Preventive Medicine for Rural America: Why More Training Programs Must Be Here

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ABSTRACT

While there is a well-recognized national shortage of Preventive Medicine (PM) physicians, there is also a marked maldistribution. Since 47.5% of physicians were active in the state where they completed their most Graduate Medical Education (GME), one approach to address the disparity in PM specialists in practice within rural regions such as Appalachia is by supporting a greater number of GME programs based within these regions. Currently, of the 64 accredited civilian PM residency programs, only 4 are located in rural areas. The only PM residency programs based in the entire Appalachian region are based at West Virginia University. Several threats to the establishment and sustainability of rural-based PM GME programs have been identified, including challenges in securing support through competitive national grants, the limited number of board-certified community preceptors, and difficulty in recruiting and retaining both core program faculty and trainees. Targeted efforts to promote and support GME programs that are based in rural areas of need, such as the Health Resources and Services Administration's Rural Residency Planning and Development Program, will help address this disparity.

KEY WORDS: health disparities, Preventive Medicine, rural, training programs

The growing national shortage of both physicians generally and Preventive Medicine (PM) physicians specifically is well recognized.[1] Between 1970 and 2018, the proportion of physicians with board certification in PM nationally declined from 2.1% to 0.6%.[2-4] However, far less attention has been directed to the distribution of practice locations for PM physicians.

The Health Resources and Services Administration's (HRSA's) Federal Office of Rural Health Policy notes that 57 million Americans, or 18% of the nation's population, live in defined rural regions.[1] Rural populations face persistent and growing disparities of access to health care and public health programs.[5] From 2014 to 2018, the rural-urban disparity in public health activities grew by 4.8%. While urban public health systems enhanced their scope of activities and organizational networks, over the same time period, rural public health systems lost capacity.[6] Furthermore, PM physicians overwhelmingly practice in urban areas. A 2020 study reported that only 1.5% of the identified PM specialists in the country were currently in practice in nonmetro or rural counties, with 4.7% in "micropolitan" counties. These authors concluded, "There is extremely little penetration of the PM workforce into rural areas."[3] There is therefore not only a growing national shortage of PM physicians but also a maldistribution.

How can we more equitably distribute PM physicians according to areas of need? One of the more powerful predictors of the location of practice is where physicians complete Graduate Medical Education (GME). The Association of American Medical Colleges (AAMC) regularly publishes data on retention within each state for physicians for GME programs through its *State Physician Workforce Data Report*.[7] For the most recently available data from 2018, 47.5% of physicians were active in the

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same state where they completed GME. Furthermore, this figure has been remarkably consistent between surveys. The earliest available survey based on 2006 data reported a retention proportion of 44.8%.

Methods

We collected publicly available data on the location of current PM GME programs nationally, with attention to urban versus rural location. We searched the Accreditation Council for Graduate Medical Education (ACGME) Public Accreditation Data System (ADS) at https://apps.acgme.org/ads/public for currently accredited nonmilitary PM Occupational Medicine (OM) or Public Health-General Preventive Medicine (GPM) residency programs and then classified each residency location as urban or rural based on the definitions of the Federal Office of Rural Health Policy and the US Census Bureau.[8-10] In addition, we reviewed the location of practice for our PM graduates over the past 10 years.

This article does not contain any studies involving human participants performed by any of the authors.

Results

Of 64 PM residencies in the nation, only 4 (just over 6%) are located in rural areas.[8-10] Two of these, an OM program and a GPM program, are located at West Virginia University. They represent the only such programs in the entire Appalachian region (as defined by the Appalachian Regional Commission), a 205 000 square-mile area, with approximately 25 million people extending from southern New York to northern Mississippi.[11]

For the past 10 years, 75% of our eligible program graduates have entered practice into HRSA-designated Medically Underserved Areas, with 58% in states containing parts of the Appalachian region. Sixty percent of the core clinical faculty of our 2 PM training programs, including one of the coauthors who is the program director of the GPM residency, are our alumni.

Discussion and Conclusion

Our findings for PM are consistent with those for GME more broadly. One of the conclusions of the Institute of Medicine's 2014 landmark report on GME, was "the number of physician trainees is increasing, but there is little evidence to suggest that the expansion in training capacity is in areas—either geographically or by specialty—where they are most needed."[12]

One substantial challenge for rural GME programs is the dependence on competitive, national grants for PM program funding on a 5-year basis. Unlike the vast majority of other residency training programs that receive CMS or institutional funding without the need for any formal application, much additional effort must be expended by PM training programs to both secure and manage these grants. In addition, we believe there is an unbalanced allocation of funding, with a disproportionate share to academic health centers in large urban centers with name recognition. This latter phenomenon, described by the sociologist R. K. Merton[13] and others as the Matthew effect or principle, recognizes that, in human and corporate behavior, to those who already have, more is given in ways that are not linked to scientific merit or productivity.

