Preferences in Medical Education

Racial and Ethnic Preferences in Admissions at Five Public Medical Schools

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Executive Summary

Preferences

- Black applicants to the medical schools at Michigan State, SUNY Brooklyn, the University of Washington, and the Medical College of Georgia are given a large degree of preference over their white and Asian counterparts. Considering only in-state applicants at just these four schools in just the two years covered by the study, over 3,500 nonblacks were denied admission despite having higher MCAT scores and undergraduate grades than those of the median black admittee.

- Hispanic applicants receive a substantial degree of preference over white applicants at Michigan State, SUNY Brooklyn, and the University of Washington medical schools, but not at the Medical College of Georgia.

- The University of Oklahoma College of Medicine grants a large degree of preference to underrepresented minorities (American Indians, blacks, and Hispanics) over whites.

- There is no evidence of preferences given to Asian over white applicants at these five medical schools.

- Time trends are mixed. While the Medical College of Georgia, SUNY Brooklyn, and University of Washington medical schools seem to be giving less weight in admissions to race and ethnicity than they used to, the same cannot be said for the Michigan State and University of Oklahoma medical schools.

Consequences

- Proportionately fewer blacks and Hispanics than whites and Asians took and passed the mandatory Step 1 of the U.S. Medical Licensing Examination.

- Individuals with lower MCAT scores were more likely to fail Step 1 of the licensing exam. This explains the differential pass rates for blacks and Hispanics relative to whites and Asians.

- The evidence in this study indicated no cultural bias in the correlation between MCAT scores and Step 1 scores.

- The findings reported here are consistent with the findings of CEO's earlier study of the University of Maryland School of Medicine, except that there the preferential treatment was limited to African Americans.

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Introduction

For nearly thirty years, racial and ethnic preferences have played a key role in how admissions officers at the nation's public and private colleges and universities have chosen their classes. A system of racial and ethnic preferences in admissions operates by establishing different standards of admission for individuals based upon their racial or ethnic background, with some students held to a higher standard and others admitted at a lower standard. Earlier in this century, some colleges and universities denied admissions to Jews, blacks, women, and members of other groups even when their grades, test scores, and other measures of academic achievement surpassed those of white males who were offered an opportunity to enroll. The passage of new civil rights legislation in the 1960s made this kind of blatant discrimination illegal.

Since then, however, many colleges and universities have created "affirmative action" programs meant to boost the enrollment of students whose backgrounds previously had excluded them from pursuing a higher education—especially blacks and, to a lesser extent, Hispanics—by granting them preferences during the admissions process. These policies, when their existence was made public, immediately became controversial, and they remain so today. Defenders of racial and ethnic preferences claim that these policies are not discriminatory and help administrators choose between equally or almost equally qualified students, giving a slight edge to applicants who likely have faced discrimination or have come from disadvantaged backgrounds. Critics of preferences say that these policies are no better than the discriminatory ones they replaced and that, in any event, the advantages they confer upon certain applicants are much greater than supporters are willing to admit.

About fifteen years ago, sociologist William Beer lamented the dearth of empirical studies of racial preference programs and their consequences.[1] The situation has improved somewhat, but the extent, operation, and consequences of racial and ethnic preferences in public higher education remain one of the nation's better kept secrets. There has been some grudging admission that preferences have been used in admission—or as the authors of *The Shape of the River* have put it, that admissions have been "racially sensitive."[2]

In the last few years, public colleges and universities have seen their ability to use racial and ethnic preferences increasingly restricted. The 1996 enactment of California's Proposition 209 (also known as the California Civil Rights Initiative) forbids discrimination against or granting special treatment to any applicant on the bases of race, ethnicity, or sex in the public programs of the country's largest state. A similar ballot initiative in Washington state was approved by a large majority of voters in 1998. The states of Florida, Texas, and California have all created policies

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[1] William Beer, "Resolute Ignorance: Social Science and Affirmative Action," *Society* (May/June 1987): 63-69.
[2] See Robert Klitgaard, *Choosing Elites* (New York: Basic Books, 1985); Thomas Kane, "Racial and Ethnic Preferences in College Admissions," in Christopher Jencks and Meredith Phillips, eds., *The Black-White Test Score Gap* (Washington, D.C.: The Brookings Institution, 1998): 431-56; and William G. Bowen and Derek Bok, *The Shape of the River* (Princeton: Princeton University Press, 1998).

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that end explicit preferences and guarantee admission to the state university system to the top graduates of their respective state's high schools regardless of race or ethnicity.

The studies published by the Center for Equal Opportunity (CEO), a public policy research organization, have been the only studies, to our knowledge, to uncover and systematically document the disparities in undergraduate admission among America's public colleges and universities. Earlier CEO studies focused on undergraduate admissions at the public institutions of higher education in Colorado, Maryland, Michigan, Minnesota, North Carolina, and Virginia, the University of Washington and Washington State University, the U.S. Military Academy and U.S. Naval Academy, as well as the branches of the University of California at Berkeley, Irvine, and San Diego. Previous reports have shown that blacks and Hispanics receive large amounts of preference in undergraduate admissions. CEO studies on preferences in public undergraduate institutions of higher education have also obtained some aggregate data on graduation rates for racial and ethnic groups. These have shown that blacks and Hispanics are less likely to graduate from institutions giving them admission preferences than are their white and Asian counterparts.

The focus now shifts to professional schools. This report is the second in a series on racial and ethnic preferences in admissions to state medical and law schools across the nation. We have chosen five public medical schools from all over the country—Georgia, Michigan State, Oklahoma, the State University of New York (SUNY) Brooklyn, and Washington—for which we analyze the extent of preferences in admissions. Additionally, as in CEO's earlier report on the University of Maryland School of Medicine, this and subsequent CEO reports will investigate the consequences of racial and ethnic preferences on subsequent performance once students are enrolled.

Background

Increasing "underrepresented minority" (URM) admission to medical schools has been a major project of the academic medical establishment for years.[3] The late Bernard D. Davis, Emeritus Professor at Harvard Medical School, recounts his firsthand experience of how Harvard began to award racial and ethnic preferences in admissions there. Davis pointed out that, after the murder of Dr. Martin Luther King, Jr., the Harvard Medical School decided to admit a substantial number of black students who otherwise lacked the requisite qualifications. Not surprisingly, they performed poorly. Rather than abandoning preferences, Harvard Medical School chose to lower classroom standards. The decision was made with no open faculty debate. Departments were required to allow failing students to retake exams until everyone passed, letter grades were replaced by a pass/incomplete system (and, once a student had passed, his or her record retained no trace of the incompletes), the number of required courses was reduced while the number of electives was substantially increased, passing scores on the national licensing exams were lowered, and one minority student was even allowed to graduate from Harvard after having failed the required medical licensing exam five times.[4]

Davis's experiences appear to be standard fare. The American Association of Medical Colleges (AAMC) and the American Medical Association (AMA) have made a concerted effort since the 1970s to increase the number of underrepresented minority doctors in America. The AAMC has collected statistics on racial and ethnic groups applying, enrolling, and completing medical school since 1960. Comparing these percentages to the percentages of groups in the general population, the medical establishment has decided that certain groups are underrepresented—some Hispanics, blacks, and Native Americans[5] —as compared to their percentage of the U.S. population. Underrepresented minority enrollment reached 10.3 percent in 1992, "although these groups represent 22.1 percent of the U.S. population."[6]

In the mid-1990s, the AAMC developed the Simulated Minority Admissions Exercises (SMAE), which later become the Expanded Minority Admissions Exercises (EMAE), to increase

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[3] See Sally Satel, *PC, M.D.: How Political Correctness Is Corrupting Medicine* (New York: Basic Books, 2000), on the work of medical associations and others regarding racial and ethnic preferences in medical education and beyond, as part of the general politicization of health-care groups. The general summary of the political activities of these health-care groups comes from her book. See pp. 183-186.

[4] Bernard D. Davis, "Affirmative Action and Veritas at Harvard Medical School," *Storm over Biology* (Buffalo, New York: Prometheus Books, 1986): 169-191.

[5] The AAMC classification system appears standardless and arbitrary. Before 1993, "Native Americans" included only Native Alaskans and American Indians, while Native Hawaiians were classified as Asian/Pacific Islanders. Since 1993, "Native Americans" has included Native Hawaiians as well as Native Alaskans and American Indians. Other Americans of Pacific Island descent (e.g., Samoan) are still classified as Asian/Pacific Islander and thus are not URMs. Association of American Medical Colleges, *AAMC Data Book: Statistical Information Related to Medical Schools and Teaching Hospitals, January 1999* (Washington, D.C.: AAMC): 15.

[6] Committee on Increasing Minority Participation in the Health Professions, Institute of Medicine, *Balancing the Scales of Opportunity: Ensuring Racial and Ethnic Diversity in the Health Professions* (Washington, D.C.: National Academy Press, 1994): 1.

the number of URMs admitted to medical schools. These exercises sponsored by the AAMC train admission committees to place less weight on academic criteria by emphasizing certain nonacademic factors when selecting URMs for medical school. The AAMC does not suggest looking at these noncognitive variables when assessing white and Asian applicants.[7]

In 1996, the AAMC and other health care groups came together to form the Health Professionals for Diversity, to work politically against various electoral, legislative, and litigation efforts to dismantle racial and ethnic preferences, most notably Proposition 209. By 1998, the coalition included fifty-one health-care interest groups, and actively (but unsuccessfully) campaigned against the passage of Initiative 200 in Washington state. The AAMC went so far as to run full-page ads in local Washington newspapers, warning voters that passage of Initiative 200 would deprive minorities of medical care. After the passage of Initiative 200, the National Medical Association (NMA), the professional association of black physicians, canceled its 2001 convention in Seattle (although a majority in Seattle voted against Initiative 200).

The AAMC encouraged medical schools across the country to graduate 3000 underrepresented minority doctors from medical schools in the year 2000, and is strongly committed to the goal of proportional representation. Most publicly funded medical schools seek to increase the enrollment of certain racial and ethnic groups—the empirical question is, to what extent do these schools engage in racial and ethnic preferences favoring one group over another?

This report on five public medical schools is the second in a series of reports on racial and ethnic preferences in admission to public medical and law schools across the country, and it aims to help answer that question.

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[7] Research fails to support the AAMC's contention that noncognitive variables are important medical school considerations. For example, Webb et al., 1997, is erroneously cited as evidence that noncognitive variables are important in predicting medical school performance. This study of two medical schools, A and B, actually shows that noncognitive variables have little or no capacity to predict success in medical school and beyond. Academic factors at School A were considerably more important in predicting success; noncognitive variables for medical students at School A were barely statistically significant. At the least, academic factors predicted three times better than noncognitive variables; at the most, academic factors predicted nine times better than noncognitive factors. At School B, noncognitive factors were not statistically significant at all; they predicted nothing. See C. T. Webb, W. E. Sedlacek, D. Cohen, P. Shields, E. Gracely, M. Hawkins, and L. Nieman, "The Impact of Nonacademic Variables on Performance at Two Medical Schools," *Journal of the National Medical Association,* 89 #3 (1997): 173-80.

Methodology

Just as high school seniors seeking college admission take the SAT or the ACT, prospective medical school students must take the Medical College Admission Test (MCAT). Medical schools rely on undergraduate grades, especially in science courses, and the MCATs as the most important factors in evaluating applicants for medical school. Research shows that these two factors, taken together, are the best predictors of subsequent medical school grades and scores on the U.S. Medical Licensing Examinations (the USMLEs, which will be discussed later). For this reason, we focus on applicants' undergraduate science grade-point-averages (or undergraduate overall GPAs where science GPAs were not provided, in the cases of the University of Oklahoma and SUNY Brooklyn) and MCAT scores when analyzing applicants' academic credentials.

The MCAT is a standardized test made up of three multiple-choice subtests and a writing section. The three subsections are the verbal reasoning section, the physical sciences section, and the biological sciences section.[8] MCAT science subtests are achievement tests, not aptitude tests. They measure knowledge, not intelligence. Since 1993, the MCATs have also included the writing section. The physical science, biological science, and verbal reasoning subtests are given subscores, each ranging from a low of 1 to a high of 15. In addition, the writing sample is given a letter grade, ranging from J to T.

For our studies on medical schools, we have created a total MCAT score, which is the sum of the subtest scores plus a converted score for the writing sample. We took the assigned letter grade for an applicant's writing sample and converted it into a number. We assigned a 1 to the letter grade of J, a 2 to the letter grade of K, and so forth, extending to an 11 for a T. The exception was the University of Oklahoma, where only a mean MCAT subscore, averaging the scores for the three subtests and the writing sample, was provided for each applicant. Thus, for the other schools, the highest total MCAT score would be 56; for the University of Oklahoma, the highest mean subscore would be 14.

CEO sought the data on individual applicants' admission status, matriculation status, racial or ethnic group membership, sex, state of residency, whether a parent had graduated from the medical school, MCAT scores, and undergraduate science, nonscience, and overall college GPAs.[9]

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[8] Association of American Medical Colleges, *MCAT Interpretive Manual* (Washington, DC: Association of American Medical Colleges, 1998): 1-5.

[9] Among medical school applicants, the science and overall undergraduate GPA are highly correlated. The undergraduate science GPA would have been preferable because it is more highly correlated with medical school success compared to the overall college GPA, but this was not always provided (e.g., SUNY Brooklyn). When available, we used the undergraduate science GPA.

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While data were obtained for the medical schools for the years 1993 through 1999, the focus below is for the most part on 1996 (or 1997 for Michigan State and the University of Washington) and 1999. We wanted to choose recent but nonconsecutive years for the study. Additional statistical analyses were performed on data for 1996/97 and 1999 and are included in relevant sections on odds ratios and evaluating students at risk. We omit from our data analyses those cases for which ethnicity is listed as other, missing, or unknown. We also omit Native Americans because of their small number in this context.[10] Lastly, we omit cases with missing academic data.

We do not report group means for test scores or GPAs. Using group means places greater weight on extreme values than is warranted. A few unusually high or low scores can have a substantial effect on the value of the mean. Standard deviations, which are based on squared deviations from the mean, are even less useful for describing the spread of cases for asymmetrical, badly skewed distributions. This is because standard deviations reflect the mathematical square of these extreme values.

The median, however, and related statistics are far less affected by the values of extreme cases. The median, or the score at the 50th percentile, represents the middle of the distribution. Fifty percent of all students have higher scores, and 50 percent have lower scores.

We also report scores at the 25th and 75th percentiles, again to deal with the problem of extreme cases. While the median represents the middle of the distribution, the 25th and 75th percentile scores taken together represent the actual spread of scores. For example, a GPA at the 25th percentile means that 25 percent of GPAs were below 3.2, while 75 percent of scores were above it. A GPA of 3.9 means that 75 percent of scores were below 3.9, while 25 percent were above it.

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[10] The exception was the University of Oklahoma medical school, where a substantial number of applicants were American Indians.

Racial and Ethnic Differences in Admissions

I. Raw Admission Rates

The five medical schools in this study have much higher admission rates for in-state resident applicants than out-of-state applicants.

Table 1
In-State and Out-of-State Admission Rates

	In-State Resident Applicants	Out-of-State Applicants
Georgia, 1996	26%	1%
Georgia, 1999	34%	0.5%
Michigan State, 1997	14%	2%
Michigan State, 1999	16%	4%
Oklahoma, 1996	33%	3%
Oklahoma, 1999	50%	3%
SUNY Brooklyn, 1996	14%	0.4%
SUNY Brooklyn, 1999	23%	1%
Washington, 1997	18%	2%
Washington, 1999	21%	2%

Table 1 shows the overall admission rates for in-state and out-of-state residents. In every case, in-state residents are admitted at higher rates than out-of-state applicants.

Table 2 shows the overall admission rates for black, Hispanic, Asian, and white applicants. In most cases, white admission rates are higher than black, Hispanic, and Asian rates.[11]

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[11] American Indians were also included in the analysis of the University of Oklahoma School of Medicine because of their significant numbers relative to black and Hispanic applicants. In 1996, 17 percent of American Indian applicants were admitted to the University of Oklahoma medical school; in 1999, 40 percent were.

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Table 2
Overall Admission Rates by Group

	Black	Hispanic	Asian	White
Georgia, 1996	8%	14%	11%	18%
Georgia, 1999	6%	8%	17%	21%
Michigan State, 1997	7%	14%	5%	7%
Michigan State, 1999	11%	13%	5%	8%
Oklahoma, 1996	6%	4%	6%	14%
Oklahoma, 1999	13%	4%	13%	18%
SUNY Brooklyn, 1996	13%	8%	5%	8%
SUNY Brooklyn, 1999	14%	13%	12%	18%
Washington, 1997	9%	9%	4%	8%
Washington, 1999	6%	7%	5%	9%

Overall admission rates for all groups are all below 20 percent. For both years at Georgia, for both years at the University of Oklahoma, and for one year at SUNY Brooklyn and the University of Washington, the white admission rate is higher than the black admission rate. For Michigan State in 1997, the white and black admission rates are the same. For Michigan State in 1999, SUNY Brooklyn in 1997, and the University of Washington in 1997, black admission rates are higher than white ones.

Whites are admitted at a higher rate than Hispanics in six cases—Georgia in 1996 and 1999, the University of Oklahoma in 1996 and 1999, SUNY Brooklyn in 1999, and the University of Washington in 1999. In one case (SUNY Brooklyn, 1996), whites and Hispanics have the same admission rate. For Michigan State in 1997 and 1999, and the University of Washington in 1997, the Hispanic admission rate is higher than the white admission rate. Lastly, white admission rates exceed Asian admission rates in all 10 cases.

When separated by residency, admission rates rise for all applicants that are state residents. Table 3 presents the admission rates for in-state residents by racial and ethnic group.[12]

Table 3
In-State Admission Rates by Group

	Black	Hispanic	Asian	White
Georgia, 1996	14%	28%	20%	30%
Georgia, 1999	16%	25%	33%	38%
Michigan State, 1997	16%	26%	14%	14%
Michigan State, 1999	14%	11%	10%	17%
Oklahoma, 1996	13%	12%	34%	35%
Oklahoma, 1999	50%	20%	59%	49%
SUNY Brooklyn, 1996	22%	19%	12%	12%
SUNY Brooklyn, 1999	23%	21%	21%	24%
Washington, 1997	18%	19%	13%	19%
Washington, 1999	25%	8%	20%	21%

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[12] The in-state admission rate for American Indians at the University of Oklahoma School of Medicine was 26 percent in 1996 and 50 percent in 1999.

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In most cases, whites still have the highest rates of admission, but there are many exceptions. For in-state applicants, white admission rates are higher than black admission rates in six cases—Georgia in 1996 and 1999, Michigan State in 1999, Oklahoma in 1996, SUNY Brooklyn in 1999, and the University of Washington in 1997. For Michigan State in 1997, Oklahoma in 1999, SUNY Brooklyn in 1996, and the University of Washington in 1999, black in-state residents were admitted at higher rates than white in-state residents.

White admission rates were higher than Hispanic admission rates for in-state residents in seven cases—Georgia and the University of Oklahoma for both years, Michigan State in 1999, and SUNY Brooklyn in 1999, and the University of Washington in 1999. In two cases (Michigan State in 1997, SUNY Brooklyn in 1996), the Hispanic in-state admission rates were higher than those for whites. In one case (the University of Washington, 1997), the admission rates were the same.

Lastly, white in-state admission rates are higher than Asian in-state admission rates in seven cases—both years for Georgia and the University of Washington, and one year for Michigan State, Oklahoma, and SUNY Brooklyn. In two cases (Michigan State in 1997, SUNY Brooklyn in 1996), the admission rates are the same, while the Asian in-state admission rate is higher than the white in-state rate in one case (Oklahoma in 1999).

These raw admission rates are unadjusted. They are not statistically controlled for test scores and college grades. Where there is a gap in test scores or grades—for example, where minority groups have significantly lower scores than whites—statistical controls are necessary to uncover the adjusted or true admission rates. With proper statistical controls, we can better uncover the probability of admission for different groups, and thus get a more accurate picture of racial and ethnic preferences in medical school admissions.

II. Overall Group Comparisons

In the sections below, we compare MCAT scores and undergraduate grade-point averages for four medical schools.[13] We examine three pairs of differences in qualifications: white-black, white-Hispanic, and white-Asian. Treating each pair of comparisons separately makes it easier to see whether substantial differences in racial and ethnic differences exist, and for which groups they are greatest.

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[13] The University of Oklahoma admitted too few blacks and Hispanics for them to be considered separately. It also submitted only a mean subscore for the MCAT (that is, it took either three or four of the tests and averaged them).

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A. *Black-White Gaps in MCAT Scores and GPAs*

Table 4 displays the median total MCAT scores, undergraduate GPAs, and the difference between white and black admittees for both.

Table 4
White-Black Gaps: MCATs and Grades

MCAT Totals			
	Whites	*Blacks*	*Gap*
Georgia, 1996	37	31	6
Georgia, 1999	37	31	6
Michigan State, 1997	35	31	4
Michigan State, 1999	36	29	7
SUNY Brooklyn, 1996	38	30	8
SUNY Brooklyn, 1999	38	31	7
Washington, 1997	38	32	6
Washington, 1999	38	35	3
GPAs			
	Whites	*Blacks*	*Gap*
Georgia, 1996	3.65	3.47	0.18
Georgia, 1999	3.61	3.56	0.05
Michigan State, 1997	3.59	2.98	0.61
Michigan State, 1999	3.61	2.93	0.68
SUNY Brooklyn, 1996	3.63	3.30	0.33
SUNY Brooklyn, 1999	3.63	3.27	0.36
Washington, 1997	3.69	3.15	0.54
Washington, 1999	3.69	3.20	0.49

White admittees on average have considerably better test scores and grades compared to blacks. For MCATs, the smallest gap between whites and blacks was in 1999 at the University of Washington, where the gap between white and black scores was three points, followed by Michigan State in 1997, where the gap was four points. In two cases, the white-black gap was six points (Georgia in 1996 and 1999). In two cases, the gap was seven points (SUNY Brooklyn in 1999, Michigan State in 1999). The largest gap was at SUNY Brooklyn in 1996 (eight points).

White-black gaps are also fairly large regarding GPAs. The GPA gap is modest at Georgia. The gap there was 0.18 in 1996 and 0.05 in 1999. At SUNY Brooklyn, the white-black gap in undergraduate science GPAs was roughly one-third of a grade-point in 1996 and in 1999. At the University of Washington, the white-black gap in science grades was roughly one-half of a grade-point (0.54 and 0.49 in 1997 and 1999, respectively). The largest gaps were at Michigan State: 0.61 of a grade-point in 1997 and 0.68 of a point in 1999.

B. Hispanic-White Gaps in MCAT Scores and GPAs

Table 5 displays MCAT total scores, undergraduate GPAs, and the differences between white and Hispanic admittees for both.

Table 5
White-Hispanic Gaps: MCATs and Grades

MCAT Totals			
	Whites	Hispanics	Gap
Georgia, 1996	37	37	0
Georgia, 1999	37	36	1
Michigan State, 1997	35	31	4
Michigan State, 1999	36	34	2
SUNY Brooklyn, 1996	38	35	3
SUNY Brooklyn, 1999	38	35	3
Washington, 1997	38	34	4
Washington, 1999	38	34	4
GPAs			
	Whites	Hispanics	Gap
Georgia, 1996	3.65	3.37	0.28
Georgia 1999	3.61	3.52	0.09
Michigan State, 1997	3.59	2.94	0.65
Michigan State, 1999	3.61	2.98	0.63
SUNY Brooklyn, 1996	3.63	3.44	0.19
SUNY Brooklyn, 1999	3.63	3.39	0.24
Washington, 1997	3.69	3.47	0.22
Washington, 1999	3.69	3.31	0.38

White-Hispanic gaps in test scores and grades are generally smaller than those between whites and blacks. At Georgia, the median white and Hispanic total MCATs were the same for one year and only one point apart the other year. At Michigan State (MSU) in 1999, the white median was three points higher than the Hispanic median. At SUNY Brooklyn for 1996 and 1999, white medians were higher than Hispanic ones by three points. The largest gaps in median test scores were at the University of Washington for both years, and at MSU in 1997, where the white MCAT median was four points higher than the Hispanic median.

Except for MSU, gaps in undergraduate grades are small. The smallest gap was in 1999, at Georgia, where the GPAs for white and Hispanic admittees on average were roughly the same (0.09 gap). At SUNY Brooklyn, the gap was roughly two-tenths of a point (0.19) in 1996, and roughly a quarter of a point in 1999 (0.24). At the University of Washington in 1997, it was 0.22 of a point, and rose to 0.38 of a point in 1999. The white-Hispanic gaps were more noticeable at Michigan State, where median white GPAs were roughly two-thirds of a grade-point higher than Hispanic GPAs for both 1997 and 1999.

