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Strategies in Recruiting an Adequate Rural Healthcare Workforce

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Are Mission Driven Medical Education Programs with Targeted Student Selection More Effective Than Loan Forgiveness in Recruiting an Adequate Rural Healthcare Workforce?

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Abstract

Purpose/objective: Inadequate access to healthcare in the rural United States has been an ongoing challenge despite national attention and incentives. This report assess the effectiveness of NHSC financial incentives on rural provider recruitment compared to immersive rural-focused medical training programs with targeted student selection.

Methods: The PubMed database was searched using the key phrases rural recruitment, retention, healthcare providers, loan forgiveness, and rural medicine clerkships. Three articles were included in this report which provide different viewpoints on the factors influencing healthcare providers to choose rural practice including participation in NHSC programs and rural focused medical training.

Results: Significant relationships were shown between rural upbringing, participation in a rural medicine training program, and current rural practice. Associations between loan forgiveness and rural practice were mixed but have historically shown positive associations.

Conclusions: Missions driven medical training programs that target students with rural backgrounds results in graduating greater proportions of rural providers. Promoting such programs may be an effective and less costly alternative to loan forgiveness and scholarship incentives.

Introduction

Poor access to medicine in rural communities has been a long-standing issue in the United States despite nationwide efforts to improve rural provider recruitment and retention. The National Health Service Corps (NHSC) represents the largest nationwide effort to improve rural provider recruitment. However, NHSC programs are costly, and some research suggests that rural upbringing is a greater predictor of future rural practice than NHSC participation.^{4,7} This report attempts to assess the effectiveness of medical training programs with missions focused on rural service compared to NHSC incentive programs in recruiting an adequate rural healthcare workforce.

Topic of Interest

The Health Resources and Services Administration defines a Health Professional Shortage Area (HPSA) for primary care as a provider to population ratio of 1 to 3,500. Currently there are 8,160 municipalities designated as a HPSA for primary care.³ Other essential fields including mental health, gynecology, and dental care have similar deficits.

The National Health Service Corps (NHSC) was founded in 1972 as part of the Emergency Health Personnel Act.⁵ The organization's 2022 budget of \$1.5 billion represents the most comprehensive and costly national effort to increase the rural provider workforce.⁸ Yet 14 million Americans continue to live in areas with too few primary care physicians.² Some research suggests that having a rural upbringing is the biggest predictor of future rural practice while scholarships and loan forgiveness have minimal influence.⁴

Many medical education programs including the UMN medical School have developed missions aimed at promoting rural service through immersive rotations and targeted student selection. This approach has potential for improving long-term rural provider retention in ways that financial incentives cannot.

Methods

The development of medical training programs with missions focused on rural service represents a promising avenue for graduating more rural healthcare providers. A comparison is warranted between such programs and NHSC incentives due to the cost of loan forgiveness and the continued deficits of rural healthcare access. This prompted the question "are Mission Driven Medical Education Programs with Targeted Student Selection more effective than Loan Forgiveness in Recruiting an Adequate Rural Healthcare Workforce." Research was completed using the PubMed database and the keywords rural recruitment, retention, healthcare providers, loan forgiveness, and rural medicine clerkships. The selected articles were chosen because they were current and assess different scopes of the rural provider recruitment effort from national career trends to specific medical school-driven efforts.

