

**ORIGINAL RESEARCH**

# Retention of Rural Family Physicians After 20–25 Years: Outcomes of a Comprehensive Medical School Rural Program

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**Background:** The Physician Shortage Area Program (PSAP) of Jefferson Medical College (JMC) is one of a small number of comprehensive medical school rural programs that has been successful in increasing the supply of family physicians practicing in rural areas. Although retention is a critical component of the rural physician supply, published long-term outcomes are limited.

**Methods:** Of the 1937 JMC graduates from the classes of 1978 to 1986, we identified those who were practicing family medicine in a rural county when they were first located in practice (in 1986 for 1978–1981 graduates and in 1991 for 1982–1986 graduates). Using the Jefferson Longitudinal Study, we then compared the numbers of PSAP and non-PSAP graduates who were still practicing family medicine in the same area in 2011.

**Results:** Of the 92 JMC graduates initially practicing rural family medicine, 90 were alive in 2011, and specialty and location data were available for 89 (98.9%). Of the 37 PSAP graduates who originally practiced rural family medicine, 26 (70.3%) were still practicing family medicine in the same rural area in 2011 compared with 24 of 52 non-PSAP graduates (46.2%;  $P = .02$ ).

**Conclusion:** This study provides additional support for the substantial impact of medical school rural programs, suggesting that graduates of rural programs are not only likely to enter rural family medicine but to remain in rural practice for decades. (J Am Board Fam Med 2013;26:24–27.)

**Keywords:** Health Policy, Medical Education, Rural Health

The shortage of primary care physicians in rural areas, especially family physicians, has been a serious problem for decades, with major implications in access to health care for a substantial proportion of the US population.<sup>1–5</sup> It is widely accepted that this rural physician shortage will worsen over the

next few years because of the increase in insured patients, as occurred in Massachusetts.<sup>6</sup> Among policies aimed at addressing this problem, comprehensive medical school rural programs (RPs; ie, a defined cohort of students and either (1) a focused rural admissions process and rural curriculum or (2) an extended rural clinical curriculum) are among the most successful, with more than one half of their graduates practicing in rural areas.<sup>7–12</sup>

Retention is a key component of the rural physician supply, in part because it has a multifold impact on the rural workforce; for example, one physician practicing in the same rural area during a 35-year career has a similar impact as 5 physicians who practice for an average duration of 7 years.<sup>13</sup> Despite its importance, however, published long-term outcomes regarding rural retention are limited. The only program with available long-term retention outcomes is the Physician Shortage Area Program (PSAP) of Jefferson Medical College

This article was externally peer reviewed.

Submitted 14 May 2012; revised 13 August 2012; accepted 20 August 2012.

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**Funding:** This project was supported in part by grant number D56HP08346 from the Health Resources and Services Administration/Department of Health and Human Services. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the HRSA/HHS. Support also was provided in part by the Eakins Legacy Fund of Jefferson Medical College (HKR).

**Conflict of interest:** none declared.

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(JMC) of Thomas Jefferson University, a RP with the goal of increasing the supply of rural family physicians. Prior research has shown that the 11- to 16-year retention rate for PSAP graduates in rural family medicine was 68%.<sup>13</sup> The PSAP, which began in 1974, recruits and selects medical school applicants that have grown up or lived in a rural area or small town for a substantial portion of their life after college and who were committed to practicing family medicine in a similar area. During medical school, PSAP students received faculty mentorship and career support and they completed their required third-year, 6-week family medicine clerkship in a small town. During their fourth year, most PSAP students took a preceptorship in a rural location. Upon graduation, PSAP students were expected to take a family medicine residency and practice family medicine in a small town or rural area, although there is no mechanism to ensure compliance. Prior outcomes have showed that PSAP graduates were more than 8 times as likely to become rural family physicians as their non-PSAP peers, including more recent graduates.<sup>14–18</sup> To provide further information about the critical issue of long-term rural retention, we extended our analysis of PSAP graduates to determine their retention in the same rural area after 20 to 25 years.

## Methods

As part of our ongoing longitudinal evaluation of PSAP graduates that occurs approximately every 5 years, we previously identified all 1937 JMC graduates from the classes of 1978 to 1986 (including 148 PSAP graduates) who initially were practicing family medicine in a rural county (that is, not designated as a standard metropolitan statistical area) when first located in practice (in 1986 for those graduating 1978–1981 and in 1991 for those graduating 1982–1986).<sup>13–15</sup> As in our previous studies, we then obtained the 2011 practice specialty and current county address for each physician from the Jefferson Longitudinal Study of Medical Education and the Jefferson Foundation.<sup>13–18</sup> The Jefferson Longitudinal Study contains specialty certification information from the American Board of Medical Specialties and self-reported specialty data from the American Medical Association Physician Masterfile. As in our previous studies, graduates were considered to be practicing family medicine if their only board certification was in family medicine or if

they also were certified in geriatrics, sports medicine, or adolescent medicine. Those certified in family medicine and certified in other specialties, or those who were not certified in any specialty, were considered to be practicing family medicine if that was their primary self-reported specialty in the American Medical Association Physician Masterfile.<sup>13–19</sup>

To analyze long-term retention, the numbers and percents of PSAP and non-PSAP graduates who were still practicing family medicine in the same area in 2011 were determined and compared. As in our previous study, practice location was considered to be in the same area if it was in the same rural county or an adjacent county as when the graduate was first located.<sup>13</sup> For PSAP and non-PSAP graduates, retention was defined as the percentage of individual graduates practicing in the same rural area in 2011 as they were initially (in either 1986 or 1991), that is, 20 to 25 years later.