C. White-Asian Gaps in MCAT Scores and GPAs

Table 6 displays the median MCAT scores and undergraduate GPAs for white and Asian admittees, and the difference between the white and Asian medians.

Table 6
White-Asian Gaps: MCATs and Grades

MCAT Totals			
	Whites	Asians	Gap
Georgia, 1996	37	37	0
Georgia, 1999	37	37	0
Michigan State, 1997	35	38	-3
Michigan State, 1999	36	38	-2
SUNY Brooklyn, 1996	38	36	2
SUNY Brooklyn, 1999	38	38	0
Washington, 1997	38	41	-3
Washington, 1999	38	39	-1
GPAs			
	Whites	Asians	Gap
Georgia, 1996	3.65	3.73	-0.08
Georgia, 1999	3.61	3.59	0.02
Michigan State, 1997	3.59	3.58	0.00
Michigan State, 1999	3.61	3.50	0.11
SUNY Brooklyn, 1996	3.63	3.62	0.01
SUNY Brooklyn, 1999	3.63	3.62	0.01
Washington, 1997	3.69	3.82	-0.14
Washington, 1999	3.69	3.55	0.14

The gaps between whites and Asians are much smaller than those between whites and blacks or whites and Hispanics. For median MCAT scores, the white median exceeds the Asian median only at SUNY Brooklyn in 1996 (by a margin of two points). At Georgia in 1996 and 1999, and at SUNY Brooklyn in 1999, there is no difference. At Michigan State and the University of Washington, for both years, the Asian median MCAT score was higher than the white median.

There are almost no differences in undergraduate grades. In five cases (Georgia in 1996 and 1999, MSU in 1997, and SUNY Brooklyn in 1996 and 1999), the GPA gap was less than one-tenth of a grade-point. The largest gaps in GPAs were at the University of Washington, but they favored one race one year and the other race the other year. In 1997, the white median there was greater than the Asian median by 0.14 of a grade-point, while in 1999 the Asian median was 0.14 of a point greater.

III. Logistic Regression Analysis and Odds Ratios

Admitting students based on racial and ethnic preferences results in schools accepting students with lower test scores and grades compared to other students at the same school. Admission officers essentially reach down into the applicant pool and pull up certain students, a practice that necessarily results in at least some students with better credentials than other admittees being rejected from the same schools, despite their superior qualifications.

Although the data presented thus far provide substantial evidence of racial and ethnic preferences at these five medical schools, it is possible to make the case even stronger and considerably more precise. The most powerful means of assessing the degree of racial and ethnic preference in admissions is to develop statistical models that predict the probability of admission at a school for members of the different ethnic and racial groups, holding constant their qualifications. This is done by computing a multiple logistic regression equation that predicts admission decisions by race and ethnicity and that includes MCAT scores and GPAs as statistical control variables, among others.

We use multiple logistic regression analysis as our statistical technique because of the nature of the data provided. A conventional way of representing a relationship between the independent and dependent variables is by using correlation coefficients. A negative correlation coefficient of -1.0 signifies a perfect negative relationship between the independent (predictor) variable and the dependent (or outcome) variable, whereby an increase in the value of the independent variable yields a decrease in the value of the dependent variable. A positive correlation coefficient of 1.0 signifies a perfect positive relationship between the two variables: As the independent variable increases, so does the dependent variable. Strictly speaking, however, we cannot use correlations to analyze admissions data because correlations and standard multiple regression analysis require a dependent variable that is non-binary in form. In the case of an applicant's admission status, the dependent variable (individual admission status) is binary in form: reject versus admit.[14] To get around this binary-variable problem, we rely on multiple logistic regression equations and their corresponding odds ratios.

The odds ratio is somewhat like a correlation coefficient, except instead of varying from 1.0 to –1.0, it varies between zero and infinity. An odds ratio of 1.0 to 1 means that the odds of admissions for the two groups are equal. It is equivalent to a correlation of zero. An odds ratio greater than 1.0 to 1 means that the odds of members of Group A being admitted are greater than those for members of Group B, in precisely the amount calculated. An odds ratio of less than 1.0 to 1 means the members of Group A are less likely to be admitted than those in Group B. The former is similar to a positive correlation, the latter similar to a negative correlation.

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[14] Correlations assume homoscedasticity, or equal variance among groups. A binary dependent variable such as admission status is inherently heteroscedastistic   that is, the variance among groups is unequal. Because of this, we cannot calculate correlation coefficients.

The statistical technique of multiple logistic regression allows us to present admissions data in terms of the relative odds of those in Group A being admitted compared to Group B while simultaneously controlling for a host of other possibly confounding variables. The value of the odds ratio is that it provides a relatively direct measure of the degree of racial or ethnic preference given in the admissions process for a particular school.

Logistic regression equations predicting the relative odds of admissions were computed for the five medical schools, controlling for total MCAT scores, grades, sex, and in-state residency. We were able to derive the odds of admission from these equations for each minority group relative to that of whites, while simultaneously controlling for the effects of these other variables.[15]

Logistic regression analysis also allows for the testing of statistical significance. Statistical calculations always include what is called a *p*-value. When results are deemed to be statistically significant, this means that the calculated *p*-value is less than some predetermined cut-off level of significance. The level of significance conventionally is reported in the form of "$p \leq .05$." This value means that, with these data, there is a probability equal to or less than 5 percent that the difference found between one group and another (e.g., blacks versus whites, Hispanics versus whites, or Asians versus whites, since minority groups are being compared to whites) is due to chance. It is a convention in statistical studies to use the 0.05 value or, in more stringent analyses, 0.01 (one in 100); occasionally, 0.001 (one in 1,000) is used as the cut-off. Any *p* value greater than 0.05 (or the more stringent 0.01 or 0.001) is rejected, and the results are said to be nonsignificant. A difference that is statistically significant has very little chance of being the result of chance—that is, being a statistical fluke.

In the next sections, we discuss odds ratios from comparing blacks to whites, Hispanics to whites, and Asians to whites. Statistically significant results are also noted.

The size of the odds ratio reflects the strength of the association between racial or ethnic preference and admission status. An odds ratio equal to or greater than 3.0 to 1 is commonly thought to reflect a strong relationship, an odds ratio of about 2.0 to 1 reflects a moderate association, while a relative odds ratio of 1.5 or less to 1 indicates a weak relationship. 1.0 to 1 indicates no relationship.[16] Finally, a *very* strong relationship might be taken to be the equivalent of the relative odds of smokers versus nonsmokers dying from lung cancer—14 to 1 in one well-known study.[17]

In this comparison of odds ratios, we also include the University of Oklahoma. We combined blacks, American Indians, and Hispanics to give us a sufficient number of URMs to compare to whites, and we were able to control for the effects of other variables besides test scores and grades, as we did for the other schools.

The results are summarized in Table 7.

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[15] For a more complete discussion of odds ratios and logistic regression, see Alan Agresti, *Introduction to Categorical Data Analysis* (New York: John Wiley and Sons, 1996).

[16] See David E. Lilienfeld and Paul D. Stolley, *Foundations of Epidemiology*, 3rd edition (New York: Oxford University Press, 1994): 200-202.

[17] Taken from a 20-year longitudinal study of British male physicians by R. Doll and R. Peto, as quoted in Agresti, *Introduction to Categorical Data Analysis*, p. 47.

Table 7
The Relative Odds of Various Groups Being Admitted
Over White Applicants, Controlling for Other Factors

	Black to White	Hisp. to White	Asian to White
Georgia, 1996	19.13*	2.89***	0.43**
Georgia, 1999	6.28*	1.61	0.84
Michigan State, 1997	12.18*	12.53***	0.82
Michigan State, 1999	13.95*	6.53*	0.58*
SUNY Brooklyn, 1996	22.56*	5.73*	1.03
SUNY Brooklyn, 1999	9.44*	4.08*	0.76
Washington, 1997	29.89*	4.86*	0.71
Washington, 1999	4.01**	4.86*	0.90
		Black/Hisp./Ind. to White	Asian to White
Oklahoma, 1996		4.63*	0.84
Oklahoma, 1999		4.85*	0.95
*$p \le 0.0001$ ** $p \le 0.01$ *** $p \le 0.05$			

A.   *Black-White*

Black-to-white odds ratios are generally higher than those for other groups. They are also somewhat lower in 1999 than in previous years for three schools (Georgia, SUNY Brooklyn, and the University of Washington)**.** The drop raises the possibility that admission committees' reliance on racial preferences is diminishing.

At Georgia, the black-white odds ratio in 1996 was 19 to 1, controlling for other factors. In 1999, the odds ratio dropped to 6 to 1. At SUNY Brooklyn, the black-white odds ratio in 1996 was 23 to 1, dropping to roughly 9 to 1 in 1999. While this is a sizable drop, a 9-to-1 odds ratio is still substantial. The black-white odds ratio at the University of Washington also dropped from 1996 to 1999, from 30-to-1 to 4-to-1. Again, the drop is large, but the odds ratio of blacks over whites is still substantial. The black-white odds ratio at the University of Washington in 1999 is the only one that is as small as the Hispanic-white odds ratio.

At MSU, the black-white odds ratios have actually risen slightly. In 1997, the black-white odds ratio was 12 to 1. In 1999, it was 14 to 1.

B. *Hispanic-White*

Hispanic-white odds ratios are somewhat smaller than black-white odds ratios. The exception is the black-white odds ratio for the University of Washington in 1999 (4 to 1), which is smaller than most Hispanic-white odds ratios.

Also, unlike the steep decline in black-white odds ratios at some schools, the declines are smaller for Hispanics, except from 1997 to 1999 at MSU. There, the Hispanic-white odds ratios dropped from 13-to-1 in 1997 to 7-to-1 in 1999.

At Georgia in 1996, the Hispanic-to-white odds ratio was 3 to 1, which conventionally makes it substantial, although not as large as black-white odds ratios generally. In 1999, the Hispanic-white odds ratio was roughly one-and-a-half to 1.

At SUNY Brooklyn, the Hispanic-white odds ratio in 1996 was roughly 6 to 1. In 1999, it was 4 to 1. At the University of Washington, the odds ratios for 1997 and 1999 were the same.

C. Asian-White

Asian-white odds ratios for the five schools are, with one exception (SUNY Brooklyn in 1996), all less than one to one. They are statistically significant in only one case, MSU in 1999. Inverting the odds ratio here gives us a statistically significant white-to-Asian odds ratio of 1.73 to 1. This is a small odds ratio, even though it is statistically significant, but it does indicate some racial preferences in favor of whites over Asians.

D. University of Oklahoma

The University of Oklahoma in 1996 and 1999 admitted fewer than five blacks and fewer than five Hispanics. They also admitted more American Indians than either group, unlike the other medical schools. For this analysis, the odds ratios were calculated for all three of these underrepresented minorities versus whites at the University of Oklahoma. Controlling for other factors, the odds ratios in 1996 and in 1999 are about 5 to 1. There was little change between 1996 and 1999.

IV.   Probabilities of Admission

The meaning of our logistic-regression-equation results in the form of odds ratios may be difficult to grasp, because the equations are complex and hard to explain without resorting to mathematical formulations. A more intuitive way of grasping the underlying dynamic of preferential admission is to convert these logistic regression equations into estimates of the probabilities of admission for individuals with different racial/ethnic group memberships, given the same test scores and grades.

In this section, we examine the five medical schools for each of the two years. We compare the probabilities of admission for individuals belonging to different racial and ethnic groups, using the logistic regression equation specific to each school.

The calculation of probabilities for each racial or ethnic group estimates the chances of admission for members of each group, all with the same test scores and grades. Additionally, we had to pick the same non-academic qualifications for each equation, thus holding these other factors constant. We chose to examine the probabilities of admission for an in-state male applicant (although we could have looked at in-state or out-of-state females, or out-of-state males). The calculation of probabilities estimates the chances of admission for members of each group, all with the same test scores and grades, residency status, and sex.

From there we calculated the chances a black applicant, a white applicant, a Hispanic applicant, and an Asian applicant would have if each applied with those academic qualifications.

These calculations do not change the statistical results reported in the earlier section on odds ratios. They simply provide an easier-to-understand interpretation of their meaning.

These differences in odds ratios translate into large differences in the probability of admission based on an applicant's race. The probabilities of admission are presented below, first for 1996 or 1997, and then for the 1999 applicant pool.

A. Medical College of Georgia

At the Medical College of Georgia, blacks had a greater probability of admission compared to Hispanics, Asians, and whites with the same MCAT scores and grades in both 1996 and 1999. The gaps are wider as science grades and test scores are lower.

1996

Figure 1
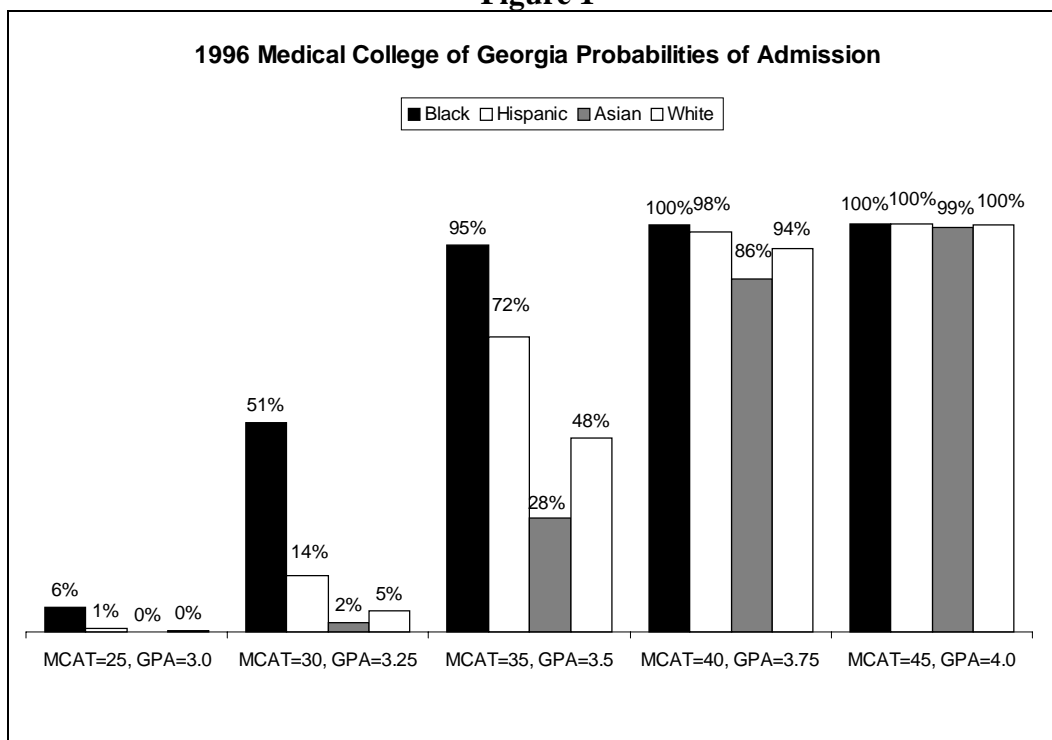
For all combinations of test scores and grades in 1996, blacks have the highest probability of admission, followed by Hispanics and whites. [18] Asians have the lowest probability of admission. Even with an MCAT score of 25 and a GPA of 3.0, a black in-state male applicant would have a

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[18] The equation for calculating the probabilities of admission in 1996 for the Medical College of Georgia is: A = EXP((.3700*MCATTOT) + (3.8007*SCIGPA) + (5.1580*In-State) + (-.4556*Female) + 2.9510*Black) + (-.8495*Asian) + (1.0621*Hispanic) −31.5104). The probability of admission = A/(1+A) * 100.

6 percent chance of admission, compared to a 1 percent chance for a Hispanic, and no chance for an Asian or white. A black in-state male applicant with an MCAT total of 30 and a science GPA of 3.25 would have a 51 percent chance of admission, while a Hispanic in-state male applicant with the same credentials would have a 14 percent chance; an Asian, a 2 percent chance; and a white, a 5 percent chance.

With an MCAT total of 35 and a GPA of 3.5, a black in-state male applicant has a 95 percent chance of admission. A Hispanic in-state male would have a 72 percent chance of admission; an Asian in-state male, a 28 percent chance; and a white in-state male, a 48 percent chance.

Hispanic and white in-state males become roughly competitive with black in-state male applicants with a 4.0 GPA and a total MCAT score of 45. These academic credentials practically guarantee admission for an in-state black male applicant (100 percent). A Hispanic in-state male would have a 98 percent chance of admission; and a white in-state male applicant, a 94 chance of admission. An Asian in-state male applicant would have a somewhat lower probability   86 percent chance of admission   despite the same academic credentials.

1999

Figure 2
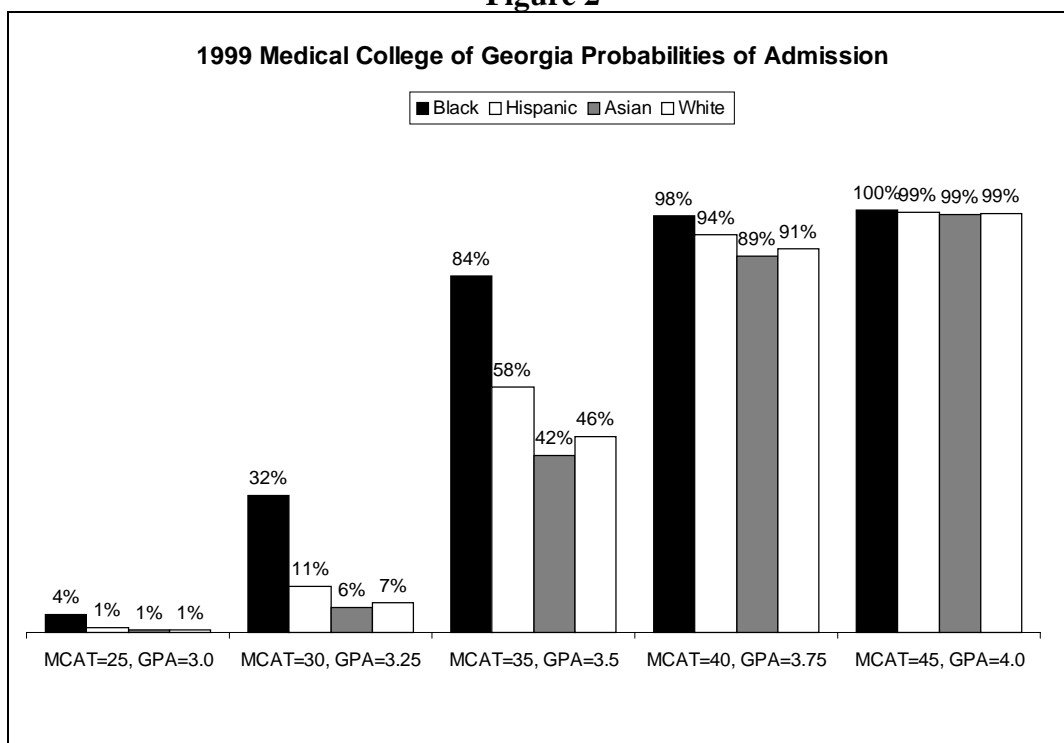
The differences in the probabilities of admission in 1999 are not as large as they are in 1996, but blacks still have a substantial advantage over other groups with the same demographic and academic credentials.[19] With MCAT totals of 25 and a science GPA of 3.0, a black in-state male has only a 4 percent chance of admission, but all other groups with the same demographic and academic credentials have only a 1 percent chance. With an MCAT total of 30 and a science GPA of 3.25, a black in-state male has a 32 percent chance of admission. A Hispanic with the same background and credentials has only an 11 percent chance, and an Asian and white have even lower chances of admission (6 and 7 percent, respectively).

With a total MCAT score of 35, a black Georgia applicant has an 84 percent chance of admission, while Hispanic, Asian, and white chances are lower (58 percent, 42 percent, and 46 percent chance, respectively). The other three groups become as competitive as black applicants when MCAT totals equal 40 and science GPAs are 3.75. At this level, among in-state male applicants, almost all blacks (98 percent) are admitted, along with 94 percent of Hispanics, 89 percent of Asians, and 91 percent of whites. With MCAT totals of 45 and a 4.0 science GPA, practically all in-state male applicants from all groups are admitted (the same results at this highest level as found in 1996).

B. *Michigan State College of Human Medicine*

The probability of admission to Michigan State College of Human Medicine is presented below, first for the 1997 and then for the 1999 applicant pool. When we refer to applicants, we are again analyzing male in-state applicants.[20]

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[19] The equation for calculating the probabilities of admission for the Medical College of Georgia in 1999 is: A=EXP((.3304*MCATTOT) + (3.0836*SCIGPA) + (.0769*Female) + (5.6885*In-State)+ (1.8381*Black) + (-.1800*Asian) + (.4774*Hispanic) -28.1964). The probability of admission = A/(1+A) * 100.

[20] The equations for calculating the probabilities of admission to Michigan State are as follows: for 1997, A=EXP((0.1508*MCATTOT) + (1.5839*SCIGPA) + (2.4999*Black) + (-0.2003*Asian) + (2.5279*Hispanic) + (1.9893*In-State) + (0.9835*Female) - 15.0199); for 1999, A= EXP ((0.1487*MCATTOT) + (1.3239*SciGPA) + (2.6353*Black) – (0.5476*Asian) + (1.8767*Hispanic) + (0.6246*Female) + (1.6465*In-state) - 13.3368). The probability of admission = A/(1+A) * 100.

Figure 3

**1997 Michigan State College of Medicine
Probabilities of Admission**

■ Black □ Hispanic ■ Asian □ White
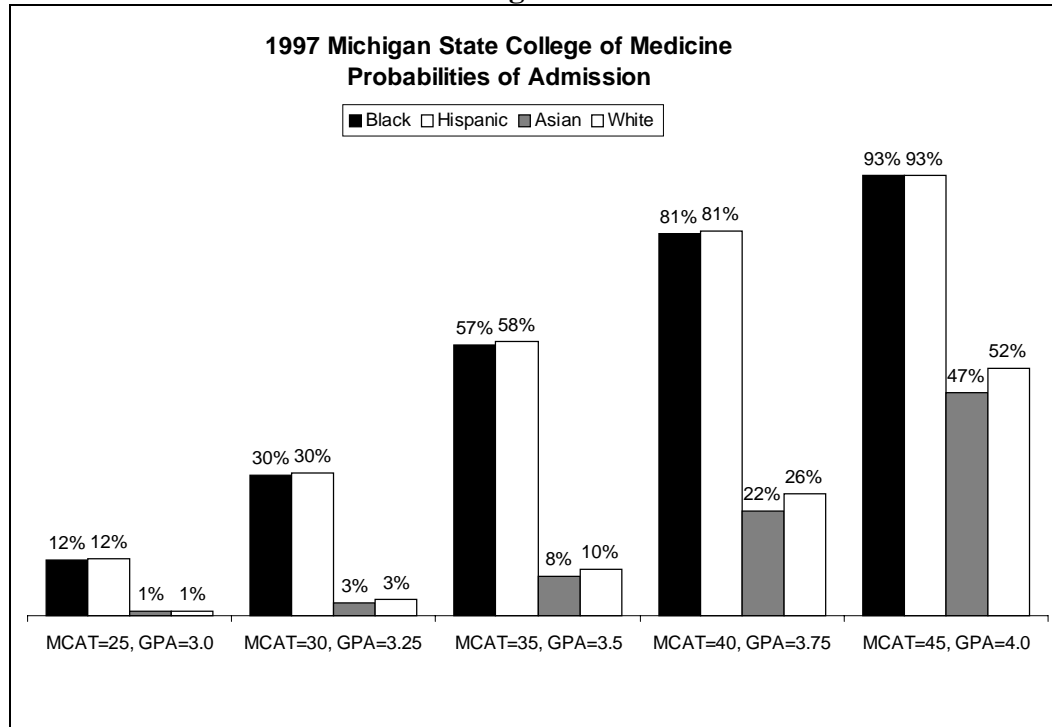
As displayed in Figure 3, black and Hispanic applicants in 1997 had much greater probabilities of admission compared to whites and Asians with the same academic credentials. For example, black and Hispanic in-state male applicants, with MCAT scores of 25 and science GPAs of 3.00 (a B average), had a 12 percent chance of admission. An MCAT score of 25, it should be noted, is much lower than the average total MCAT score for all MCAT test takers in the country, which includes those who did not get into medical school as well as those who did. [21] In contrast, white and Asian in-state applicants with those scores and grades had a 1 percent probability of admission. Blacks and Hispanics with MCAT scores of 30 and science GPAs of 3.25 had a 30 percent chance of admission, compared to only a 3 percent chance for Asians and whites with the same academic credentials.

