been estimated that approximately 60% of preventable mortality is related to an unmet social determinant of health need. [39] Exposure to cultural diversity during training may also enhance the development of cultural competency and improve the healthcare outcomes of those providers and their patient populations with effects continuing into their post-residency training. [40,41] Therefore, barriers to achieving cultural competence in a hospital or health system may be removed through the need to develop the resources needed to train faculty, residents and fellows.

Since the initiation of the CLER program, health system spending for community benefit has increased 20% as systems and their GME learners develop specific efforts aimed at the reduction of disparities and thereby improve community health[42]. As noted, training the future physician workforce to recognize and mitigate SDOH may be vital to addressing preventable mortality. The strongest predictor of resident competence in identifying and addressing SDOH is having their training in safety-net hospitals or other significantly underserved settings. [43] Therefore, training physicians in a specific community to become competent at the strategies needed to take care of that community is of long-term benefit to both the community and the health system, as well as providing increased healthcare access to these underserved communities.

2.3. Public health emergencies

Another benefit of creating GME programs in community health systems is that the trainees serve as a ready pool of re-deployable healthcare providers if public health emergencies arise. In many teaching hospitals, the majority of the physician workforce is comprised of GME trainees[44]. During the COVID-19 pandemic, the emergency status granted by the ACGME to residency and fellowship programs facilitated the rapid redeployment of housestaff as electives and away rotations were canceled to serve the need of the community and expand the active physician workforce[45]. All services were affected as new intensive care units and COVID-specific units were rapidly created, and elective surgeries were halted. Services unable to scale back their operations such as obstetrics faced increasing pressure as residents, fellows, and faculty were redeployed or were quarantined themselves. [46–49] Medical students also expand the capability of the hospitals and health systems to expand care. For example, senior medical students at one medical school developed a program to support essential workers in the system, providing 29,602 hours of volunteer work over a 4-month period at the height of the pandemic in New York City. [50] Similarly, the Dean of the Lake Erie College of Osteopathic Medicine at Elmira reported medical students volunteered as COVID swabbers, vaccinators and hotline responders, enabling the system to continue operations unabated despite a 20% reduction in support staff due to illness with COVID (personal communication). The COVID pandemic represents how the learners enhance a health system's ability to respond to a public health emergency, achieve education in disaster management, and prepare the next generation for the next public health emergency. [51,52]

2.4. Succession planning with community needs in mind

An additional community benefit for GME program creation is their ability to address deficits identified in hospitals' Community Health Needs Assessments (CHNA). With the inception of the ACA in 2010, tax-exempt hospitals were required to partner with their local communities to create a CHNA every 3 years. The required elements of the CHNA include: a demographic analysis of the community, a survey of the community to identify perceived healthcare-related issues, a quantitative analysis of the healthcare issues in the community, an appraisal of current efforts at addressing those community needs, and a combined healthcare provider-community 3-year plan to cooperatively address the issues[53].

Studies of CHNAs indicate that access to primary care specialties, especially behavioral health services and chemical dependency programs, are common areas of significant need, and serve as major foci of health system recruitment efforts and strategic planning [54–57]. These are areas that GME programs are uniquely situated to address. While the number varies from specialty to specialty, the majority of physicians practice in the state in which they underwent residency training[58]. Retention rates for individual states who train family medicine physicians average 63–75%. [59–63] This creates the opportunity to align the creation of residency programs with the strategic planning of the system by expanding access in areas that will meet the community health needs, drive referral volume to the sponsoring institution which will improve top line operational revenue for the system, and grow service lines in new directions.

While residency programs can enhance the local primary care, general surgical, and behavioral health network capabilities, fellowship programs offer even greater customization of training and research. Fellowships can bolster the reputation of an institution by producing highly skilled and specialized individuals, while providing a self-sustaining source of difficult-to-recruit specialists to the community. [64] Fellows add to the staffing of the department, expanding the capacity of a potentially limited resource either through enhanced access or ability to create new clinical offerings. The presence of fellows allows for an expansion of the teaching and research capacity of the division, as well. This facilitates an increase in resident electives and research opportunities within the division, which may, in turn, lead to more internal candidates for the fellowship. Smaller, specialized fellowship programs can be developed on the basis of identified unique local patient populations in need of these skills. By pairing these targeted programs with new and emerging advances, fellows gain clinical experience and confidence with the particular local population and are therefore more likely to stay in the training system[65].