Pearson  $\chi^2$  test was used to compare retention rates of PSAP and non-PSAP graduates. A *P* value of  $\leq .05$  was considered significant. This study was approved by the institutional review board of Thomas Jefferson University.

## Results

As previously reported, 92 of the 1937 JMC graduates (4.7%) from the classes of 1978 to 1986 initially practiced family medicine in a rural area when they were first located in practice (in either 1986 or 1991). This included 38 of 148 PSAP graduates (25.7%), and 54 of 1789 non-PSAP graduates (3.0%).<sup>13–15</sup> By 2011, one of the PSAP graduates had died, as had one non-PSAP graduate. Of the 90 living graduates, 2011 specialty and location data were available for 89 (98.9%), including all PSAP graduates and all but 1 non-PSAP graduates; these data were analyzed in this study (Table 1).

Of the 37 PSAP graduates who originally entered rural family medicine, 26 (70.3%) were still practicing family medicine in the same rural area in 2011 (including 5 in adjacent counties). Comparable data for non-PSAP graduates showed that 24 of 52 (46.2%; *P* = .02) were in the same rural area (including 5 in adjacent counties).

## Discussion

Retention of PSAP graduates practicing family medicine in the same rural area has remained rel-

**Table 1. 1978 to 1986 Graduates Practicing Rural Family Medicine**

	PSAP Graduates	Non-PSAP Graduates	Total JMC Graduates
Graduates, 1978–1986 (n) <sup>14,15</sup>	148	1,789	1,937
Graduates in rural FM, 1986 and 1991, n (%) <sup>14,15</sup>	38 (25.7)	54 (3.0)	92 (4.7)
Graduates with study data in 2011 (n)	37	52	89
Graduates in FM in the same rural area in 2011 (n)	26	24	50
Rural FM retention rate after 20–25 years (%)	70.3*	46.2	56.2

\* $P = .02$ .

PSAP, Physician Shortage Area Program; JMC, Jefferson Medical College; FM, Family Medicine.

actively unchanged over the past 9 years<sup>13</sup> and represents the highest retention rate and longest rural retention outcomes available. These PSAP physicians graduated medical school 25 to 33 years earlier, and most now are between 51 to 59 years of age, suggesting that these retention outcomes are approaching those for their entire careers.

Our selected outcome for this study was practice in the same rural area because it represents the greatest impact at the community level. Although there is no universally accepted criteria to define a rural area, this study was based on our previous research that, like others, had used counties that were not designated as a standard metropolitan statistical area to define rurality.<sup>13</sup> This does not equate perfectly with rural areas, nor does it identify the most rural areas, but these counties are primarily rural and provide a key differentiation from nonrural counties. As in our previous study, we also included adjacent counties as being in the same rural area; our previous outcomes showed that most JMC graduates who moved to adjacent rural counties were in close proximity of their initial county location.<sup>13</sup>

Although this study did not address the reason why PSAP graduates were more likely to remain in family practice in the same rural area than their peers, previous studies have suggested that the major reason for the successful outcomes of the PSAP and other RPs is the admissions process, that is, selecting medical school applicants most likely to practice in a rural area (including those who grew up in a rural area and plan to practice family medicine at the time of matriculation).<sup>7,20</sup> Because this study was a program evaluation extending the long-term retention outcomes of PSAP graduates, it did not directly address the impact of other potential variables related to rural retention. Our prior research, however, has shown that participation in the PSAP, as well as attend-

ing college in a rural area, were the only factors independently predictive of rural primary care, whereas other variables including sex, medical school curriculum, National Health Service Corps scholarship participation, and expected peak practice income were not.<sup>21</sup> It is possible that other factors that occurred after medical school (eg, residency, spouse or partner, children, and financial or practice factors) may also be related to rural retention, and this needs further study. However, we have previously shown that 3 factors known at matriculation (growing up in a rural area, planning to practice family medicine, and planning to practice in a rural area)—well before most other personal or practice factors are known—are powerful predictors of rural practice 3 decades later and are similar in magnitude to those of well-established cardiac risk factors and future coronary heart disease.<sup>20</sup> In addition, although the scope of practice for rural physicians represents an important policy question, this study did not address whether those physicians remaining in rural family medicine provided the same medical services as they did when they began practicing.

Finally, although this study took place at a single medical school, PSAP outcomes are similar to those of the 5 other RPs with published outcomes.<sup>7</sup> In addition, JMC graduates from these classes received their postgraduate training at more than 300 different programs in 42 states and practice in almost every state. This study thus provides additional support for the substantial impact of medical school RPs, suggesting that RP graduates not only enter rural practice, but most may remain for decades.

The authors thank the Jefferson Center for Research in Medical Education and Health Care for access to the Jefferson Longitudinal Study of Medical Education; The Jefferson Foundation for access to the address files of Jefferson Medical College

alumni, and the Jefferson Medical College Office of Admissions for their longstanding support of the PSAP. Finally, we offer our most thankful acknowledgments to the PSAP students and graduates who provide care for those living in rural areas and small towns.

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