



POLICY NOTES

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The Chronic Underrepresentation Of African Americans In Medicine

Introduction

African American physicians represented just 4.5 percent of the nation's doctors in 2001. Furthermore, although African American 18- to 24-year-olds represent about one-seventh of the U.S. population, they are only about one-thirteenth of all U.S. medical students. While progress has been made over many years in increasing the percentage of African American students in the nation's medical schools, recently the situation appears to be getting worse. Since peaking in 1994, African American representation among new medical students has fallen. A worrisome decline in enrollments after 1998 raises the question of whether a chronic condition is becoming acute.

This issue of *ETS Policy Notes* examines the underrepresentation of African Americans in medical school, focusing on trends in enrollment and graduation at all levels of education. We explore African American college students' interest in the medical profession, their pursuit of degrees in biological sciences, and the growing gender differences in educational attainment within the African American community as well as the broader community. We also examine the education pipeline from early schooling through college to see where improvements must be made to enlarge the pool of qualified prospects for entry into professions such as medicine, a very small and elite end of the education pipeline.

There is a very long way to go for African Americans to achieve parity with Whites in this very important profession. Doing so is important in the broad effort to achieve equality in our society and to realize the contribution that diversity makes to improving education for all. There are also practical concerns. Empirical

THIS ISSUE

This issue of *ETS Policy Notes* examines the underrepresentation of African Americans in medicine, focusing on trends in achievement and enrollment at various points along the educational pipeline that can limit the pool of students who are qualified for medical school. ETS researchers Michael Nettles and Catherine Millett, both formerly of the University of Michigan School of Education, and Joyce Wahr of the University of Michigan Medical School, collaborated on the original work on which this issue of *ETS Policy Notes* is partially based. That work grew out of a common concern about the declining presence of African American males in U.S. medical schools. A Spring/Summer Research Grant from the Horace H. Rackham Graduate School and the Office of the Vice President for Research at the University of Michigan supported a portion of the original work and ETS is currently supporting the work. This article was written by Paul E. Barton.

studies consistently demonstrate that minority physicians—notably, African Americans and Hispanics—“are significantly more likely to practice in underserved areas comprised largely of minority and poor populations. They also are more likely to undertake research addressing the unique medical concerns of minority populations. These populations are precisely those that, on average, have the most severe health problems and medical needs.”¹

Medical School Applicants

The U.S. Supreme Court’s recent ruling on affirmative action has brought new attention to the underrepresentation of African Americans in our nation’s medical schools. The question is, how have application rates changed over time for African Americans and other racial/ethnic groups?

From 1974 to 1991, the number of African American students applying to medical school varied within a fairly narrow range of about 2,100 to about 2,500, ending the period at the high end of the range at 2,546. In that period, however, both total applications and applications from White students were falling, so that the percentage of African American applications gained steadily relative to White applications.

From 1991 to 1996, African American applications grew rapidly, to 3,527, while White and total applications also grew. Each year thereafter, African American applications declined, as they did for White and total applications. Another significant trend in medical school admission in recent years has been the steady rise in women applicants. Among Whites, the percentage of women applicants climbed from 38.3 percent in 1990 to 45.6 percent in 2001. Among African Americans, the percentage of applications submitted by women rose from 57.3 percent in 1990 to 65.8 percent in 2001. This gender gap among African American applicants is striking: two-thirds are now female.

¹ Brief of the Association of American Medical Colleges et al., as *Amici Curiae* in Support of Respondents; *Grutter v. Bollinger et al.* Retrieved from <http://www.aamc.org/diversity/amicusbrief.pdf>

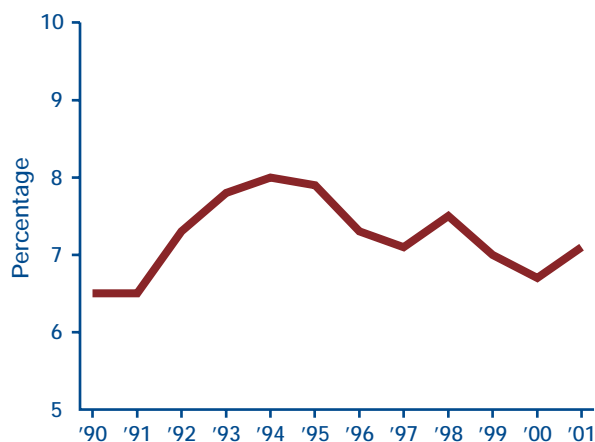
Medical School Entrants

Clearly, not all of those who apply to medical school are accepted, and not all who are accepted decide to enter. For the purposes of this analysis, the important question is, are certain racial/ethnic groups more or less likely to matriculate than others? Further, do the trends for these different groups vary?

