

Research Corner

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What influences practice location and specialty?

Health care workforce researchers and educators have long been interested in factors related to workforce outcomes such as specialty and geographic location choices. This recent comprehensive study looks at factors related to these outcomes in medical students and residents. Similar studies should be performed on physician assistants (PAs).

Specialty and geographic distribution of the physician workforce: What influences medical student & resident choices? The Robert Graham Center: Policy Studies in Family Medicine and Primary Care. Funded by the Josiah Macy, Jr. Foundation. <http://www.graham-center.org/online/graham/home/publications/monographs-books/2009/rgcmo-specialty-geographic.html>. March 2009. Accessed September 9, 2009.

Unlike many Western nations, the United States does not manage or actively regulate the number, type, or geographic distribution of its physician workforce. As a result, medical trainees choose how and where to work. As with most free markets, equitable distribution is at risk without well-informed, evidence-based policies and incentives capable of promoting equitable access to appropriate care. This study contributes to understanding of important policy options and incentives by identifying factors that influence medical student and resident choices about medical specialties and location of practice. Specifically, it identifies factors that are associated with choice of primary care specialties, particularly family medicine, and with caring for rural and underserved populations.

Prior studies of the impact of debt on student specialty choice have revealed mixed effects. Recent studies suggest that physician payment disparities and the medical school learning environment are potent factors for specialty choice,

and that exposure to Federal Title VII grant-funded programs during medical school and residency is associated with higher likelihood that students will choose primary care specialties and practice in underserved settings. Most studies of specialty choice or practice location focus on the decisions students make at graduation or immediately thereafter.

This study is perhaps the most comprehensive to date, as it examines multiple factors along the training path and how they relate to the end result, which is specialty of physician practice and where they practice. This study incorporates nearly 20 years worth of survey data from graduating medical students about their experiences, their debt, their beliefs, and their intentions. It includes historical files over the same period of exposure to Title VII funds during training and of participation in National Health Service Corps (NHSC). It includes cross-sectional data about physicians' current specialties and practice locations and a 5-year cross-section of service in Rural and Federally Qualified Health Centers. All these data about individual physicians were brought together to test for associations between student characteristics and training influences that may have policy relevance for a more purposefully produced health care workforce.

FINDINGS: The income gap between primary care physicians and subspecialists has an impressively negative impact on choice of primary care specialties and of practicing in rural or underserved settings. At the high end of the range, radiologist and orthopedic surgeon incomes are nearly three times that of a primary care physician. Over a 35 to 40 year career, this payment disparity produces a \$3.5 million gap in return on investment between primary care physicians and the midpoint of income for subspecialist physicians.

There are measurable student characteristics, intentions, and training experiences that are significant predictors of our study outcomes. Rural birth, interest in serving underserved or minority populations, exposure to Title VII in medical school, and rural or inner-city training experiences all significantly increased the likelihood of students choosing primary care, rural, and underserved careers. Being married increased the likelihood of choosing family medicine. Attending a public medical school significantly increased the probability of choosing a primary care specialty and practicing in a rural, shortage or underserved area, compared with private medical schools. Title VII exposure in residency increased the likelihood of serving in the NHSC and physician shortage areas but not of choosing primary care or rural practice. Other student characteristics reduced the likelihood of study outcomes. Women are much less likely to choose rural practice, and men are less likely to choose primary care.

The outcomes associated with debt were complex. Students with no debt and no obligating scholarships (NHSC, military) were the least likely to later practice in primary care, in a rural area, or in a health center. Debt greater than \$250,000 also

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reduced these outcomes compared to other levels of debt. Students who took scholarships and reduced debt were much more likely to have careers in all three. There is a group of students sensitive to debt or agreeable to trading debt for service that chooses NHSC and, possibly, other loan repayment programs. The NHSC is currently only available to 3% to 4% of physicians despite a much larger applicant pool.

CONCLUSIONS: The outcomes we studied—practicing in primary care, practicing in family medicine, practicing in a rural community, practicing in a health center, practicing in an underserved area, ever having served in the NHSC—are important if we hope to secure access to primary care for all people in the United States. Within the past decade, US medical student interest in and choice of these important outcomes fell well below the thresholds necessary to maintain the physician workforce in primary care and underserved settings, threatening to enhance an existing workforce maldistribution.

The complex relationship between debt and career outcomes likely has several explanations. Medical students increasingly come from affluent families who may influence career specialty and income expectations and have limited exposure to rural or underserved populations. Alternatively, debt-averse students may not apply to medical school because of fear of debt or may choose less expensive public schools. Both suggest a selection bias against our study outcomes—schools may select students less likely to choose these careers, or students more likely to make these choices are not applying. Students willing to accept obligating debt reduction are much more likely to later practice and remain in primary care and underserved settings, and such programs could be an option for more students and residents.

This study reaffirms the positive relationship between Title VII exposure and most of our study outcomes despite severe reductions in Title VII funding. It is an important support for the presence and quality of student training experiences and is an immediately relevant policy option that promotes these outcomes as it is currently due for reauthorization.

Growing physician income disparities are a major driver of student behavior. They do so directly—but also indirectly through messages about prestige, intellectual rigor, need to increase “productivity,” and status. In many academic health centers, primary care is labeled as the revenue “loss leader” rather than as a core function or even producer of downstream revenue. This income disparity explains much of the difficulty in achieving the balance in specialty and geographic physician distribution and will continue to inhibit achieving the workforce needed for better quality, efficiency, and equity.

These potent effects of market factors do not absolve medical schools and residency programs of their role in affecting student choices. We found clear evidence that the student selection process and curriculum are very important in producing primary care physicians and physicians willing to

serve in rural and underserved settings. In general, public and rural schools do a better job of producing primary care, rural, and health center physicians, which should be an important consideration in the ongoing expansion of medical school capacity and in the design of new schools. They should also be a focus for state and federal funding of programs that enhance their success with these outcomes.

Feminization of primary care, particularly pediatrics and family medicine, threatens the rural workforce without efforts to make rural practice a more attractive or viable choice for women. We also need to understand male resistance to primary care careers and how to improve it as an option.

Finally, there is a convergence of interest in assuring sustaining healing relationships through primary care among large employers and federal advisory bodies and agencies. Previously unthinkable conversations are happening about investing more in primary care and in specific models of care that can unfetter primary care’s capacity to achieve the effectiveness, efficiency, and equity realized in other countries. There are also calls for changes in how training is financed and the settings in which training can be supported to purposefully align training with desirable population health outcomes. Both policy efforts—enhancement of primary care functions and accountable training of the next generation of physicians—will be needed to reverse the current trends for more expensive and less equitable health care. We believe that this study offers supporting evidence for these policy efforts and suggests ways that the training pipeline can be modified to help.

DISCUSSION

This project analyzed 20 years of survey data from graduating medical students about their experiences, debt, beliefs, and intentions to test for associations between student characteristics and training influences that may impact workforce outcomes. Clear evidence was found that the student selection process and curriculum are important factors in producing primary care physicians and physicians willing to serve in rural and underserved settings. Also of interest was the association of government programs such as Title VII funding with primary care and underserved practice outcomes.

Characteristics of PA education associated with primary care or rural and underserved practice outcomes are unknown. Similar studies performed on PAs would help the profession address American health workforce shortages by targeting admission decisions and structuring curriculum toward factors known to be associated with desired workforce outcomes.

This project notes the value of Title VII workforce training programs, recently severely reduced, in addressing physician workforce shortages. An increase in Title VII funding for PA education will likely produce a corresponding increase in PAs choosing primary care and underserved practice similar to that seen in physicians. [JAAPA](http://www.jaapa.com)