Blacks and Hispanics with a total MCAT of 35 and a 3.5 GPA would have a better than 50-50 chance of admission (57 percent and 58 percent chance, respectively). Asian and white applicants with the same academic qualifications had an 8 percent and 10 percent probability of admission, respectively.

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[21] We calculated the average total MCAT to be 31.8. The national writing sample average is a 6, which is the numerical transformation of the national average letter grade of O for all test takers, while the average national subscores for the verbal, physics, and biology subtests were 8.5, 8.6, and 8.7 respectively. Summing up all mean numerical subscores gives us an MCAT total of 31.8 for all persons taking the MCATs in 1996.

For black and Hispanic applicants with MCAT scores of 40 and a 3.75 science GPA, the chances of admission are roughly eight out of ten. Asians and whites with those academic qualifications have approximately a one-in-five or one-in-four chance, respectively.

With an MCAT score of 45 and a science GPA of 4.00, black and Hispanic applicants would have a 93 percent chance of admission. In contrast, an Asian applicant and a white applicant would each have about a 50-50 chance of admission (47 percent and 52 percent, respectively).

1999

Figure 4

1999 Michigan State College of Medicine Probabilities of Admission
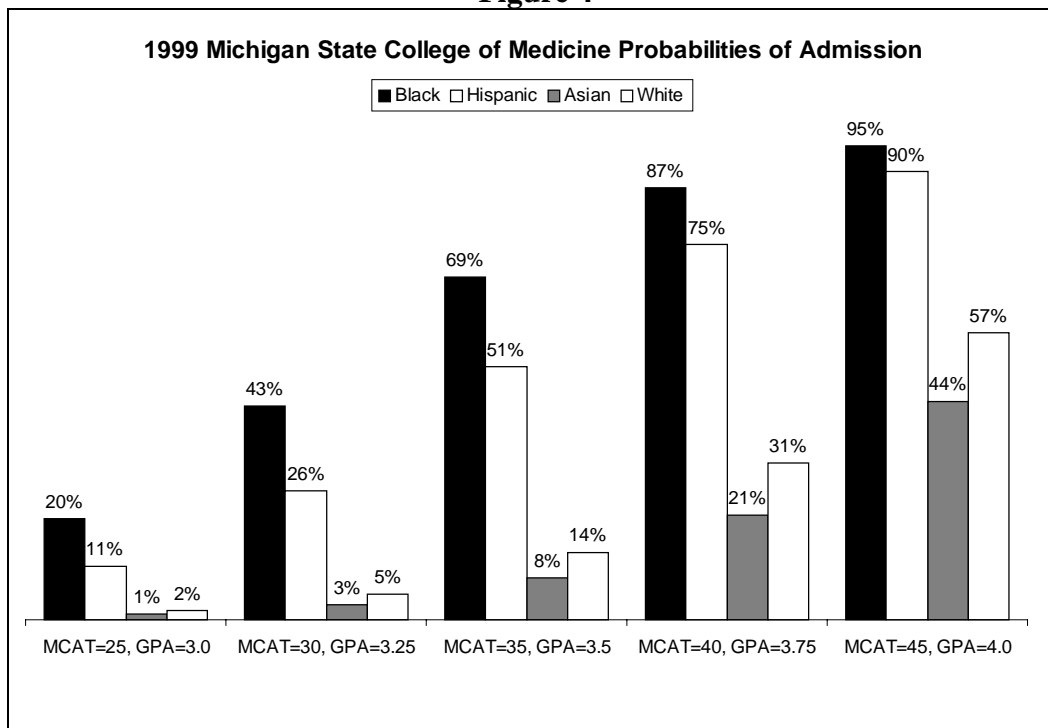
As displayed in Figure 4, the MSU probabilities for admission in 1999 greatly favored black and Hispanic applicants over Asians and whites, as they did in 1997. Black applicants with a total MCAT score of 25 and a science GPA of 3.00 had a 20 percent chance of admission in 1999. Hispanics with those credentials had an 11 percent chance, while the Asian and white probability for admission was 1 and 2 percent, respectively. A black applicant with an MCAT total score of 30 and a 3.25 science GPA had a 43 percent chance, compared to 26 percent for Hispanics, 3 percent for Asians, and 5 percent for whites.

Even with a relatively high MCAT total of 45 and an A average in undergraduate science courses, Asians and whites had only a 44 percent and 57 percent chance of admission, respectively, to MSU in 1999. In contrast, black applicants with those academic credentials had a 95 percent chance of admission, and Hispanics a 90 percent chance.

C. *University of Oklahoma College of Medicine*

Figures 5 and 6 show the probabilities of admission to the University of Oklahoma College of Medicine in 1996 and 1999.[22]

1996

Figure 5

1996 Oklahoma College of Medicine Probabilities of Admission

■ URM ■ Asian □ White

	Mean MCAT=8.0, GPA=3.0	Mean MCAT=8.5, GPA=3.25	Mean MCAT=9.0, GPA=3.5	Mean MCAT=9.5, GPA=3.75	Mean MCAT=10.0, GPA=4.0
URM	27%	52%	77%	91%	97%
Asian	6%	17%	38%	65%	85%
White	7%	19%	42%	69%	87%
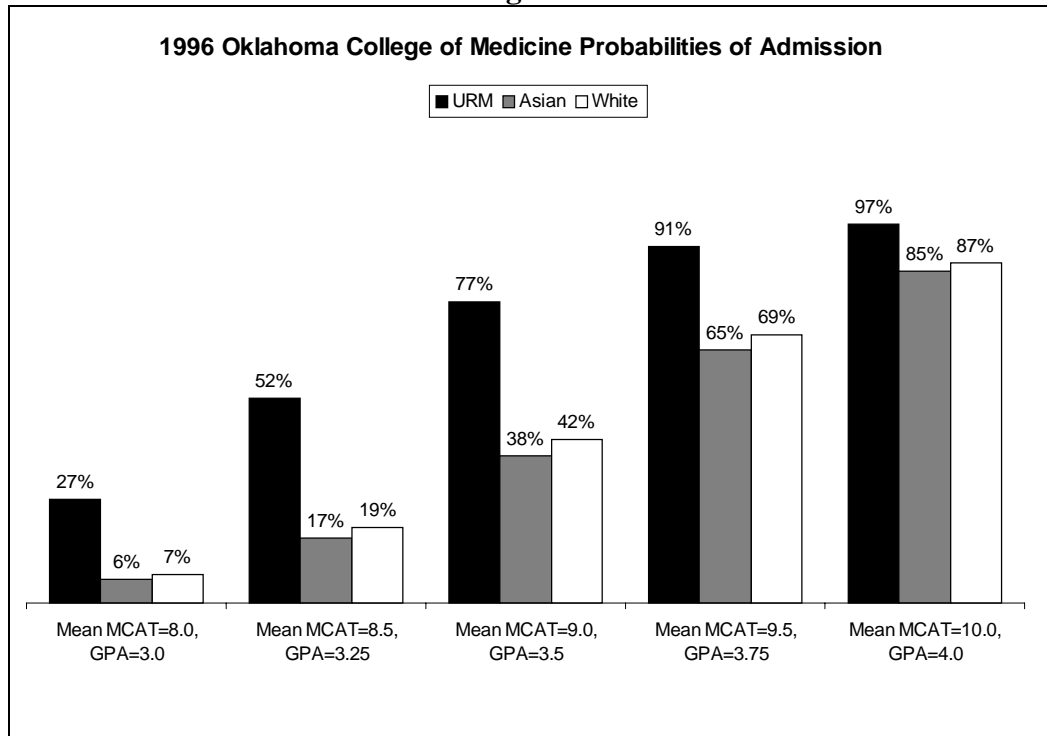
In 1996, a URM in-state male resident with an MCAT mean of 8.0 and an undergraduate GPA of 3.0 would have a 27 percent chance of admission. Asian and white in-state male applicants with those scores and grades would have only a 6 and 7 percent chance, respectively. With an MCAT mean of 8.5 and a GPA of 3.25, a non-Asian minority in-state male applicant would have about a 50-50 chance of admission. With the same credentials, a comparable Asian and white would have only a 17 and 19 percent chance, respectively.

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[22] The equations for calculating the probabilities of admission to the University of Oklahoma medical school are as follows: for 1996, A= EXP ((1.2523*MCATMean) + (1.9426*CollegeGPA) + (4.4925*In-State) + (.4589*Female) + (1.5318*URM) + (-.1789*Asian) -22.8882); for 1999, A =EXP ((.8612* MCAT Mean) + (1.3453*CollegeGPA) + (4.1964*In-state) + (.2675*Female) + (1.5796*URM) + (−0.0506*Asian) -16.5694). The probability of admission = A/(1+A) * 100.

CEO

Even with an MCAT of 9.0 and a GPA of 3.5, Asian and white in-state male applicants would have only about a 40 percent chance of admission, compared to a 77 percent chance for a similar non-Asian minority applicant. Significant majorities of Asians and whites are admitted when MCAT means reach 9.5 and GPAs are 3.75. At that point, roughly two-thirds of Asian and white male in-state applicants are admitted, versus nine out of every ten male in-state non-Asian minorities. Lastly, almost all non-Asian minorities with a mean MCAT of 10.0 and a 4.0 GPA are admitted. Even with these credentials, smaller percentages of Asian and white applicants are admitted—85 percent of Asians and 87 percent of whites.

1999

There are similar admission probabilities for the first-year class of 1999. With a mean MCAT of 8.0 and a GPA of 3.0, roughly half the male in-state non-Asian minority applicants are admitted, compared to 18 percent of Asian and 19 percent of white in-state males. With MCAT means of 8.5 and a GPA of 3.25, roughly seven in ten non-Asian minority male in-state applicants are admitted, versus one in three comparable whites and Asians.

Figure 6

1999 Oklahoma College of Medicine Probabilities of Admission
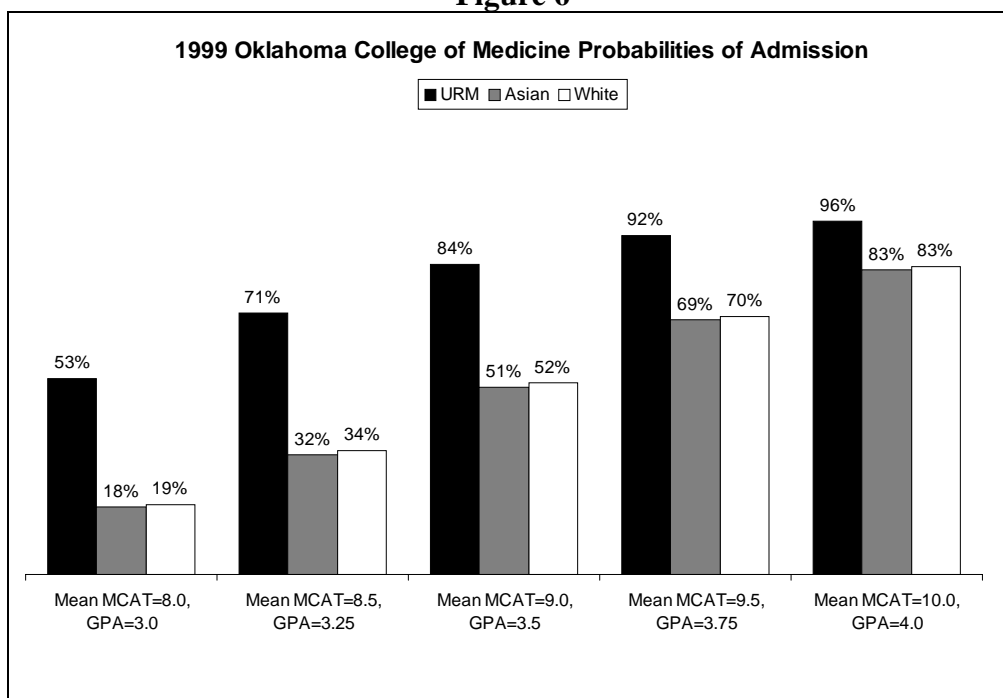
Eighty-four percent of non-Asian minority in-state male applicants with an MCAT mean of 9.0 and a GPA of 3.5 were admitted. In contrast, roughly half the Asians and whites with the same academic credentials were admitted.

CEO

With MCAT means of 9.5 and a GPA of 3.75, nine in ten non-Asian minorities were admitted, as were roughly seven in ten Asians and whites. Even with MCAT means of 10.0 and GPAs of 4.0, Asians and whites were still admitted at lower rates. Ninety-six percent of non-Asian minority in-state males were admitted versus 83 percent of similar whites and Asians.

D. *SUNY Brooklyn College of Medicine*

Like the odds ratios at other medical schools, the differences in odds ratios at SUNY Brooklyn translate into large differences in the probability of admissions for applicants from different racial/ethnic groups with identical test scores and grades, especially for lower test scores and grades.[23] Figures 7 and 8 display the probabilities of admission for 1996 and 1999 applicants from different groups.

1996

Figure 7

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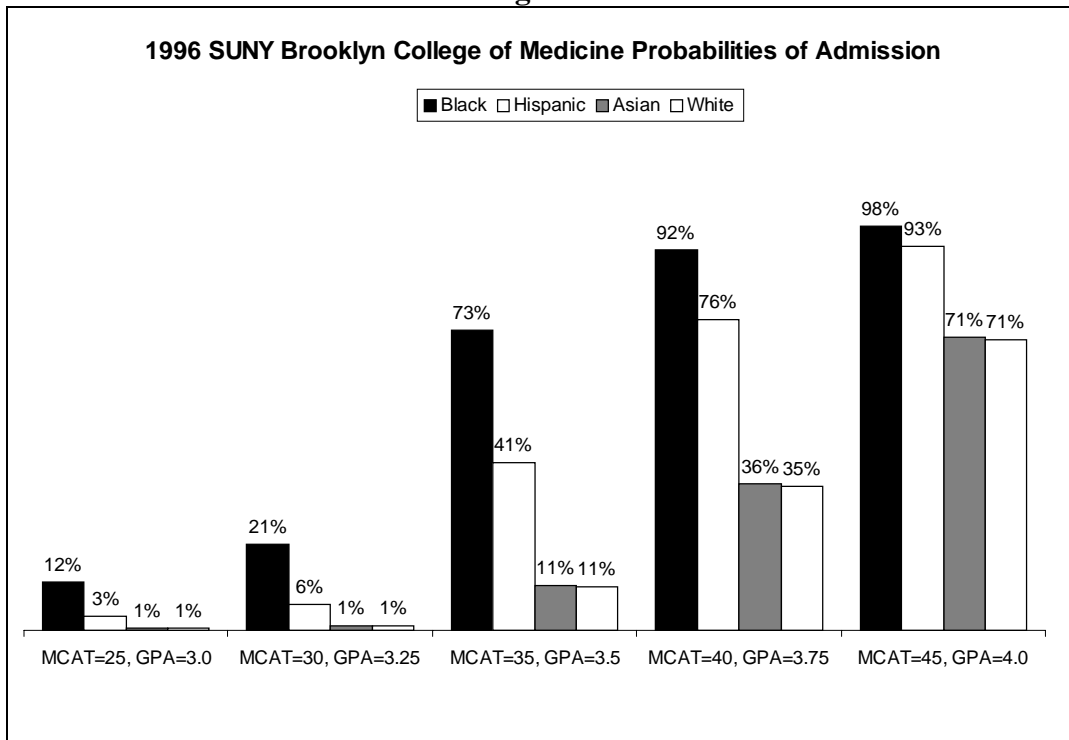
[23] The equations for calculating the probabilities of admission to SUNY Brooklyn are as follows: for 1996, A=EXP ((0.1352*MCATTOT) + (3.2938*College GPA) + (0.2894*Female) + (3.9861*In-State) + (0.0259*Asian) + (3.1120*Black) + (1.7459*Hispanic) − 22.3648); for 1999, A = EXP ((0.2206*MCATTOT) + (2.7720*CollegeGPA) + (0.3651*Female) + (3.2551*In-State) + (2.2455*Black) + (1.4060*Hispanic) + (-0.2781*Asian) − 22.2007). The probability of admission = A/ (1+A) * 100.

In 1996, a black in-state male applicant with a total MCAT score of 25 and a 3.0 college GPA would have a 12 percent chance of admission at SUNY Brooklyn. In contrast, a Hispanic in-state male would have a 3 percent chance of admission, while white and Asian in-state male applicants with those scores and grades would have only a 1 percent chance of admission.

With an MCAT total of 30 and a college GPA of 3.25, roughly one in five black male in-state applicants would be admitted, compared to 6 percent of Hispanic in-state males, and 1 percent of white and Asian in-state male applicants.

Black in-state male applicants with MCAT scores totaling 35 and a GPA of 3.5 have a 73 percent probability of admission. Similar Hispanic applicants have a 41 percent probability, while white and Asian in-state males have only an 11 percent chance of admission.

With an MCAT total of 40 and a college GPA of 3.75, a black in-state male applicant would have a 92 percent chance of admission compared to a 76 percent chance for a similarly situated Hispanic. White and Asian in-state male applicants, however, would still be unlikely to gain admittance. Asian in-state males would have a 36 percent chance of admission, while white in-state males would have a 35 percent chance.

Even with relatively high MCATs and GPAs, whites and Asians would still not have comparable admission rates. An MCAT total of 45 and a 4.0 GPA would practically guarantee admission to a black in-state male applicant (98 percent chance), and a similarly situated Hispanic would have a 93 percent chance. Asian and white in-state male applicants would have a substantially lower 71 percent chance of admission.

1999

Figure 8

1999 SUNY Brooklyn College of Medicine Probabilities of Admission
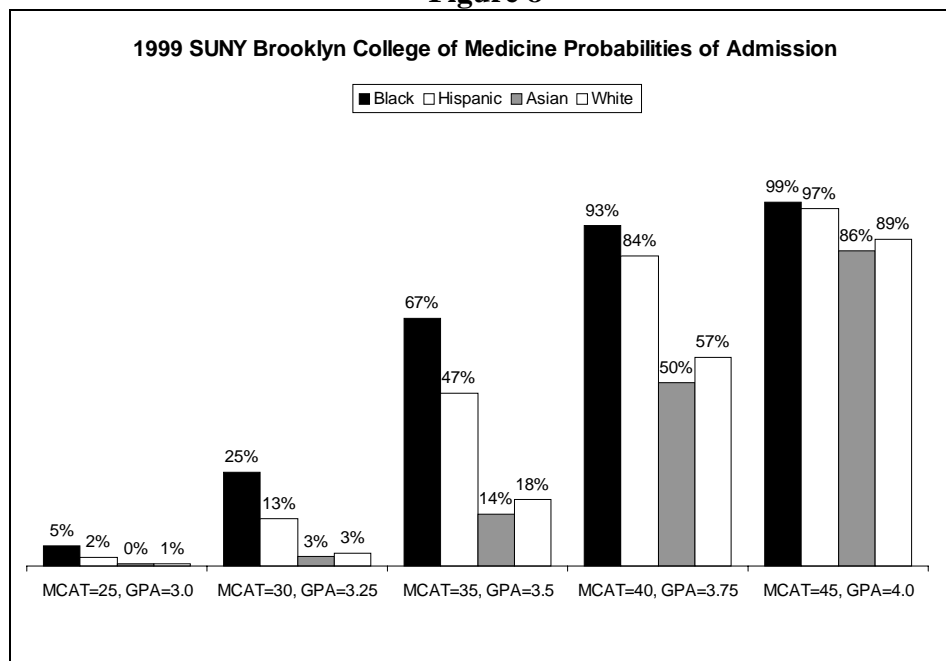
Probabilities at SUNY Brooklyn for whites and Asians improved somewhat in 1999 compared to 1996. In 1999, a black in-state male with a total MCAT of 25 and a GPA of 3.0 would have only a 5 percent chance of admission, while a similar Hispanic, Asian, and white would have a 2 percent, 0 percent, and 1 percent chance, respectively. An MCAT total of 30 and a GPA of 3.25 would give a black in-state male a one-in-four chance of admission, compared to 13 percent for a similar Hispanic, and only a 3 percent chance for a similar white or Asian.

With an MCAT score of 35 and a GPA of 3.5, a black in-state applicant has a 67 percent chance of admission; a similar Hispanic has a 47 percent chance. Asian and white in-state males have much lower probabilities of admission (14 and 18 percent, respectively). An MCAT total of 40 and a GPA of 3.75 would give a black in-state male a 93 percent chance of admission. A Hispanic in-state male would have an 84 percent probability. With these academic credentials, Asian in-state male applicants have a 50-50 chance of admission, while similar white applicants have a 57 percent chance.

With MCAT scores of 45 and a 4.0 GPA, black in-state male applicants are practically guaranteed admission, as are similar Hispanic applicants. Such academic credentials yield an 86 percent probability of admission for Asians, and a 89 percent probability for whites.

E. University of Washington School of Medicine

Figures 9 and 10 display the probabilities of admission for applicants from different groups in 1997 and in 1999 at the University of Washington.[24]

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[24] The equations for calculating the probabilities of admission for the University of Washington Medical School are as follows: For 1997, A = EXP((.1483*MCATTOT) + (1.5720*SCIGPA) + (.3021*Female) + (3.4969*In-State) + (3.3974*Black) + (-.3460*Asian) + (1.5811*Hispanic) + (-15.9940)); for 1999, A = EXP((.1424*MCATTOT) + (1.2915*SCIGPA) + (.7223*Female) + (3.1207*In-State) +(1.3892*Black) + (-.1049*Asian) + (1.5817*Hispanic) + (-14.5198)). The probability of admission = A/(1+A) * 100.

Figure 9

**1997 University of Washington School of Medicine
Probabilities of Admission**

■ Black □ Hispanic ■ Asian □ White
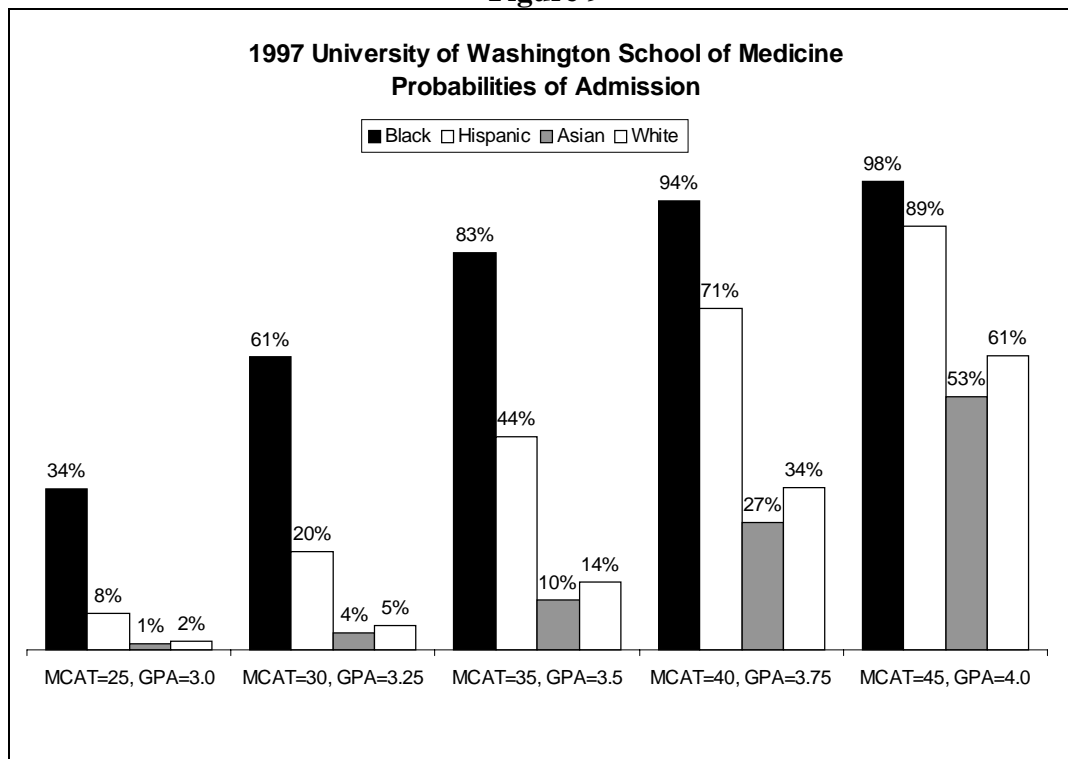
In 1997, for every grade and test score combination, blacks and Hispanics had a greater likelihood of admission compared to whites and Asians.

Thirty-four percent of black in-state males would be admitted with an MCAT total of 25 and a science GPA of 3.0, as would 8 percent of Hispanic in-state males. In contrast, only 1 percent of Asian and 2 percent of white in-state males would be admitted with identical academic credentials.