While the numbers of medical school applications have fluctuated considerably over time, the total number of new entries into medical school has been quite stable for the last 20 years, beginning the period at 16,587 in 1980, and ending it in 2001 at 16,364. The composition of the student body changed considerably during that two-decade period, however: the number of new White entrants declined steadily, the number of African American entrants rose modestly, and the number of Asian entrants rose dramatically.

As a result of these trends, the percent of medical school entrants who are African American rose from 6 percent in 1980 to 8 percent in 1994, then dropped to 7.1 percent in 2001. This trend can be seen in Figure 1.

Figure 1: African American Entrants to Medical School as a Percentage of All Entrants, 1990 to 2001



Source: Association of American Medical Colleges Data Warehouse Applicant Matriculant File, as of March 28, 2002.

Not only did the racial/ethnic composition of the medical school population change over time, but so did the ratio of men to women. The proportion of female African American entrants rose from 44.2 percent in 1980, to 56.2 percent in 1990, and then to 65.0 percent in 2001. Although the change for White entrants also was dramatic—increasing from 27.3 percent, to 36.7 percent, to 45.7 percent over this same time period—the female proportion is very much higher among African American entrants, and the difference began long ago.

During the 1990s, the number of African American males entering medical school varied, reaching a high of 515 in 1994 and a low of 387 in 1998, and ending the period at 409 in 2001. For African American females, the trend was steadily up during the whole two-decade period from 1980 to 2001, ending at a high of 761. The year 2001 also marked a high point for White women.

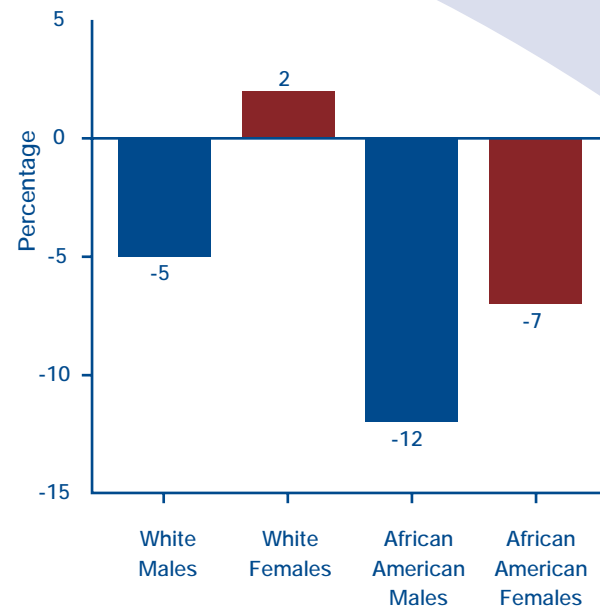
Medical School Graduates

African American medical school graduates, as a percent of all graduates, gained steadily over the last two decades, peaking at 7.5 percent in 1998, but dropping to 6.9 percent in 2001. In contrast, the percentage of White graduates declined steadily after 1982, from 86.1 percent to 65.4 percent in 2001.

Despite this progress, African Americans remain substantially underrepresented in the medical profession, and the last few years suggest the possible emergence of a troublesome trend. After peaking in 1997, African American enrollment in medical school fell by 11 percent by 2001. White enrollment also fell, but by less than 5 percent.

Also, after peaking in 1998, the number of African American graduates had dropped by 9 percent by 2001; White graduates dropped just 2 percent. The loss was greater for African American men, with medical school graduations dropping 12 percent compared to 7 percent for African American

Figure 2: Change in Medical School Graduation Rate from 1998 to 2001, by Race and Gender



Source: Association of American Medical Colleges Data Warehouse Applicant Matriculant File, as of March 28, 2002.

women; in this period, White men declined 5 percent as White women increased 2 percent (see Figure 2).

To summarize, African American enrollment in medical school turned down the last five years after steady improvement, falling more than White enrollment. The picture is similar for medical school graduates, with African American males dropping more than African American females.

