

What Outcomes Should We Expect from Programs that Pay Physicians' Training Expenses in Exchange for Service?

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Training to become a physician is expensive, as the four out of five medical students who graduate in debt will confirm.¹ Young physicians' educational debt averages over \$109,000 and increases by more than \$4,000 each year.²

On the bright side, rising educational costs and students' fears of acquiring six-figure debts have created a market for government programs that link support for medical training costs to a period of obligated clinical work in physician shortage areas. One of the two most common types of such programs are service-requiring scholarships, which pay tuition and other costs for medical students while obligating them to a period of service that will begin when they complete residency five-to-seven years later (see Figure 1). The other common program type is loan repayment. Loan repayment programs recruit physicians as they complete residency and are ready to begin service in exchange for paying off the traditional education loans they acquired years earlier. Programs of both types typically require one year of service for each year of training cost support they provide.

These training support-for-service programs are a seemingly natural solution to both students' and the public's needs. They have grown in popularity over the past 25 years in tandem with rising tuition costs, with both federal and state agencies making

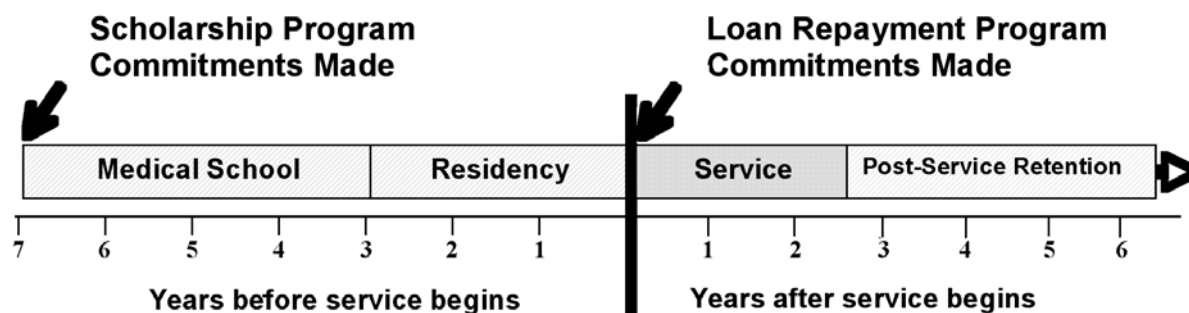
ready use of them. The National Health Service Corps (NHSC)³ currently fields an obligated physician workforce of about 1,700 scholars and loan repayers, and the Indian Health Service (IHS)⁴ and Bureau of Primary Health Care⁵ offer similar, but far smaller programs for physicians to work in Native American and Native Hawaiian communities. Most states also sponsor their own physician training support-for-service programs. There were a total of 69 state programs in 1996 with an estimated workforce of 1,300 practicing physicians.⁶ These state programs doubled in number from 1990 to 1996 and very likely have grown further since.⁶

After 25 years of growth in these programs, the healthcare workforce advocates who lobby for them and legislators who create and fund them are not completely clear about some of their important aspects, including what outcomes can be expected. Without clear expectations, programs cannot evaluate themselves appropriately or be externally monitored, leaving program failings sometimes unrecognized and opportunities for strengthening programs unrealized.

This commentary takes the occasion of this special issue of the *North Carolina Medical Journal* dedicated to the life and work of Jim Bernstein to review what available research says

Figure 1.

Timeline of physicians' training years, signing of commitments with service-requiring scholarship and loan repayment programs, service periods (typically two-to-four years) and post-service retention.



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about the outcomes possible from physician training support-for-service programs. Under Jim's 30-year leadership, the North Carolina Office of Rural Health became a nationally recognized leader in recruiting physicians to needy practice settings, in large part by perfecting programs of this type. Sixteen years ago, Jim guided and encouraged me and my colleagues at the University of North Carolina at Chapel Hill (UNC-Chapel Hill) as we undertook our first evaluations of these programs, and the Office's ongoing counsel has been invaluable.

