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POLICY FORUM

Closing the Gap: Finding and Encouraging Physicians Who Will Care for the Underserved

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Geographical distribution of U.S. physicians does not promote equitable access to health care. In 2006, nearly 75 percent of U.S. counties or partial counties were designated Health Professional Shortage Areas (HPSAs), meaning that the population-to-physician ratio in these areas exceeded the minimum (3,500:1) considered necessary for adequate access [1]. Meanwhile, experts estimate that, in aggregate, non-HPSAs have a surplus of more than 70,000 physicians [1]. Though HPSAs may be urban or rural, the problem is particularly acute in rural areas. While 21 percent of Americans live in rural areas, fewer than 10 percent of physicians practice in these areas [2]. As a result, rural residents (and the urban underserved) receive fewer preventive services and suffer from worse health outcomes [3, 4]. There is debate over whether a physician shortage is imminent, but the evidence for physician maldistribution is clear [1, 5, 6]. Equitable access to health care is threatened when physicians disproportionately practice in urban and suburban areas.

In the last decade, declining student interest in primary care has exacerbated this maldistribution. People in both rural areas and designated HPSAs are disproportionately cared for by family physicians, the only primary care specialty whose members' geographic distribution comes close to matching that of the U.S. population [7]. Since 2001, however, fewer than half of family medicine residency positions have been filled by graduates of U.S. allopathic medical schools, while the proportion of these positions filled by international medical graduates (IMGs) has increased significantly [8-10]. Due to immigration policies and the possibility of their return to their country of origin, the role of IMGs as a solution to the maldistribution problem is uncertain. Furthermore, the United States' reliance on gifted IMGs from needy countries is ethically troubling in terms of workforce consequences for both the host and the native countries [11].

Given the severity of this crisis, medical schools and state and federal policymakers have a responsibility to take a central role in reversing the trends that have resulted in poor patient access in many areas [12, 13]. The current expansion of medical schools gives medical educators an opportunity to reexamine admissions and curricular policies. Student perceptions of various specialties and our culture's preference for specialty care contribute to the crisis in primary care, but are beyond the scope of our discussion. This article focuses on the ways in which medical schools, residency programs, and government can promote primary care and help resolve disparities in health care access.

Student Characteristics and Medical School Admissions

Personal characteristics are among the strongest predictors of both choice of primary care and practice in underserved settings. While rural and inner-city practice are not for everyone, students with rural backgrounds are much more likely to practice in rural settings, and African American students more often choose inner-city practice [11, 14]. Women and those who declare an intention to practice family medicine when they enter medical school disproportionately choose primary care [15-17]. Studies of institutional programs that provide intensive experiences in rural or underserved areas have even found that those programs' greatest impact arises from their disproportionate selection of students from rural or minority backgrounds with a strong prior interest in family medicine, rural practice, or practice in underserved areas [18, 19]. Unfortunately, admission of underrepresented minority students to medical schools has fallen in recent years despite an increasing or stable application rate [6, 13]. In the meantime, students of rural origin and those with an annual family income under \$20,000 also make up a disproportionately low percentage of medical school enrollment [13, 20]. Medical schools' admission criteria seem to be at odds with society's responsibility to produce physicians who care for the underserved.

One solution is increasing support for premedical "pipeline" programs that expose K-12 students from rural and disadvantaged backgrounds to health professions by providing academic enrichment, mentoring, and research experiences. The heterogeneity of these programs poses a challenge for evaluating their effectiveness, but there is evidence to suggest that they have great potential to improve matriculation of underrepresented minorities in college and medical school [21-23]. Because these students are more likely to work with underserved populations after graduation, increasing their interest in health professions and investing in academic support may help correct the current physician maldistribution [8, 24, 25].

Programs and Curricula

Even after students enter medical school, there are opportunities to influence specialty choice and service to underserved populations. In general, public medical schools produce more primary care physicians and physicians who practice in underserved areas [26, 27]. Schools with departments of family medicine and those that require more time in family medicine in the third or fourth year also produce these outcomes [27, 28]. These factors may be closely related to medical school culture. Schools that value primary care, diversity, and care of the underserved positively impact students' perceptions and choice of primary care and underserved practice [29, 30].

Medical schools are able to provide these positive experiences, in part, through support from section 747 of Title VII of the Public Health Service Act, a federal program designed to improve access to health care by increasing the number of primary care physicians and the quality of primary care education. Title VII grants fund primary care leadership, faculty development programs, and innovative curricula. Studies show that students at institutions with Title VII support are more

likely to choose family medicine and practice in community health centers, primary care HPSAs, and rural areas [26, 31-33].

Curricular and cultural influences can be further magnified at the graduate level, especially when supported by Title VII funding. Residency programs with explicit missions to train physicians for rural or inner-city service, many of which are supported by Title VII, produce proportionately larger numbers of physicians for the underserved [34, 35]. Family physicians trained in community health centers are more than twice as likely to practice in those settings [36]. Residents whose patient panel contains lower percentages of middle-to-upper class patients are also more likely to practice primary care in underserved areas [37]. Training in safety-net sites exposes residents to the most vulnerable populations, often evoking a sense of social responsibility and equipping them to meet the challenges of caring for patients who are neediest [37, 38].