Academic Interest of College Students

To what extent do students who are real prospects for medical school—those continuously enrolled at four-year institutions—opt to major in science and, consequently, to pursue a course of study that prepares them for medical school?²

The U.S. Department of Education's longitudinal study of students beginning college in 1989-1990 found that African American men were less likely to major in science than White males and females

² While a sizeable proportion of students who pursue medicine major in the sciences, being a science major is not a requirement.

or African American women.³ Only 2.6 percent of African American males were science majors in their first year of college, compared to 4.8 percent of African American women, 7.7 percent of White men, and 4.6 percent of White women. Thus, it seems that academically promising African American men were steering away from majoring in science, leaving only a small pool of science majors for medical schools to draw on.

In contrast, the percentage of African American females majoring in science, 4.8 percent, was about the same as for White and Hispanic females. In all racial/ethnic groups other than African American, a higher proportion of males than females chose science as their major field of study in their first year of four-year college.

While these data focus on students as they begin college, it is important to determine students' educational aspirations after five years. This longitudinal study provides an answer to the question, since the same students are followed over time. By 1994-1995, African American males did not seem to be less inclined than Whites or African American women to pursue doctoral or first professional degrees, so in that respect, they do not differ much.

But what about interest in the medical professions? While data are available from the survey, the numbers are small, as only 2.1 percent of students aspire to be doctors or dentists. Although one should be wary when working with such small numbers in the sample, it is interesting to note that only 0.5 percent of African American males aspired to be doctors or dentists, compared to 1.4 percent of African American females, 1.6 percent of White women, and 1.9 percent of White men.

A new longitudinal survey was begun in 1995-1996. In this first year, continuously enrolled students can be compared with those of 1989-1990, with regard to their majors. In 1995-1996,

6 percent of African American males majored in science, a considerable increase over the 2.6 percent in 1989-1990. The African American female proportion also rose, to 11 percent, and the gender difference continued. This increased interest of African American males in academic disciplines associated with medical school requirements makes the decline in their medical school entry over the late 1990s seem even more puzzling. Not only did the percentage of African American males going to four-year colleges continuously improve, but so did their inclination to pursue courses of study that are particularly well-suited for continued study in medical school after graduation.

And pursue they did. An examination of bachelor's degrees awarded to African American men and women in the biological sciences (those graduates best prepared to pursue a career in medicine) shows no evidence for a decline or stagnation in medical school enrollment. While the number of bachelor's degrees awarded to African American men in the biological sciences declined from 1977 to 1990, the number nearly doubled from that point to 1996, and continued to increase until 1999, with some decline the next year. After a period of stability, the number of degrees awarded to African American women began to increase in 1990, and continued increasing every year to 2000.⁴ Here, also, there seem to be no constraints on continued progress in medical school enrollment.

The Widening Gender Differences

It is readily apparent in the data on African American medical school enrollments that there are large gender differences, both in levels and trends. While gender differences in educational attainment between African American women and men date back a very long time, they are now part of a larger story of emerging gender differences in educational attainment generally. When we look at the declining participation of African

³ National Center for Education Statistics, *Beginning Postsecondary Students Longitudinal Study, First Follow-Up, 1996-98*, Methodology Report, NCES-2000-157, April 2000.

⁴ CASPAR Database Systems; see <http://caspar.nsf.gov>.

American males in medical education relative to that of females, we realize that this is a magnified section of a larger picture. So the difficult question becomes: What are the larger forces at work, and are they the same or different for African American youth and in medical education?

The story on gender differences for African Americans does not begin in the 1990s. A 1965 U.S. Department of Labor report stated:

*The disparity in educational attainment of male and female youth age 16 to 21 who were out of school in February 1963 is striking. Among the non-White males, 66.3 percent were not high school graduates, compared with 55.9 percent of the females. A similar difference existed at the college level, with 4.5 percent of the males having completed one to three years of college compared with 7.3 percent of the females.*⁵

The gender difference began early, too; in 1960, 5.8 percent of non-White 7- to 9-year-old girls were one or more years below modal grade, compared to 7.8 percent of boys.⁶

