State Incentive Programs that Encourage Allied Health Professionals to Provide Care for Rural and Underserved Populations

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KEY FINDINGS

State-based programs that provide loans, scholarships, and other incentives for allied health professionals in exchange for service in rural and underserved areas are one approach to alleviating workforce shortages. This study examined the operation of these programs across the U.S., allied health professionals targeted, and efforts to gauge programs' success in recruitment and retention through a review of publicly available information on state programs and interviews with program leaders in 27 states. Key findings include:

- Most programs targeted allied health as well as primary care and other professionals such as doctors, nurses, and dentists, and these other types of professionals often took priority over allied health in the allocation of incentives.
- Allied health professionals were eligible for incentives in 43 states and the District of Columbia, and 16 states had more than one allied health program.
- 39 different types of allied health professionals were eligible for incentives; the most common types were licensed professional or mental health counselors, social workers, psychologists, dental hygienists, and marriage and family therapists.
- Loan repayment funded by states alone or with the Federal Health Resources and Services Administration was the most common type of incentive, followed by scholarships and tax credits.
- Reported barriers to allied health professional recruitment and retention in rural and underserved areas included non-competitive salaries, lack of benefits and professional support, poor fit with rural community culture, burnout, and lack of rural community infrastructure or amenities.
- Facilitators to recruitment and retention included community engagement with program participants, competitive salaries and benefits, pre-existing commitment of applicants to rural or underserved area practice, professional support to ensure work-life balance, and the natural environment.
- Respondents overall thought their incentive programs were important in addressing allied health professional shortages, but some noted that measuring program impact was challenging for several reasons: difficulty assessing allied health workforce demand, self-selection of health professionals into practice in rural and underserved communities, lack of longitudinal tracking data, and multiple influences on health professional practice choice.

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INTRODUCTION

Several studies have documented difficulties in recruiting allied health professionals, particularly in rural and underserved areas.[1-4] No single definition of "allied health" exists (most definitions exclude nurses, physicians, and dentists[5,6]), but these reports of recruitment challenges include professionals as varied as occupational therapists, physical therapists, radiation therapists and technicians, respiratory therapists and technicians, pharmacy technicians, dental hygienists, speech pathologists, and medical/clinical laboratory technicians or technologists. Local shortages may be the result of maldistribution of health care workers rather than insufficient supply in absolute terms, but whatever the cause, the difficulty that some rural and underserved communities face in recruiting allied health professionals is cause for concern, particularly given projections of increasing demand for numerous allied health occupations.[7]

Incentive programs are one strategy used to address these shortages. More is known about incentive programs in the U.S. that target physicians (e.g., the Conrad State 30 Program)[8-10] or operate at the federal level (see **Table 1** for programs in operation as of 2018), such as the National Health Service Corps (NHSC),[11,12] but less is known about state policies and programs to recruit and retain allied health professionals to provide care for rural and underserved populations.

Table 1: Federal Programs Targeting Allied Health Professionals for Practice in Underserved Areas, 2018*

Program	Description
National Health Service Core (NHSC) Loan Repayment Program https://nhsc.hrsa.gov/loan-repayment/index.html	Operated by the Health Resources and Services Administration (HRSA), this program's eligible allied health disciplines include dental hygienists, health service psychologists, licensed clinical social workers, marriage and family therapists, and licensed professional counselors. Award amounts are based on the need of the community in which the provider works, as defined by a Health Professional Shortage Area (HPSA) score. Service commitments are for two years.
Substance Use Disorder (SUD) Workforce Loan Repayment Program https://nhsc.hrsa.gov/loan-repayment/nhsc-sud-workforce-loan-repayment-program.html	Operated by HRSA, this program's eligible allied health disciplines include behavioral health professionals and SUD counselors. Service commitments are for three years at an NHSC-approved site providing SUD treatment.
Indian Health Service (IHS) Loan Repayment Program https://www.ihs.gov/loanrepayment/lrpbasics/eligiblehealthprofessions/	Operated by the Federal Health Program for American Indians and Alaska Natives, this program's eligible allied health disciplines include clinical and counseling psychologists, licensed professional counselors, licensed social workers, dental hygienists, physical therapists, occupational therapists, speech-language pathologists, audiologists, registered dieticians, and medical laboratory scientists. Service commitments are for two years at an Indian health facility, administered by IHS, a Tribal organization, or an Urban Indian program.

*These programs may also target other professionals such physicians, physician assistants, nurse practitioners, and pharmacists.

There are few publicly available descriptions of state policies and incentive programs for allied health professionals, but programs exist in states as geographically diverse as Nebraska,[13] New Mexico,[14] and Oregon[15] and target a wide variety of allied health professionals, including physical therapists, occupational therapists, speech-language pathologists, audiologists, respiratory therapists, laboratory technologists, emergency medical services (EMS) providers, nutritionists, dental hygienists, optometrists, licensed clinical social workers, and marriage and family therapists. Incentives described in these reports include scholarships, loans, loan repayment, and tax incentives for rural and underserved practice.