In the context of grant funding for scientific research, Merton noted decades ago that *per capita* funding allocation was disproportionately higher for elite academic institutions (which are generally located in large urban areas) and wrote, "These social processes of social selection that deepen the concentration of top scientific talent create extreme difficulties for any efforts to counteract the institutional consequences of the Matthew principle in order to produce new centers of scientific excellence."[13] More recently, Wahls[14] documented a greater than 100-fold geographical discrepancy in *per capita* NIH research program grant funding to individual states with no discernible relationship between allocation of funding and scientific productivity.

In the same way, staffing and, by extension, funding of medical residency programs have favored urban centers. The GAO reported in 2018 that only 1223 out of a total of 127 578 residents trained in rural areas.[15] Rural residency positions in all specialties accounted for only 0.9% of residency training slots; in PM, 21, or 7%, of the 283 residents were in training in rural locations.[16] Therefore, existing funding for PM training must be redistributed more equitably to rural areas. The new HRSA Rural Residency Planning and Development Program is a welcome intervention to begin to redress this imbalance.

A second set of challenges is posed by the very problem we seek to address: there are very few PM specialists in rural America. As a result, there is a very limited pool of preceptors for required rotations at sites external to the Sponsoring Institution for GME. For example, trainees in GPM programs are required to spend 2 months in a governmental agency. However, West Virginia, with 55 counties, has only 48 county health departments. Of those, 30 have fewer than 5 employees and only 3 have full-time health officers, only one of whom is currently board-certified in a specialty recognized by the American Board of Medical Specialties, a requirement for such rotations. One solution would be to offer shared, national-level

rotations to fulfill such requirements provided at no cost to the trainee or home institution.

Our program has successfully used our GME programs to supply a majority of our core faculty, including our current GPM program director, in the face of limited success with external faculty recruitments. Nevertheless, the current training model demands an exceptional combination of qualities for any PM program director. Such individuals must not only be skilled medical educators and clinicians appropriate for their role as mentors to residents but also capable of the complex administration required to maintain accreditation together with appropriate scholarship and grantsmanship necessary to secure program funding.

For the same reason, there are limited full-time jobs for PM graduates in rural settings. As others have noted, this accounts, in part, for a disconnect between the "need" and "demand" for PM practitioners.[3] Again, efforts that have been applied in other areas, such as loan forgiveness and public service programs to both recruit trainees to rural PM GME programs and provide attractive employment options upon graduation merit consideration. Alternative training pathways, such as the American Board of Preventive Medicine's Complementary Pathway, which can be extended to practitioners already in practice in rural areas who may be currently engaged in or wish to transition into PM, can more rapidly increase the number of qualified providers than traditional GME programs.

Finally, use of combined programs in Family Medicine/PM or Internal Medicine/PM to provide dual board certification to residents training in primary care will encourage physicians to pursue an interest in PM and build a younger cohort of physicians in active practice, ready to address new challenges in the specialty. Combined program development involves establishment of a joint curriculum and scheduling for required experiences in both programs, after which an application is submitted for approval. Through the combined residency program, the 5 years required for separate residencies can be reduced to 4, producing physicians with broad-based training in both specialties. Such programs already exist at multiple sites for PM combined with Internal Medicine or Family Medicine, but none of these programs are in rural areas. The training requirements vary slightly between the ABIM and the ABFM; however, all programs are mandated to enroll at least 2 residents in each year of combined training. If no residents pursue the combined program for a period of 3 years, approval is withdrawn. Such complement requirements represent obstacles for rural programs since these are generally smaller.

Implications for Policy & Practice

- Efforts to reverse the growing shortfall in PM physicians must also address a maldistribution to increase the number of practitioners for underserved, rural populations.
- Since there are both national and program-level data confirming that a high proportion of physicians can be retained in areas where they completed their GME, a greater number of PM residencies needs to be based within underserved, rural areas.
- There are currently multiple systemic challenges to the establishment and viability of rural PM residencies that must be addressed in order to increase the number of such training programs.

R. K. Merton is also credited with the concept of the "self-fulfilling prophecy," which we believe aptly captures the current rural inequities in PM services. If fewer resources are provided to rural, underserved parts of the country and systemic obstacles work disproportionately against training programs located in these areas, we cannot be surprised by how few PM practitioners enter and remain in practice in rural America.

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