Debt

In addition to changes in medical education, new government and public-sector policies are needed to influence physician maldistribution. The most common interventions in this realm involve financial barriers. The rising debt of medical students is widely believed to steer many students to higher-paying specialties and away from primary care, and students with high debt are more likely than their peers to cite it as a factor in their specialty decision making. Studies examining the relationship between debt and specialty choice, however, have not always shown a clear association. The most comprehensive study of this issue concluded that students who choose primary care actually graduate with slightly more debt than their peers [26]. This may be because these students are more likely to be from lower-income families and borrow more for their education than students in higher-income groups. Thus, it is possible that high debt may deter students from choosing primary care, but the effect could be masked by the larger influence of socioeconomic status. Although it needs more study, there is little direct evidence that reducing or subsidizing tuition will encourage more students to choose primary care fields. Medical schools should be wary of escalating costs for students, but investment in a school's curriculum to promote primary care would not counteract its aims, even if it modestly increased tuition.

Scholarship and Loan-Repayment Programs

The National Health Service Corps (NHSC) is often viewed as an ideal solution for young physicians with high debt who wish to practice primary care. The NHSC offers scholarship support for students or loan repayment after graduation in exchange for primary care service in underserved communities. Many states offer similar programs, and, collectively, these physicians provide a significant portion of care for underserved populations, especially in rural communities. Family physicians (and their predecessors, general practitioners) make up most of this workforce [39].

Medical school graduates who join the NHSC have more debt than their peers, suggesting that loan repayment is a partial incentive for their commitment to

underserved practice. NHSC graduates are more likely than non-obligated physicians to work in underserved communities, even after their service terms are complete—further evidence that exposure to underserved populations motivates students and physicians to care for them [40].

Although the NHSC and many state programs now favor loan-repayment programs rather than scholarships that obligate medical students at the outset of their training, there are important reasons for continuing to support scholarships with appropriate repayment terms. Medical school applicants are daunted by the prospect of incurring high debt, and there is evidence that students from lower socioeconomic backgrounds are less likely to view educational debt as an investment [41, 42]. Scholarships programs that guarantee that the student who completes his or her service agreement will not incur debt may be useful in recruiting disadvantaged students to medical school, and may have an even wider impact in difficult economic times. If these funding programs cut scholarships, they also forfeit their opportunity to engage and inspire students during the medical school years and possibly influence the choice of primary care and underserved careers.

One serious drawback to the scholarship program, however, is a tendency toward stringent repayment terms. If the recipient fails to begin or complete the obligated service, the NHSC requires payment within 1 year of three times the scholarship funds awarded, plus interest. About one in five state scholarship programs have similar penalties [40]. Although punitive repayment terms are associated with higher rates of completed service, physicians who fulfill their obligations under these terms are significantly less satisfied than physicians with more conventional opt-out terms, which require students to pay back money borrowed with interest. Only 36 percent of physicians who enroll in state programs with punitive terms said that they would definitely commit to their programs again—compared to 65 percent of physicians with conventional terms [40]. These programs would appeal to more students, engender greater physician satisfaction, and possibly have higher long-term retention if their repayment terms were fairer.

Scholarship and loan-repayment programs are also limited by inflexible terms of service. NHSC participants are required to work full-time and can spend no more than 7 weeks per year away from the practice for vacation, holidays, continuing professional education, illness, or any other reason without extending their service obligation. Given the high demands of underserved patient populations, this full-time requirement likely equates to substantially more than 40 hours per week, a challenging clinical obligation that may limit young physicians' pursuit of other demands or interests, such as teaching, research, or parenting [7]. As a consequence, the NHSC's current policies may not only deter prospective participants but may inhibit research on care for underserved populations, limit exposure of students and residents to underserved patients, and prevent alliances between university-based medical schools and physicians serving in the neediest communities.

The full-time requirement may also make NHSC service less appealing to women, who account for most of the family physicians who work part-time [43]. Limited access to childcare and school choices, lack of job opportunities for partners, and other barriers to rural and underserved practice also affect women disproportionately [44, 45]. Consequently, although women are much more likely to choose primary care than men, and now make up the majority of family physicians completing residency, they are only about two-thirds as likely to practice in a rural area [7]. More flexible work options and an increased focus on the needs of female physicians would help the NHSC expand its workforce.

Although the work of the NHSC and other programs is admirable, it is not sufficient. Demand for NHSC physicians far exceeds the supply. Some state programs also receive more applications than they are able to fund. Although issues of flexibility are important, the greatest barrier to these programs remains limited funding and capacity.

Income

While the impact of debt and service-obligation programs on specialty choice is elusive, the relationship between potential income and specialty choice is clear. There is a direct correlation between the annual salary of a given specialty and the popularity of that specialty among U.S. medical students [46]. The salary disparity between primary care physicians and specialists is magnified over a lifetime. Economic analysis has demonstrated that there is a greater gap in return on investment between primary care physicians and specialists than between primary care physicians and college graduates with bachelor's degrees as their terminal degrees [26]. Career theorists view high income as a signal of prestige and respect. Thus, this growing income gap perpetuates a view of the higher value put on specialty care within the culture of medicine and society as a whole.

Conclusion

Despite growing knowledge of the factors that drive specialty choice, policymakers have yet to reverse the trend toward students' choice of subspecialty careers over family medicine, general surgery, general internal medicine, and general pediatrics. Further research is needed to refine our understanding of the interaction among financial factors and lifestyle, the role of specific curricula, and the best ways to prepare underprivileged students for medical school. But most importantly, we need policy change at the federal, state, and medical school level. Most students enter medical school with ambitions of service as well as career advancement. Admission criteria should focus on recruiting those students who are most likely to care for the neediest patients, despite the obstacles. Medical school and residency curricula, loan repayment, scholarship programs, and financial incentives should be structured to increase choice of primary care careers, particularly in rural and urban underserved practice locations. By accepting and supporting students and physicians who have an interest in service, we can improve access to care for our neediest citizens at a very reasonable cost.

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