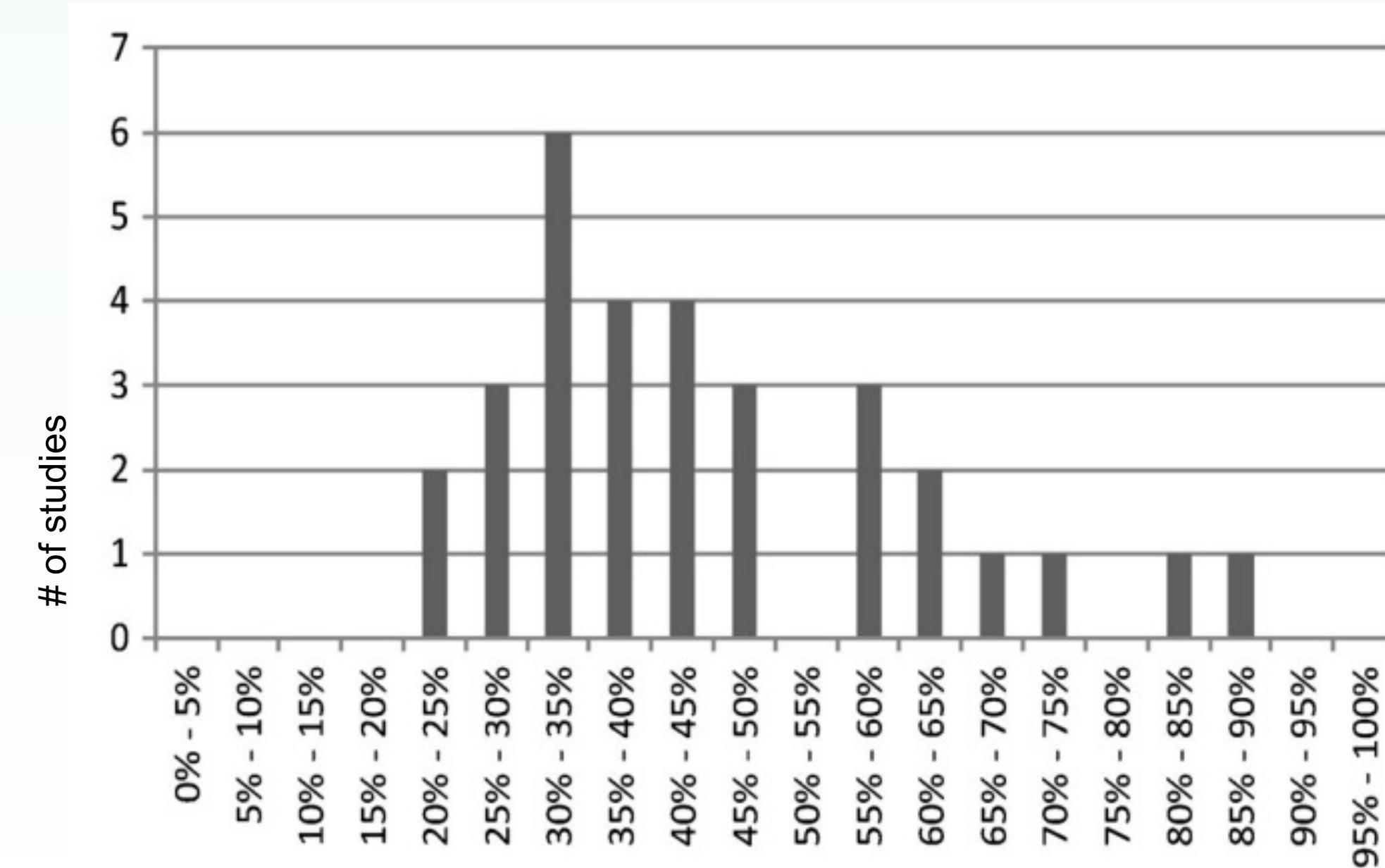
Discussion

Article 1: "Recruiting Rural Healthcare Providers Today: a Systematic Review of Training Program Success and Determinants of Geographic"

This systematic review of 31 research articles assesses which factors are most influential in a provider's decision to practice rural medicine from 2005 to 2017. Two reviewers independently screen publications for inclusion criteria and sources of bias with a senior reviewer assessing the quality of evidence using the GRADE approach.

The factor most strongly associated with future rural practice was having a rural background. Of the providers who had a rural upbringing, 30-52% reported choosing rural medicine upon graduation (GRADE: moderate). Rural medicine training programs had a variable influence on future rural practice (30-65%, GRADE: moderate) with all programs graduating more than the national rural provider rate (figure 4).³ This review could not replicate associations between loan forgiveness opportunities and rural practice (GRADE: very low).

Figure 1: Proportion of students going into rural healthcare after rural-focused training



This research suggests that rural medicine exposure during training and preferential recruitment of students with rural backgrounds could be beneficial in expanding the rural workforce. Limitations of this review include an unclear definition of the term "rural" in 29% of the studies. Additionally, the study does not address variations in program quality or student satisfaction.

Article 2: "Efforts to Graduate More Primary Care Physicians and Physicians Who Will Practice in Rural Areas: Examining Outcomes From the University of Minnesota-Duluth and the Rural Physician Associate Program"

This study assess the effectiveness of UMN medical school programs aimed at graduating more rural physicians including the Rural Physician Associate Program (RPAP), and the UMN-Duluth campus. Medical students at UMN are given the opportunity to participate in the nine-month intensive RPAP clinical rotation with a rural preceptor, and to complete the first two years of medical school at the Duluth campus which is central to many of the state's rural communities.

The study analyzes demographic data from 3,365 UMN graduates from 1990 to 2004. Logistic regression measured interactions for current rural practice among graduates who had a rural background (OR 2.82, P <0.001), and graduates who participated in either the RPAP (OR 4.62, P <0.001) or the UMN-Duluth (OR 4.09, P <0.001) programs. These interactions were shown to be additive. Participation in both the RPAP and the UMN-Duluth programs showed a 54% rate of current rural practice compared to a national rural practice rate of 11% in 2020.⁴ Of the students with a metropolitan upbringing, participation in either program resulted in a 25% recruitment rate to rural medicine.