For applicants with MCAT scores of 30 and a GPA of 3.25 in 1997, a black in-state male would have a 61 percent probability of admission, versus a 20 percent chance for similar Hispanic applicants. White and Asian in-state male applicants with those scores and grades would have only a 4 and 5 percent chance of admission, respectively.

A black in-state male applicant with an MCAT total of 35 and a GPA of 3.5 would have an 83 percent probability of admission, while a similar Hispanic would have a 44 percent chance. Asian and white in-state males with those academic credentials would have much lower chances—a 10 and 14 percent probability of admission, respectively.

For in-state male applicants with MCAT totals of 40 and science GPAs of 3.75, blacks would have a 94 percent chance, and Hispanics a 71 percent chance. Asians and whites would have only a 27 percent and 34 percent chance, respectively.

With a 4.0 GPA and a total MCAT score of 45, a black applicant would practically be guaranteed admission (98 percent probability of admission), while a Hispanic applicant would have an 89 percent chance. Asians and whites with the same academic credentials have only a 53 percent and 61 percent chance of admission, respectively.

1999

Figure 10

1999 University of Washington School of Medicine
Probabilities of Admission

■ Black □ Hispanic ▦ Asian □ White
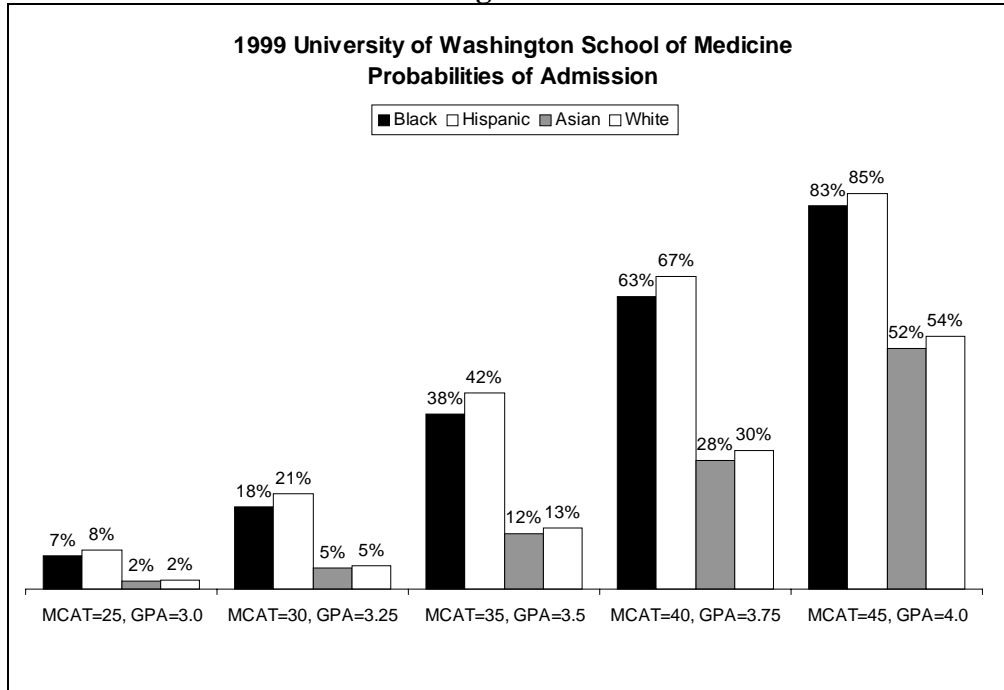
In 1999, blacks and Hispanics still had a greater likelihood of admission compared to whites and Asians, although the disparities were smaller than in 1997. Hispanic probabilities were slightly higher than blacks.

With an MCAT total of 25 and a science GPA of 3.0, 7 percent of black in-state males would be admitted, as would 8 percent of Hispanic in-state males. In contrast, only 2 percent of white and Asian in-state males would be admitted.

For applicants with MCAT scores of 30 and GPAs of 3.25, a black in-state male would have an 18 percent chance of admission, while a Hispanic in-state male would have a 21 percent chance. White and Asian in-state male applicants with those scores and grades would have only a 5 percent chance.

CEO

An MCAT total of 35 and a GPA of 3.5 gained admittance for 38 percent of black in-state male applicants and 42 percent of in-state Hispanic males. Asian and white in-state males with those academic credentials would have a 12 and 13 percent of admission, respectively.

For in-state male applicants with MCAT totals of 40 and science GPAs of 3.75, blacks would have a 63 percent chance, and Hispanics a 67 percent chance. Asians and whites would have only a 28 percent and 30 percent chance, respectively.

For MCAT totals of 45 and 4.0 GPAs, black in-state applicants would have an 83 percent chance of admission, while a Hispanic with the same credentials would have an 85 percent chance. With the same academic credentials, in-state Asian and white males have probabilities of admission barely over 50-50 (52 and 54 percent, respectively).

V. Summary

The differential probabilities of admission are quite stark. Preferences strongly favor blacks over other groups and, to a lesser extent, Hispanics over Asians and whites. Asians do not benefit from any racial preferences.

Academic Qualifications and Subsequent Performance

Background

What are the consequences of these policies? Do URMs entering medical school with weaker academic credentials perform worse than others? There are many statistical studies looking at this question. One of the major findings of this research is that science grades and—especially—MCAT scores are statistically significant predictors of subsequent performance in medical school (MCAT scores are the single best predictor of subsequent performance). Other more subjective variables (e.g., communication skills, voluntary activities, medical background, character) have not been found to correlate significantly with medical school and licensing exam performance, all other things being equal. MCAT scores and undergraduate grades also have been found to be the best predictors of passing the required physician's licensing exam, the United States Medical Licensing Examination (USMLE).

The USMLE is the licensing exam of the National Board of Medical Examiners (NBME). It is generally required of every medical school student seeking to practice medicine in the United States. The USMLE consists of three separate examinations: Steps 1, 2, and 3. Step 1 is taken after the first two years of medical school, and a passing score is often required for a student to continue in medical school. Step 2 is taken after the second two years. Step 3 is taken after graduation from medical school. The NBME establishes the minimum scores required to pass each part of the licensing exam. According to the NBME, most scores fall between 160 and 240. The passing score for the USMLE Step 1 is 179, and the overall pass rate is typically 90 percent.[25]

The American Association of Medical Colleges (AAMC) reports in its *Interpretive Manual* the results of its on-going study, which finds the MCATs more valid than other factors in predicting subsequent performance in medical school.[26] The AAMC reports that an individual's MCAT scores have a 0.67 correlation with first-year medical school grades, a 0.64 correlation with first- and second-year medical school grades, and a 0.72 correlation with scores on the USMLE Step 1 exam. In contrast, an individual's college GPA has a 0.54 correlation with first-year medical school grades, a 0.58 correlation with first- and second-year grades, and a 0.48 correlation with scores on the USMLE Step 1.

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[25] USMLE website, <www.usmle.org>.
[26] AAMC *Interpretive Manual*, pp. 15-16. See also Satel, pp. 265-266 n. 151.

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Other research has also found MCAT scores, more than undergraduate GPAs and any nonacademic traits, to be the best predictor of medical school grades and subsequent test scores on the medical licensing exams. Wiley and Koenig found MCAT scores to be extremely accurate in predicting first- and second-year medical school grades and USMLE Step 1 scores. Even using the MCAT scores alone, Wiley and Koenig found the correlation between MCAT scores and USMLE Step 1 scores to be 0.72, and 0.64 for first- and second-year medical school grades.[27] Case, Swanson, Ripkey, Bowles, and Melnick found a statistically significant relationship between MCAT scores and subsequent performance on the USMLE Step 2, as well as a correlation between MCAT scores and medical students' performance in clinical clerkships.[28]

Other studies also found a relationship between lower academic qualifications and subsequent poor performance in medical schools. In one study, nearly half of all medical students with MCAT scores in the bottom quartile of all test takers (a mean score of roughly an 8) fail the USMLE Step 1 the first time.[29] Other researchers have found that matriculants with low MCAT scores   that is, students with mean MCAT scores below 7.0   were at risk for academic failure, meaning failure to complete the medical school program and receive a degree.[30]

Note that there appears to be no cultural bias associated with the MCATs in terms of predicting subsequent performance. Koenig, Sireci, and Wiely found that MCAT scores predicted medical school performance among members of all racial and ethnic groups.[31] Dawson, Iwamoto, Ross, Nungester, Swanson, and Volte found that controlling for MCAT scores and college grades dramatically reduced the differences between racial and ethnic groups in passing the USMLE Step 1. With the same MCAT scores and college grades, Hispanic and black men performed about as well as white men on the Step 1. The same was the case for black women and white women with the same academic credentials, while Hispanic women performed only slightly worse.[32]

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[27] See J. A. Koenig and A. Wiley, "The Validity of the Medical College Admission Test for Predicting Performance in the First Two Years of Medical School," *Academic Medicine*, 71, #10 (October 1996 Supplement): S83-S85.

[28] S. M Case, D. B. Swanson, D. R. Ripkey, L. T. Bowles, and D. E. Melnick, "Performance of the Class of 1994 in the New Era of USMLE," *Academic Medicine,* 71, #10 (October 1996 Supplement): S91-S93. See also K. L. Huff, J. A. Koenig, M. M. Treptau, and S. G. Sireci, "Validity of MCAT Scores for Predicting Clerkship Performance of Medical Students Grouped by Sex and Ethnicity," *Academic Medicine*, 74, #10 (October 1999 Supplement): S41-S44, where a correlation between MCATs and third-year clerkship grades was found.

[29] Roughly 90 percent of all test takers pass Step 1 at any given time. A. Tekian, R. Mrtek, P. Syftestad, R. Foley, and L. J. Sandlow, "Baseline Longitudinal Data of Undergraduate Medical Students at Risk," *Academic Medicine,* 71, #10 (October 1996 Supplement): S86-S90; J. A. Koenig, W. Li, and R. Haynes, "Estimation of the Validity of the 1991 MCAT for Predicting Medical School Grades, NBME Performance, and Academic Difficulty," paper prepared for the MCAT Evaluation Panel Meeting, December 1987, available at <www.aamc.org/stuapps/admiss/mcat/koeni001.htm>.

[30] K. L. Huff and D. Fang, "When Are Students Most at Risk of Encountering Academic Difficulty? A Study of the 1992 Matriculants to U.S. Medical Schools," *Academic Medicine*, 74, #4 (April 1999): 454-460.

[31] J. A. Koenig, S. G. Sireci, and A. Wiely, "Evaluating the Predictive Validity of MCAT Scores across Diverse Applicant Groups," *Academic Medicine*, 73, #10 (October 1998): 1095-1106.

[32] B. Dawson, C. K. Iwamoto, L. P. Ross, R. J. Nungester, D. B. Swanson, and R. L. Volte, "Performance on the National Board of Medical Examiners Part I Examination by Men and Women of Different Race and Ethnicity," *Journal of the American Medical Association,* 272, #9 (1994): 674-79.

The medical establishment claims, nonetheless, that racial and ethnic preferences are needed to increase the number of black, Hispanic, and Native American doctors, which in turn improves medical care for patients of the same race. But research in this area is meager, and a review of the literature on minority health-care and physicians' race/ethnicity yields contradictory findings. Moreover, there is little research relating URM enrollees' performance in medical school, their performance on licensing exams, and their subsequent performance as physicians.[33]

Subsequent Performance on Step 1 of the U.S. Medical Licensing Examination at Four Medical Schools

Four medical schools provided Step 1 performance data: Michigan State, Oklahoma, SUNY Brooklyn, and the University of Washington.[34] Table 8 displays the percentage of each group of enrollees not taking the exam, failing Step 1, or passing.

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[33] See Satel, *PC M.D.*, pp. 183-186, for a review of the research. Satel notes that time spent between physician and patient is probably the most important factor in the doctor-patient relationship, not the race of the physician. Most recently, a study found being a minority to be a risk factor in predicting who would be a problem resident, but here, too, insufficient medical knowledge, poor clinical judgment, and insufficient use of time were the most frequently reported difficulties. (Medical knowledge and clinical judgment are most closely related to test scores, as previously discussed.) See D. C. Yao and S. M. Wright, "National Survey of Internal Medicine Residency Programs Directors Regarding Problem Residents," *Journal of the American Medical Association*, Sept. 6, 2000, available at <www.jama-ama-assn.org>.

[34] MSU and Oklahoma provided Step 1 scores for enrollees from 1993 through 1996, in the form of actual scores. The University of Washington provided Step 1 scores for 1993 through 1997 enrollees, in the form of pass/fail scores. We use Step 1 scores for SUNY Brooklyn from its 1996 class. The University of Georgia did not provide scores. For the University of Oklahoma, there were enough American Indians to include them in the USMLE analysis as well, which we did in the individual school discussion on pp. 66-68, infra.

Table 8
Step 1 Performance for Different Groups

Michigan State	Not Taken	Failed	Passed
Blacks	10%	14%	76%
Hispanics	5%	3%	92%
Asians	0%	2%	98%
Whites	4%	1%	95%

Oklahoma	Not Taken	Failed	Passed
Blacks	41%	19%	41%
Hispanics	28%	8%	64%
Asians	37%	4%	59%
Whites	32%	5%	63%

SUNY Brooklyn	Not Taken	Failed	Passed
Blacks	25%	5%	70%
Hispanics	25%	13%	63%
Asians	6%	0%	94%
Whites	5%	2%	94%

Washington	Not Taken	Failed	Passed
Blacks	10%	5%	86%
Hispanics	5%	0%	95%
Asians	4%	0%	96%
Whites	5%	1%	95%

As Table 9 shows, a much larger percentage of black enrollees did not take Step 1 than other groups, especially Asians and whites. At MSU, 10 percent of blacks did not take Step 1, compared with no Asians, 5 percent of Hispanics, and 4 percent of whites. At Oklahoma, 41 percent of blacks did not take Step 1, compared with 28 percent of Hispanics, 37 percent of Asians, and 32 percent of whites. At SUNY, one quarter of blacks and Hispanics did not take Step 1, compared to 6 percent of Asians and 5 percent of whites. At the University of Washington, 10 percent of blacks did not take the test, compared to 5 percent of Hispanics and 4 percent of Asians and whites.

At all four schools, larger percentages of blacks and Hispanics compared to Asians and whites failed Step 1. At MSU, 14 percent of blacks and 3 percent of Hispanics failed Step 1, but only 2 percent of Asians and 1 percent of whites did. At Oklahoma, 19 percent of blacks failed Step 1, compared to 8 percent of Hispanics, 4 percent of Asians, and 5 percent of whites. At SUNY, 5 percent of blacks failed Step 1, as did 13 percent of Hispanics, no Asians, and 2 percent of whites. At the University of Washington, 5 percent of blacks, no Hispanics, no Asians, and only 1 percent of whites failed Step 1.

Extensive research shows that Step 1 scores are closely related to MCAT scores. This was true for MSU, Oklahoma, and SUNY, where individual Step 1 scores were provided.[35] We

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[35] The University of Washington medical school recorded only whether a student passed or failed.

35

correlated undergraduate GPAs, MCAT scores, and Step 1 scores for MSU, Oklahoma, and SUNY.

Overall correlations between MCAT and Step 1 scores at all three schools were statistically significant. At MSU, the correlation between MCAT and Step 1 scores was 0.568; at Oklahoma, 0.452; and at SUNY, 0.621.[36] Moreover, they were higher than the correlations between undergraduate GPAs and Step 1 scores.[37]

Since MCAT scores are the best predictors of Step 1 performance, the disparities among groups is not surprising, because blacks and, to a lesser extent, Hispanics were admitted on average with lower MCATs and lower grades.

We will now examine the statistical relationship between race and ethnicity, MCATs, undergraduate grades, and Step 1 scores, and whether there is an independent race/ethnicity effect separate from test scores and college grades. If the tests are culturally biased against blacks and Hispanics, we would expect to find a statistically significant negative relationship between being black or Hispanic and Step 1 scores. Accordingly, we calculated a linear multiple regression equation using test scores, grades, and race as the independent variable and Step 1 scores as the dependent variable.

Table 9
Statistical Analysis of MCATs, Undergraduate Grades,
Race/Ethnicity, and Step 1 Scores

	Michigan State	*Oklahoma*	*SUNY*	*Washington*
Black	4.962	-4.895	-4.085	0.359
Hispanic	-0.023	4.579	-6.448	9.212
Asian	-0.100	-3.834	-1.041	8.062
GPAs	12.452*	12.515*	2.289	1.483
MCATs	1.419*	6.552*	2.602*	0.328**
Constant	118.600*	101.368*	143.692*	-12.016***
* p≤0.001 **p ≤0.01 ***p ≤0.05				

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[36] All MCAT-Step 1 correlations have been mathematically adjusted for what statisticians call "restriction of range." Because the range for MCAT scores among enrollees is much more limited than among all test takers, they are regularly statistically adjusted to reflect this restriction. See Jacob Cohen and Patricia Cohen, *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences* (Hillsdale, NJ: Lawrence Erlbaum, 1975), and AAMC, *MCAT Interpretive Manual*, p. 15.

[37] The correlation between undergraduate GPAs and Step 1 scores was 0.466 at MSU, 0.211 at Oklahoma, and 0.137 at SUNY Brooklyn. The correlations between MCAT and Step 1 scores were also higher than the correlations between MCAT scores and undergraduate GPAs (0.447 at MSU, 0.161 at Oklahoma, and 0.380 at SUNY Brooklyn).

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For every school, Step 1 scores are predicted by MCAT scores and—at MSU, Oklahoma, and SUNY Brooklyn—undergraduate GPAs. In contrast, all race/ethnicity coefficients for the four schools were statistically not significant.

In other words, the regression analyses in Table 9 above show no separate effect on Step 1 scores because of a person's race or ethnicity. It is MCAT scores and, in most cases, grades that predict Step 1 scores. So when admission committees admit individuals with substantially lower test scores and grades, whether or not they are members of minority groups, they increase the likelihood of their students performing poorly in medical school.

Individual School Analysis

Medical College of Georgia

Applicants, Admittees, and Enrollees

1996

1,670 individuals applied for admission to the Medical College of Georgia.[38] 959 were residents of Georgia. 711 were nonresidents. 254 (15 percent) of applicants were admitted—26 percent of residents and 1 percent of nonresidents. 178 enrolled. Most applicants, admittees, and enrollees were white.

Applicants

- 15 percent black
- 4 percent Hispanic
- 17 percent Asian
- 64 percent white

Admittees

- 8 percent black
- 4 percent Hispanic
- 12 percent Asian
- 76 percent white

Enrollees

- 2 percent black
- 3 percent Hispanic
- 12 percent Asian
- 83 percent white

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[38] Foreign students and students listed as "Missing," "Other," Native American," and "Unknown" were dropped from the analysis.

CΞO

Overall admission rates

- 8 percent of black applicants
- 14 percent of Hispanic applicants
- 11 percent of Asian applicants
- 18 percent of white applicants

Admission rates for Georgia residents

- 14 percent of black applicants
- 28 percent of Hispanic applicants
- 20 percent of Asian applicants
- 30 percent of white applicants

1999

1,397 individuals applied for admission to the Medical College of Georgia in 1999. 728 were residents of the state of Georgia. 669 were nonresidents. 247 (18 percent) of applicants were admitted—34 percent of residents and 0.5 percent of nonresidents. 173 enrolled. The majority of applicants, admittees, and enrollees was white.

Applicants

- 15 percent black
- 4 percent Hispanic
- 18 percent Asian
- 62 percent white

Admittees

- 7 percent black
- 2 percent Hispanic
- 18 percent Asian
- 73 percent white

Enrollees

- 6 percent black
- 2 percent Hispanic
- 14 percent Asian
- 77 percent white

Overall admission rates

- 6 percent of black applicants
- 8 percent of Hispanic applicants
- 17 percent of Asian applicants
- 21 percent of white applicants

Admission rates for Georgia residents

- 16 percent of black applicants
- 25 percent of Hispanic applicants
- 33 percent of Asian applicants
- 38 percent of white applicants

Differences in MCAT Scores

Figure 11 shows the total MCAT scores[39] for Medical College of Georgia admittees by racial and ethnic groups in 1996 and 1999. We examine data on all admittees, residents and nonresidents alike, so that the percentile scores may be compared to those from other medical schools.[40]

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[39] See the earlier section, "Methodology," for a detailed discussion on the calculation of the total MCAT score.
[40] See previous sections on white-black, white-Hispanic, and white-Asian gaps in median test scores and college GPAs.

CEO

Figure 11

Total MCAT Scores, Medical College of Georgia
1996 Admittees (25th, 50th, and 75th Percentiles)

Blacks (N=21): 33, 31, 29
Hispanics (N=10): 40, 37, 34
Asians (N=30): 41, 37, 35
Whites (N=193): 40, 37, 35
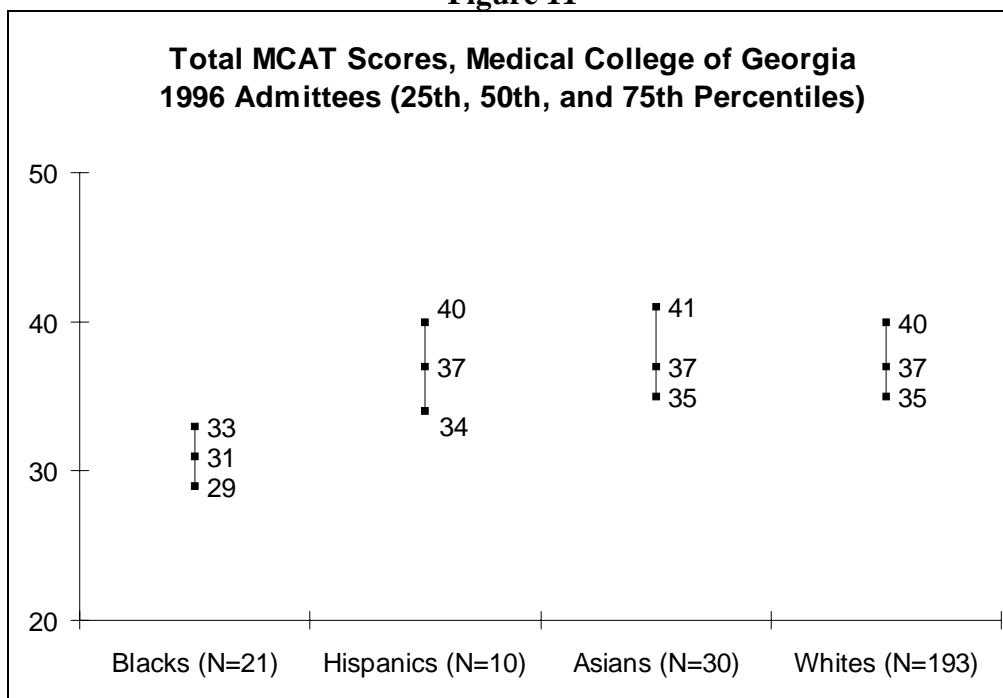
In 1996, the total MCAT scores of Hispanic, Asian, and white admittees are roughly the same. The three groups have the same median total MCAT score, while the scores at the 25th and 75th percentiles are within one point of each other.

Black MCAT scores are substantially lower. The median black MCAT score is 31, which is six points lower than the median scores for the other groups. The black total MCAT score at the 75th percentile is roughly the same as the total MCAT score at the 25th percentile for all other groups. This means that 75 percent of blacks are admitted to the Medical College of Georgia with lower test scores than 75 percent of whites, Asians, and Hispanics.