In recent years, women of all races and ethnic groups have outdistanced men in educational attainment, and increasingly so. In the fall of 2000, 25 percent of African American men age 18 to 24 were enrolled in college, compared to 35 percent of African American women, a difference of 10 percentage points. Although enrollment of women exceeded men for all groups, the difference among White 18- to 24-year olds was less than 6 percentage points.⁷

When it comes to actual degrees awarded, the gender gap also has widened. In 1978-1979, the number of male bachelor's and master's degree recipients outnumbered the number of female recipients. Two decades later (in 1999-2000), among African Americans, 192 women earned a

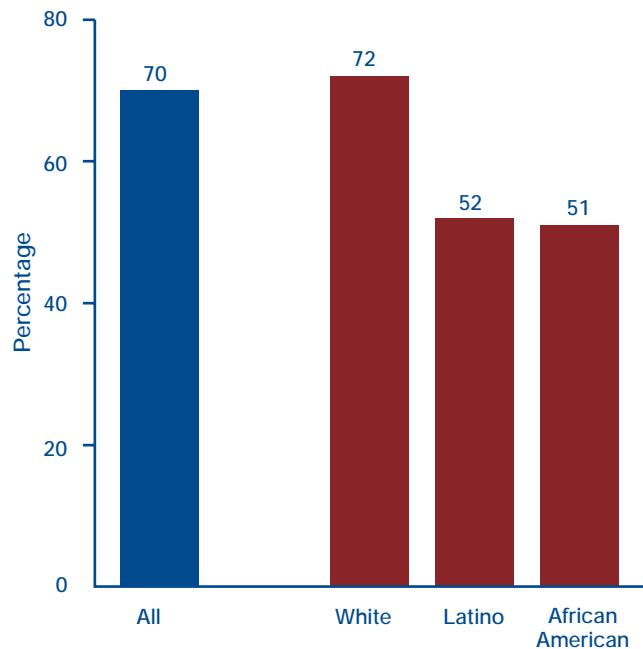
bachelor's degree for every 100 men who did so, and 221 women earned master's degrees for every 100 men who did so. Among Whites, on the other hand, the ratios were 131 to 100 and 151 to 100, respectively.⁸

Clearly, seismic shifts in gender differences in educational attainment are underway in U.S. society. The degree of difference is huge, and is most pronounced in the African American community. Although these developments also are reflected in gender differences in medical education, it would be difficult to disentangle the forces at work to determine the extent to which they are unique to medical education.

Inspecting the Pipeline

College graduates' choices of what to pursue in graduate and professional schools determine how many are available to apply to medical school

Figure 3: High School Completion Rate, by Race/Ethnicity, 2001



Source: Jay P. Greene and Greg Forster, *Public High School Graduation and College Readiness Rates in the United States*, Education Working Paper No. 3, Manhattan Institute for Policy Research, September 2003, Table 1.

⁵ United States Department of Labor, Office of Policy Planning and Research, *The Negro Family: The Case for National Action*, March 15, 1965 (commonly called the Moynihan report), p. 31. At that time, 92.8 percent of "non-Whites" were African American.

⁶ United States Department of Labor, 1965.

⁷ Andrew Sum et al., *The Growing Gender Gaps in College Enrollment and Degree Attainment in the U.S. and Their Potential Economic and Social Consequences*, Center for Labor Market Studies, Northeastern University, Boston, Massachusetts, May 2003.

⁸ Sum et al., 2003.

relative to other choices. But for any racial or ethnic group, the size of the pool of bachelor's degree recipients who are adequately prepared to be accepted into these schools varies for many reasons, extending back to early life. We start at the birth of an age cohort and watch as it is cared for in the family, as it goes through the K-12 education system, as its members do or do not take a rigorous curriculum in high school, do or do not graduate from high school, do or do not go to college, choose a major, and persist to graduation. The extent of attrition along the way determines the relative rates of those who have the luxury of choice about whether or not to enter graduate or professional schools.

