The Direct, Indirect, and Intangible Benefits of Graduate Medical Education Programs to Their Sponsoring Institutions and Communities

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Abstract

Declining reimbursement for graduate medical education (GME) as well as increasing hospital competition has placed the cost of GME in the spotlight of institutional administrators. Traditional hospital-generated cost center profit and loss statements fail to accurately reflect the full economic impact of training programs on the institution as well as the larger community. A more complete analysis would take into consideration the direct, indirect, and "intangible" benefits of GME programs. The GME programs usually have a favorable impact on the trainees themselves, the sponsoring institution, the local community, university sponsors and affiliates, and the greater community, and all of these areas need to be considered in the economic analysis. Complete analyses of programs often demonstrate very positive benefits to their sponsoring institutions that would not be recognized on simple cost center profit and loss reports. Studies in the literature that quantify the net economic benefits of GME programs are consistent in their favorable findings.

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Introduction

Large teaching hospitals have traditionally been the setting for the major portion of the education of medical students and resident physicians. In today's dynamic and outpatient-centered health care system learners should be exposed to diverse patient populations and clinical problems in a range of settings. Unfortunately, economic pressures have called into question the economic viability of graduate medical education (GME) programs, especially those training primary care physicians, which rely heavily on ambulatory experiences.

In most hospitals and health systems, a member of the senior administrative staff is responsible for evaluating the institution's commitment to medical education. Yet it often falls to the residency program directors to identify and account for the costs and benefits of GME programs to their sponsoring institutions. The purpose of this review is to examine the impact of GME programs in a way that goes beyond the usual hospital revenue-expense reports, to consider instead elements that affect the institution and other constituencies. Only with a full understanding of this impact of GME can teaching institutions comprehensively assess the role and critical functions of their medical education programs.

Background

Since the initiation of the Balanced Budget Act in 1997, federal reimbursement for GME has declined substantially.[1,2] In fact, it declined more than even medical educators anticipated. The Balanced Budget Act included provisions for decreasing the "multiplier" in the Medicare indirect medical education reimbursement to hospitals sponsoring GME programs. Few recognized, however, that the concomitant reduction in reimbursement for Medicare diagnosis-related groups resulted in a "double impact" that caused major reductions in federal support for GME.

Some specialty training programs are able to weather fiscal pressures better than others. Surgical training programs can generate substantial clinical income from surgical and consultative fees that may offset some of the lost federal support. In contrast, fiscal pressures likely have contributed to a significant loss of primary care training programs and positions. Since 1998, family medicine has lost 40 programs and 390 first-year resident positions, and general internal medicine has lost 25 programs and an estimated 865 first-year slots.[3] A study of family medicine programs that were forced to close in recent years showed

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that more than 80% of the closures were primarily for financial reasons.[4]

To compensate for these losses, some GME programs have placed greater emphasis on the clinical services rendered by residents and faculty. This may tip the service/education balance away from the priority of education. Intense competition in the health care marketplace has made the "educational overhead" of teaching hospitals more apparent and put them at a competitive disadvantage in their marketplace. For community-based GME programs, narrowing margins have forced administration to look closely at all "cost centers," including the residency programs they sponsor.

A substantial problem for GME programs today is the reality that the typical hospital-generated cost center profit and loss statement fails to accurately reflect the full economic impact of the residency on its sponsoring institution, let alone to reflect its contributions to the patient-care community it supports.[5] And because few appreciate that it takes up to 2 years to start a new residency, the decision to close a GME program has long-lasting repercussions that cannot be easily or quickly reversed.[6]

Impacts

The impact of a GME program on its sponsoring institution can be examined from the perspective of direct, indirect, and "intangible" benefits.[5] Revenue and expense reports capture the direct financial benefits of a residency to its sponsoring institution. The indirect and intangible benefits are more expansive and therefore more difficult to identify.