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Figure 12

Total MCAT Scores, Medical College of Georgia
1999 Admittees (25th, 50th, and 75th Percentiles)

50	
40	Asians 40, Whites 40
	Hispanics 36, 36; Asians 37; Whites 37
	Blacks 35; Asians 34; Whites 35
	Hispanics 33
30	Blacks 31, 29
20	

Blacks (N=17)   Hispanics (N=5)   Asians (N=44)   Whites (N=181)
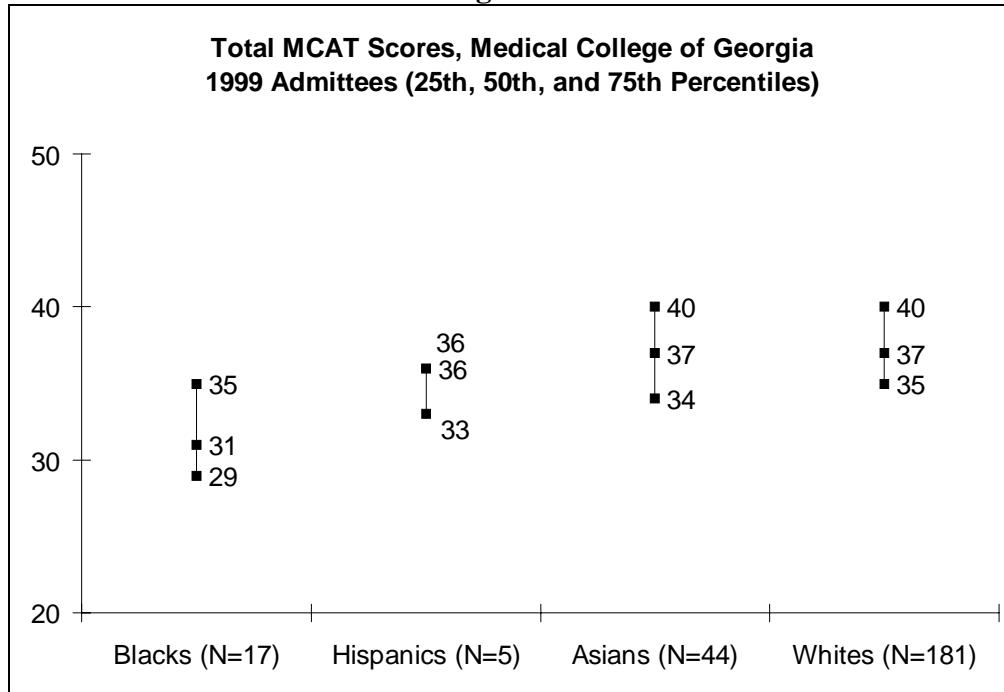
Likewise, in 1999, white, Hispanic, and Asian total MCAT scores are generally the same, while black MCAT scores are on the whole lower.[41] The black median is 31, which is lower than the MCAT total at the 25th percentile for the other three groups (the Hispanic score is 33, the Asian score is 34, and the white score is 35 at the 25th percentile). This means that black admittees were on average accepted with MCAT scores lower than 75 percent of all other admittees.

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[41] There were only five Hispanic admittees in 1999. The MCAT scores at the 50th and 75th percentiles are the same (36).

Differences in Science GPAs

Figure 13

**Science GPAs, Medical College of Georgia
1996 Admittees (25th, 50th, and 75th Percentiles)**

4.00	
	■ 3.93
3.80	■ 3.83
	■ 3.73
	■ 3.65
3.60	■ 3.61 ■ 3.56
	■ 3.47
3.40	■ 3.47 ■ 3.37 ■ 3.47 ■ 3.42
	■ 3.32
3.20	■ 3.23
3.00	

Blacks (N=21)   Hispanics (N=10)   Asians (N=30)   Whites (N=193)
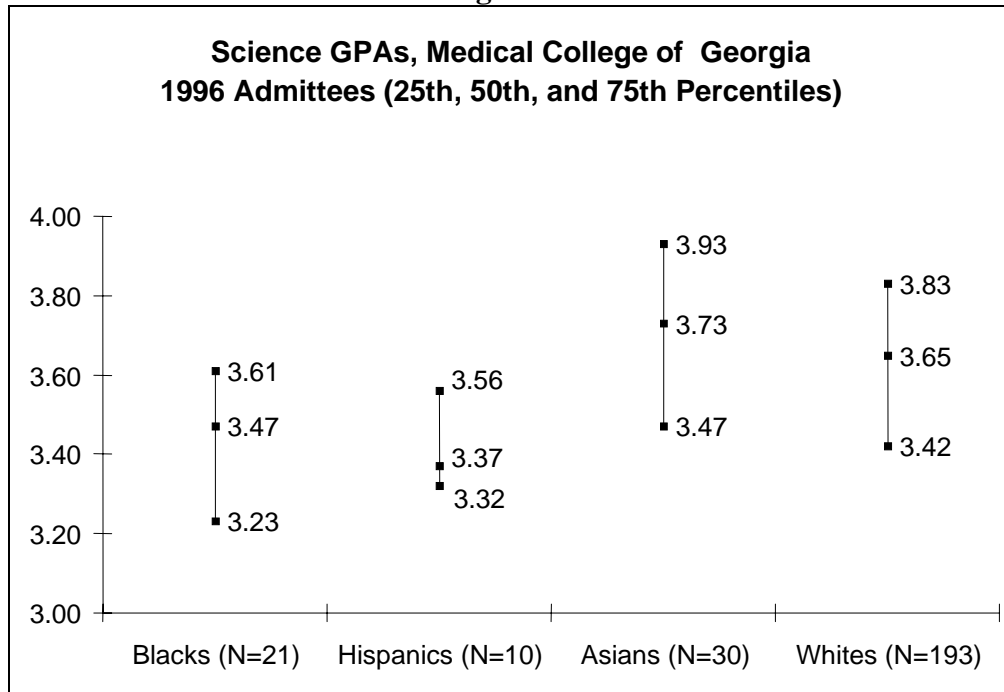
There are also differences in science grades among groups admitted in 1996, but the gaps are smaller than MCAT gaps. Black and Hispanic science GPAs are generally lower than Asian and white science GPAs. The median science GPA of black admittees is 3.47, which is about two-tenths of a grade-point lower than the average science GPA of whites and a quarter of a grade-point lower than the average science GPA of Asians. It is roughly the same as the science GPA of Asians and whites at the 25th percentile. That is to say, 50 percent of blacks (and Hispanics) admitted by Georgia had lower science grades than approximately 75 percent of Asian and white admittees. The average science GPA for Hispanic admittees is one-tenth of a grade-point *lower* than the average science GPA of black admittees.

Figure 14

Science GPAs, Medical College of Georgia
1999 Admittees (25th, 50th, and 75th Percentiles)
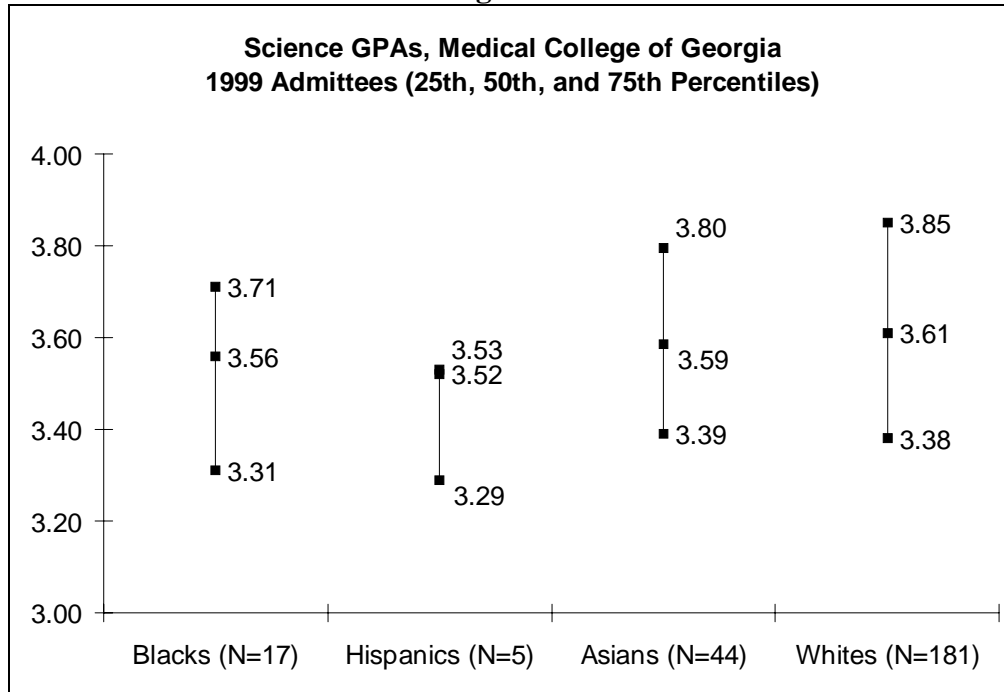
In 1999, however, there are generally no substantial differences among groups in science GPAs, although Hispanic GPAs are slightly lower. The black median is 3.56, which is four one-hundredths of a point higher than the Hispanic median, three one-hundredths of a point lower than the Asian median, and five one-hundredths of a point lower than the white median.

Science grades at the 25th percentile are also remarkably similar. The black science GPA at the 25th percentile is 3.31, which is only slightly higher than the Hispanic GPA, and only slightly lower than the Asian and white science GPAs.

Science grades at the 75th percentile have a somewhat larger gap. The black GPA at the 75th percentile is 3.71; the Hispanic GPA is lower (3.53). The black GPA at the 75th percentile is only one-tenth of a point lower than that of Asians and whites, but the Hispanic GPA is somewhat less (0.27 points) than that of Asian admittees and even lower (by 0.32 points) compared to whites.

Rejectees vs. Admittees

Applicants who are not Georgia residents make up an extremely small percentage of those applicants admitted to the Medical College of Georgia. One percent of nonresidents as opposed to 26 percent of residents were admitted in 1996. One-half of one percent of nonresidents were admitted in 1999, versus 34 percent of residents. We thus focus our comparison on resident rejectees and admittees only.

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1996

Among Georgia residents, the Medical College of Georgia rejected 121 Asians, 124 blacks, 23 Hispanics, and 445 whites. Of these, 34 Asians, 6 Hispanics, and 112 whites were rejected despite higher average science grades compared to the median science GPA of black admittees. 49 Asians, 4 Hispanics, and 195 whites were rejected despite having higher MCAT scores than the black admittee median. Among Georgia applicants, the Medical College rejected 16 Asians, 3 Hispanics, and 55 whites with better science grades *and* higher test scores compared to the median science GPA and total MCAT score of black admittees.

1999

In 1999, the Medical College rejected 88 black, 89 Asian, 15 Hispanic, and 292 white in-state applicants. Of these, 24 Asians, 4 Hispanics, and 69 whites were rejected despite higher science GPAs compared to the median GPA of black admittees. 48 Asians, 7 Hispanics, and 168 whites were rejected despite higher MCAT totals. Finally, 12 Asians, 4 Hispanics, and 69 whites were rejected despite both higher science GPAs *and* higher MCAT totals compared to the black admittee median.

Odds Ratios and the Probability of Admission

Table 10
Odds Ratios
Medical College of Georgia

	1996	1999
Black to White	19.13*	6.28*
Hispanic to White	2.89***	1.61
Asian to White	0.43**	0.84
*p≤0.0001 **p≤0.01 ***p≤0.05		

As shown in the table above, Georgia awards a large degree of preference to blacks, but there is some evidence that reliance on racial and ethnic preferences has declined. Controlling for total MCAT scores, science GPAs, sex, and residency status, the relative odds of a black applicant being admitted over a white applicant in 1996 was 19 to 1.

The black-white odds ratio in 1999 is smaller than the odds ratio in 1996, but the odds ratio of black to white applicants is also statistically significant in 1999 (6.28 to 1). It is large but not extraordinarily so.

For a Hispanic applicant, the odds ratio was almost 3 to 1 over a white in 1996, while the odds ratio of Asians to whites in 1996 was 0.43 to 1. Taking its reciprocal, we find that the relative odds of a white applicant being admitted over an Asian applicant was 2.34 to 1. In contrast, the odds ratios of Hispanic-to-white and Asian-to-white applicants in 1999 were small and not statistically significant.

Students At Risk

The Medical College of Georgia did not submit USMLE Step 1 scores. Nevertheless, other research has shown that one can calculate the percentage of those admitted who are "at risk" of either poor grades in medical school and/or failing the Step 1, given certain MCAT scores. In one study, nearly half of all medical students with MCAT scores in the bottom quartile of all test takers (a mean score of roughly an 8) fail the USMLE Step 1 the first time.[42] Other researchers have found that matriculants with low MCAT scores   that is, students with mean MCAT scores below 7.00   were at risk for academic failure, meaning failure to complete the medical school program and receive a degree.[43]

The next four figures show the consequences of the significant preferences afforded black applicants: Many are placed at serious risk of encountering academic difficulties in medical school and/or on the licensing exam. Admittees with mean MCAT scores lower than 7.00 were classified as "at risk" for noncompletion at Georgia (Figures 15 and 16). Admittees with MCAT scores of 8.00 or lower were classified as "at risk" for failing the Step 1 on the first try (Figures 17 and 18).

Figure 15

Medical College of Georgia
1996 Admittees At Risk for Academic Difficulty

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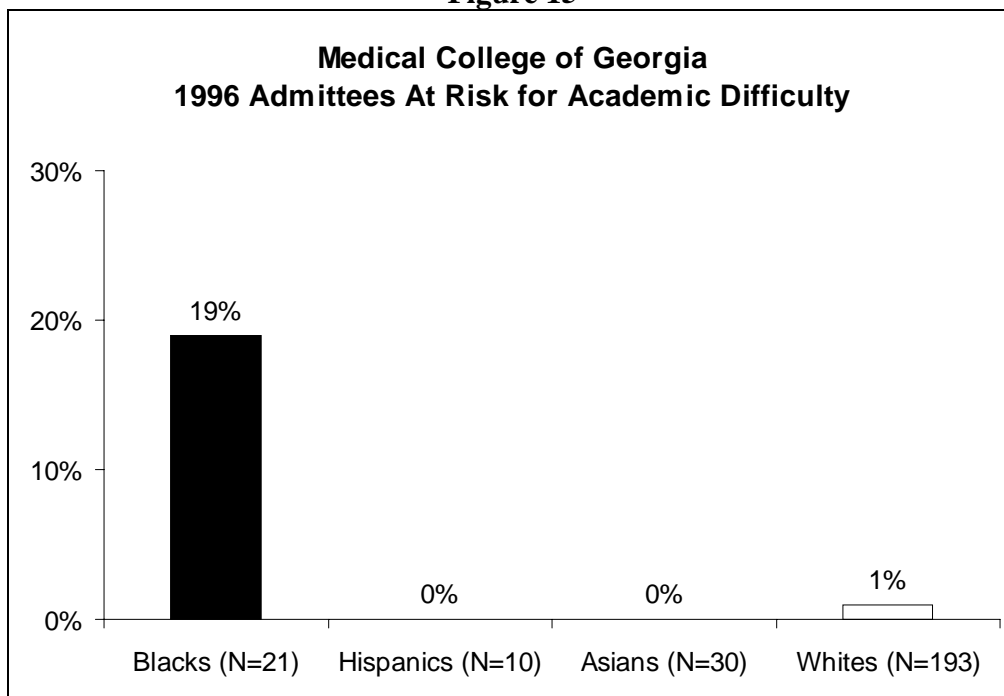
[42] Tekian et al., "Baseline Longitudinal Data of Undergraduate Medical Students at Risk," S38-S40.
[43] Huff et al., "When Are Students Most at Risk of Encountering Academic Difficulty?," 454-460.

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Figure 16

**Medical College of Georgia
1999 Admittees At Risk for Academic Difficulty**
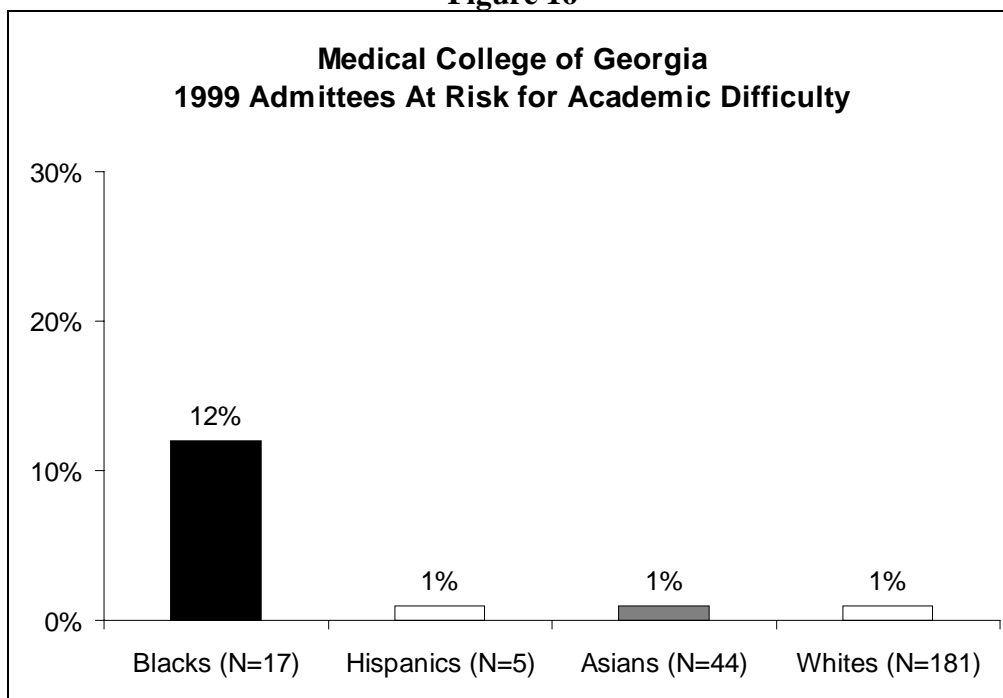
In 1996, 19 percent of blacks admitted were at risk of noncompletion of medical school, but almost none from the other groups were. In 1999, 12 percent of blacks admitted were in this group, but only 1 percent from each of the other three groups were.

Similar results are obtained if we examine admittees at risk for failing the USMLE Step 1 on the first try. Research has found that roughly 40 percent nationally in this at-risk group would fail the Step 1 on the first try. Sixty-two percent of blacks admitted by Georgia in 1996 but only 10 percent of Hispanics and Asians and only 9 percent of whites had mean MCAT subscores of 8.00 or less. In 1999, 53 percent of blacks, versus 20 percent of Hispanics, 2 percent of Asians, and 1 percent of whites, admitted by the Medical College of Georgia fell in this group.

Figure 17

Medical College of Georgia
1996 Admittees At Risk for Failing Step 1 on First Try

Figure 18

Medical College of Georgia
1999 Admittees At Risk for Failing Step 1 on First Try
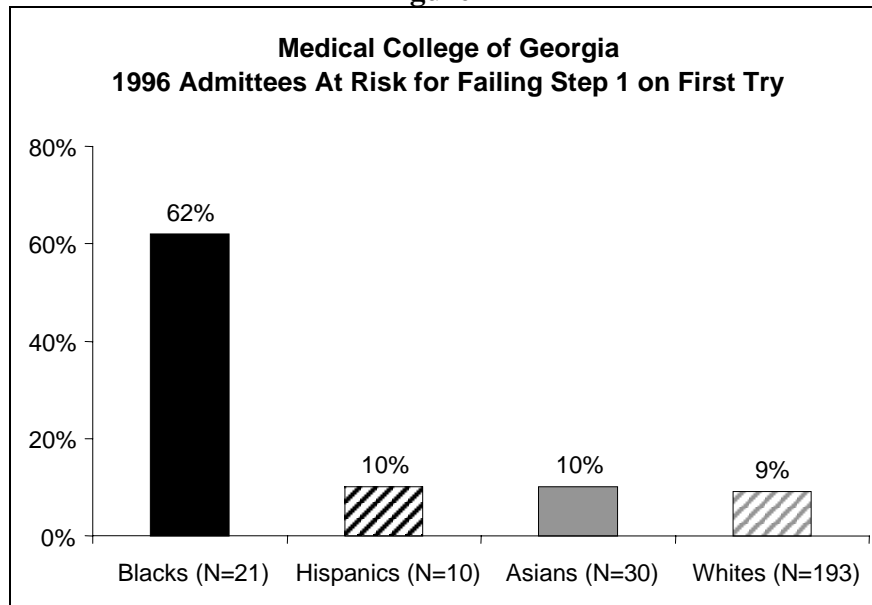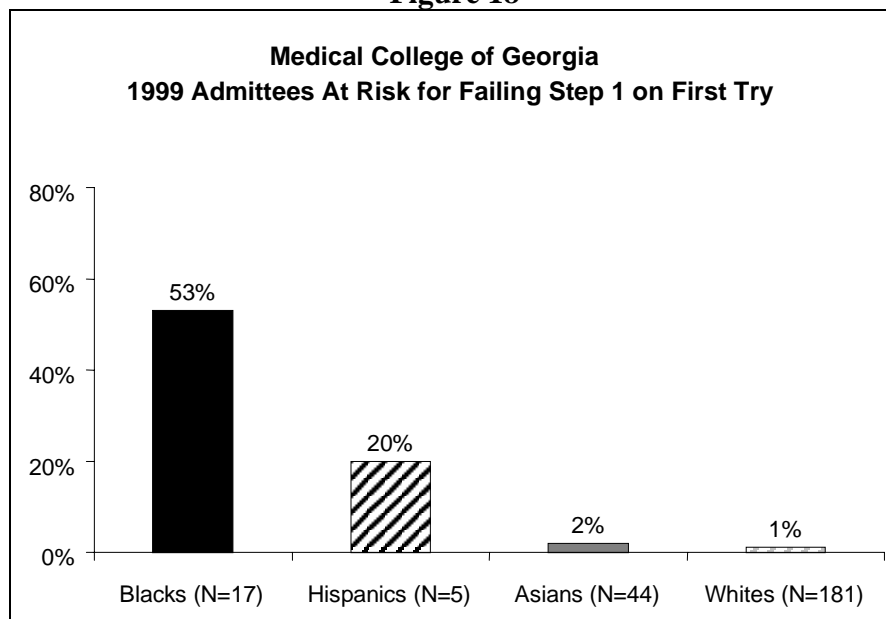
Michigan State University College of Human Medicine

Applicants, Admittees, and Enrollees

1997

2,647 individuals applied for admission to the Michigan State University College of Human Medicine for the 1997 academic year.[44] 1,052 were residents of the state of Michigan. 1,595 were nonresidents. 185 applicants (7 percent) were admitted   14 percent of residents and 2 percent of nonresidents. 106 enrolled. The majority of applicants, admittees, and enrollees was white.

Applicants

- 8 percent black
- 5 percent Hispanic
- 28 percent Asian
- 59 percent white

Admittees

- 9 percent black
- 11 percent Hispanic
- 19 percent Asian
- 62 percent white

Enrollees

- 7 percent black
- 7 percent Hispanic
- 15 percent Asian
- 71 percent white

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[44] Foreign students and students listed as "Missing," "Other," Native American," and "Unknown" were dropped from the analysis.

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Overall admission rates

- 7 percent of black applicants
- 14 percent of Hispanic applicants
- 5 percent of Asian applicants
- 7 percent of white applicants

Admission rates for in-state applicants

- 16 percent of black applicants
- 26 percent of Hispanic applicants
- 14 percent of Asian applicants
- 14 percent of white applicants

1999

2,232 individuals applied for admission to Michigan State medical school for the 1999 academic year. 844 were residents of the state of Michigan. 1,388 were nonresidents. 189 applicants (8 percent of applicants) were admitted   16 percent of residents and 4 percent of nonresidents. 100 enrolled. The majority of applicants, admittees, and enrollees was white.

Applicants

- 8 percent black
- 5 percent Hispanic
- 26 percent Asian
- 61 percent white

Admittees

- 11 percent black
- 8 percent Hispanic
- 15 percent Asian
- 66 percent white

Enrollees

- 10 percent black
- 7 percent Hispanic
- 13 percent Asian
- 70 percent white

Overall admission rates

- 11 percent of black applicants
- 13 percent of Hispanic applicants
- 5 percent of Asian applicants
- 8 percent of white applicants

Admission rates for in-state applicants

- 14 percent of black applicants
- 11 percent of Hispanic applicants
- 10 percent of Asian applicants
- 17 percent of white applicants

Differences in MCAT Scores

The distribution of MCAT scores by groups was similar in 1997 and 1999. Most blacks admitted to Michigan State had substantially lower scores than Hispanics, Asians, and whites. We examined data on all admittees, residents and nonresidents alike, so that the percentile scores may be compared to those from other medical schools.[45]

1997

Figure 19 shows the total MCAT score[46] for 1997 Michigan State admittees, by racial and ethnic groups. Total MCAT scores for blacks and Hispanics are generally lower than those for Asians and whites.

Black and Hispanic median MCAT scores (31 for both) are four points lower than the median MCAT score for whites (35), and seven points lower than the Asian median MCAT (38).

Black and Hispanic MCAT scores at the 75th percentile (35 for both) are about the same as Asian and white MCAT scores at the 25th percentile (35 and 34, respectively). That is, 75 percent of blacks and Hispanics admitted to Michigan State had lower MCAT scores than 75 percent of Asian and white admittees.

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[45] See earlier sections on white-black, white-Hispanic, and white-Asian gaps in median test scores and college GPAs.
[46] See the earlier section, "Methodology," for a detailed discussion on the calculation of the total MCAT score.