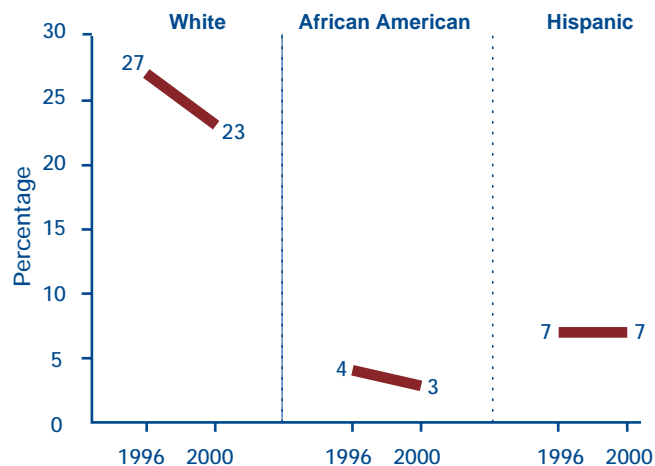
Official high school completion rates include the GED, but these are not likely to be a factor in getting to medical school. More helpful are recent estimates of high school completion rates by race and ethnicity prepared by Jay Greene and colleagues at the Manhattan Institute of Policy Research. These high school completion rates are shown in Figure 3.⁹

The difference of 21 percentage points between the White (72 percent) and African American (51 percent) rates of high school completion opens a wide disparity in the relative proportions of potential entrants to the professions.

For students who do graduate from high school, how prepared are they to enter college and a pre-medical program of studies? One national indicator that we have available is performance on the National Assessment of Educational Progress (NAEP) science assessment. Figure 4 shows the percentage of twelfth graders who score at or above the "proficient" level in science, one indicator of preparedness¹⁰

Just 3 percent of African American twelfth graders scored at the NAEP proficient level in science

Figure 4: Percentage of Twelfth Graders Scoring at or Above the "Proficient" Level in Science, by Race/Ethnicity, 1996 and 2000



Source: National Assessment of Educational Progress, www.nces.ed.gov/nationsreportcard/science/results

in 2000, compared with 23 percent of White and 7 percent of Hispanic twelfth graders. Similar disparities exist in other subjects. The scores of African American males were about the same as those of African American females.

Enlarging the pool of African American students who realistically have a choice of a higher education pathway to medicine most certainly requires increasing academic proficiency in high school. And accountability for raising the achievement of African American and Hispanic students is a major goal of the recent No Child Left Behind Act.

One important indicator of students' qualifications to enter college is the rigor of the courses they take in high school. As Figure 5 shows, there is a considerable gap between the percentage of African American and White high school students taking advanced mathematics courses: 30 percent compared to 45 percent. The comparable percentages for advanced sciences are 10 and 16 percent, respectively.¹¹

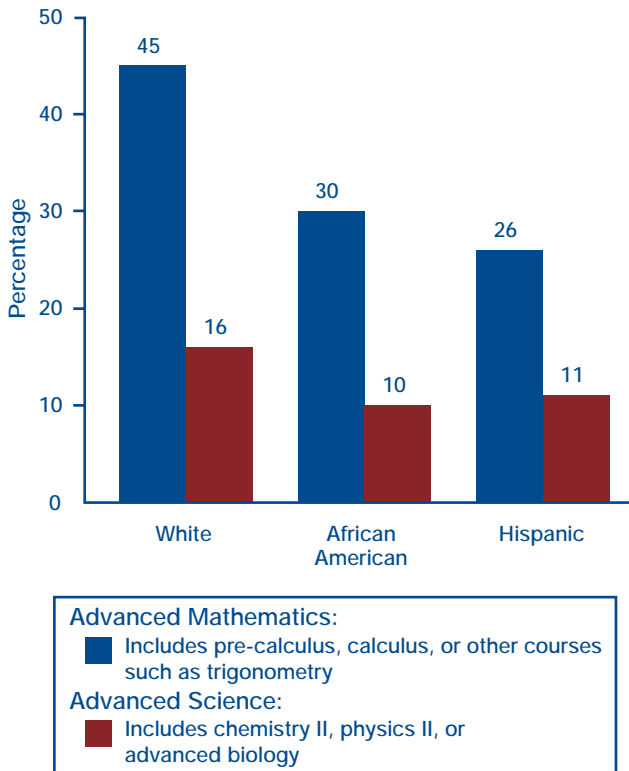
The next segment of the pipeline is the transition from high school to college, and its diameter is

⁹ Jay P. Greene and Greg Forster, *Public High School Graduation and College Readiness Rates in the United States*, Education Working Paper No. 3, Manhattan Institute for Policy Research, September 2003.

¹⁰ National Assessment of Educational Progress, www.nces.gov/nationsreportcard/science/results

¹¹ Advanced math courses include pre-calculus, calculus, or other courses such as trigonometry; advanced science courses include chemistry II, physics II, or advanced biology. U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 2002*. Washington, DC: U.S. Department of Education.

