

Recruitment of U.S. Medical Students: An Alternative Solution to Physician Shortage

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Introduction

Recruiting and retaining physicians in rural areas has been long recognized as a continuing and well-documented challenge (Blue, A.V., Chessman, A.W., Geesey, M.E., Garr, D.R., Kern, D.H., & White, A.W., 2004, p.336). A shortage of physicians adversely affects the delivery of health services and access to care, especially in the rural areas (Shi, L. & Singh, D.A., 2012). According to the Agency of Healthcare Research and Quality (Slabach, B., 2014), sixty million people, or 19 percent of the total U.S. population, live in rural areas where primary care physicians are short in supply. These areas are considered designated shortage areas because they often face shortages of health professionals, especially primary care physicians, to serve the population (Health Resources and Services Administration).

Rural populations are more likely to be poorer, sicker, older, uninsured, and medically underserved than the general population (Slabach, B., 2014). These population groups consist of racial and ethnical minorities, and rural Americans who work primarily as farmers, ranchers, or agricultural suppliers (Slabach, B., 2014). They are more vulnerable than the general population because they are at greater risk of poor physical, psychological, and/or social health. Unequal social, economic, health, and geographic conditions are causes of their vulnerability (Shi, L. & Singh, D.A., 2012, p.420). These population groups also experience greater barriers in access to care, financing of care, and racial or cultural acceptance (Shi, L. & Singh, D.A., 2012, p.420).

Although the passage of the Affordable Care Act in 2010 is in motion to insure an additional 32 million Americans. It has further intensified the demand for physicians, especially in the rural areas (AAMC, 2010). According to the Association of American Medical Colleges (2010), by 2020 our nation will face a serious shortage of both primary care and specialist physicians to care for aging and growing populations (AAMC, 2010). There will be 45,000 too few primary care physicians and a shortage of 46,000 surgeons and medical specialists in the next decade (AAMC, 2010).

Several federal programs have been created to help increase the supply of primary care services and to improve access to care in the rural areas. These programs include the National

Literature Review/Analytical Framework

The shortage of physicians in rural areas is not a new phenomenon as documented as early as the 1920s (Stratton, T.D., Geller, J.M., Ludtke, R.L., Fickenscher, K.M., 1991). With 19 percent of the total U.S. population residing in rural areas, but only 11.4 percent of physicians practicing there, rural areas contain some of the largest medically underserved populations (Rosenblatt, R.A., Chen, F.M., Lishner, D.M., Doescher, M.P., 2010, *The* most

Madison's claim; the types of community chosen by physicians and their practice are associated with

students, however, some people are reported to feel socially isolated living in the rural area environments (Cleland, *et al.* 2012, p.480). Distance it takes to travel between sites, a lack of cultural diversity, local poverty, social and professional isolation, a lack of amenities and heavy workload are other commonly cited factors by physicians as reasons for leaving an underserved area after fulfilling their commitment (Pathman, D., E., Konrad, T.R., Dann, R., & Koch, G., 2004, p.1728).

Family. Family is another variable that influence a physician's choice of location. Several studies indicate that family factors such as meeting the needs of one's spouse, distance from family members and friends, and related reasons were important factors that influence a physician's choice of location (Kahn *et al.* 2010, p.619; Stevens *et al.*, 2006, p.15). Many medical students have cited difficulties in finding employment for their spouse, and this could influence the physician to relocate to another area (Jutzi, L., Vogt, K., Drever, E., & Niskier, J., 2009, p.73.e1).

Experience at Rural Rotations. According to Cleland, J. *et al.* (2012), medical students who had positive experiences at rural rotations were more likely to consider working in the rural areas. In contrast, medical students who had a negative experience were less likely to consider working in the rural areas (p.478). Another survey study conducted by Woloschuk, W., & Tarran, M., (2002) with medical students from University of Calgary during 2000-2006 found that rural background students who had rural experience were significantly more likely to practice in a community similar to their family medicine training site (p. 245). Their study also found that training in a rural community actually discourages some medical students, especially students with an urban background, from rural practice. It is unclear whether this was due to the nature of practice, the lifestyle or a combination of both (Woloschuk, W., & Tarran, M., 2002, p. 246).