No nationwide effort has been made to describe state allied health incentive programs—their policies, practices, and success in allied health professional

recruitment and retention. The factors that shape states' policies for addressing allied health professional shortages and the effectiveness of incentive programs are therefore not well understood. Because of states' essential roles in setting health workforce policy, research is needed to identify state-level perceptions of unmet need for allied health professionals and initiatives to address the need. This study aims to fill this knowledge gap by undertaking a systematic analysis of state incentive programs targeting allied health professionals for service in rural and underserved areas to understand program goals, policies, practices, and available data on outcomes.

Key study questions included:

- How many state programs exist that offer incentives for allied health professionals to practice in rural and underserved areas, and how are they distributed across states?
- What are states' goals for providing incentives to allied health professionals?
- What kinds of incentives are provided?
- What criteria do states use to determine need for allied health professionals; eligibility of rural and underserved populations, geographic areas, and facility types; and professions to target?
- What information do states collect to evaluate incentive programs? What evidence exists for program impact and success?

METHODS

This study employed multiple data sources including allied health incentive program websites, document review, and interviews with leaders of allied health incentive programs operated by state governments or other entities within states. Data collection occurred from February 2018 through November 2018. The University of Washington Human Subjects Division reviewed and approved this study.

No consistent definition exists to delineate which professions count as "allied health": physicians and dentists are clearly excluded; most definitions also exclude nurses, and many definitions exclude pharmacists and physician assistants.[6] A few key informants understood the term "allied health" to include physician assistants, underscoring a lack of consensus on the meaning of this term. For the purpose of this study, "allied health" included all health professionals except physicians, physician assistants, dentists, nurses, and pharmacists. This definition therefore included a broad range of professionals such as podiatrists, physical therapists, radiologic technicians, community health workers, and emergency medical technicians.

IDENTIFYING STATE ALLIED HEALTH INCENTIVE PROGRAMS

We identified state programs providing incentives for allied health professionals by searching online directories of programs[16-18] and state government websites using the terms "allied health," "loan repayment," "incentive," "support for service," and "scholarship." These searches often led to websites for state offices of rural health or primary care, departments of public health, higher education centers, foundations, and commissions. Programs of interest included those that provided financial support such as loan repayment, scholarships, and tax credits, as well as training opportunities to students or professionals in return for a service requirement in a defined medically underserved setting. We excluded programs that were solely offered to those pursuing physician, dentist, nurse, physician assistant, or pharmacist education or employment and programs that were aimed at general recruitment to a health profession without a focus on providing service to rural and underserved populations or areas. Information collected from program websites included applications, application instructions and guidance documents, as well as evaluation reports when available.

KEY INFORMANT INTERVIEWS

Using information derived from the websites identified through the above search, we contacted personnel from offices most clearly associated with state recruitment and retention efforts, including National Health Service Corps (NHSC) programs, for an interview as the initial key informant in that state. We reached out to the contact person for at least one program in every state via

email to schedule a confidential interview with the most knowledgeable person from each program. We sent at least two follow-up emails followed by a phone call to non-respondents. Participants declining an interview were offered the option to answer questions by email. Interviews, conducted by one or two members of the research team, lasted 30 to 60 minutes. Interviewers took notes to record responses, and most participants gave consent to audio-record interviews as a backup.

Interview questions were structured, with follow-up questions for clarification, to cover topics including program goals, professionals eligible, incentives offered, service obligations, perceived success in recruitment and retention of allied health professionals, facilitators and barriers to recruitment and retention, perceived importance of incentive programs as a means of addressing allied health professional shortages, and available data to evaluate program success.

ANALYSIS

We combined publicly available information on all states with information collected from interviews for those states where we interviewed program personnel. We generated descriptive statistics and compiled key informant comments to answer study questions.