Figure 5: Percentage of High School Students Taking Advanced Courses in Mathematics and Science, by Race/Ethnicity, 1998



Source: U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 2002*.

influenced by both the ability to get into college and the choice to do so. The rate of college entry has long been rising for all groups. As shown in Figure 6, 56 percent of African American high school graduates in 2000-2001 went on to college.

By college enrollment time, the gender gap is large. In 2000, there were 129 women for every 100 men enrolled in college—126 women to 100 men for White enrollees, 166 women to 100 men for African American enrollees, and 130 women to 100 men for Hispanic enrollees.¹²

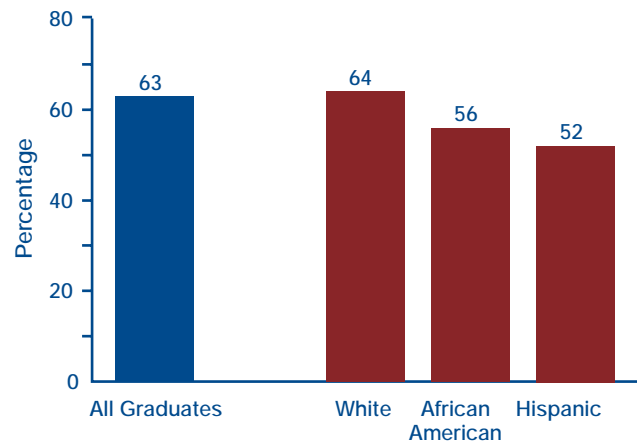
The last step in determining the size of the pool of potential medical school entrants is graduating from college with a four-year degree. A U.S.

Department of Education longitudinal survey shows that of all students who began their postsecondary education in 1995-1996, 28 percent had received a bachelor's degree by June 2001, and 8.8 percent were still enrolled at a four-year institution. The comparable percentages for receiving a bachelor's degree were 31.6 for White students, 17.3 percent for African American students, and 18.5 percent for Hispanic students; about the same percentage of African American and White students were still enrolled at four-year institutions (8.6 and 8.4 percent, respectively).¹³

These statistics show another substantial reduction in the relative diameter of the pipeline. While considerable focus has been given to increasing access to college, less attention has been given to persistence through to graduation.

In terms of the relative size of the educational pipeline by gender, for the college graduating class of 2000, 57.4 percent of bachelor's degree

Figure 6: Percentage of High School Graduates Entering College, by Race/Ethnicity, 2000-2001



Source: Andrew Sum, et al., *The Growing Gender Gaps in College Enrollment and Degree Attainment in the U.S. and Their Potential Economic and Social Consequences*, Center for Labor Market Studies, Northeastern University, May 2003.

¹² Sum et al., 2003, Chart 3.

¹³ U.S. Department of Education, National Center for Education Statistics, 1995-1996, *Beginning Postsecondary Students Longitudinal Study, Second Follow-up* (BPS: 96/01) Table 2.0-C.

recipients were women and 42.6 percent were men. In contrast, 65.5 percent of the African American degree recipients were women and 34.5 percent were men.¹⁴

While readers of the above will find some illumination of critical trends in the progress of African Americans in the medical professions, a full explanation remains elusive, particularly for the downturn in the numbers of African American men and women enrolled in medical school in recent years. It is particularly difficult to uncover the forces at work in the continued enlargement of the educational gender gap in the African American community, as well as in the broader community.

It is clear, however, that the educational pipeline becomes increasingly constricted as it passes

through each milestone in the youth development period, and the flow into the “well prepared” pool is more constricted for males than for females.

Enlarging the pool of African Americans in medicine will require sustained effort at every step along the way. Necessary endeavors must include providing more opportunities for African American students to take rigorous courses in high school, pursuing programs to address the dropout problem and increase high school graduation rates, promoting students’ college aspirations, providing encouragement or incentives to pursue science studies in college, tackling the college attrition problem and promoting persistence to degree attainment, and supporting both students’ aspirations and means to continue into the medical professions.

¹⁴ U.S. Department of Education, National Center for Education Statistics, *2001 Baccalaureate and Beyond Longitudinal Study (B&B:2001/01)*, Table 1.1.

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