The information and conclusions of this commentary are based on the findings of the most methodologically sound descriptive and outcome studies of the past 20 years, which are primarily cohort and cross sectional designs with appropriate comparison groups. Studies that were unable to control for statistical confounding, evaluations designed to find only positive outcomes (typically undertaken for program advocacy purposes), and testimonials were not used. The NHSC's Scholarship and Loan Repayment programs, the two largest programs in the United States, have been studied far more than other programs and, therefore, receive more attention in this discussion.

The Overarching Program Goal and Intermediate Measurable Outcomes

The fundamental public goal of support-for-service programs is to improve physician staffing in shortage area communities. To date, no studies have assessed whether communities that rely on service-obligated physicians indeed enjoy greater workforce growth in the long run than if they had relied only on traditional non-obligated physicians on the open market. Aside from the programs' overarching goal, there has been no general agreement on the measurable outcomes that legislators and the public should expect of these programs and, therefore, no agreement on the criteria by which programs should be evaluated. The outcomes most often discussed and studied reflect the intermediate accomplishments presumed to be necessary if programs are to achieve their long-term goal of improving physician staffing in shortage areas. These intermediate outcomes have included whether programs:

- fill all of their funded positions,
- select suitable physicians into the program and match them to individually appropriate communities,
- have their physicians serve in genuinely underserved communities,
- have high proportions of their physicians complete their service obligations, and

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- have high proportions of their physicians remain many years in their service communities following their obligations.

These intermediate outcomes are considered, in turn, below.

Program position fill rates. Some programs, including the NHSC, have many more applicants than their funds can support and regularly fill all funded positions; other programs have many unfilled positions for lack of applicants.⁷ Fill rate information for some programs is not reported or publicly available. Because many programs are able to fill all available positions year after year, any program that repeatedly fails to do so should assume that physician interest is being harmed in some way. Common ways programs reduce physician interest include offering unfavorable contract terms (e.g., financial benefits too small; penalties or service requirements too great), offering too few service site options from which physicians may choose, having poor program marketing, and/or having poor management. Mississippi's Family Medicine Education Loan/Scholarship program, for example, with its unprecedented ten-year service obligation, signed-up a total of only seven students from 2001 to 2004 despite having funding for 20 new students each year.⁷ The legislature appropriately lowered the program's service requirement, but only to six years, which may still prove too lengthy to interest students.

Selecting appropriate physicians and matching them to individually appropriate sites. Appropriate physician selection criteria—the right demographics, backgrounds, motivations, and career interests—get much attention from some programs,⁸ but available data suggest that they are generally not important to achieving program outcomes. Studies repeatedly find that the demographics and backgrounds of obligated and non-obligated physicians are generally not related to how satisfied they are in rural and underserved area practices nor how long they remain there.^{9-11,a} Further, no studies have demonstrated that obligated physicians with certain demographics or motivations provide better care to patients in underserved practice settings. The quest for perfect

a Background characteristics *are* very important to who will freely choose to practice in rural and underserved areas (i.e., important to recruitment), but this is irrelevant when selecting among applicants to support-for-service programs. Recruitment factors are not the issue with physicians asking to work in these areas; only retention factors, and individual characteristics are not relevant to retention.

selection criteria sometimes reflects programs' unwillingness to accept responsibility for their shortcomings, shifting blame instead to their allegedly ill-prepared or overly self-centered workforces ("deadbeats").

Rather than particular physician characteristics, data suggest that only concordance between the needs and interests of obligated physicians and the practice site opportunities available through their service programs are key to the success of their physicians in underserved areas—physicians' satisfaction, communities' satisfaction, and physicians' retention. Whether a physician is male or female, was raised in a rural or urban area, graduated from a public or private school, or trained in family medicine or pediatrics are criteria that are generally irrelevant to program outcomes. No type of background or training will bring physicians meaningful contentment, enthusiasm for work, and long retention when the work and community settings don't fit them. Success for obligated physicians does often depend, however, on whether their program offers practice opportunities that meet their preferences, for example, to work in a community health center that provides hospital care for its patients and to live in a town large enough to support their spouse's law practice.^{10,12} Physicians will usually succeed in practices that meet their career and family needs.