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Figure 19

Total MCAT Scores, Michigan State College of Medicine
1997 Admittees (25th, 50th, and 75th Percentiles)
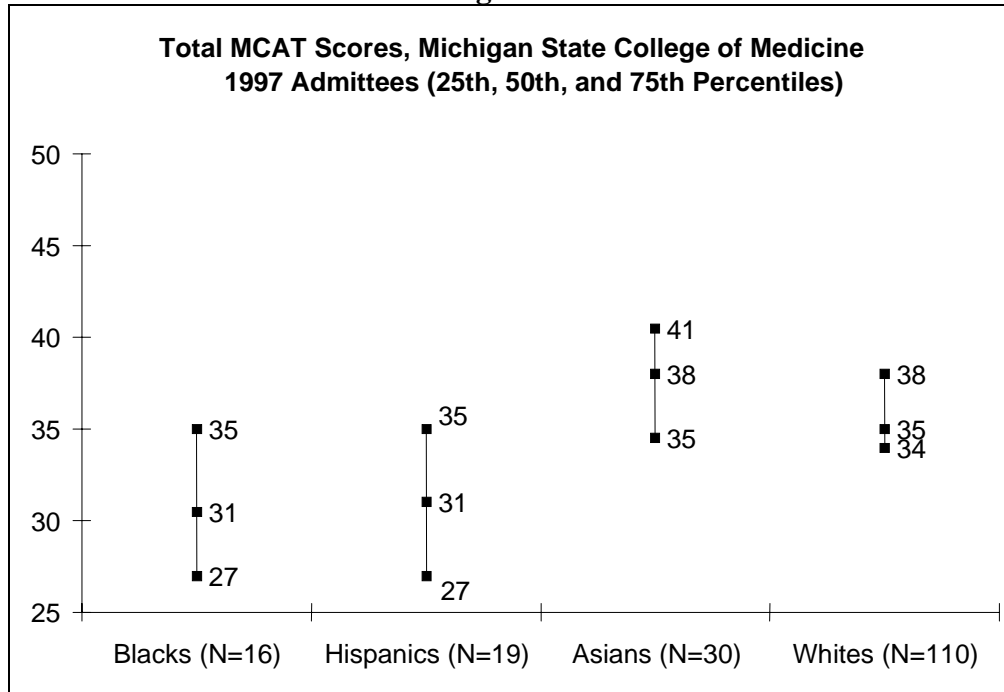
1999

The test score pattern is the same for 1999. Figure 20 shows the total MCAT score for blacks, Hispanics, Asians, and whites admitted to Michigan State for the 1999 academic year.[47] As in 1997, blacks and Hispanics admitted to the 1999 Michigan State first-year class scored substantially lower than their Asian and white counterparts.

The median MCAT total for black admittees is 29. It is nine points lower than the median score for Asians and seven points lower than the median score for whites. The Hispanic median is four points lower than the Asian median and two points lower than the median white score.

The black admittee score at the 75th percentile is 32. This is lower than Asian and white scores at the 25th percentile (36 and 34, respectively). This means that 75 percent of black admittees had lower MCAT scores than 75 percent of Asians and whites.

There is only slightly more overlap in scores among Hispanics versus Asians and whites. The Hispanic MCAT total at the 75th percentile is 35, which is one point lower than the Asian score at the 25th percentile but one point higher than the white score at the same percentile.

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[47] Ibid.

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Figure 20

**Total MCAT Scores, Michigan State College of Medicine
1999 Admittees (25th, 50th, and 75th Percentiles)**
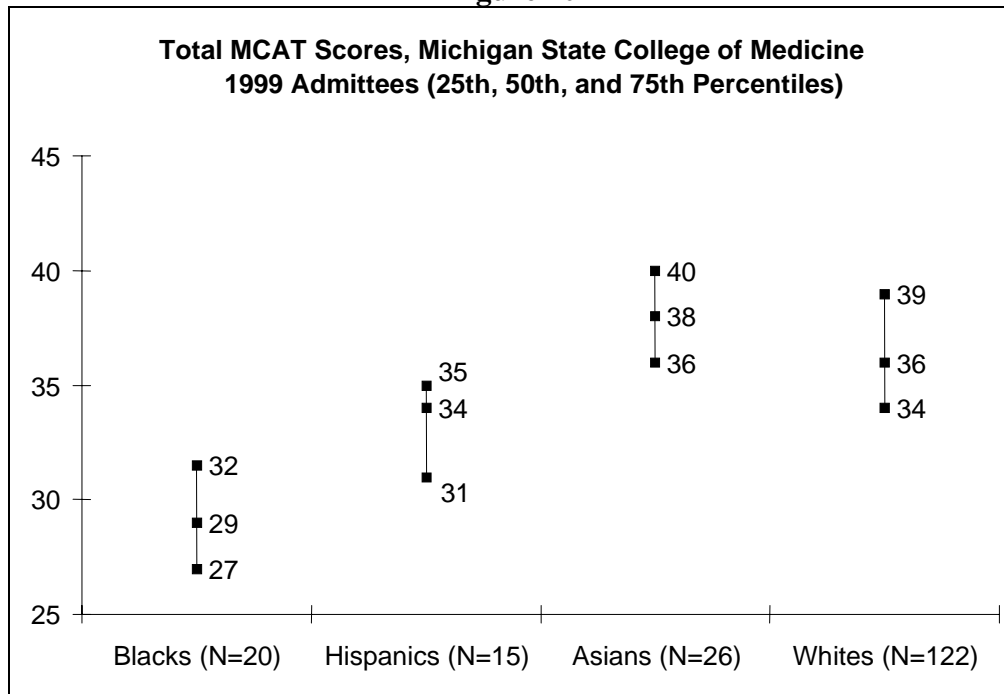
Differences in Science GPAs

1997

A similar pattern is found comparing groups with regard to science GPAs. The gaps in science GPAs between whites and Asians compared to blacks and Hispanics are substantial. Figure 21 displays science course GPAs in 1997 for each group at the 25th, 50th, and 75th percentiles.

Median Asian and white science GPAs are roughly six-tenths of a point higher than black and Hispanic science GPAs in 1997 (3.58 for Asians and 3.59 for whites versus 2.98 and 2.94 for blacks and Hispanics, respectively). The science GPAs for Asians and whites at the 25th percentile are 3.47 and 3.38, respectively. The Asian science GPA at the 25th percentile is higher than the science GPAs of blacks and Hispanics at the 75th percentile. The science GPA for whites at the 25th percentile is 3.38, which is roughly the same as the science GPAs of blacks and Hispanics at the 75th percentile. These percentile scores mean that 75 percent of blacks and Hispanics were admitted to Michigan State medical school with science grades that were worse than roughly 75 percent of all Asian and white admittees.

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Figure 21

Science GPAs, Michigan State College of Medicine
1997 Admittees (25th, 50th, and 75th Percentiles)

4.00	
	■ 3.80
	■ 3.70
	■ 3.58 ■ 3.59
3.50	■ 3.47
■ 3.39 ■ 3.38	■ 3.38
3.00	
■ 2.98 ■ 2.94	
	■ 2.78
■ 2.65	
2.50	

Blacks (N=16)   Hispanics (N=19)   Asians (N=30)   Whites (N=110)
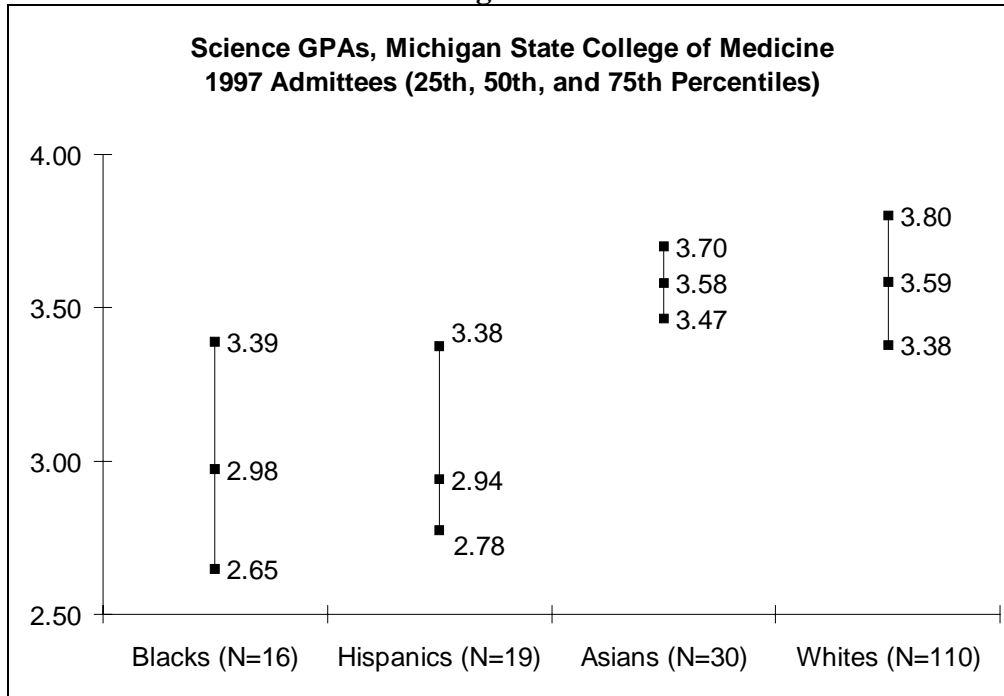
1999

Asian and white admittees to Michigan State in 1999 also have superior science GPAs than black and Hispanic admittees. The median black science GPA in 1999 was 2.93. This is roughly one-half point lower than Asian and white median science GPAs (3.50 and 3.61, respectively). Asian and white science GPAs at the 25th percentile are in fact higher than black science GPAs at the 75th percentile. The Asian science GPA at the 25th percentile is 3.35, while the white science GPA at the same percentile is 3.37. The black science GPA at the 75th percentile is 3.29. This means that 75 percent of blacks were admitted with lower science grades than 75 percent of Asians and whites.

As in 1997, the 1999 gaps between Hispanic versus Asian and white science GPAs are smaller, but only slightly so. The median science GPA was 2.98 for Hispanics, versus 3.50 for Asians and 3.61 for whites. At the 75th percentile, there is a slight overlap with Asian and white science GPAs at the 25th percentile. The Hispanic science GPA at the 75th percentile is 3.40, while the Asian and white science GPAs at the 25th percentile are 3.35 and 3.37, respectively.

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Figure 22

Science GPAs, Michigan State College of Medicine
1999 Admittees (25th, 50th, and 75th Percentiles)
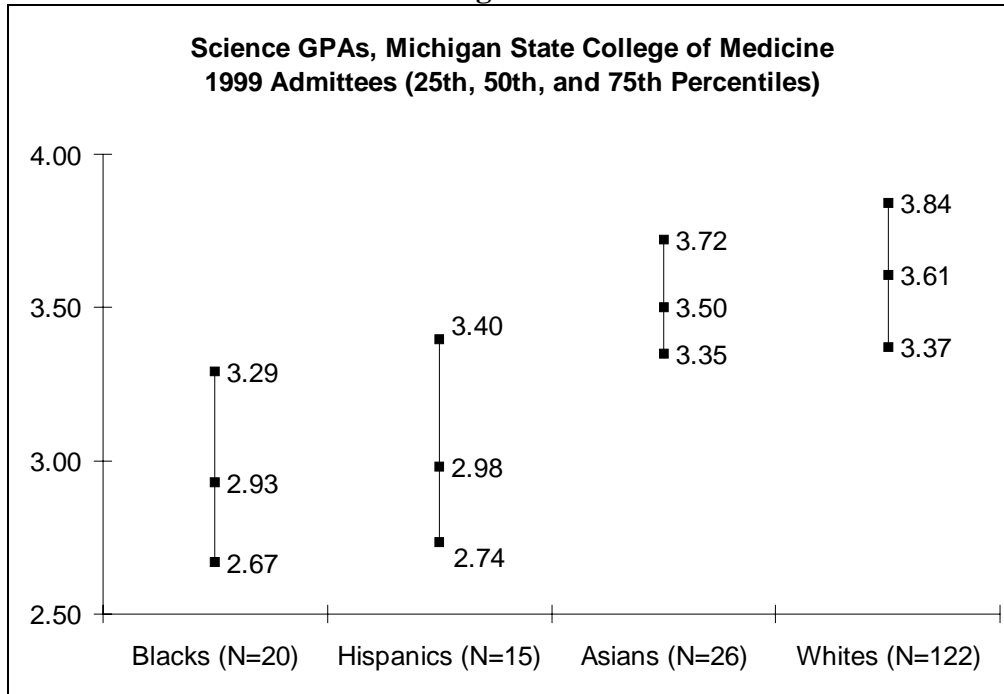
Rejectees vs. Admittees

Nonresidents make up an extremely small percentage of those applicants admitted to Michigan State College of Human Medicine. For the 1997 academic year, 2 percent of nonresidents were admitted versus 14 percent of in-state applicants. In 1999, 4 percent of nonresidents versus 16 percent of residents were admitted. Because so few nonresidents are admitted, in this section we will compare the academic qualifications of in-state applicants who were rejected versus those who were accepted.

1997

Among Michigan residents, Michigan State rejected 192 Asians, 53 blacks, 14 Hispanics, and 647 whites in 1997. Of these, 143 Asians, 8 Hispanics, and 511 whites were rejected despite higher science GPAs compared to the average science GPA of black admittees. 127 Asians, 10 Hispanics, and 426 whites were rejected despite having higher MCAT scores compared to the average black admittee.

If we look at the academic qualifications of Michigan residents who were rejected in 1997 compared to the average median science GPA *and* MCAT total of black admittees, we find that Michigan State rejected 104 Asians, 6 Hispanics, and 348 whites with better grades and higher test scores compared to the average science GPAs and MCAT total scores of black admittees.

1999

The same patterns hold true for 1999. 156 Asians, 43 blacks, 16 Hispanics, and 497 white in-state applicants were rejected by Michigan State College of Human Medicine for that year. 192 Asians, 10 Hispanics, and 417 whites were rejected despite being in-state applicants and having science GPAs higher than the average science GPA of blacks admitted by Michigan State. Similarly, 127 Asians, 8 Hispanics, and 405 whites were rejected among in-state applicants despite having higher total MCAT scores than the average black admittee. Finally, among Michigan applicants, 109 Asians, 6 Hispanics, and 348 whites were rejected despite higher science GPAs *and* MCAT total scores than the medians for black admittees.

Odds Ratios and the Probability of Admission

Based on a multiple logistic regression analysis, it seems that Michigan State awards a significant degree of preference to blacks and Hispanics. Table 11 displays the odds ratios for 1996 and 1999.

Table 11
Odds Ratios
Michigan State College of Medicine

	1997	1999
Black to White	12.18*	13.95*
Hispanic to White	12.53**	6.53*
Asian to White	0.82	0.58*
*p <0.0001 **p <0.05		

In 1997, the relative odds of a black applicant being admitted over a white applicant at Michigan State College of Human Medicine were roughly 12 to 1, controlling for test scores, science grades, resident status, and sex. The odds ratio favoring Hispanic applicants over whites was roughly twelve-and-a-half to one. In 1999, the relative odds favored a black over a white applicant by almost 14 to 1, controlling for other factors, while the odds ratio favoring a Hispanic over a white applicant was six-and-a-half to one. The odds ratios for black-to-white and Hispanic-to-white applicants are statistically significant at the 0.0001 level of significance, meaning that the probability of finding such odds ratios by chance is less than one in 10,000.

The odds ratios for Asian versus white applicants at MSU are inconclusive. In 1997, the odds ratio is statistically nonsignificant. In 1999, the relative odds of admission of an Asian applicant

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over a white applicant were 0.58, all other factors being equal.[48] As odds ratios go, this is a relatively small difference.

USMLE Step 1 Scores

Michigan State provided Step 1 scores for all medical students, from the 1993 through the 1996 academic years, along with race and ethnicity, MCAT subscores, and science GPAs, among other variables. Although students may take Step 1 up to six times, Michigan State did not report how many times students failed Step 1 before they finally obtained a passing score, nor did they report the scores for each time the test was taken. Only final scores were reported. Step 1 scores were also unavailable for subsequent years. The analysis below combines information from the four years provided.

Figure 23 displays the percentage of each group of enrollees that failed, passed, or did not take Step 1.

Figure 23
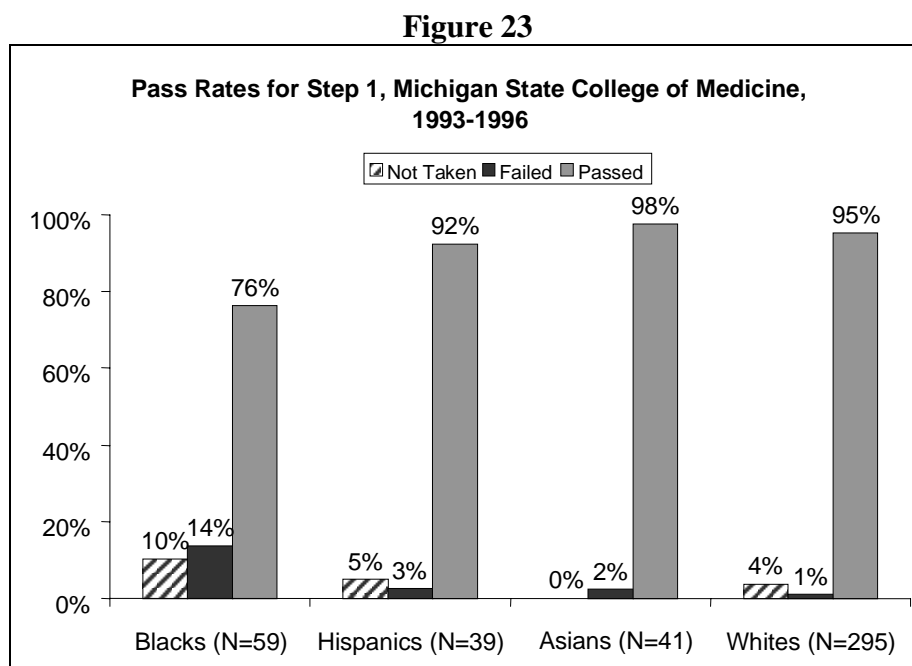
Proportionately more black enrollees failed or did not take Step 1 than Hispanics, Asians, and whites. Fourteen percent of black enrollees failed Step 1 compared to 3 percent of Hispanics, 2 percent of Asians, and 1 percent of whites. 10 percent of blacks did not take the test, versus no Asians, 5 percent of Hispanics, and 4 percent of whites.

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[48] The odds ratio of white-to-Asian is the reciprocal of the Asian-to-white odds ratio, which is 1.73, meaning that the odds of a white applicant being admitted over an Asian would be about one and three-quarters, controlling for other factors.

Differences in academic qualifications among racial and ethnic groups are also mirrored in differences in USMLE Step 1 scores. Figure 24 displays USMLE Step 1 scores at the 25th, 50th, and 75th percentiles for blacks, Hispanics, Asians, and whites at Michigan State.

Figure 24

USMLE Step 1 Scores, Michigan State College of Medicine, 1993-1996
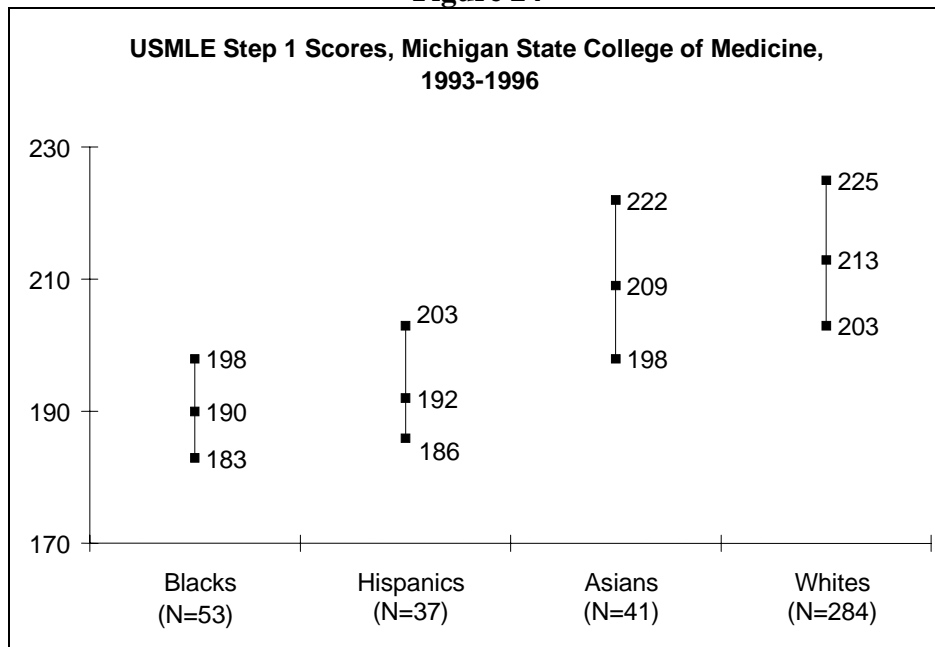
Like their academic qualifications before medical school, the Step 1 scores of black and Hispanic medical students are generally lower than those of Asian and white medical students. The gap between blacks and Hispanics on one hand and Asians and whites on the other is roughly 20 points. Black medical students had a median score of 190. The median score for Hispanic students was 192. In contrast, the Asian Step 1 median score was 209, and the white score, a 213.

More importantly, roughly three-fourths of black and Hispanic students had lower scores than three-fourths of Asian and white students. Black scores at the 75th percentile were the same as Asian scores at the 25th percentile and five points lower than white scores at the 25th percentile. Hispanic students performed only slightly better. The Hispanic score at the 75th percentile was 203, which is five points higher than the Asian score and the same as the white score at the 25th percentile.

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The University of Oklahoma College of Medicine

Applicants, Admittees, and Enrollees

Unlike the other medical schools in our study, the University of Oklahoma College of Medicine receives a large number of American Indian applicants. In 1996 and 1999, there were roughly the same number of applications from American Indians as from blacks and Hispanics. There were also fewer than five blacks and Hispanics admitted in 1996, and fewer than 5 Hispanics admitted in 1999. Where needed to provide us with five or more cases to analyze (the minimum we think needed for meaningful analysis), we have included data on American Indians, combining them with blacks and Hispanics.

1996

1,469 individuals applied for admission to the University of Oklahoma College of Medicine.[49] 443 were residents of the state of Oklahoma. 1,026 were nonresidents. 175 (12 percent) of applicants were admitted   33 percent of residents and 3 percent of nonresidents. 139 enrolled. The majority of applicants, admittees, and enrollees was white.

Applicants

- 5 percent American Indian
- 4 percent black
- 5 percent Hispanic
- 21 percent Asian
- 65 percent white

Admittees

- 7 percent American Indian
- 2 percent black
- 2 percent Hispanic
- 11 percent Asian
- 78 percent white

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[49] Foreign students and students listed as "Missing," "Other," and "Unknown" were dropped from the analysis.

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Enrollees

- 5 percent American Indian
- 1 percent black
- 1 percent Hispanic
- 13 percent Asian
- 80 percent white

Overall admission rates

- 17 percent of American Indian applicants
- 6 percent of black applicants
- 4 percent of Hispanic applicants
- 6 percent of Asian applicants
- 14 percent of white applicants

Admission rates for Oklahoma residents

- 26 percent of American Indian applicants
- 13 percent of black applicants
- 12 percent of Hispanic applicants
- 34 percent of Asian applicants
- 35 percent of white applicants

1999

1,016 individuals applied for admission to the Oklahoma College of Medicine in 1999. 311 were Oklahoma residents. 705 were nonresidents. 180 (18 percent) of applicants were admitted   50 percent of residents and 3 percent of nonresidents. 150 enrolled. The majority of applicants, admittees, and enrollees was white.