Both RPAP and UMN-Duluth select for students with an interest in rural medicine which introduces selection bias. Regardless, the study shows that targeted student selection and immersive rural training are effective in graduating more rural providers.

Table 1:

Logistic Regression With Interactions for the Outcome of Current Rural Practice Setting Among Students at the Duluth Campus of the University of Minnesota (UMN) Medical School Who Were or Were Not Raised in a Rural Community and Who Did or Did Not Participate in the Rural Physician Associate Program (RPAP), 1990-2004

Variable	B	SE	Odds ratio	Confidence interval		P value
				Lower	Upper	
RPAP	1.53	0.22	4.62	3.01	7.09	<.001
UMN-Duluth	1.41	0.19	4.09	2.81	5.96	<.001
Raised in a rural community	1.04	0.15	2.82	2.10	3.79	<.001
RPAP and UMN-Duluth	-0.38	0.38	0.69	0.33	1.44	NS
RPAP and raised in a rural community	-0.46	0.31	0.63	0.35	1.15	NS
UMN-Duluth and raised in a rural community	-0.57	0.27	0.56	0.33	0.96	.03
Three-way interaction	0.34	0.49	1.41	0.54	3.67	NS

Article 3: "Factors that influence physician assistant program graduates to choose rural medicine practice"

Surveys conducted by the Texas Academy of Physician Assistants (TAPA) are analyzed in this study with questions aimed at rural upbringing, participation in a rural clerkship program, and current rural practice. Chi-square analysis revealed a significant relationship between rural upbringing and current rural practice ($\chi^2(4) = 16.08, P = .003$) as well as rural training program participation and current rural practice ($\chi^2(1) = 10.67, P = .001$). The group least likely to practice rural medicine were those who lived in a rural area for the least amount of time. This justifies preferential selection of rural PA students in areas with large rural populations as well as exposure to rural medicine during training. However, it is difficult to generalize the results of this study to the greater PA profession due to the narrow demographic sample and low survey response rate (11.4%).

Table 2: Employment in Rural Practice by Participation in Rural Clerkship

Rural Practice	Clerkship N (%)	
	Rural (n = 122)	Nonrural (n = 84)
Yes	46 (22.3)	14 (6.8)
No	76 (36.9)	70 (34.0)

Table 3: Employment in Rural Practice by Number of Years Lived in a Rural Community Prior to Entering PA School

Rural Practice	Years in Community < 50,000 Population N (%)				
	0-5	6-10	11-15	16-20	>20
Yes	22 (10.7)	7 (3.4)	4 (1.9)	13 (6.3)	14 (6.8)
No	93 (45.1)	8 (3.9)	8 (3.9)	25 (12.1)	12 (5.8)

Conclusion

The greatest predictor of future rural practice is having a rural upbringing. Targeted student selection and rural medicine exposure during training shows promise in graduating more rural providers when compared to costly NHSC scholarship and loan forgiveness programs.

Efforts driven by medical training programs such as the UMN-Duluth and RPAP have been effective in graduating more rural physicians through mission-driven student selection and clinical experience with 54% of program graduates currently working in rural communities.⁹ Additionally, the career decisions made by PAs are parallel to that of physicians in that graduates with a rural background are more likely to choose rural practice.¹ The promotion of rural PA programs with targeted student selection represents a potential source of rural providers that has not been addressed by the NHSC.²

From the data gathered in this report it is difficult to conclude whether missions driven training programs are more effective than loan forgiveness, but they're impact is of little additional cost and would be increasingly effective if in collaboration with NHSC influence and funding. Understanding the experience of a rural upbringing and how it influences future providers is a promising direction for future research and NHSC attention.

References

- Diemer D, Leadman J, Nehez GM Sr, Larsen HS. Factors that influence physician assistant program graduates to choose rural medicine practice. *J Physician Assist Educ.* 2012;23(1):28-32. doi:10.1097/01367895-201223010-00005
- MacQueen, I.T., Maggard-Gibbons, M., Capra, G. et al. Recruiting Rural Healthcare Providers Today: a Systematic Review of Training Program Success and Determinants of Geographic Choices. *J GEN INTERN MED* 33, 191-199 (2018). <https://doi.org/10.1007/s11606-017-4210-z>
- Zink, Therese MD; Center, Bruce PhD; Finstad, Deborah; Boulger, James G. PhD; Repesh, Lillian A. PhD; Westra, Ruth DO; Christensen, Raymond MD; Brooks, Kathleen Dwyer MD. Efforts to Graduate More Primary Care Physicians and Physicians Who Will Practice in Rural Areas: Examining Outcomes From the University of Minnesota-Duluth and the Rural Physician Associate Program. *Academic Medicine.* April 2010 - Volume 85 - Issue 4 - p 599-604