Matching participants to truly needy communities. Programs differ in the types of communities and practices where physicians are allowed to serve their obligations, in the number of specific sites they may choose from, and in how the match occurs. State programs, as a group, give greater latitude in the number and type of practices available, some allowing physicians to work in any practice in any rural county of their state.⁶ For these programs, no listing of practice choices is created; physicians find their own sites from across eligible geographic areas. The most restrictive programs are the federal and a few state programs that have adopted a secondary program goal to support the physician staffing needs of publicly sponsored practices, like federally qualified health centers (FQHCs), Indian Health Service clinics, and prison health centers. Participants in these more restrictive programs must choose a practice site from a short list of limited options. Some programs go through elaborate steps to identify the few "most needy" sites eligible for physician placements—most notably the NHSC, which has designated health professional shortage areas (HPSAs), priority ranking of HPSAs, and annual restrictive Health Professionals Opportunity List (HPOL) of specific eligible sites from among priority HPSAs.

Using set criteria to rank need would seem to be a reasonable approach to limiting physician placements to the neediest communities. In practice, however, devising criteria of need and carrying out the designation and physician-to-community matching processes have proven problematic and contentious. The process by which HPSAs are designated, for example, has been criticized as politically influenced and evaluations have failed to find that communities with more critical HPSA ratings have worse physician shortages.^{13,14} Site eligibility lists are notoriously out-of-date, which frustrates physicians who are trying to locate an appropriate service site. Using explicit

NHSC site designation criteria serves principally to mollify practices (and their Congressional supporters) that aren't deemed eligible for physician placements and to justify the policy of using support-for-service programs as a staffing mechanism for publicly supported clinics. Using short service-site availability lists to serve these political ends and to meet the immediate staffing needs of subsidized practices may or may not be worth the greater likelihood that communities will receive ill-fitting physicians who are dissatisfied with their site assignments and more likely to leave as soon as their obligations are fulfilled.

Service completion rates. The proportion of physicians who complete their obligations with service is often the most sacredly held of outcomes for programs, but perhaps shouldn't be. The common view is that physicians owe society for the medical training and bright future afforded by program dollars, and they have a responsibility to needy communities to provide service as promised when they accepted program funding. Support-for-service programs obviously cannot improve medical staffing in underserved communities if participating physicians opt not to fulfill their obligations with service.

When many early NHSC scholarship participants of the late 1970s paid off their program obligations monetarily instead of providing service,¹⁵ Congress quickly increased penalties for buying out contracts to three times the dollar amount physicians had received plus interest. Buy-out rates plummeted, and service completion rates have been around 90% ever since. Today, with these penalty rates, buying out a contract with the NHSC Scholarship Program or with the few state programs that charge similarly high penalties,⁶ will often cost physicians a prohibitive \$250,000 to \$700,000. With these high penalties and the courts upholding the government's right to levy and enforce them, service completion rates can nearly always be made to look good.

Forcing service with harsh penalties, however, comes at a cost to programs and communities. Requiring disinclined physicians to work in needy communities increases the costs of monitoring physicians to make certain that they abide by their contracts and increases the costs of defending against litigation brought by unhappy participants.¹⁶ A less happy and potentially disgruntled workforce is quicker to leave their service sites as soon as their obligation periods are over.^{10,11,17} Among state scholarship programs, any buy-out penalties beyond simply repaying principal plus low interest are associated with lower participant satisfaction levels and shorter retention, which perpetuates physician shortages and the need for ongoing staffing assistance for repeatedly abandoned service sites.¹⁸ Compelling service completion with financial penalties is not a perfect solution.

Loan repayment programs show some of their advantages over scholarship programs in their high obligation completion rates despite low buy-out penalties. Loan repayment participants sign program contracts when they are older and much better informed of their career options (see Figure 1). They sign up at the time they are ready to begin serving their obligations and can know their and their family's needs and know exactly where

they will serve and if the site fits their needs. Very few loan repayment programs, accordingly, have found a need to set any buy-out penalties; as a group, their service completion rates average 93% without them.¹⁸ It is the physician-program-community fit and the financial attractiveness of the program that prompts physicians to complete their obligations with service (the “carrot”), not financial and legal threats (the “stick”).