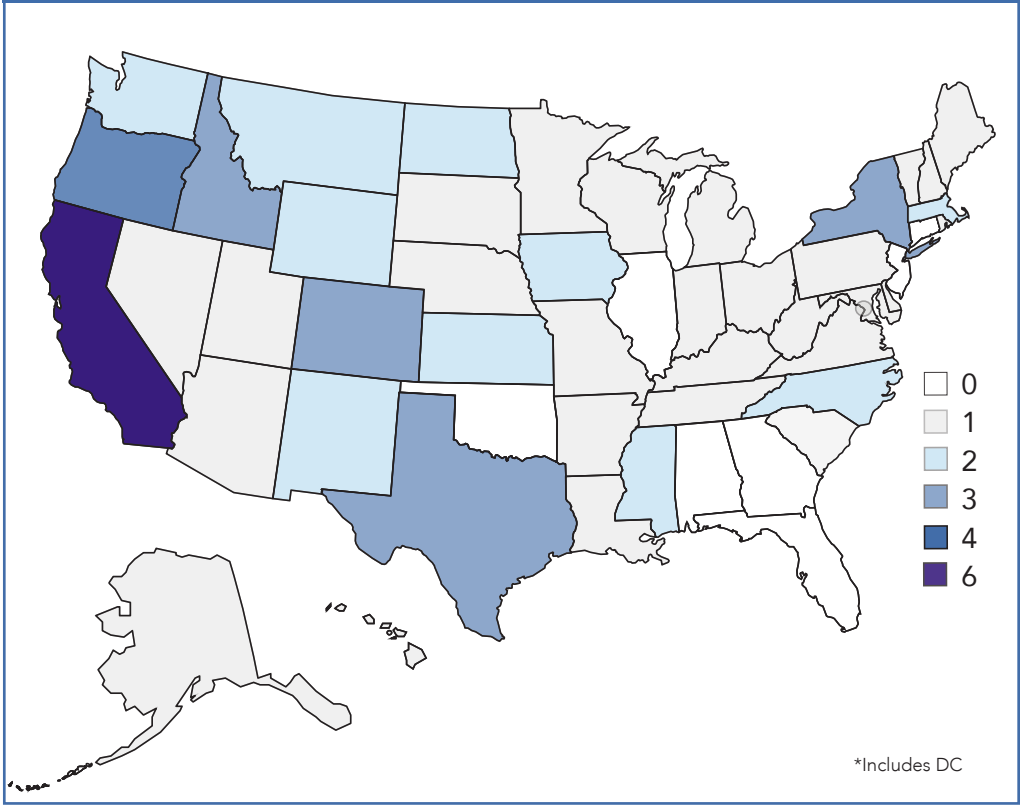
RESULTS

We included the District of Columbia (DC) in this study of "state" programs, as distinct from federal programs. We identified at least one state incentive program available for allied health professionals in 43 states and DC; in seven states we found only federal programs. We interviewed 30 key informants (one via email) from 27 states (one person in 25 states, two persons in one state, and three persons in another state: see **Appendix** for a list) about state allied health incentive programs, for a response rate of 52.9% among the 50 states and DC. We also conducted four interviews with national experts in this topic.

DISTRIBUTION OF PROGRAMS ACROSS STATES

Of all programs identified through web searches and interviews, we found no state-level (as opposed to federal-only) allied health professional incentive programs in seven states, one program each in 28 states and DC, two programs in 10 states, and three to six programs in six states (see **Figure 1**) for a total of 69 different programs. These numbers must be viewed with caution, as it is possible that we may have failed to identify all programs.

Figure 1: Number of State* Allied Health Incentive Programs Identified, by State, 2018



TYPES AND NUMBERS OF ALLIED HEALTH PROFESSIONALS RECEIVING INCENTIVES

State incentive programs were open to a wide variety of allied health professionals. Few programs targeted allied health professionals only; most were also open to primary care clinicians such as doctors, dentists, and nurses. From 1 to 26 different types of allied health professionals were eligible in each program, with a mean of 5 eligible allied health professions. In total, we identified 39 different allied health disciplines eligible for incentives. The most common types of eligible allied health professionals were in behavioral health-related fields, including licensed professional or mental health counselors, social workers, psychologists, and marriage and family therapists (see **Figure 2** for the top ten most common and the **Appendix** for a complete list). Dental hygienists were also in the top five.

Figure 2: Top 10 Allied Health Professions Eligible for State Incentive Programs, by Number of Programs, 2018

Programs did not always specify the number of persons that their programs could support with incentives; the ability to include new participants depended on state funding levels (or combined state/federal funding) and existing obligations to participants already receiving incentives when eligible for multiple years. Most programs were not able to provide information about numbers of allied health professional participants served. Sixteen programs providing these statistics served from 1 to 33 allied health professionals per year, with a mean annual number of 10. We do not know the extent to which these programs were representative of all programs, but if so, the number of allied health professionals receiving incentives annually could be as many as 800 and perhaps even more.

TYPES OF INCENTIVE PROGRAMS

Programs offered a variety of incentives. The vast majority of states offered loan repayment for practice in rural and underserved areas (**Table 2**). Scholarships, tax credits, various types of stipends, and clinical rotation support programs were less common. Most programs targeted incentives to recent health professional education program graduates or professionals already in practice, while scholarships and some loans targeted students enrolled in school for obligated service post-graduation. Clinical experiences in rural and underserved areas for students carried no post-graduation service obligations.

NHSC State Loan Repayment Programs (SLRPs) are funded through the Health Resources and Services Administration's (HRSA) Bureau of Health Workforce and provide states the opportunity to expand their educational loan repayment programs by matching state funds with federal dollars. In 2018 these cost-sharing grants had been implemented in 36 states to entice primary care providers to work in Health Professional Shortage Areas (HPSAs) or other underserved communities. HRSA guidelines recommend that states offer funding to allied health disciplines, including dental hygienists, health service psychologists, licensed clinical social workers, marriage and family therapists, substance use disorder counselors, and licensed professional counselors. However, states may decide for themselves which disciplines are eligible for their loan repayment program. Thirty of these programs provided loan repayment to one or more of these allied health disciplines. The HRSA-recommended minimum service commitment is two years, but states may require longer commitments in order to meet community needs.

