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Providing Healthcare Workers in Medically Underserved Areas: A Case Study

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Abstract

Introduction: Demographic trends forecast an increasing population of aging, chronically ill patients in rural areas of the Southeastern United States. Most healthcare professionals opt to practice in or near urban areas because of higher incomes and nearness to desirable facilities. This leaves a chronic shortage of healthcare providers in rural areas where they are critically needed. A university located in one of the critically underserved areas started a program to train physician assistants with the idea that most of the students would be residents of the area and tend to stay in the area to practice after graduation.

Purpose of study: This study will examine if the students graduating from the physician assistant training program in a medically underserved area of the Southeastern United States practiced in the area after graduation.

Materials and methods: A survey was done to determine if the students who graduated in the first year of the physician assistant training program were practicing in a medically underserved area.

Results and discussions: The survey revealed that 58.8% of the students who responded to the survey were employed as a primary care provider, 100% of the students completed their required clerkship in the medically underserved area after graduation and 65.6% are practicing in the area two years after graduation from the program.

Conclusion: From this case study, it can be inferred that one option for community leaders and concerned citizens interested in increasing the number of healthcare providers in medically underserved areas is to implement programs to offer training for local residents to become primary healthcare providers. The programs will train residents who will tend to remain in the area to practice and provide critically needed primary healthcare providers.

Keywords: Medically underserved area; Physician assistant; Healthcare provider; Healthcare training; Rural; Chronically ill; Aging

Introduction

Francis Marion University is a regional university and one of thirteen state assisted universities in South Carolina. The university is near the city of Florence in the northeastern section of the state known as the Pee Dee region. It enrolls about 4,000 students, 96 percent of them are from South Carolina. The university offers majors in the College of Liberal Arts, School of Business, School of Education, and the School of Health Sciences [1].

The leadership of Francis Marion University is committed to offering educational opportunities to attract students who want to obtain a quality education that will lead into a productive career. At the same time, the university leadership is committed to providing services to the region [2].

Francis Marion University recognized that the changing demographic factors of the nation and the region directly affect the types and availability of careers for graduating students and the services the region will require. A major trend in the demographics of the area is the ageing of the population [3]. The United States Census bureau estimates that between now and 2050, the United States will experience considerable growth in its older population [4]. In 2050, the population aged 65 and over is projected to be 83.7 million, almost double its estimated population in 2012 [4]. University leaders gaged this would have a profound impact on healthcare services in the future and the need for health care providers. Because of better health care, technology, better living conditions, and better nutrition; the ageing population is expected to be in better health than comparable generations of the past, but conversely,

more health care is forecasted to be needed mainly because with increasing age, invariably more health problems ensue [4].

The region is influenced by another demographic trend: health disparities between rural and urban populations. Rural populations in the United States have worse health outcomes than urban populations. Rural residents have higher rates of smoking, adolescent pregnancy, chronic disease (e.g. ischemic heart disease, chronic obstructive pulmonary disease, obesity), and mental illness. They also have higher mortality rates among children and young adults. Rural residents have higher risk profiles; for example, on average, rural residents are older and have lower education and income levels. Thus, although the overall proportion of people living in rural areas is decreasing, rural areas have a higher proportion of vulnerable populations [2]. Rural communities will continue to need improved access to health care. According to 2010 U.S. Census data, 19.3% of the total population lives in rural areas [5], where only 8.9% of physicians practice [2]. Accordingly, the overall shortage of primary care physicians in the United States is more

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pronounced in rural areas. As of 2010, there were approximately 84 primary care physicians per 100,000 people in urban areas, but in rural areas, there were only 68 per 100,000 people. Nationwide in 2004, there was one primary care physician for every 1,321 persons; in contrast, in rural areas, there was one primary care physician for every 1,810 persons [2]. However, in some states like South Carolina, rural areas are worse off than nationwide rural statistics would indicate. For example, Saluda County only has six primary care physicians, while Charleston County has 880 primary care physicians. This creates a primary care physician to population ratio per 10,000 population of 3.0 for Saluda County and 22.6 for Charleston County [6].

In the Center for Disease Control’s Morbidity and Mortality Weekly Report from January 13, 2017, research on the five leading causes of death in rural America (cancer, chronic lower respiratory disease, heart disease, stroke, and unintentional injury) shows that many of these “potentially excess” deaths may have been prevented with better access to health care [7]. For South Carolina in 2015, there were approximately 7,400 “potentially excess” deaths among the five leading causes of death. Of these, 49.6% deaths were among rural South Carolina residents [6]. The annual South Carolina County Health Rankings consistently show that residents in South Carolina’s rural counties fare worse than those in urban ones on both health outcomes and health factors. Age adjusted mortality in rural counties is also worse than in urban counties. That means that even when the overall age of the population is accounted for, people in rural communities are dying at a faster rate each year [8].