High penalties are a common aspect of programs that establish post-educational service commitments for young students, especially scholarship programs (there are other types of programs that commit students and not all use penalties). It is reasonable to question the wisdom, and even the justice, of compelling students who commit to scholarship programs as 22-year olds, but realize seven years later, through natural maturation, that the program no longer fits their more mature career and family needs. An alternative is a third type of program, the *service-option loan*, which also recruits medical students, but achieves better outcomes by holding service as an *option* to repaying program dollars at low, affordable traditional education loan rates.⁶ While only 45% of states’ service-option loan participants opt to provide service, those who do demonstrate excellent satisfaction and retention in their service communities.¹⁸ The 55% who pay off their program contracts are no different and require no greater public expense than the vast majority of all medical students; that is, they fund their education with what amounts to a publicly sponsored loan. If a 45% service completion rate for a given program leaves too few physicians available for needy communities, the program can offer more contracts up front in anticipation that not all will serve.

Retention. Beyond merely completing obligations with service, there has long been the hope that obligated physicians will remain in their service communities for years afterwards. Program impact becomes much greater if two or four years of obligated service in a needy community is lengthened through post-obligation retention to ten or more years of work there. Unfortunately, there is a common misperception that serving an obligation is a financially necessary, but undesirable, career step for many physicians, and retention in service communities after obligations are fulfilled, therefore, often cannot be expected. In fact, data show that physicians participating in state-run support-for-service programs remain in their service sites as long on average as other young physicians remain in practices of all types nationwide. Physicians obligated to state-run loan repayment programs remain substantially *longer* than other young physicians.¹⁸

When particular programs experience poor retention, it is sometimes rationalized that high turnover is inevitable in needy communities, which are allegedly too unattractive to retain physicians and their families. However, available studies find that retention for both obligated and non-obligated physicians

is generally unrelated to community characteristics,^{17,19} and retention is no shorter in underserved areas than in non-underserved areas.^{9,19}

The key to long retention within service communities is to allow physicians to serve in well-run practices in communities that fit their needs, where they and their families can be happy and professionally fulfilled. When service programs are operated as a short-term solution for chronically under-staffed practices—placing physicians in sites without adequate regard to fit and allowing them to be paid poorly, without benefits and treated as temporary, replaceable workers—physicians can be expected to leave promptly after fulfilling their obligations.¹⁰⁻¹²

Influencing the practice location choices of program alumni. For most observers, the retention of program alumni within service sites is a sign of program effectiveness. For its first 20 years the NHSC saw service-site retention as a key program outcome^{15,20,b} and touted that half to two thirds of its physicians remained in their service sites beyond their service obligations.^{20,21} In the early 1990s, however, longitudinal studies showed that most of those who remained in their service sites did so for only a few weeks or months.¹⁷ A large, recent evaluation found that only 20.7% of NHSC Scholarship program alumni remained more than one month past their obligations.²² The NHSC of the mid-1990s began speaking of the importance of NHSC alumni remaining in underserved area practices anywhere and stated that retention in service sites was not really the objective. Several studies^{23,24} confirm that NHSC alumni are indeed more likely to be practicing in underserved areas than other physicians, but it is not known whether this is due to their NHSC participation or to their pre-existing career plans, which attracted them to the NHSC in the first place. The important unanswered empirical question is whether retaining obligated physicians within service sites as apposed to within any underserved area will better solve physician shortages in the long run.

Secondary Goals

Improving staffing in publicly sponsored clinics. Support-for-service programs, as discussed earlier, are sometimes used as staffing mechanisms for publicly-supported clinics, which can either help or harm their primary goal of correcting physician shortages in service communities. If lists of eligible service sites are limited to a few publicly supported clinics, which tend to be those that are chronically understaffed (the “most needy”) and less well managed,^{25,26} then retention following service obligations will be poor. These same clinics will need another obligated physician every two-to-four years, perpetuating a “revolving door” staffing pattern and leaving the communities vulnerable whenever no new replacement physician is available. Alternatively, physicians can be given an ample number of

b “Retention of Corps providers has been seen as integral to that self-sufficiency [of local healthcare delivery systems]. Indeed, as one measure of its success, the new program looked to the number of Corps members who chose to remain in their communities at the end of their NHSC service.”²⁰

sponsored clinics in a variety of settings from which to select a service site. A wider selection leads to better community-physician matches and fosters competition for physicians among clinics, promoting more favorable employment contracts and better management. In the long run, this yields better retention and more stable physician staffing for publicly supported practices and their communities.