Through their GME programs, sponsoring institutions become eligible for federal, state, and grant funds, such as Medicare direct and indirect GME reimbursement, Medicaid GME reimbursement, and Title VII grant funding.[7] In fact, in some situations the biweekly revenue from Medicare direct reimbursement is important in maintaining the institution's cash flow at various times of the year. Depending on the state in which the program is located and the payer mix of the sponsoring institution, additional funds may be available through the Disproportionate Share Hospital program or state line-item budgets. At the same time, direct financial accounting for GME often shows a considerable amount of "red ink."[8]

One area of benefit that has not been critically examined is the impact of GME programs on the medical liability/risk management costs of their sponsoring institutions. The authors could find no reliable documentation of this impact. Conventional wisdom might suggest that the risk management experience of teaching hospitals would be unfavorable because patients are cared for by novice physicians and therefore more medical errors would occur. In contrast to this stands the personal experience of the authors that the liability exposure of teaching hospitals may in fact be lower than that of nonteaching institutions. The attention to detail inherent in a setting where learners are present, where there is a focus on innovation, frequent use of current medical literature to guide clinical decision making, redundancy of supervision, and more frequent and thorough case reviews may contribute to a lower incidence of adverse occurrences. Malpractice insurance carriers and hospital system-risk managers are challenged by the authors to further investigate this phenomenon.

Indirect benefits, often in the form of secondary financial benefits from referrals that contribute to margins or spread fixed costs, as well as cost-avoidance through resident coverage of clinical services have been identified in peer-reviewed publications for more than 15 years.[9–12] Yet the challenge remains to identify and somehow quantify those intangible benefits imparted to institutions and communities that have been appreciated by medical educators for many decades.[13,14] As reflected by Osler[15] in 1903 (p. 50):

> "The work of an institution in which there is no teaching is rarely first class. There is not that keen interest nor the thorough study of the cases nor amid the exigencies of the busy life is the physician able to escape clinical slovenliness unless he teaches and in turn is taught by assistants and students. It is, I think, safe to say that in a hospital with students in the wards, the patients are more carefully looked after, their diseases are more fully studied and few mistakes made."

The GME programs have a positive effect on the quality of care. In 1994, Haesler[16] acknowledged that a benefit of participation in GME is "that a satisfied network of physicians has important implications … physicians who enjoy their work environment are more likely to retain employment," and tend to minimize the physician turnover rate. Haesler continues, "By participating in the exchange of information inherent in teaching, physicians open themselves up to review by their peers, students, and themselves. Such scrutiny often leads to improved performance." Gordon Moore, MD, director of teaching programs at Harvard Community Health Plan, has acknowledged: "Physicians learn when they teach. Students ask provocative questions. Physicians who teach engage in self-evaluations, self-assessment, critical reflection and self-improvement, all of which are key principles of total quality management."[16]

Numerous published articles have described quality differences between teaching and nonteaching hospitals, and there are at least 2 thorough review articles of this in the literature.[17,18] Although all available studies are observational and subject to methodologic critique, the findings support at least a modest trend toward better quality of care in teaching hospitals. The authors were not able to find any documentation of quality comparisons for teaching and nonteaching ambulatory settings. Studies

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comparing quality markers including adjusted length of stay, fixed and variable costs, and resources used for inpatient teaching services, hospitalist teams, and community physicians, for example, demonstrate favorable comparisons.[19–21] With the growing availability of quality of care data and outcomes, particularly in outpatient settings and even with publicly available websites comparing institutions, future publications broaden the settings in which quality differences between teaching and nonteaching settings have been described.

Graduate medical education programs provide a favorable impact on at least 5 separate target levels. They include the residents themselves, the sponsoring institution, the local community, any affiliated academic health center or university sponsor, and the greater community and the nation. Each of these impact targets will be briefly addressed in turn.

1. Residents and Fellows

Graduate medical education programs have the opportunity to impact trainees beyond the biomedical knowledge and experience imparted through the residency curriculum. Because GME programs disproportionately serve disenfranchised and medically underserved populations, GME programs are one of the primary opportunities to instill in health professionals a social conscience and dedication to care for disadvantaged populations. More than 50% of this nation's health care ''safety net'' is provided by the GME training programs in university and community-based institutions.[22,23] From an institutional perspective, maintaining a commitment to the care of the poor and vulnerable is an important justification of ''not for profit'' status.

The favorable impact of GME programs on charitable-giving initiatives has not been studied, but it is a personal experience of the authors that potential donors to health care institutions react favorably to institutional efforts to train the health care providers of the future and to share with them the values espoused by that particular institution.