Seventeen states offered their own state-funded loan repayment programs (not HRSA/state-funded SLRPs). Eleven states with a HRSA-funded SLRP also offered state-based loan repayment programs that were open to allied health professionals. Fewer than ten states each offered scholarship programs, tax credits, educational loan programs, stipends, clinical experiences, or financial incentives that could be used either as a stipend or for loan repayment. Allied health students could apply while still in school for scholarships, educational loans, or clinical experience programs to help with costs and encourage rural or underserved practice. Tax incentive programs were offered only to volunteer emergency medical service personnel.

Table 2: Types of State* Incentive Programs for Allied Health Professionals, 2018

Type	Description	Funding source	States with programs
HRSA State Loan Repayment Program (SLRP)	Loan repayment for health professionals who have graduated, with combined HRSA National Health Service Corps SLRP and state funding	Federal/ state	30
Non-HRSA loan repayment	Loan repayment for health professionals who have graduated, funded by the state (not HRSA); all require a service obligation	State only	17**
Scholarship	Scholarships for participants still in school, funded by the state; all require a service obligation	State only	6
Tax credit	Tax credits to emergency medical service (EMS) personnel who volunteer with a department other than the one that employs the incentive recipient	State only	3
Educational loan with loan repayment	Educational loans for participants still in school, with service obligations after graduation to repay loans	State only	2
Stipend	Funds to (1) rural facilities or community groups to offer to allied health professionals to increase recruitment, or (2) directly to allied health professionals to increase recruitment in rural areas, with no restrictions on how the money can be spent	State only	2
Clinical experience	Free opportunity for students to shadow providers to increase recruitment in rural and underserved areas	State only	2
Loan repayment or Stipend	Choice of loan repayment or stipend (for those who do not have loans) to increase recruitment in rural and underserved areas	State only	1

*Includes DC
**These 17 states had 23 distinct loan repayment programs.

Most programs were funded either jointly between states and HRSA (30) or state legislation (35), while three programs were funded through higher education departments, and one through a foundation endowment.

PROGRAM GOALS

Key informants described their program, office, or state's goals for offering incentives for allied health professionals and how they determined the need for these professionals. The most commonly reported program goals were to provide care to medically vulnerable or high-need populations such as the elderly, poor, or uninsured, including those in underserved and rural areas; provide access to care more generally; address workforce shortages generally or specifically in behavioral health; and recruit and retain allied health professionals. Other goals were to improve health outcomes, educate a new allied health workforce, reduce health professionals' debt, and create awareness of health disparities in poor areas of the state.

DETERMINING WORKFORCE NEEDS AND SETTING INCENTIVE PROGRAM POLICIES

Program oversight. A variety of governing entities determined allied health incentive program goals, needs for targeting incentives, and resulting policies. State legislatures were most often responsible for setting overall program policies, including which disciplines, geographic areas, and types of facilities were eligible as well as overall funding and specific amounts of incentives available annually to program participants. State health department offices, such as primary care or rural health offices, also worked with community health organizations, schools, health commissions, and advisory boards to set program policies.

Defining "underserved." Definitions of underserved and rural areas varied by state. Most key informants said that they relied primarily on HPSA scores, which HRSA calculates as a measure of need for primary care, mental health, and dental health providers.[19] Some mentioned that because their entire state is a HPSA, they had to look at other criteria for defining rural and underserved areas. Prioritized sites included those with the highest HPSA scores; mental health hospitals; safety net settings including Critical Access Hospitals (CAHs), Federally Qualified Health Centers (FQHCs) and Rural Health Clinics (RHCs); sites with larger populations of elderly, veterans, Medicare-insured, Medicaid-insured, migrant, or immigrant patients; and urban sites that served rural patients.

Measuring need. In addition to HPSA scores, key informants reported using a wide variety of measures to determine need for specific types of allied health professionals in targeted geographic areas or facilities. These measures included proprietary scoring methods, data from reports with state rural workforce information, county Medicare/Medicaid insurance coverage statistics, informal reports from FQHCs and RHCs on workforce needs, population health outcomes, state and county health improvement measures, statistics derived from professional organization membership or licensing data, Bureau of Labor Statistics data, and reports of difficulty filling vacancies and length of time vacant positions were open.

Selecting recipients. To select incentive recipients, program personnel made decisions themselves or under the advisement of external review committees, advisory boards or councils, health department commissions, community organizations, professional organizations, or health care administrators. The decision process generally involved weighing a variety of factors to match applicants with available incentives, including need for specific disciplines, type of health care facility, patient population served, applicant debt amounts, state residency, and reported commitment to providing care in rural and underserved areas. Tuition waiver or reduction programs for students currently in school almost always targeted in-state students with the goal of encouraging retention in the state after graduation.