Correcting the demographic composition of the physician workforce. Another secondary goal for some programs, particularly the various federal scholarship programs, has been to minimize the debt incurred for a medical education for students from minority, poor, and rural backgrounds.^{27,28} The hope has been that a financing avenue that requires less debt will encourage more students from disadvantaged backgrounds to undertake medical training. Whether the availability of service-requiring scholarships and service-option loans is instrumental in the career decisions of minority and poor students is unknown; it has not been formally studied.

With the goal of correcting the demographic imbalance of the United States workforce, the NHSC Scholarship program supports a disproportionately high number of African American physicians. As a group, however, African Americans in rural NHSC settings have proven less satisfied in their service practices and no better retained than other NHSC physicians.²⁹ This appears to be due to a mismatch between the urban orientation of most African American physicians³⁰ and the NHSC's practice of assuring that most of its physicians serve in rural settings.²⁹ Support-for-service programs that target a special demographic group must anticipate the unique needs of those individuals and adjust their operations accordingly, like tailoring their lists of eligible service sites or offering part-time work options. Secondary goals of any kind taken on by programs can affect their ability to achieve their primary goals in unanticipated ways.

Recommendations

Based on the literature, the following recommendations are offered to strengthen the outcomes and impact of physician training support-for-service programs.

- Legislators should be clear about the long-term goals of the support-for-service programs they create and fund. They should provide guidance to programs on how to balance the goals of improving physician availability in underserved areas in the long term with any other goals they set, such as to provide staffing for publicly supported clinics.
- Programs should be clear on the goals and specific outcomes they are pursuing and should be certain that the outcomes are appropriate to the goals. High buy-out penalties, for example, generally will not support a goal of stable, long-term staffing in underserved communities.
- Programs should regularly monitor and publicly report their outcomes. Several types of outcome data should be used:
 - ◆ Community and patient demographic data for the communities and patients where obligated physicians serve;

- ◆ Program data on position fill rates, service completion versus financial buy-out versus default rates, and three-, 12-, and 36-month post-obligation retention rates;
- ◆ Data from obligated physicians addressing their satisfaction, their perceptions of their fit with the community, their perceptions of the service program and service practices, and their suggestions for improving each of these. These data should be obtained through annual surveys of participants, exit interviews, and tallies of grievances.
- ◆ Data from service practices addressing perceptions of their assigned physicians' volume and quality of practice and their physicians' fit with the community and the service program.
- In the interests of underserved communities, programs should be willing to accept outcome data and change their operations to improve outcomes.
- Programs should not tolerate poor management of their obligated physicians by practice, and legislators should not fund programs that tolerate mismanagement of this valuable public resource.

Conclusions

Twenty-five years of program evaluations have clarified many of the outcomes possible from physician training support-for-service programs. Studies have demonstrated that loan repayment programs, as a whole, have better outcomes than scholarship programs. The central importance of good community-physician matching clearly has been shown.

Information from formal research and programs' self evaluations has sometimes influenced today's programs. For example, studies demonstrating the strengths of loan repayment programs prompted Congress recently to allow the NHSC to make more loan repayment and fewer scholarship awards and led some states to expand their loan repayment programs.⁶

Other evaluation information remains generally unheeded. Despite the demonstrated importance of physician-community matches, very few programs offer site match or contract assistance to physicians and communities. Some programs have yet to make key strategic choices, like the desired balance between meeting the short-term staffing needs of publicly-supported practices and the long-term staffing needs of underserved areas. Many programs, even those with the best of intentions, tend to cling to traditional modes of operation, despite evidence showing more effective approaches.

Excellent outcomes are quite achievable from physician training support-for-service programs. In the interests of medically underserved communities, programs should have explicit outcome objectives, regularly monitor their outcomes, openly acknowledge weaknesses, and embrace change when needed. **NCMedJ**

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