2. Sponsoring Institutions

Graduate medical education programs typically provide substantial support to educational functions beyond the residency and fellowship curriculum. Such support may include the continuing medical education program for the medical staff itself, educational support for nursing and allied health trainees, and the teaching of medical students. As discussed earlier, the total contributions support an improvement of overall quality of care in teaching institutions.

Resident physicians also provide broad institutional patient care coverage including inpatient and outpatient care, emergencies, Joint Commission-mandated rapid response teams, and acute and chronic health problem management. Providing such services in the absence of a residency program would entail hiring no less than 4 full-time physicians to provide around-the-clock coverage for the typical community hospital.

Trainees provide a useful opportunity for the introduction of new technology, given the increased comfort level of younger physicians with the use of electronic media and communications. Using residents to introduce, problem-solve, and polish clinical guidelines and pathways makes quality improvement activities substantially easier to accomplish.

Direct patient care services, including ambulatory teaching clinics, also expand the referral base and provide economic benefits to the sponsoring institution that have been well documented that those services expand/provide.[24,25] In addition, institutionally affiliated teaching clinics located in areas peripheral to the institution's primary catchment area can increase market share by bringing patients into that health system who might otherwise have gone elsewhere. Indirect revenue, often not credited to outpatient and affiliated teaching clinics, can include hospital admissions, utilization of hospital-based outpatient services, and referrals to local consultants who use the services of that institution. A study by Schneeweiss et al[9] demonstrated the so-called ''multiplier effect'' of a family medicine teaching clinic on one particular academic medical center. The data showed that for every $1 billed by the family physician faculty and residents, $6.40 was billed by the consultants and hospital diagnostic and therapeutic services. Woodcock,[10] Saultz et al,[11] and others[8] subsequently validated this finding.

Many institutions have come to appreciate that the capacity to retain residency program graduates within their health systems can substantially reduce recruitment costs for the facility. Surveys indicate that recruiting quality physicians to address patient care demands is a major concern for hospital management.[26] Dealing with the current and escalating physician shortage is now a top priority for most hospitals and health systems.[27] In this context, ''growing your own'' often is less expensive than paying recruitment firms for each physician sought. One study showed that the fixed costs alone for a modest-sized hospital physician recruitment department exceeded $160,000 per year.[28,29] Retaining program graduates also provides institutions with an individual of known quality who is already familiar with the local health system's procedures, resources, and facilities. In addition, teaching programs attract other physicians who seek the opportunity to work at the forefront of medicine.[30] This dynamic further reduces the cost of recruiting other specialists to the community.

3. Local Community

Training program graduates who stay in the local community and become active on the medical staff of their training institution support the institution itself, support

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local consultants, use local facilities, provide access to care for the medically underserved, and provide overall enhancement of the patient base. Until the nation fully implements its plans to achieve universal health care access, GME programs will continue to provide much of the access to care for underserved and vulnerable populations of this nation.[22] Millions of dollars of free care are provided each year to disadvantaged individuals, patients with HIV and AIDS, victims of domestic violence, homeless persons, and refugees.

Teaching programs based in community hospitals provide their sponsoring institutions with specialty services not otherwise available in the community through the creation of teaching-specialty clinics, procedure clinics, and the inclusion of teaching consultants. They also bring local physicians continuing professional development opportunities such as ALSO (Advanced Life Support for Obstetrics) and EPEC (Educating Physicians in End-of-Life Care). Training-program outpatient services provide many direct services to the local community including access to flu shot clinics, school health, preparticipation physical examinations, community education services, nursing home support, emergency department follow-up, and support for the health care initiatives of the local public health department. These services also meet the needs of patients whose primary physicians are not local, such as providing allergy shots that were prescribed by physicians from other communities. Some training programs require residents to complete community service or education programs such as the community-oriented primary care projects commonly conducted in many family medicine residency training programs.

Community-oriented primary care projects sponsored by a training program frequently result in better health and lower health care costs. This can have a positive economic impact for the sponsoring institution, particularly if the population is indigent or participates in a managed care system, and can result in increased grant support and philanthropy and further benefit the sponsoring institution through expansion of the referral base.