PARTICIPANT OBLIGATIONS AND BENEFITS

Time commitment. Most incentive programs had a two-year minimum requirement for service, and the longest extended to a maximum of five years. Programs that required one year of service were all student scholarships rather than incentives for professionals in practice. Scholarship programs generally required a year of service per year of scholarship funding. Some loan repayment incentives allowed for both part-time and full-time employment, and some offered the option to serve beyond the minimum required term of one or two years.

Determining award size. Programs used a variety of criteria to determine how much funding applicants could receive, such as HPSA scores for service sites, amount of applicant debt, or number of underserved patients seen per month. One program reported providing tax burden offset funds in addition to loan repayment funds. For allied health students scholarship award amounts ranged from $250 to $7,500 per year of post-graduation service required. For allied health professionals in practice, the amount of loan repayment incentives varied even more. During the first one to two years of program participation, awards ranged from less than $10,000 to $60,000 a year for full-time positions and $7,500 to $30,000 a year for part-time positions. The few programs with service contracts greater than two years offered less than $10,000 to $50,000 a year for full-time positions, and $4,000 to $12,500 a year for part-time positions, depending on years of service. For participants who served beyond the minimum required term when allowed, some programs offered less money for continued service, while others offered the same amount as the initial one or two years. Detailed information on financial incentive amounts is available in the **Appendix**.

BARRIERS AND FACILITATORS TO ALLIED HEALTH PROFESSIONAL RECRUITMENT AND RETENTION

We queried key informants for their perspectives on barriers and facilitators to recruiting and retaining allied health professionals in rural and underserved areas. In most cases, factors cited were no different than those commonly cited for health professionals

more generally,[20] and in fact, many key informants did not distinguish between allied health and primary care medical professionals in responding to these questions. **Table 3** provides illustrative comments.

Barriers to recruitment and retention of allied health professionals reported by key informants fell into several categories, in order of numbers of key informants citing: non-competitive salaries; lack of benefits and professional support, including limited vacation time due to small number of providers who could provide coverage; poor fit with rural community culture; burnout; and lack of infrastructure or amenities to support building a family in rural areas. Two key informants reported that practice sites without retention plans that include community engagement had more difficulty retaining allied health professionals. Barrier comments focused on rural recruitment and retention; no barriers mentioned were specific to urban underserved areas.

Reported facilitators of recruitment and retention fell into several categories that tended to correspond with barriers, in order of numbers of key informants citing: community engagement with incentive program participants; salary and benefits; prior commitment of applicants to rural or underserved area practice; professional support and work-life balance; access to the natural environment; and relationships between incentive programs, schools, and sites.

Several key informants reiterated that when incentive program personnel worked with communities to welcome participants, adjustment was easier, and retention increased when participants invested in the local community. Likewise, professionals' prior interest and commitment to working with rural and underserved populations was perceived as a facilitator to recruitment and retention.

Table 3: Key Informant Perspectives on Barriers and Facilitators to Recruitment and Retention

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Our underserved areas can be pretty isolated, pretty small, not just rural, but frontier. And so that can be a challenge, especially for new health care professionals coming out of school. All the universities are located in large cities and that's what they've been used to for the last few years, and so rurality is definitely a factor.

Lack of amenities makes it difficult for folks to live in remote or isolated areas if that isn't something that they grew up with or are used to. Spousal satisfaction for any type of health professional [can be a barrier], so employment opportunities or other types of opportunities. School systems aren't always at their best in rural areas of the state, just because of poorer socioeconomic environments in rural areas. Lots of cultural barriers as far as rural vs. urban. Availability of housing, burnout, lower salaries, high expectations around regulatory expectations.

The lack of colleagues, the lack of support. You know, many of the smaller communities, somebody might be the only occupational therapist, or one of a few. So, having colleagues to work with, having more specialized individuals to refer patients to. You know, the ability to take time off, to have a family, to go on vacation, to take care of your own relatives, can often be challenging.

I don't believe that asking them to come back for three years really ties them to the state. So you know, a longer term contract, they're more likely to get a mortgage, they're more likely to meet somebody, and, you know, develop a relationship, start a family, kids are more likely to be in school, that sort of thing… would be helpful.

Outside of loan repayment, number one is a fair salary and compensation, which I think tends to be on the low side for many allied health professionals, I would say especially in rural areas…The culture and the work environment would be right up there with that. And working in an atmosphere that encouraged career growth and was transparent and valued their employees and gave their employees tools so that they could actually make a difference with their patients would be probably the biggest incentive.

The landscape is changing as far as what professionals are looking for in their work life. There are a lot of professionals, especially new, coming out of school, are looking for much more focus on work-life balance and what they can do with their time off.

