

### Do Free Clinic Experiences Enhance Medical Student Commitment to Underserved Areas?

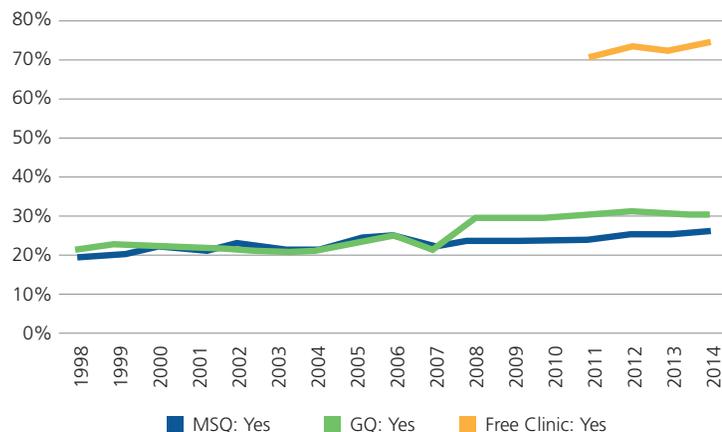
Previous studies demonstrate that curricular components can influence medical students' career choices and intentions to practice in underserved areas.<sup>1,2</sup> Race, ethnicity, and socioeconomic background are also associated with students' willingness to serve underserved populations.<sup>3</sup> Yet the shortage of physicians in underserved areas remains an ongoing challenge in the U.S. health care system. As a result, the benefits of increased health insurance coverage and available care may not be fully realized by those without access to a physician. An estimated 72 percent of the U.S. land mass is currently designated as Primary Care Health Professional Shortage Areas, with more than 105 million individuals residing in these areas.<sup>4,5</sup> Producing a physician workforce that is willing and able to practice in underserved areas is important to the improvement of population health and access to quality health care.

A better understanding of medical students' interests and commitments to practice in underserved areas may help to mitigate the geographic access barriers in the nation's underserved areas. This edition of *Analysis in Brief* (AIB) examines the factors associated with medical students' commitments to practice in underserved areas,<sup>6</sup> particularly the association between experiences in a free clinic for underserved populations and the intent to practice in underserved areas.

#### Methods

The data in this AIB are derived from two AAMC sources: the Matriculating Student Questionnaire (MSQ) and the Medical School Graduation Questionnaire (GQ).

Figure 1. Medical students' plans to practice in underserved areas (MSQ, GQ) and their experiences with free clinics (GQ), 1998–2014



Note: N for the MSQ ranges from 11,002 to 15,648; N for the GQ ranges from 5,191 to 14,877 during the study period. Please note that there was a change in wording of the underserved question on the GQ in 2008 and on the MSQ in 2013.

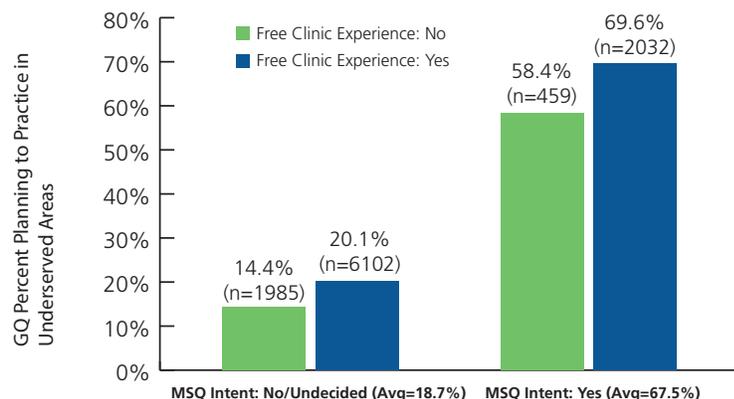
The MSQ is administered annually to all first-year U.S. medical students; the GQ is administered annually to all graduating U.S. medical students. The response rate in 2014 was 75 percent for the MSQ and 80 percent for the GQ. Both surveys explore, among many other issues, student interest in practicing in underserved areas, which provides an opportunity to measure changes in student interest during medical school. Since 2011, the GQ has included a question about student experience with a free clinic for the underserved population. Although the GQ does not define “free clinic,” examples include medical services provided at no cost to economically disadvantaged individuals in partnership

with hospitals, churches, medical schools, homeless shelters, or other social service agencies.<sup>7</sup>

To assess trends, we investigated student responses from 1998 to 2014 to the MSQ question “Do you plan to locate your practice in an underserved area?” and the GQ question “Do you plan to practice in an underserved area?” We also analyzed the 2014 GQ question specifically with the students' most recent corresponding MSQ responses to assess whether there is an association between exposure to free clinics during medical school and changes in student intentions at the end of medical school. We used chi square statistics

1. Boscardin CK, Grbic D, Grumbach K, O'Sullivan P. 2014. Educational and individual factors associated with positive change in and reaffirmation of medical students' intention to practice in underserved areas. *Acad Med* 89(11):1490-1496.
2. Xierali IM, Maeshiro R, Johnson S, Arceneaux T, Fair MA. 2014. Public health and community medicine instruction and physician practice location. *Am J Prev Med* 47(5S3):S297-S300.
3. Grbic D, Slapar F. 2010. Changes in medical students' intentions to serve the underserved: matriculation to graduation. *AAMC Analysis in Brief* 9(8):1-2. [https://www.aamc.org/download/137518/data/aib\\_vol9\\_no8.pdf](https://www.aamc.org/download/137518/data/aib_vol9_no8.pdf). Accessed July 11, 2015.
4. Authors' calculation based on Health Resources and Services Administration (HRSA) data. Shortage designation: primary care health professional shortage areas. <http://www.hrsa.gov/shortage/>. Accessed Feb. 12, 2014.
5. HRSA defines a HPSA as “a geographic area, population group, or health care facility that has been designated by the Federal government as having a shortage of health professionals.” HRSA. <http://bhpr.hrsa.gov/shortage/hpsas/faq.html>. Accessed July 12, 2015.
6. Rabinowitz HK, Diamond JJ, Veloski JJ, Gayle JA. 2000. The impact of multiple predictors on generalist physicians' care of underserved populations. *Am J Public Health* 90(8):1225-1228.
7. Darnell JS. 2010. Free clinics in the United States: a nationwide survey. *Arch Intern Med* 170(11):946-953.