South Carolina is made up of several regions. The northeastern corner of South Carolina where the university is located is known as the Pee Dee region and is composed of twelve counties. All these counties are classified as rural by the United States Department of Agriculture Business and Industry Loan Program definition. Most of these counties are listed by the United States Department of Agriculture as low education, low employment, and persistent poverty counties [9]. Most of the counties are listed at or near the bottom of the County Health Rankings in health outcomes and health factors [8]. This region is chronically short of primary care physicians creating a situation where the residents of the region do not have adequate access to primary care physicians [10]. The Association of American Medical Colleges predicts a growing shortage of physicians in the current decade with 45,000 too few primary care physicians by 2030 [11], and to compound the current 30% shortage of primary care physicians, fewer than 10% of medical students are choosing to become primary care practitioners upon graduation with most graduates electing to specialize and not provide primary care [2].

University leaders saw the impact these demographic trends were having in its region and were determined to meet the region’s needs. The university opened a new Master of Physician Assistants Training program to its first class of students in 2016. Research has shown that physician assistants tend to practice in the areas near their hometown and near where they attended school [12,13]. When Physician Assistants practice in rural areas, they are more likely to practice in primary care specialties and are often the usual care providers for patients with chronic conditions. They provide care that is cost effective, safe and increase access to care. The positive effect of PAs on rural health has been demonstrated in extensive studies [14]. By offering the physician assistant educational program in the local Pee Dee region, more physician assistants should be available to practice in the area and provide medical care in the underserved region [15].

Physician assistants are medical professionals who are nationally certi-

fied and state licensed to practice medicine with physician supervision. All physician assistants are graduates of an accredited physician assistant educational program. Physician assistants obtain medical histories, conduct physical examinations, diagnose, and treat illnesses, prescribe medication, order, and interpret lab tests, perform procedures, assist in surgery, provide patient education and counseling, and make rounds in hospitals and nursing homes. All these duties, normally done by the physician, the physician assistant can perform and give the physician more time to see patients. Also, in contrast to physicians who attend medical school for four years and residency for a minimum of three years, physician assistants can be trained in a much shorter time, usually two to three years. Also, the tuition cost is considerably less than for a physician [16]. Many students who are interested in the health care field decide against becoming doctors because of the long time commitment to study and train four years of medical school after college and a minimum of three years of residency training, and the high cost – average cost of \$ 53,212 for just the first year [17].

There are currently 847 physician assistants practicing in the state of South Carolina and in 2014 there were only 7.8 primary care physicians per 10,000 populations in South Carolina [5]. Within the twelve county Pee Dee regions, there are 138 physician assistants practicing, with 108 in three counties. The other counties have only a handful of physician assistants, and two counties do not have any practicing physician assistants [11]. In the region, 44% of the adult population has been diagnosed with hypertension, fifteen percent of the adult population has been diagnosed with diabetes, and 65% of the adult population is overweight or obese. Also, in the region, 55% of the adult population has less than a high school education and 36% of the households have an income of less than \$ 25,000. The low income, rural population demographics have been shown to have higher rates of mental health problems and depression [11].

Francis Marion University received \$ 357,000 in fiscal years 2014 and 2015 from the state of South Carolina appropriations to study the need for the physician assistant training program and develop the requirements and budget for the program. After approval of the state legislature, the program was appropriated \$ 500,000 of state funding recurring for 5 years. The remainder of the funding for the program was obtained from students’ tuition [3]. The program accepted its first students in the fall of 2016 and the first students graduated in 2018.

Purpose of study

This study will examine if the students graduating from the physician assistant (Table 1) training program in a medically underserved area of the Southeastern United States practiced in the area after graduation.

Metric	Value
Percentage of graduating students employed after 1 year	100.0
Percentage of graduating students employed in primary care after 1 year	58.8
Percentage of graduating students who completed clerkship in a MUA	100.0
Percentage of graduating students who completed more than half of clerkship in MUA	87.0
Percentage of graduating students employed as a primary care provider in the local MUA after 2 years	65.6

Table 1: Metrics of first Physician Assistant (PA) graduating class at Francis

Marion University, South Carolina, USA remaining in medically underserved area (MUA).

Materials and Methods

A survey was conducted in June of 2019 of the students in the first graduating class in 2018. The students were asked if they were employed, if they were employed in primary care, if they completed a required clerkship in a medically underserved area and what percentage of their required clerkship was in a medically underserved area. Also, personal correspondence with members of the class in July 2020 was used to determine the current location of the student's practice.

Results and Discussion

32 students graduated from the program in its first graduation class. Seventeen students (53.1%) responded to the survey in June 2019. The employment rate of the students who responded was 100%. Of the respondents, 58.8% of the students were employed in primary care, 100% of the students completed a required clerkship in a medically underserved area, and 87% completed more than half of their clerkships in a medically underserved area. In the survey in July 2020 two years after graduation, all 32 students were surveyed, and all responded. From this survey, 21 (65.6%) of the 32 students were employed as primary health care providers in the area.

Conclusion

From the results of the survey, the desired outcome of the training program was achieved in providing healthcare providers to a medically underserved area. Community leaders concerned about providing primary care to medically underserved rural areas can use this program as a model with the goal to train primary care providers in the area with the understanding that most of the graduates will remain in the area to practice.

This study only addressed one class and further study will need to be conducted on future classes, and follow up surveys conducted to determine if they continue to provide primary care in the medically underserved area.

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Conflicts of Interest

The author declares that she has no conflicts of interest or competing interests.

Authors' Contributions

All research and writing were done by the author.

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