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Key informants frequently indicated that recruiting allied health professionals from rural areas increased the likelihood of rural retention, while urban students might be a poorer fit in rural communities. Allied health professionals who had completed rural training or internships were seen as more likely to be successful at staying in communities, being familiar with the culture of rural areas and knowing what to expect.

Not all eligible sites had a system to support participants once they arrived, but those that did were described as the most successful in retaining health professionals in rural and underserved communities. Several key informants mentioned the importance of organizational culture and employment benefits in retaining allied health professionals on completion of service commitments, including offering vacation time, mentorship, and career mobility, in addition to competitive wages.

Key informants cited relationships between their programs and health professional education programs. Working with local colleges and universities could help guide students toward jobs and financial incentives for recruiting students already in the state to rural and underserved job sites.

Table 4: Key Informant Perspectives on Program Effectiveness

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Our award I think might make more of a difference, not in getting someone to a rural area, but getting them to choose to do physical therapy at an outpatient site or at a nursing home, instead of in a hospital.

We get a lot of applications from students that say things like, "Getting this award won't impact my practice decision because I'm already committed to rural." So when you pull those out, it's tricky. I think that a lot of the students that come into our programs are ones that want to work in a rural environment and are going to seek that anyway, especially with allied health.

We have an aging population in many of the professions, like medical laboratory technician is one of them, where in the next five years, the large majority of them will be reaching retirement age. So we wanted to look at a way of getting our students the experience of living and working in rural sites, and we really feel that getting them in those sites to do their training, giving those facilities a chance to really showcase, not just what the facility has to offer, but their community as a whole [helps make the program effective].

[Health professionals'] understanding of underserved populations and why populations have barriers to accessing health care [improves program effectiveness]. A commitment to those populations, or to vulnerable populations in general. Commitment to their community…Providers that are either from a particular community or have close personal ties to a particular community have a better retention rate, so we do look for that in our application review.

For retention, it's probably not very effective if that's the only thing you're using [an incentive]…And that's a problem that practice sites have understanding, the role they have in the retention of their own employees.

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Two key informants also mentioned that the rural natural environment could be a big draw for allied health professionals to their states.

PROGRAM EFFECTIVENESS AT RECRUITMENT AND RETENTION

We asked interviewees to comment on the effectiveness of their programs in recruiting and retaining allied health professionals in underserved areas. The following results are based on 23 interviewees' perceptions of program effectiveness; illustrative comments are provided in **Table 4.**

Most key informants perceived their programs as successful at improving recruitment and retention of allied health professionals, basing their overall assessments of program success on the number of applicants. Incentives could make a difference in recruitment to particular work settings such as outpatient clinics, which tended to pay lower salaries than hospitals. However, several key informants offered qualifications to the overall perception of success. Some noted that many students were already committed

to working in rural and underserved areas, making the incentives more of a bonus than a motivator to persuade new recruits to work in those areas. Another key informant said that incentive programs could hurt sites in rural areas that are not eligible for those programs, increasing the challenge of recruitment because they could not offer loan repayment. Some also noted that application review committees prioritized applications from physicians and dentists over those from allied health professionals.

Perceptions of retention effectiveness were like those for recruitment, and key informants cited similar influences at play. In addition, several cited the role of employers and a welcoming local community helping allied health professionals get oriented to and invested in their work and community. Without this support, incentive recipients were likely to leave upon completing service obligations. One key informant perceived that incentive programs were not very successful for promoting retention, commenting that most professionals left positions after meeting service obligations.

Finally, some program personnel did not view their function as workforce recruitment and retention because they did not place individuals in specific sites, but simply guided health professionals and sites through applying for available funding. These interviewees did not respond to interview questions about recruitment and retention effectiveness.

IMPORTANCE OF INCENTIVE PROGRAMS IN ADDRESSING ALLIED HEALTH PROFESSIONAL SHORTAGES

We asked key informants to rate whether their incentive programs were extremely, fairly, or not important in addressing allied health professional shortages in their states. Of 25 key informants providing ratings, 13 said their programs were extremely important, 11 fairly important, and one not important. **Table 5** provides comments representing these perspectives.

Key informants who viewed incentive programs as extremely important cited several reasons. Those from states with fewer training programs to develop the allied health workforce locally thought that incentives could help attract professionals from other states. Many key informants said that incentive

Table 5: Key Informant Perspectives on Importance of Incentive Programs in Addressing Allied Health Professional Shortages

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I don't have evidence [that the incentive program is important for addressing state allied health professional shortages], but I believe so.

It's a huge need…The cost of education is beginning to go up, so it's a real incentive to getting people to work in rural and underserved areas in particular…Without the program, I know that some of these areas that rely on the program would really struggle to recruit providers. And you know, I think, to be honest, probably even more so with allied health professionals…because they seem to be more transient, they seem to move on and try to move up more quickly. So anything we can do to keep them there longer.