Income & Debt. According to the Association of American Medical Colleges, medical students graduating in 2013 carried medical school debts with a median amount of approximately \$175,000 (Association of American Medical Colleges, 2013) study by Rabinowitz, *et al.* (1999) in the previously mentioned Jefferson Longitudinal Study found that medical students with a high level of debt (more than \$75,000) were less likely to practice in rural areas (p.216). The study also found that medical school graduates with rural backgrounds who have high debt were less likely to enter practice (Rabinowitz *et al.*, 1999, p.217).

Gaining an understanding of the factors that influence medical students' career choice and location preference can inform educators and policymakers strategies that can increase medical students' interest in rural practice. It will also help educators and policymakers create strategies that would accommodate the physician's needs and increase the effectiveness of these strategies. Making rural areas and communities more attractive and appealing to the medical students would be another strategy that can increase their interest in rural practice (Jutzi, L., Vogt, K., Drever, E., & Niskier, J., 2009, p.73.e1).

International Medical Graduates (IMGs)

One of the strategies U.S. policy used to address physician shortage in underserved areas is the utilization of IMGs or foreign born physicians through the J-1 Visa Waiver. J-1 Visa Waiver Program allows international medical graduates (IMGs) to enter the United States for educational purpose, and remain in the United States until the completion of their education (Crouse, B.J., & Munson, R. (i)-ese

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targeting to recruit and retain U.S. medical students by employing alternative recruitment tools or other incentives.

Recruitment Tactics Targeted Toward United States Medical Graduates

Although much of the attention has been on utilizing IMGs to address physician shortage, however, there are also other strategies geared toward targeting United States medical students. These strategies include scholarships, loan repayment and loan forgiveness programs, bonuses and other tax incentives (Kahn, 2010, p.615). Administered by the National Health Service Corps (NHSC), the federal government provides scholarships and loan repayment programs to primary care physicians who agree to practice at least two years in a designated health professional shortage area (Muller, K.J., 2002).

The National Health Services Corps also provides tuition and loan repayment assistance to medical students in their final year of medical school through the National Health Service Loan Repayment Program. Medical students who participate in this program must agree to serve in an HPSA for at least three years (The National Health Service Corps website). Moreover, the National Health Service Corps also awards fully-funded grant to more than 30 states and territories to operate their own state educational loan repayment programs for primary care physicians working in HPSA (The National Health Service Corps).

Even though these programs are targeted toward U.S. medical students, however, much effort is needed to recruit and retain U.S. medical students to practice in rural areas. According to Curran and Rourke (2004), strategies that are under direct control of an educational institution have been shown to be effective ways to recruit U.S. medical school graduates further down the road (p.265). Increase emphasis on primary care rural medicine, focusing on students with rural background, providing rural-oriented curriculum and rural practices, and the availability of alternative sources of financing medical school tuition and/or paying off debt incurred during the course of medical education would enhance U.S. medical students' interest in rural experiences (Baer *et al*, 2000, p.12; Mueller, K. J., 2002, p.5).

Methodology

Design, Sample, and Study setting

The aim of this study is to investigate the relationship between medical student's rural background and rural rotation experience and their intent to work in the rural areas in the State of Nebraska. Because the aim of this research is to examine the influence of medical students' rural background and rural rotation experience on their location decision, subjects will be recruited from Creighton University School of Medicine and University of Nebraska Medical Center College of Medicine. All the year four (M-4) medical students at both study sites will have the opportunity to complete the survey questionnaire online using SurveyMonkey. To avoid undue influence, the prospective subjects will be contacted for recruitment into the study through central email invitation.