2.5. Reducing burnout and physician turnover

Communities also benefit from local GME program development through utilization of the program as a recruitment and retention strategy for the local physician population. Teaching physicians have greater overall satisfaction and lower rates of burnout as compared to non-teaching physicians [66–70]. It is estimated that 50% of the physicians presently practicing in the USA suffer symptoms of burnout [71,72]. Burnout rates are highest in a number of high-intensity ambulatory environments, including family medicine, emergency medicine, and general

neurology. [65,72–76] Physicians experiencing burnout are more likely to provide suboptimal care, make mistakes, or commit suicide.[6–75] Burnout is also linked to higher physician turnover rates. Replacing a physician costs a hospital 2–3 times the annual salary, so implementing effective strategies to reduce physician burnout make sound financial sense[66]. Educating students, residents, and fellows allows providers to connect with core values from their training has been shown to reduce burnout by as much as 25%, though such teaching efforts need to be supported with an equivalent reduction in productivity expectations to generate this benefit. [65–70] Learners describe the training experiences within a community as one of the most important factors in choosing to settle in that area, particularly in rural areas. [77] Therefore, teaching responsibilities may serve as a potent recruitment and retention strategy[78].

2.6. Creating an academic culture

Another benefit to the community is the creation of an academic culture in the community health system. Recent literature has indicated an ‘imprinting’ phenomenon on medical students, residents, and fellows, in which their clinical learning environment influences their behaviors and practice patterns for decades after their completion of training [79–86]. These downstream effects on learners impact patient outcomes and complication rates [79–86]. If an organization does not have a previous culture of cross-disciplinary collaboration and scholarly inquiry, it will take time and resources to establish this culture, but the return on that investment will benefit the hospital for many years, as those learners are ‘imprinted’ with the organizational values and join the medical staff after graduation.

Creating a culture of scholarly inquiry in the community setting can be challenging as some esoteric resources such as research funding, mentorship and statistical expertise present at university health systems may not be available to smaller systems with fewer programs[87]. However, community hospital systems have a vast array of clinical expertise and potential quality improvement projects to initiate an ethos of scholarly activity and serve as the nidus for projects. Resident exposure to scholarly activity results in many desired traits, increased training satisfaction, improved analytical skills, and better patient care outcomes. [88–92] A number of low and no-cost interventions have been shown to increase scholarly activity output in a community health system, including publishing case reports and quality improvement activities, utilizing publicly-available free databases

from governmental health organizations for data mining projects, and survey studies [87,93]. Additionally, as scholarly activity increases in an organization, opportunities develop to create local and national networks of researchers. These networks can then serve as the nidus for further conversations regarding other learners (e.g., APP and pharmacy students) entering the system who themselves have potential to join the staff upon graduation. As these residents and students receive their training in the developing environment, they are inculcated with the ‘new culture.’ When they join the staff at the hospital/health system, they are prepared for grant writing opportunities, to generate new research ideas, to assume leadership roles in practice-based research networks and population health programs, and provide mentorship to new trainees [94–96]. Over time, the new culture will become the normal operations of the facility.

3. Conclusions

While creating GME programs in a community health system may at first glance be perceived as cost-prohibitive, there are robust advantages to a system for their creation. The infrastructure needed to accredit GME programs reduces the cost of care for both the patients and the system through improved patient outcomes and facilitation of system efforts to recognize and mitigate social determinants of health. Residents, fellows and medical students expand the capacity of the current healthcare workforce of a system by providing coverage during healthcare emergencies, staffing of services in difficult-to-recruit specialties, and decreasing provider burnout, leading to less staff turnover. They are the nucleus of succession planning for the current medical staff, will facilitate the creation and expansion of service lines, and will elevate the profile of the system through scholarly work and equity and quality improvement activities.

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