Hard question because we don't know what the shortages are; regardless, the program is pretty small, so nominal [in importance].

Very important on a number of different levels. One, being that there is a place for that category [allied health professionals] within our loan repayment program, I think shows a lot about the importance of it. And then, two, the level of interest that we have in the programs, this tells us that there's a need, and if we can make the case to our legislature to have more dollars allotted to allied health professionals, that's definitely things we're keeping track of in the event that we need to make that case or want to make that case.

Debt is growing for all these professions. States are trying to create these incentive programs, but higher education keeps raising the cost. The education cost is getting punted to employers and to states. Loan repayment programs are expected, a new baseline, not a bonus…Costs are just being moved downstream. Incentive programs are an arms race between states to offer money to get workers.

We don't really have a handle on the breadth or depth of the issue in the state. There's no HPSA for them [allied health]…so it's hard to know if we're filling a gap or even what the gap was.

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programs helped relieve the financial burden on allied health professionals, particularly in occupations with more expensive training and higher post-educational debt, such as psychologists or occupational therapists. Service obligations were thought to be extremely important in helping professionals become embedded in rural and underserved communities and remain after fulfilling their obligations.

Even those who thought incentive programs were extremely important cited some concerns. Multiple key informants said that it was difficult to measure allied health professional shortages, since HPSA scoring does not capture shortages of allied health professionals. Nevertheless, some programs used HPSA scores for geographic targeting, and some key informants wanted to see more health professionals in safety net facilities (e.g., RHCs, CAHs, and FQHCs) rather than in any site in a HPSA-designated area. Others who cited concerns about measuring allied health workforce shortages reported wanting to expand their programs and using the number of program applicants as evidence of need to petition their legislature for more funding for allied health.

Several key informants rated incentive programs as fairly, not extremely, important because of underlying barriers such as rising costs of education with the result that states and employers in underserved areas must recruit graduates with ever higher debt. One key informant described the situation as an "arms race" among states offering financial incentives. Salary support, rather than loan repayment, was proposed as an alternative to allow sites in rural or underserved areas to compete more successfully with urban sites. At the same time, others noted that financial incentives do not address non-financial causes of recruitment or retention difficulties.

Another concern was that most loan repayment programs focus on recruiting recent graduates, who have the most debt but least experience, to work with complex patients who require the care of more experienced health care providers.

Some key informants mentioned challenges in operating loan repayment programs, for example, ensuring that funds were being used by recipients to repay loans. And finally, several key informants thought that incentive programs helped address allied health workforce shortages but that the priority should be primary care physicians, nurse practitioners, and physician assistants instead of allied health professionals.

DISCUSSION AND IMPLICATIONS

This study has some limitations. As in all qualitative studies, perceptions offered by interviewees are subject to bias. We were unable to speak with a key informant in every state, and in our Web search, we may have missed some allied health professional incentive programs. In some cases, we learned during interviews that eligible disciplines listed online were not accurate and that programs had been either expanded or limited. The existence of a program in legislation did not mean the program had been or was currently funded at the time of the study. In addition, interviewees responded to interview questions using varying interpretations of the definition of "allied health."

Despite these limitations, this study documented at least 69 different programs in 2018 sponsored by or within states that offered incentives to 39 types of allied health professionals for practice in rural and underserved areas or facilities. We found that state programs frequently mirrored federal programs by offering loan repayment to a similar set of eligible occupations, including allied health. Programs often gave higher priority to primary care medicine, dentistry, nursing, and behavioral health occupations, while numerous allied health occupations outside of these categories were excluded from most states' programs. Allied health professionals thus competed for incentives with non-allied health professionals, and even when allied health occupations were eligible for incentives, they may have been passed over for other occupations. Programs could exclude allied health occupations altogether, or by basing incentives on educational debt levels, programs could effectively give lower priority to allied health professionals because many have lower debt levels than occupations such as dentists and physicians. Allied health professionals, however, also generally have lower earning potential, which can lead to high debt-to-income ratios.

Overall, key informants had positive perceptions of their incentive programs' ability to recruit and retain allied health professionals in rural and underserved areas. However, definitions of success varied greatly, from a shorter-term focus on meeting applicants' demands for incentives to a longer-term focus on retaining incentive recipients in rural or underserved practice. Programs face several challenges and opportunities in assessing program success:

1. Programs could not easily assess local demand for allied health professionals. Some program personnel had access to state licensure or employment data, but relatively little workforce demand information is available specifically about allied health occupations. Programs frequently relied on HPSA scores, which do not capture allied health professional shortages, or word of mouth to determine where allied health professionals were needed. Better measures to assess allied health workforce shortages are needed.
2. Incentive recipients may already self-select to practice in rural or underserved areas with or without the incentives, and some program personnel preferred applicants indicating this kind of motivation. Determining the impact of incentives, as opposed to pre-existing motivations, is therefore difficult.
3. Tracking professionals during and after program participation can be challenging, and little to no recruitment or retention data was available for most programs. Those who had tracking data were able to provide aggregate applicant or participant information but without being able to distinguish readily between occupations, thereby preventing analysis of allied health as distinct from other professionals receiving incentives.
4. Differentiating the impact of scholarships, loan repayment, or other incentives from other factors that key informants identified as affecting recruitment and retention—such as employment conditions, compensation, and benefits; professional support and growth opportunities; community amenities; and other influences—is perhaps the largest challenge.