The total expected number of subjects of this study will be 280 U.S. medical students from Creighton University School of Medicine and University of Nebraska Medical Center College of Medicine. Currently, 1554 students are enrolled at Creighton University

Survey Questionnaire

The survey questionnaire consists of 13 questions. The first research question in this study is to examine whether a rural rotations experience or rural curriculum influence students' likelihood to practice in the rural areas. As identified by Easterbrook (1999), and Curran, V., & Rourke, J. (2004), exposure to rural experience or rural curriculum is one of the independent variables to predict students' likelihood to practice in the rural areas (p.267). The following questions on the survey will collect data on whether the medical students have a rural

et al., 1991; Gill *et al.*, 2012, p.649; (Jutzi, L., Vogt, K., Drever, E., & Nisker, J., 2009, p.73.el; Kahn *et al.*, 2010, p.619; Stevens *et al.*, 2006, p.15; Rabinowitz, H.K., Diamond, J.J., Hojat, M., & Hazelwood, C.E., 1999, p.217). These factors are summarized in the following questions collect data. These data will be used to examine the importance of these factors and their relationship to medical students' career choice and location preference.

medical students intended to specialize in Family Medicine students at CUMC (1 student versus four students)

Housing affordability	28.57%	46.67%	39.73%
Cost of living	53.37%	71.11%	

Table 5: Medical students with a rural background and their intended specialty and

	28		14
	.5		.2
Other	7%	No	9%

Boulger, 1991; Stratton *et al* 1991; Fryer *et al* 1993; Magnus & Tollan, 1993; Rabinowitz, 1993) Especially for medical students who have a rural background and intended to specialize in family medicine, having a positive rural rotation experience enhances and solidifies their desires and intentions to practice in the rural areas (Woloschuk, W., & Tarran, M., 2002, p.241) (see *Table 5*) Of the five UNMC medical students who have a rural background and intended to specialize in family medicine, four of them indicated that they had a very good or excellent rural rotation. One of the UNMC medical students remarked that 'having a rural family medicine rotation reinforced the kind of practice he or she wants to have and be able to practice the scope of family medicine'

The fifth important finding from this research was that a positive experience in the rural communities influence medical students' decision to practice in the rural areas. Of the 28 responses from UNMC, 10 (35.71%) medical students indicated that they had a positive experience within the rural communities (see *Table 3*). Among these 10 students, five of them have a rural background and had a positive experience with/in the rural communities. They have indicated that they are most likely to practice in the rural areas (see *Table 3*). On the other hand, thirteen (28.89%) medical students from CUMC indicated that they had a positive experience with/in the rural communities (see *Table 3*). Among these 13 students, five of them have a rural background and had a positive experience with the rural communities. They have also indicated that they would be willing to practice in the rural communities (see *Table 5*)

Policy Implications. Based on the findings from this research, it is recommended that Creighton University School of Medicine should model after the University of Nebraska Medical Center School of Medicine's rural rotation curriculum, because medical students from UNMC is 3.5 times more likely to work in the rural areas than students from CUMC (see *Table 3*). Another recommendation was that the healthcare policymakers should create policies that would encourage medical schools to adopt preferential admission to undergraduate students from rural communities, especially undergraduate students who are intended to specialize in family medicine. Increasing the number of medical students with rural origin and intention to become family physicians will have the largest impact on increasing the number of rural physicians. This policy option also represents the least costly policy option compared to the expansion of H-1 Visa Waivers to recruit more International Medical Graduates. Policymakers should also work with medical schools to create strategies that would increase medical students' interest in family medicine.

Encouraging medical schools to require rural rotation or rural curriculum would be another recommendation. As indicated by the results from *Table 1* and *Table 2*, mandatory rural rotation influences medical students' views about rural primary care and rural practice. It will also enhance and solidify medical students' desire and intention to practice in the rural areas, especially medical students who have a rural background. In addition, medical students from UNMC who have a rural background and experienced rural rotation are two times more likely to practice in the rural areas than medical students with a rural background who did not (see *Table 5*).

Utilizing the data from *Table 2*, educators and healthcare policymakers can create strategies that would accommodate physicians' needs and increase the effectiveness of these strategies. For example, lifestyle was identified as the most important factor that influence medical students' decision on where to practice (see *Table 2*). Policymakers should consider policies that would enhance the quality of lifestyles in the rural areas and make rural communities more appealing to the medical students. Policymakers should also create strategies that would promote and present the rural communities as a positive experience.

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Appendix A

Survey Questionnaire