**Figure 2. Percent of graduating students with intent to practice in underserved areas on 2014 GQ by corresponding MSQ intent and GQ free clinic experience**



Note: 2014 GQ data linked to the most recent corresponding MSQ records; total n = 10,578. Number in parentheses are subgroup totals. Cochran-Mantel-Haenszel statistics general association  $p < .0001$ . Avg = average.

and logistic regression to examine this relationship. We excluded nonresponse records from the GQ and the MSQ and the responses of students whose medical school of graduation was different from their medical school of matriculation.

### Results

We found that at all 131 U.S. medical schools that graduated students in 2014, students had opportunities to participate in free clinics. The percentage of students reporting an experience with a free clinic was 75 percent nationally in 2014 (Figure 1). However, student participation in a free clinic experience varied greatly among medical schools, with proportions of such participation ranging from 15 to 100 percent. Results show that students' intentions to practice in underserved areas at the end of their medical school education have remained at or below 30 percent since 1998.<sup>8</sup>

We also found a significant association between free clinic experience and student commitment to underserved areas. Proportionally more students who had not expressed a desire to practice in underserved areas at entry to medical school became interested in underserved areas upon graduation from medical school with exposure to free clinics compared with students without such exposure (20 percent versus 14 percent; Figure 2). Additionally, a higher proportion of students with exposure to free clinics expressed continuing

commitment to practicing in underserved areas compared with students without such exposure (70 percent versus 58 percent). The association is statistically significant ( $p < .0001$ ). Students who had a free clinic experience were 1.65 times more likely to indicate a willingness to practice in an underserved area at graduation than the students without a free clinic experience (odds ratio [OR] = 1.65; 95 percent confidence limits: 1.48–1.83). Having a free clinic experience continued to predict student intent to practice in underserved areas at graduation even after controlling for student age, gender, race, ethnicity, and a stated commitment to an underserved location at entry to medical school (adjusted OR = 1.53; 95 percent confidence limits: 1.36–1.72).

### Discussion

While student intent to practice in underserved areas at matriculation is a major predictor for an intent to do so at graduation, this study shows that students with exposure to free clinics during their medical school education are more likely to become or remain committed to practice in underserved areas, even after controlling for other confounding factors such as student age, gender, race, and ethnicity. The findings suggest that certain curricular interventions such as free clinic experiences in medical schools may enhance students' interests and commitments to practice in underserved areas to address some of our nation's persistent physician workforce shortages

in certain geographic locations. Other potential confounding factors—for example, the presence of longitudinal clerkships in underserved areas, other community-based field experiences, or curriculum related to public health or health disparities—may also influence student commitment to practice in underserved areas. An additional limitation to this study is that students with intent to practice in underserved areas at entry to medical school may self-select to pursue free clinic experiences during medical school. Also, the free clinic experiences available to students across medical schools vary. Medical students' career plans are not likely to solve all of the nation's workforce concerns.<sup>9</sup> However, future research is needed to identify ways to expand and improve free clinic rotations and other practical experiences in medical school to help increase the number of physicians who ultimately practice in medically underserved areas.

### Authors

Imam M Xierali, PhD, Manager, Public Health and Diversity Initiatives, [ixierali@aamc.org](mailto:ixierali@aamc.org)

Malika A Fair, MD, MPH, Director, Public Health Initiatives, [mfair@aamc.org](mailto:mfair@aamc.org)

Sherese Johnson, MPH, Lead Specialist, Public Health Initiatives, [sjohnson@aamc.org](mailto:sjohnson@aamc.org)

Rika Maeshiro, MD, MPH, Advisor, Public Health and Prevention, [rmaeshiro@aamc.org](mailto:rmaeshiro@aamc.org)

Ashtin Jeney, MD Candidate, The George Washington University School of Medicine and Health Sciences

**Acknowledgments:** This study was supported in part by a cooperative agreement from the U.S. Centers for Disease Control and Prevention (CDC) through the Association of American Medical Colleges (AAMC) (grant No. 5U36OE00004-04). Report contents are solely the responsibility of the authors and do not necessarily represent the official views of the AAMC or CDC. The authors would like to thank Dr. David Matthew, Ms. Lindsay Roskovensky, and Dr. Philip Alberti for their comments and suggestions to early drafts.

Association of  
American Medical Colleges

655 K St., NW, Suite 100  
Washington, D.C. 20001-2399

[analysis@aamc.org](mailto:analysis@aamc.org)  
[www.aamc.org/data/aib](http://www.aamc.org/data/aib)

8. A one-time increase in 2008 was likely the result of changes made that year to the wording of the GQ question. Before 2008, the GQ asked, "Do you plan to locate your practice in an underserved area?" Beginning in 2008, the GQ asked, "Do you plan to practice in an underserved area?"

9. Jones KC, Erikson CE, Shipman SA. 2013. Medical students' plans at graduation and their relationship with actual practice. *Acad Med* 88(12):1950.