Many community teaching hospitals have also discovered that their GME programs provide a convenient and cost-effective strategy for extending employee health services. Finally, a full accounting for the benefits of GME programs to the community should include the contributions made to the local community by the spouses, significant others, and extended family of the physicians-in-training, and the virtually inevitable positive contributions these professional families provide to their local communities.

4. University Sponsors and Affiliates

When GME programs are affiliated with an academic health center or university facility, added benefits are realized.[31,32] Graduate medical education programs, their trainees, and faculty often are major contributors to teaching medical students and other health professionals, including nurses and allied health providers. Similarly, the primary care base of a community teaching hospital not only supports the secondary referrals to its own institution, but the tertiary and quaternary referrals to regional health centers and university facilities. Many members of the community teaching faculty generate educational and research dollars in the form of grants and contracts, and they provide venues for innovative programs including community teaching clinics, rural outreach initiatives, and support for telemedicine projects to remote settings.

5. Benefits to the Greater Community and Nation

Graduate medical education programs generate physicians who are conversant with the resources and procedures of their community. Graduates settle near their former training institutions or in adjacent areas and begin practice already facile in the knowledge and pragmatic use of local and regional health care resources to the ultimate benefit of the community populations they serve. For example, the health of a community's children can be improved through school-based educational initiatives. At the regional and national level, these graduates provide the workforce to replace retiring physicians and promote community growth through infrastructure support.

The impact of training programs can be quantified in the economic benefits to the community when residency program graduates decide to settle and practice locally. For example, in 2002 the Center for Health Policy Research & Development of the University of Oklahoma documented that the placement of a single primary care physician in a community resulted in a direct economic benefit to that population of approximately $1 million per year of practice.[33]

Residents and fellows, faculty, and program graduates enhance the public relations value of their sponsoring institution through community agency participation, support for health education programs to schools and other community organizations, and through satisfied patients that result in positive community relations and a favorable institutional image. Community involvement by faculty and graduates in community service organizations and local politics continue their favorable impact on the communities surrounding the training institution.[34–37] Linkages with community health centers can promote preventive care, coordinate resources for patients, and ultimately decrease morbidity and mortality. Patient care services by physicians-in-training also support public health and social services through their integration with clinical education. Finally, the long-term benefits to society from the clinical translational research and scholarly contributions of trainees and teaching faculty must be acknowledged despite the inherent difficulty in quantifying that impact directly.

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Conclusion

The community benefits of GME programs extend far beyond the walls of the teaching hospital. Through service to individuals and the community at large, these programs contribute positively in ways far beyond what may be found on the typical hospital revenue and expense report. A full appreciation of the breadth and depth of benefits these programs render to their institutions and communities provides an important perspective for planning, resource allocation, innovation, and quality impacts within the institutions that sponsor them.

The authors recognize the importance of periodically evaluating all programs, including GME. Undoubtedly, there are situations in which a residency program no longer fits the sponsoring institution's strategic vision. However, when dire financial circumstances suggest that a residency no longer seems sustainable, it may be important to consider the indirect economic benefits and market-based replacement costs for services the residency program provides. Our collective experience has been that the strategic review of a GME program often is based on direct profit and loss assumptions. Due diligence requires that the calculations include:

1. Direct revenue and expenses, including full credit of federal and state GME support.
2. Analysis of indirect revenue and expenses associated with the program, with some attempt to analyze indirect contribution margin and the value of care to the poor and vulnerable as part of an institution's community benefit contribution.
3. Making defensible assumptions about the intangible benefits of the residency, and comparing them to the intangible benefits of other programs sponsored by the hospital.

It is our experience that a complete analysis often demonstrates a very positive benefit of GME to the sponsor's environment, although the direct subsidy may initially appear substantial. This impression is supported by several studies, but there are gaps in the evidence and further investigation is warranted.[38,39] Studies that quantify the net/net economic benefit of GME programs to their sponsoring institutions, although limited, are consistent in their favorable findings. More study is needed to further quantify these benefits so that the administrators of sponsoring institutions may better understand the magnitude of the contributions of their GME programs. We hope that this review will spur further research and focused discussion regarding the impact of GME programs on their sponsors and communities. Only through a comprehensive understanding of the breadth, depth, and magnitude of the favorable benefits that a GME program brings to its sponsoring institution and community can health care planners adequately prepare to meet patient care needs in our present turbulent environment, and for the uncertain future.

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