Applicants

- 4 percent American Indian
- 5 percent black
- 4 percent Hispanic
- 21 percent Asian
- 66 percent white

Admittees

- 9 percent American Indian
- 3 percent black
- 1 percent Hispanic
- 15 percent Asian
- 71 percent white

Enrollees

- 8 percent American Indian
- 4 percent black
- 1 percent Hispanic
- 13 percent Asian
- 73 percent white

Overall admission rates

- 40 percent of American Indian applicants
- 13 percent of black applicants
- 4 percent of Hispanic applicants
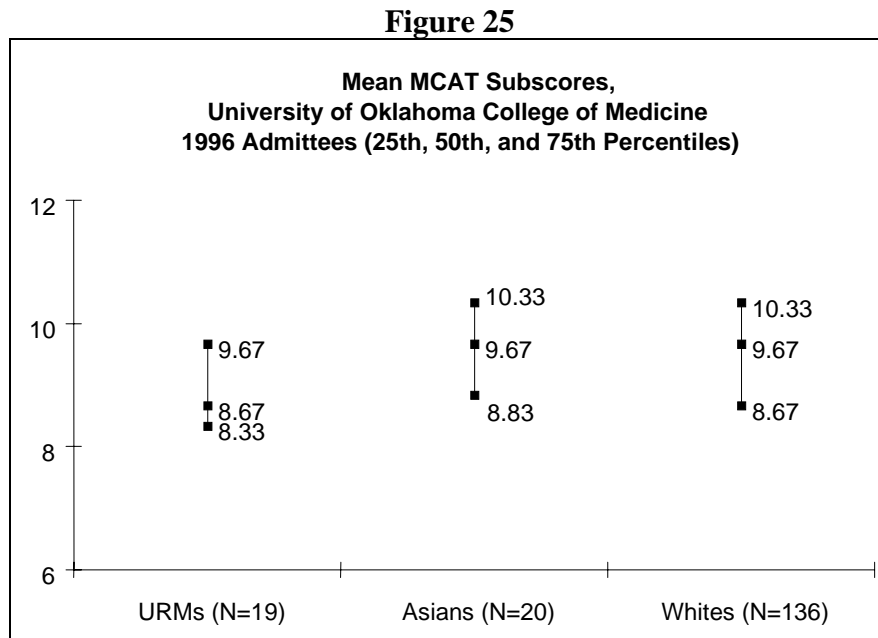- 13 percent of Asian applicants
- 18 percent of white applicants

Admission rates for Oklahoma residents

- 59 percent of American Indian applicants
- 50 percent of black applicants
- 20 percent of Hispanic applicants
- 59 percent of Asian applicants
- 49 percent of white applicants

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Differences in MCAT Scores

We examine data on all admittees, but combined American Indians, blacks, and Hispanics (underrepresented minorities or URMs) to give us a sufficient number of cases to do a meaningful analysis.[50] Figure 25 shows the mean MCAT score[51] for Oklahoma College of Medicine admittees by racial and ethnic groups for 1996. Figure 26 shows the mean MCAT score for 1999.

1996

Figure 25

**Mean MCAT Subscores,
University of Oklahoma College of Medicine
1996 Admittees (25th, 50th, and 75th Percentiles)**

In 1996, the MCAT mean score for blacks, American Indians, and Hispanics was 8.67, which is one point lower than the median for Asians and whites. It is the same as the MCAT score at the 25th percentile for whites and slightly lower than the 25th percentile score for Asians. Moreover, the mean MCAT score for non-Asian minorities at Oklahoma is roughly the same as the national mean score for *all* test takers in 1996 — those that failed to get in as well as those that were accepted into an American medical school.[52]

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[50] It has been our practice not to report scores for groups with fewer than five members. By combining blacks, American Indians, and Hispanics, we have sufficient numbers to report test scores and grades.

[51] Oklahoma provided a mean MCAT subscore for all applicants rather than individual MCAT subscores from which a total MCAT score could be calculated.

[52] The national writing sample average is a 6, which is the numerical transformation of the average letter grade of O. The national mean subscores for the verbal, physics, and biology subtests were 8.5, 8.6, and 8.7, respectively.

Additionally, the MCAT score for non-Asian minorities at the 75th percentile (9.67) is the same as the median score for Asians and whites. That is, 75 percent of non-Asian minorities admitted to Oklahoma were admitted with scores equal to or lower than the average Asian and white admittee.

1999

Figure 26

Mean MCAT Subscores,
University of Oklahoma College of Medicine
1999 Admittees (25th, 50th, and 75th Percentiles)
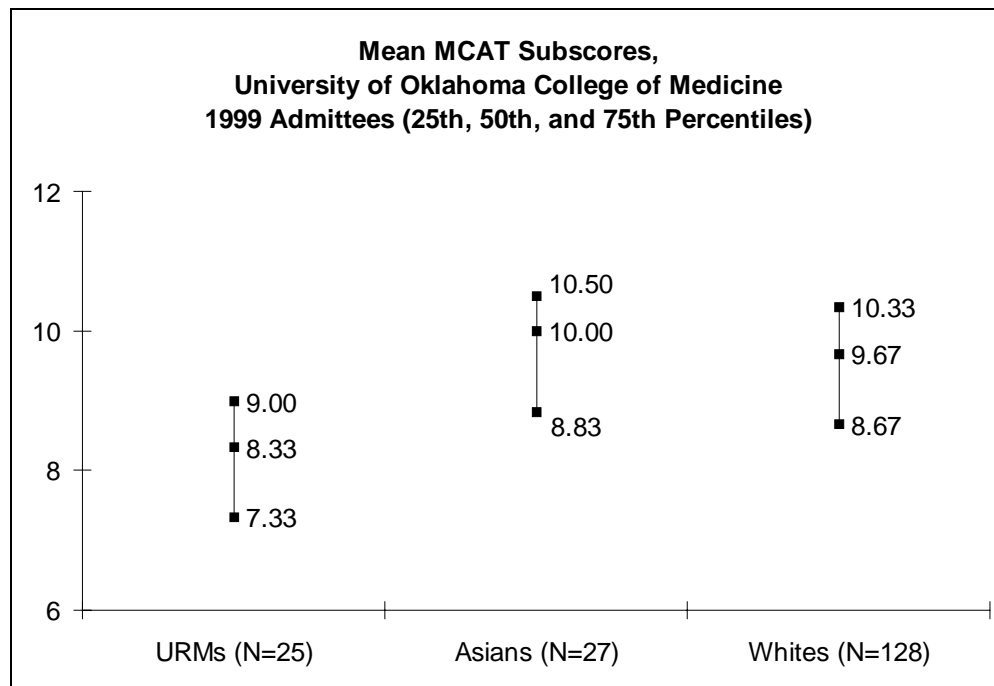
The gaps between non-Asian minority versus white and Asian scores is greater in 1999. The MCAT score at the median for minorities was 8.33, compared to 10.00 for Asians and 9.67 for whites. Here, too, the median MCAT score for non-Asian minorities is lower than the MCAT score at the 25th percentile for whites and Asians. This means that half of the non-Asian minorities were admitted to Oklahoma College of Medicine with test scores lower than 75 percent of whites and Asians. In 1999, the MCAT scores for at least half the non-Asian minorities admitted to Oklahoma were below the national mean.[53]

Non-Asian minority scores at the 75th percentile are 9.00. This falls between white and Asian scores at the 25th and 50th percentiles, but is closer to the 25th percentile. It is 0.17 of a point

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[53] See note 52, supra.

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higher than the Asian score at the 25th percentile, and one-third of a point higher than the white score at the 25th percentile. It is one point lower than scores at the median for Asians and two-thirds of a point lower than scores at the median for whites. This means that 75 percent of non-Asian minorities were admitted with scores lower than roughly 75 percent of Asians and whites.

Differences in College GPAs

A similar pattern is found comparing groups with regard to college GPAs.[54] Figures 27 and 28 display undergraduate GPAs for each group of admittees by the 25th, 50th, and 75th percentiles. Unlike test scores, there are very small differences in college GPAs.

1996

Figure 27

College GPAs, University of Oklahoma College of Medicine
1996 Admittees (25th, 50th, and 75th Percentiles)
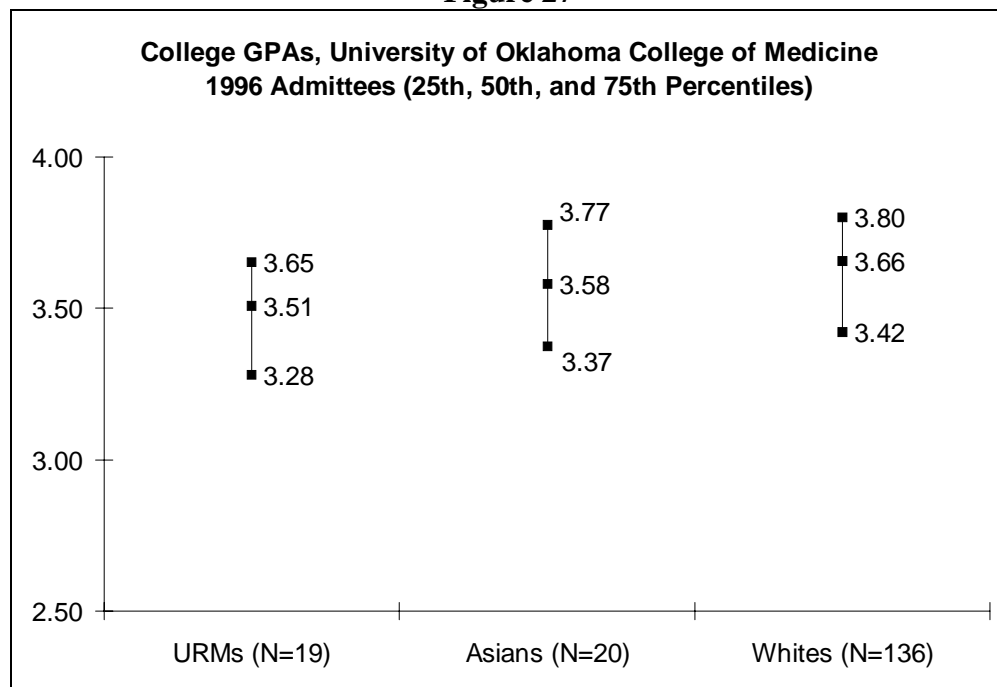
The gaps in non-Asian minority versus Asian and white college GPAs are small. The college GPAs differ by less than two-tenths of a grade-point at every level. For non-Asian minorities, the median college GPA in 1999 was 3.51, compared to 3.58 for Asians and 3.66 for whites. At the 25th percentile, the non-Asian minority GPA was 3.28, versus 3.37 for Asians and 3.42 for whites. At the 75th percentile, non-Asian minority admittees had a GPA of 3.65, versus 3.77 for Asians and 3.80 for whites.

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[54] Oklahoma reported overall college GPAs, but not science GPAs.

1999

The 1999 differences in GPAs are also fairly small. The non-Asian minority versus white and Asian gap in median GPAs is roughly two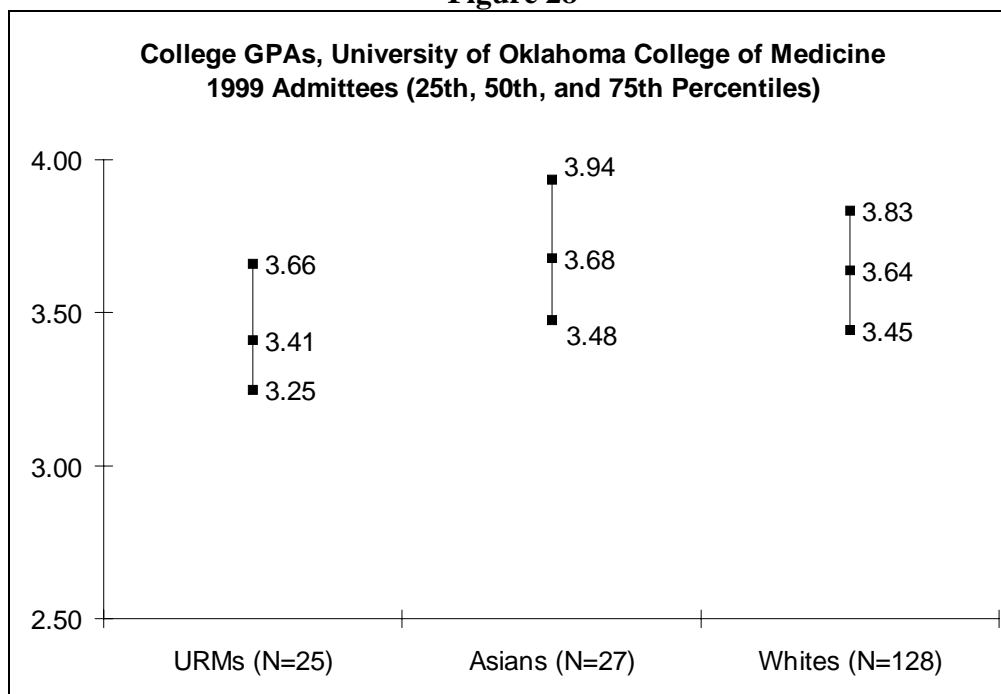 tenths of a grade-point. The median GPA for non-Asian minorities is 3.41; the median Asian GPA, 3.68; and the median GPA for whites, 3.64. The non-Asian minority GPA at the 25th percentile is 3.25, which is roughly two-tenths of a grade-point lower than that of Asian and white admittees (3.48 and 3.45, respectively).

The largest gap is between non-Asian minority and Asian GPAs at the 75th percentile. The gap is roughly three-tenths of a grade-point   3.66 for non-Asian minorities versus 3.94 for Asians (and 3.83 for whites).

Figure 28

College GPAs, University of Oklahoma College of Medicine
1999 Admittees (25th, 50th, and 75th Percentiles)

Rejectees vs. Admittees

Only 3 percent of out-of-state applicants were admitted to Oklahoma College of Medicine in 1996 and in 1999. In contrast, the College of Medicine admitted 33 percent of residents in 1996 and 50 percent in 1999. For this reason, we will focus our analysis on in-state rejectees versus admittees.

1996

Among Oklahoma residents, 31 Asian, 45 non-Asian minority, and 219 white resident applicants were rejected in 1996. Of these, 15 Asians and 66 whites were rejected despite higher college grades compared to the median GPA of non-Asian minority admittees. Four Asians and 38 whites were rejected despite having higher MCAT scores. Finally, 3 Asian and 12 white

resident applicants to the College of Medicine were rejected despite higher GPAs *and* test scores compared to the medians of non-Asian minority admittees.

1999

In 1999, Oklahoma rejected 18 Asian, 18 non-Asian minority, and 118 white resident applicants. Of these, 14 Asians and 70 whites were rejected despite higher college grades compared to the median GPA of non-Asian minority admittees. Two Asians and 46 whites were rejected despite having higher MCAT scores. Finally, 2 Asian and 29 white resident applicants to the College of Medicine were rejected despite higher GPAs *and* higher test scores compared to the medians of non-Asian minority admittees.

Odds Ratios and the Probability of Admission

The Oklahoma College of Medicine awards a substantial degree of preference to URMs over equally qualified whites and Asians, although the odds ratios are not as large as those at other schools (see Table 12).

Table 12
Odds Ratios
University of Oklahoma College of Medicine

	1996	1999
Non-Asian Minority to White	4.63*	4.85*
Asian to White	0.84	0.95
* p≤0.0001		

The non-Asian minority to white odds ratios are roughly four-and-a-half to one in 1996 and five to one in 1999. That is, a non-Asian minority applicant was four-and-a-half times more likely to be admitted over a white applicant in 1996, all other things being equal, and was five times more likely in 1999. The Asian to white odds ratios are not statistically significant in either year.

USMLE Step 1 Scores

There were sufficient numbers of blacks, Hispanics, and American Indians to treat them as separate groups for the analysis of Step 1 scores. Figure 29 displays the percentage of each group of enrollees that failed, passed, and did not take Step 1.

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Figure 29

Pass Rates for Step 1, University of Oklahoma College of Medicine, 1993-1996

Legend: Not Taken ▨ Failed ■ Passed ▦

Group	Not Taken	Failed	Passed
Blacks (N=27)	41%	19%	41%
Hispanics (N=25)	28%	8%	64%
Am. Indians (N=78)	47%	1%	51%
Asians (N=106)	37%	4%	59%
Whites (N=791)	32%	5%	63%
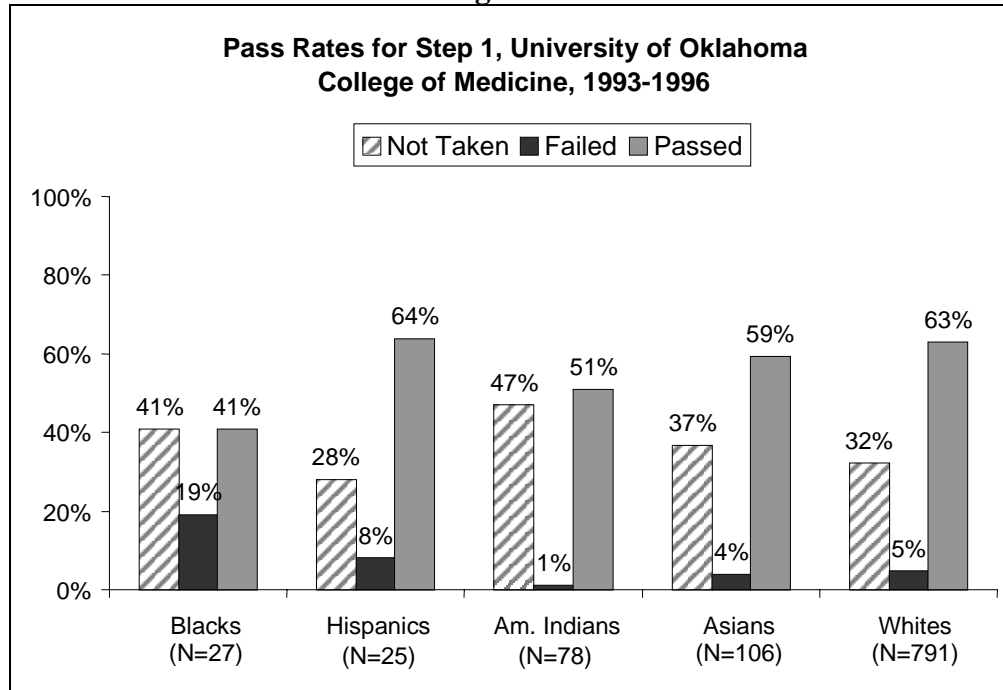
Oklahoma has very high rates of each group not taking Step 1. Nevertheless, proportionately more black and American Indian enrollees did not take Step 1 than Hispanics, Asians, and whites. Forty-one percent of blacks and 47 percent of American Indians compared to 28 percent of Hispanics, 37 percent of Asians, and 32 percent of whites did not take Step 1. Moreover, almost one in five blacks who took Step 1 failed the test, compared to 8 percent of Hispanics, 1 percent of American Indians, 4 percent of Asians, and 5 percent of whites.

Figure 30 displays USMLE Step 1 Scores at the 25th, 50th, and 75th percentiles for blacks, Hispanics, American Indians, Asians, and whites from the entering class of 1993 through 1996.

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Figure 30

Step 1 Scores, University of Oklahoma College of Medicine, 1993-1996 (25th, 50th, and 75th Percentiles)
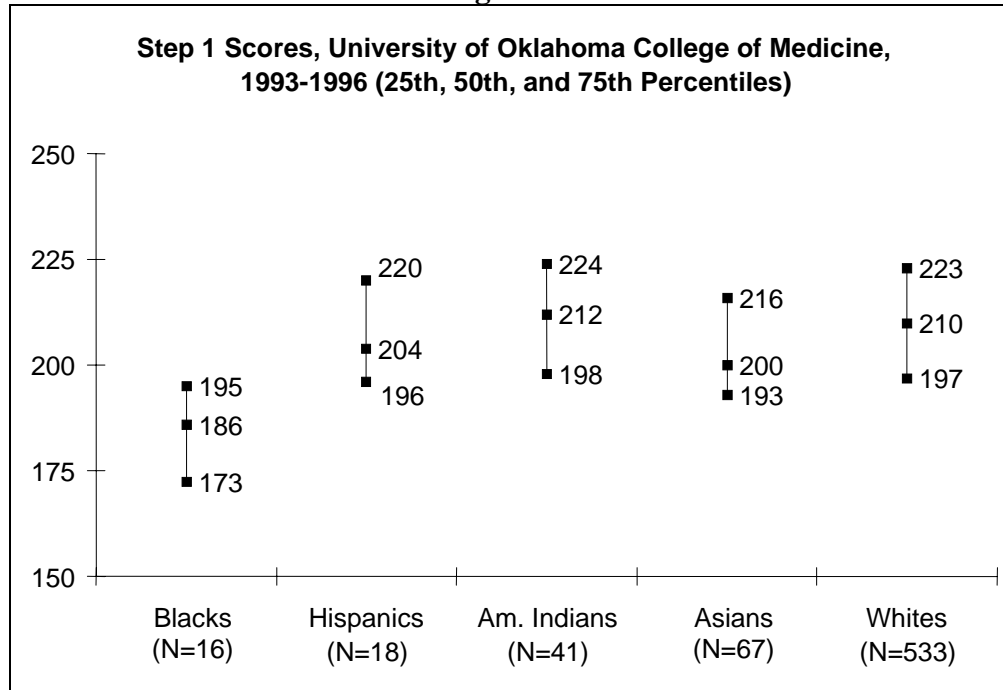
The majority of enrollees regardless of race who did take the Step 1 exam passed it above the cut-off, but Step 1 scores for blacks were much lower overall than those for the other four groups. The median Step 1 score for blacks was 186, from 14 to 26 points lower than the median scores of the other groups (204 for Hispanics, 212 for American Indians, 200 for Asians, and 210 for whites).

The Step 1 score at the 75th percentile for blacks was 195, which is roughly the same as the Step 1 scores at the 25th percentile for all other groups. This means that approximately 75 percent of blacks taking Step 1 of the USMLE had lower scores than roughly 75 percent of all other groups.

SUNY Brooklyn College of Medicine

Applicants, Admittees, and Enrollees

1996

4,832 individuals applied for admission to the SUNY Brooklyn College of Medicine in 1996.[55] 2,296 were residents of New York State. 2,171 were nonresidents. 365 (8 percent) of applicants were admitted   14 percent of residents and 0.4 percent of nonresidents. 173 enrolled. Fifty-two percent of applicants, 54 percent of admittees, and 63 percent of enrollees were white.

Applicants

- 10 percent black
- 7 percent Hispanic
- 31 percent Asian
- 52 percent white

Admittees

- 17 percent black
- 8 percent Hispanic
- 21 percent Asian
- 54 percent white

Enrollees

- 12 percent black
- 5 percent Hispanic
- 21 percent Asian
- 63 percent white

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[55] Foreign students and students listed as "Missing," "Other," Native American," and "Unknown" were dropped from the analysis.

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Overall admission rates

- 13 percent of black applicants
- 8 percent of Hispanic applicants
- 5 percent of Asian applicants
- 8 percent of white applicants

Admission rates for New York State residents

- 22 percent of black applicants
- 19 percent of Hispanic applicants
- 12 percent of Asian applicants
- 12 percent of white applicants

1999

2707 individuals applied for admission to the SUNY Brooklyn College of Medicine for the 1999 academic year. 1798 were residents of New York State. 909 were nonresidents. 425 (16 percent) of applicants were admitted   412 residents (23 percent) and 13 nonresidents (1 percent). 187 enrolled. The majority of applicants, admittees, and enrollees was white.

Applicants

- 14 percent black
- 6 percent Hispanic
- 29 percent Asian
- 51 percent white

Admittees

- 11 percent black
- 6 percent Hispanic
- 23 percent Asian
- 60 percent white

Enrollees

- 11 percent black
- 4 percent Hispanic
- 28 percent Asian
- 58 percent white

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Overall admission rates

- 14 percent of black applicants
- 13 percent of Hispanic applicants
- 12 percent of Asian applicants
- 18 percent of white applicants

Admission rates for New York State residents

- 23 percent of black applicants
- 21 percent of Hispanic applicants
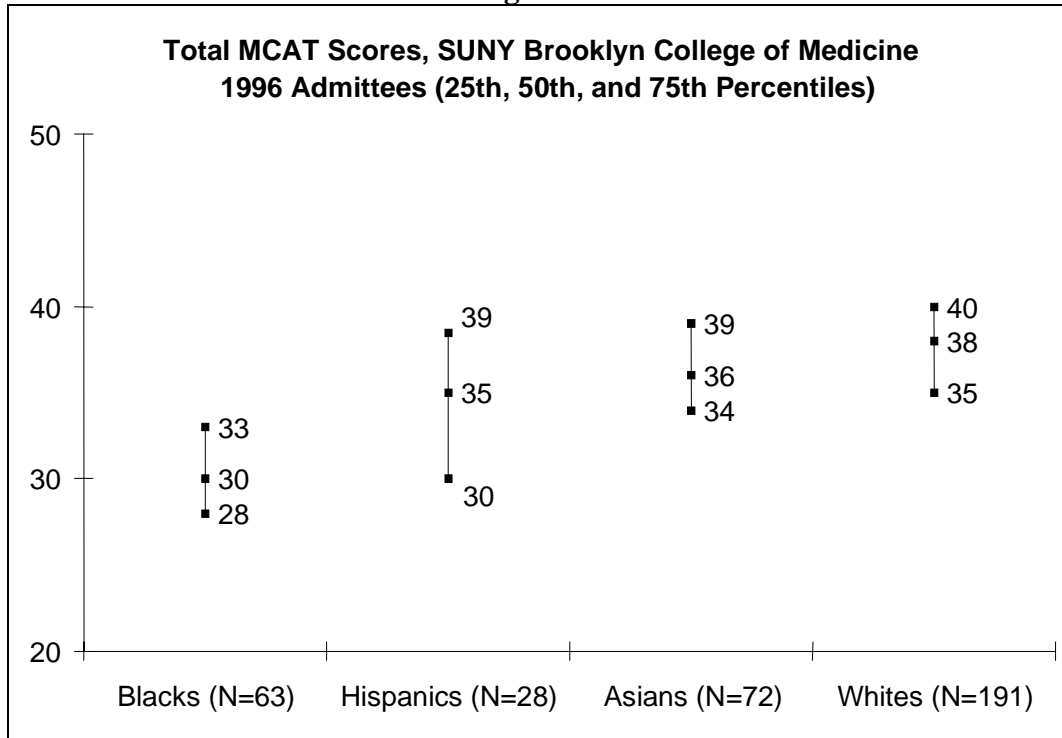- 20 percent of Asian applicants
- 24 percent of white applicants

Differences in MCAT Scores

1996

Figure 31 shows the total MCAT score for SUNY Brooklyn admittees in 1996 by racial and ethnic groups. [56]

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[56] See the earlier section, "Methodology," for a detailed discussion on the calculation of the total MCAT score.