As a result of these challenges, the pathways of allied health professionals could not easily be traced distinctly from other types of professionals, and assessment of the discrete impact of incentives on allied health professionals is not yet possible. Evidence of incentive program success was thus anecdotal, and more rigorous assessment is needed.

This study was an initial attempt to understand allied health professional incentive programs and inform state and federal workforce strategies aimed at ensuring access to health care. More data on the number of allied health applicants, program participants, and professionals retained in rural and underserved locations after program participation are required to demonstrate program effectiveness. The perspectives of program participants themselves are also needed to paint a complete picture of the role incentives programs play in their decisions to work and remain in rural and underserved areas. Demand for allied health professionals is likely to increase with an aging population that will need more therapies and changes in health service delivery that are expanding opportunities for allied health professionals to fill new roles.[7,21] Better evidence on effective recruitment and retention strategies, including the role that incentives such as loan repayment and scholarships can play, will be key to providing rural and underserved communities and facilities with the supports they need to compete successfully for allied health professionals.

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APPENDIX

Table A-1: States Providing Information on Allied Health Professional Incentive Programs via Interview, 2018*

Alabama**	Idaho	New Mexico
Alaska	Illinois	North Dakota
Arizona	Kansas	Oregon
Arkansas	Maryland	Pennsylvania
Colorado	Minnesota	Vermont
Connecticut	Mississippi	Virginia
Delaware	Missouri	West Virginia
Florida**	Montana	Wisconsin
Hawaii	Nebraska	Wyoming

*Includes one respondent that answered interview questions by email
**Participated in interviews but did not identify any state-sponsored programs

Table A-2: Award Amounts for State Allied Health Incentive Programs by Year of Participation, 2018

Annual Award Amounts by Type of Recipient		Programs (N)
Award amount depends on loan amounts		2
Years 1-2		
Recipients who are students (scholarships)	$250-$7,500	4
Recipients who are full-time employees	<$10,000	3
	$6,000-20,000*	8
	$20,000-50,000*	7
	$40,000-$60,000	6
Recipients who are part-time employees	$7,500	1
	$10,000-30,000*	5
Year 3		
Recipients who are full-time employees	<$10,000	3
	$15,000-25,000*	3
	$40,000-50,000	2
Recipients who are part-time employees	$10,000-12,500*	1
Year 4		
Recipients who are full-time employees	$10,000-25,000*	3
	$40,000-50,000	2
Recipients who are part-time employees	$8,000-10,000*	1
Year 5		
Recipients who are full-time employees	$5,000-10,000*	3
Recipients who are part-time employees	$4,000-5,000*	1

*Award amount for some programs depended on patient volume, Health Professional Shortage Area criteria, or type of professional.

Table A-3: Number of State* Programs Providing Incentives to Allied Health Professionals for Practice in Rural and Underserved Areas, by Profession, 2018

Profession	Program (N)
Licensed Professional Counselor, Licensed Mental Health Counselor	46
Licensed Clinical Social Worker, Licensed Independent Clinical Social Worker	45
Licensed Clinical or Counseling Psychologist, Health Services Psychologist	42
Dental Hygienist	37
Marriage and Family Therapist	36
Licensed Masters Addiction Counselor, Alcohol and Substance Use Disorder Counselor, Licensed Chemical Dependency	18
Emergency Medical Technician, Paramedic, Community Paramedic	11
Occupational Therapist	8
Physical Therapist	7
Speech and Language Pathologist/Therapist	7
Audiologist	4
Clinical Laboratory Scientist	4
Radiologic Technician	4
Respiratory Therapist	4
Community Health Worker	3
Dietician, Nutritionist	3
Medical Laboratory Technologist	3
Physical Therapist Assistant	3
Diagnostic Personnel	2
Medical Assistant	2
Medical Interpreter	2
Optometrist	2
Pharmacy Technician	2
Phlebotomist	2
Surgical Technologist	2
Anesthesia Technician	1
Autotransfusionist	1
Cardiovascular Technologist	1
Electrocardiogram Technician	1
Medical Imaging Technologist	1
Medical Radiation Scientist	1
Neurophysiologist	1
Nuclear Medicine Technologist	1
Orthoptist	1
Orthotist/Prosthetist	1
Perfusionist	1
Podiatrist	1
Radiation Therapy Technologist	1
Ultrasound Technician	1

*Includes DC

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