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Figure 31

Total MCAT Scores, SUNY Brooklyn College of Medicine
**1996 Admittees (25th, 50th, and 75th Percentiles)**

The largest gaps are between blacks and the other groups. Black admittee scores are much lower than those of other admittees at the 50th and 75th percentiles. At the 25th percentile, the black-Hispanic difference is only 2 points, but the gap is 6 points there between blacks and Asians and 7 points between blacks and whites. The black median score is 8 points lower than the median of white admittees, 6 points lower than the Asian median, and 5 points lower than the Hispanic median. The black MCAT score at the 75th percentile is lower than the Hispanic median, and the Asian and white scores at the 25th percentile. This means that 75 percent of blacks were admitted with lower test scores compared to the average Hispanic and compared to 75 percent of Asian and white admittees.

White and Asian scores are roughly the same, while Hispanic scores are somewhat lower, particularly among the bottom half of Hispanic admittees. The total MCAT score at the 75th percentile for whites is 40, and 39 for both Asians and Hispanics. The scores at the median are roughly the same for whites, Asians, and Hispanics, with the white median a bit higher. The scores at the median are 38 for whites, 36 for Asians, and 35 for Hispanics.

The gaps between Hispanics versus whites and Asians are largest around the 25th percentile. Hispanic MCAT scores are four points lower than those of Asian admittees, and five points lower than those of white admittees.

Figure 32

Total MCAT Scores, SUNY Brooklyn College of Medicine
1999 Admittees (25th, 50th, and 75th Percentiles)
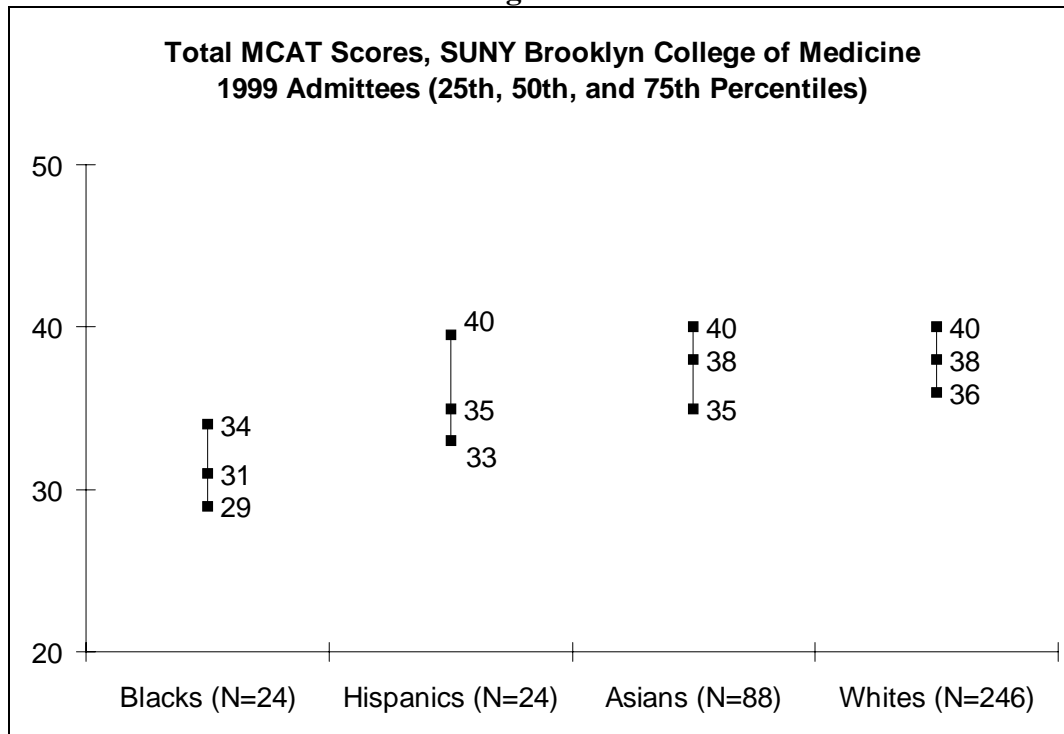
In 1999, the patterns were similar to those in 1996. Blacks were generally admitted to SUNY Brooklyn with lower MCAT scores compared to Hispanics, Asians, and whites. The median MCAT score for blacks was 31, four points lower than the median for Hispanic admittees (35), and seven points lower than that for Asians and whites (38 for each group). The black MCAT score at the 25th percentile is four points lower than the 25th percentile score for Hispanics (33), six points lower than the 25th percentile score for Asians (35), and seven points lower than the 25th percentile score for whites (36).

At the other end, the 75th percentile score for blacks is also lower than corresponding scores for Hispanic, Asian, and white admittees (a score of 40 for all three groups.) The MCAT score for black admittees at the 75th percentile is slightly lower than the median for Hispanics, and is lower than the MCAT score for white and Asian admittees at the 25th percentile. This means that 75 percent of blacks were admitted with lower MCAT scores than half the Hispanics admitted and over three-quarters of Asian and white admittees.

White and Asian scores are roughly the same, and Hispanics scores are slightly lower. The Hispanic median (35) is three points lower than the Asian and white medians (38 for each group). The Hispanic score at the 75th percentile (40) is the same as that for Asians and whites, while the Hispanic score at the 25th percentile (33) is two points lower than the Asian score (35) and three points lower than the white score (36).
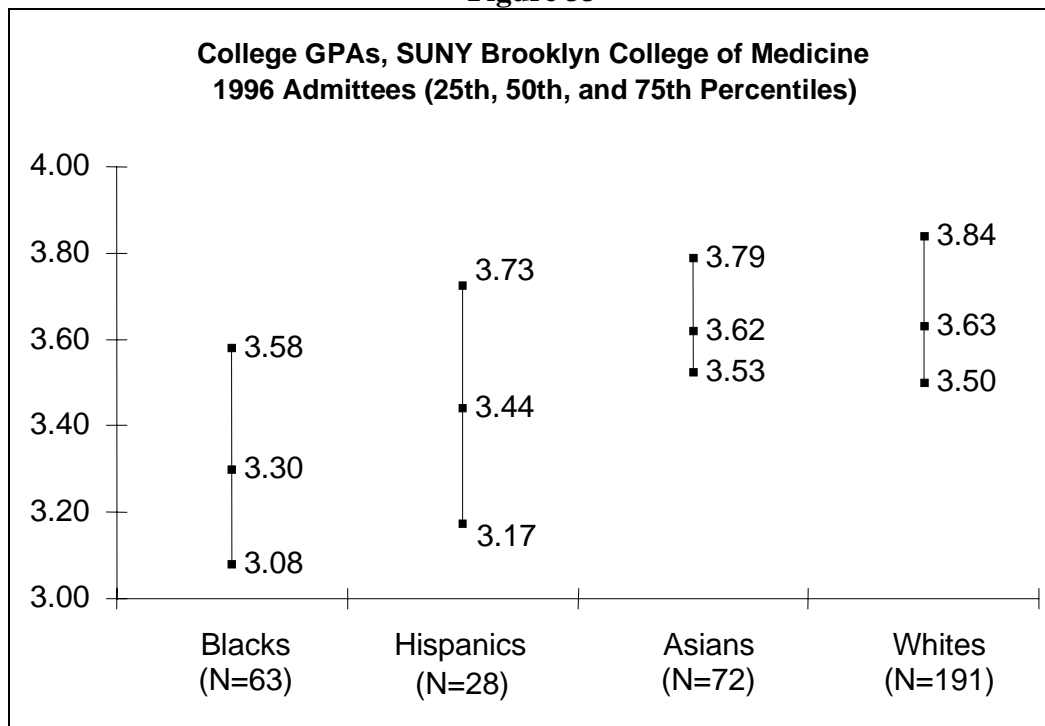
Differences in College GPAs

A similar pattern is found comparing groups with regard to college GPAs, but the gaps are smaller. Figures 33 and 34 display undergraduate GPAs for each group by percentiles for 1996 and 1999.

1996

In 1996, white and Asian admittees had higher GPAs than blacks and, to a lesser extent, than Hispanic admittees. The median GPAs for Asians and whites are 3.62 and 3.63, respectively—roughly three-tenths of a grade-point higher than the median GPA for black admittees and two-tenths of a grade-point higher than that for Hispanics.

Figure 33

The differences between Asians and whites on the one hand and blacks on the other emerge when we look at the range of GPAs. The range of GPAs for Asians and whites is much narrower than those for blacks and, to a lesser extent, Hispanics. The college GPA at the 25th percentile for Asians and whites is 3.53 and 3.50, respectively. This is somewhat higher than the median GPA for Hispanics. Moreover, it is only slightly lower than the GPA at the 75th percentile for black admittees. This means that 75 percent of whites and Asians are admitted to SUNY Brooklyn with college grades roughly equal to or better than all but the top 25 percent of black admittees.

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1999

As in 1996, 1999 white and Asian admittees were admitted with higher GPAs than blacks and, to a lesser extent, than Hispanic admittees. There is a moderate gap in median college grades. As in 1996, the median GPAs for Asians and whites are 3.62 and 3.63, respectively— roughly three-tenths of a grade-point higher than the median GPA of black admittees (3.27) and slightly more than two-tenths of a grade-point higher than that for Hispanics (3.39).

Figure 34

College GPAs, SUNY Brooklyn College of Medicine
1999 Admittees (25th, 50th, and 75th Percentiles)
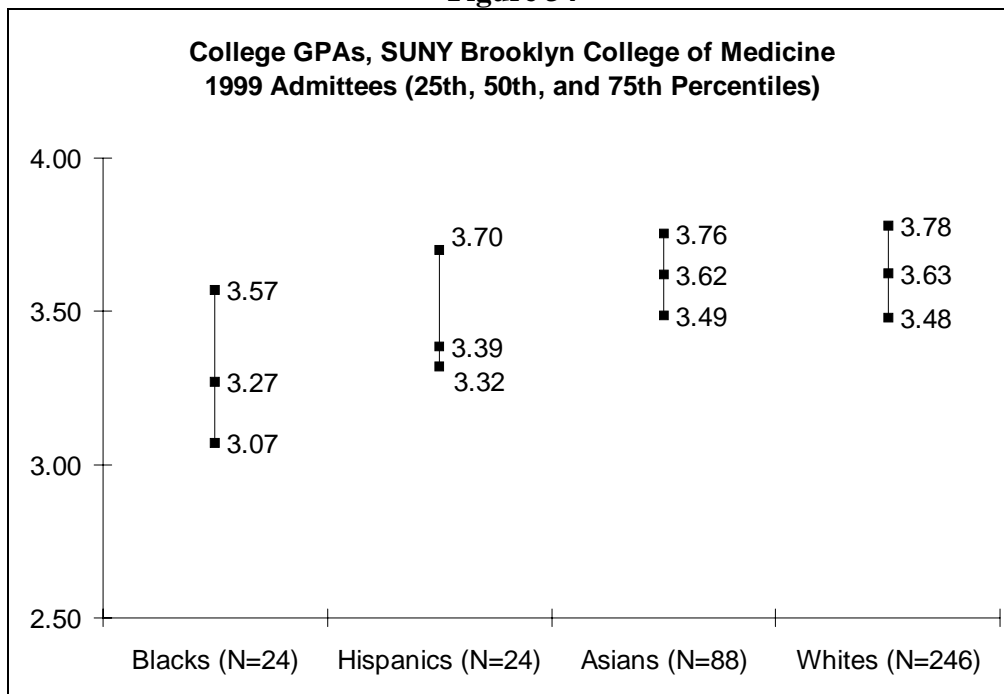
At the 75th percentile, the GPA for black admittees (3.57) is lower than the median GPA for whites and Asians. At the 50th percentile, the GPA for blacks is lower than the GPA for Hispanics, Asians, and whites at the 25th percentile. This means that half the blacks admitted in 1999 had lower college GPAs than 75 percent of Hispanics, Asians, and whites. At the 25th percentile, black GPAs (3.07) are over two-tenths of a point lower than those for Hispanics (3.32) and over four-tenths of a point lower than those for Asians (3.49) and whites (3.48).

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Rejectees vs. Admittees

The admission rates for nonresident applicants was very low for 1996 and 1999. Only 8 out of 2,171 nonresidents were admitted to SUNY Brooklyn in 1996, and only 13 out of 909 nonresidents were admitted in 1999. For this reason, we will focus our analysis on in-state rejectees versus admittees.

1996

Among New York State residents, SUNY Brooklyn rejected 577 Asians, 223 blacks, 119 Hispanics, and 1,377 whites. Of these, 279 Asians, 23 Hispanics, and 744 whites were rejected despite higher college grades compared to the median GPA of black admittees. 419 Asians, 49 Hispanics, and 1,043 whites were rejected despite having higher MCAT scores compared to the average black admittee. SUNY Brooklyn rejected 251 Asians, 11 Hispanics, and 587 whites with both higher grades *and* test scores compared to median college grades and test scores of black admittees.

1999

Among New York State residents, SUNY Brooklyn rejected 356 Asians, 191 blacks, 74 Hispanics, and 765 whites. Of these, 424 Asians, 53 Hispanics, and 751 whites were rejected despite higher college grades than the median GPA of black admittees. 479 Asians, 46 Hispanics, and 803 whites were rejected despite having higher MCAT scores than the average black admittee. Lastly, in 1999, SUNY Brooklyn rejected 329 Asians, 22 Hispanics, 540 whites with higher grades *and* test scores compared to the median college grades and test scores of black admittees.

Odds Ratios and the Probability of Admission

SUNY Brooklyn awards an extremely large degree of preference to blacks and a lesser, but still large, preference to Hispanic applicants. This applies to both 1996 and 1999 applicants (see Table 13).

Table 13
Odds Ratios
SUNY Brooklyn College of Medicine

|	1996	1999
Black to White	22.56*	9.44*
Hispanic to White	5.73*	4.08*
Asian to White	1.03	0.76
*p $\leq$ 0.0001		

In 1996, controlling for MCAT scores and college grades, the relative odds favoring a black applicant being admitted over a white applicant were roughly 23 to 1. For a Hispanic applicant, they were about 6 to 1, while they were about 1 to 1 (i.e., no preference) for Asians.

In 1999, the odds ratios of blacks to whites and Hispanics to whites were smaller than those in 1996. The odds of a black being admitted over a white controlling for other, nonracial factors was roughly 9 to 1—large, but not as large as the odds in 1996. The odds favoring a Hispanic over a white in 1999 were 4 to 1. Both were statistically significant. The odds ratio for Asians to whites in 1999 was 0.76, and was not statistically significant.

USMLE Step 1 Scores

Differences in academic qualifications among racial and ethnic groups are also reflected in differences in performance on USMLE Step 1.

Figure 35 shows the percentage of each group of enrollees that passed, failed, and did not take Step 1.

Figure 35

Pass Rates for Step 1, SUNY Brooklyn
College of Medicine, 1996
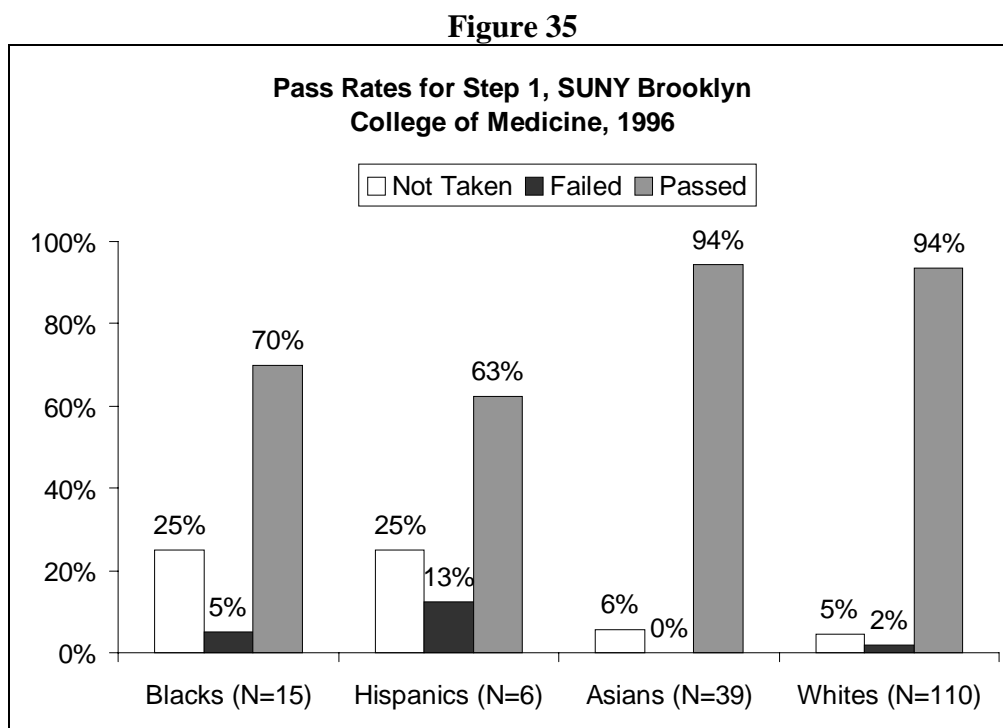
Five percent of blacks and 13 percent of Hispanics failed Step 1, while one in four black and Hispanic enrollees did not take the test. In contrast, no Asians failed Step 1, and only 6 percent did not take the test. Two percent of white enrollees failed Step 1, and only 5 percent did not take it.

Along with different pass-fail rates, there are also differences in actual scores among blacks, Hispanics, whites, and Asians. Figure 36 displays USMLE Step 1 scores at the 25th, 50th, and 75th percentiles for blacks, Hispanics, Asians, and whites in 1996.[57]

Figure 36

USMLE Step 1 Scores, SUNY Brooklyn College of Medicine, 1996 (25th, 50th, and 75th Percentiles)
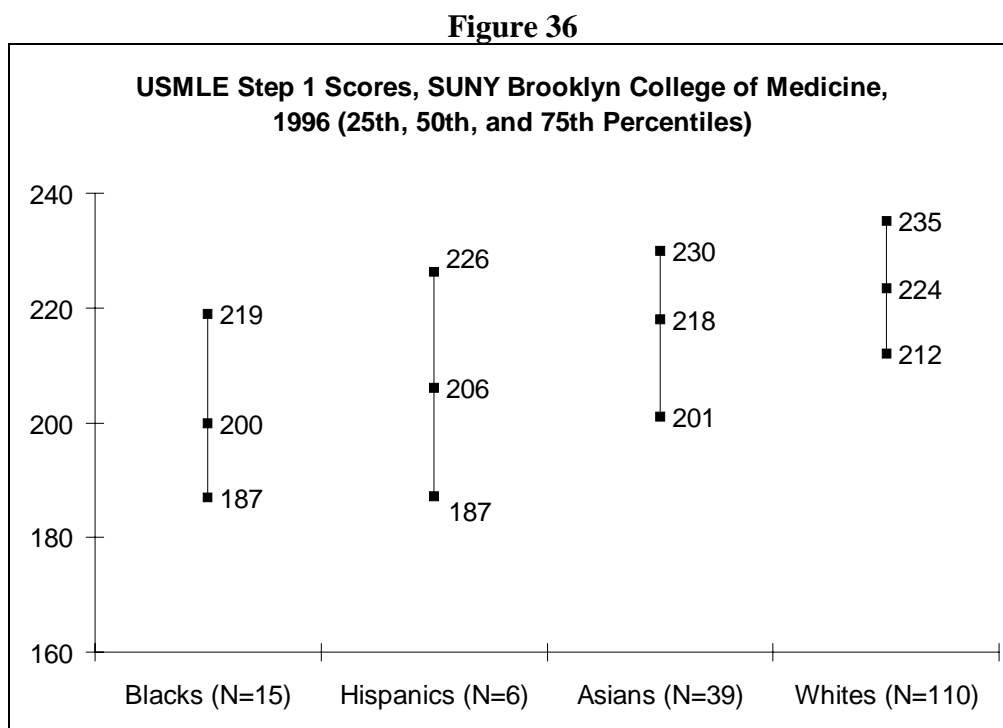
Step 1 scores for black enrollees are lower than those for the other groups. The median Step 1 score is 18 points lower than the median score of Asian enrollees, and 24 points lower than that of white enrollees. The black median, in fact, is lower than the Step 1 score of Asian and white enrollees at their 25th percentiles.

Hispanic scores are more varied. Step 1 scores of Hispanic enrollees below the median are comparable to those for black enrollees; those at the 75th percentile and above are somewhat lower than those in the top quartile for Asian and white enrollees.

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[57] Step 1 scores were not available after 1996.

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The University of Washington School of Medicine

Applicants, Admittees, and Enrollees

1997

In 1997, 3,029 individuals applied for admission to the University of Washington School of Medicine.[58] 997 were residents of Washington, Alaska, Montana, or Idaho.[59] 2,032 were nonresidents. 221 of applicants (7 percent) were admitted—18 percent of residents and 2 percent of nonresidents. 164 enrolled. The majority of applicants, admittees, and enrollees was white.

Applicants

- 4 percent black
- 7 percent Hispanic
- 24 percent Asian
- 65 percent white

Admittees

- 6 percent black
- 6 percent Hispanic
- 14 percent Asian
- 75 percent white

Enrollees

- 3 percent black
- 4 percent Hispanic
- 12 percent Asian
- 81 percent white

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[58] Foreign students and students listed as "Missing," "Other," "Native American," and "Unknown" were dropped from the analysis.

[59] The University of Washington School of Medicine is the only medical school that provides public medical education to the residents of these four states. Residents of these four states receive preference (*Barron's*, p. 309). "In-state residents" refers to legal residents of these four states. See Dr. Saul Wischnitzer with Edith Wischnitzer, *Barron's Guide to Medical and Dental Schools*, 8th ed. (Hauppauge, NY: Barron's Educational Series, Inc., 1997): 309.

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Overall admission rates

- 9 percent of black applicants
- 9 percent of Hispanic applicants
- 4 percent of Asian applicants
- 8 percent of white applicants

Admission rates for in-state residents

- 18 percent of black applicants
- 19 percent of Hispanic applicants
- 13 percent of Asian applicants
- 19 percent of white applicants

1999

In 1999, 2,797 individuals applied for admission to the University of Washington School of Medicine. 900 were residents of Washington, Alaska, Montana, or Idaho. 1,997 were nonresidents. 225 applicants (8 percent) were admitted—21 percent of residents and 2 percent of nonresidents. 169 enrolled. The majority of applicants, admittees, and enrollees was white.

Applicants

- 6 percent black
- 7 percent Hispanic
- 23 percent Asian
- 64 percent white

Admittees

- 4 percent black
- 6 percent Hispanic
- 16 percent Asian
- 74 percent white

Enrollees

- 2 percent black
- 4 percent Hispanic
- 15 percent Asian
- 78 percent white

Overall admission rates

- 6 percent of black applicants
- 7 percent of Hispanic applicants
- 5 percent of Asian applicants
- 9 percent of white applicants

Admission rates for in-state residents

- 25 percent of black applicants
- 8 percent of Hispanic applicants
- 20 percent of Asian applicants
- 21 percent of white applicants

Differences in MCAT Scores

There are small differences between 1997 and 1999, with gaps between groups not being as large in 1999 as they were in 1997. Figures 37 and 38 show the total MCAT scores for University of Washington School of Medicine admittees, by racial and ethnic groups. [60] We examine data on all admittees, residents and nonresidents alike, so that the percentile scores may be compared to those from other medical schools.

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[60] See the earlier section, "Methodology," for a detailed discussion on the calculation of the total MCAT score.

Figure 37

Total MCAT Scores, University of Washington School of Medicine 1997 Admittees (25th, 50th, and 75th Percentiles)
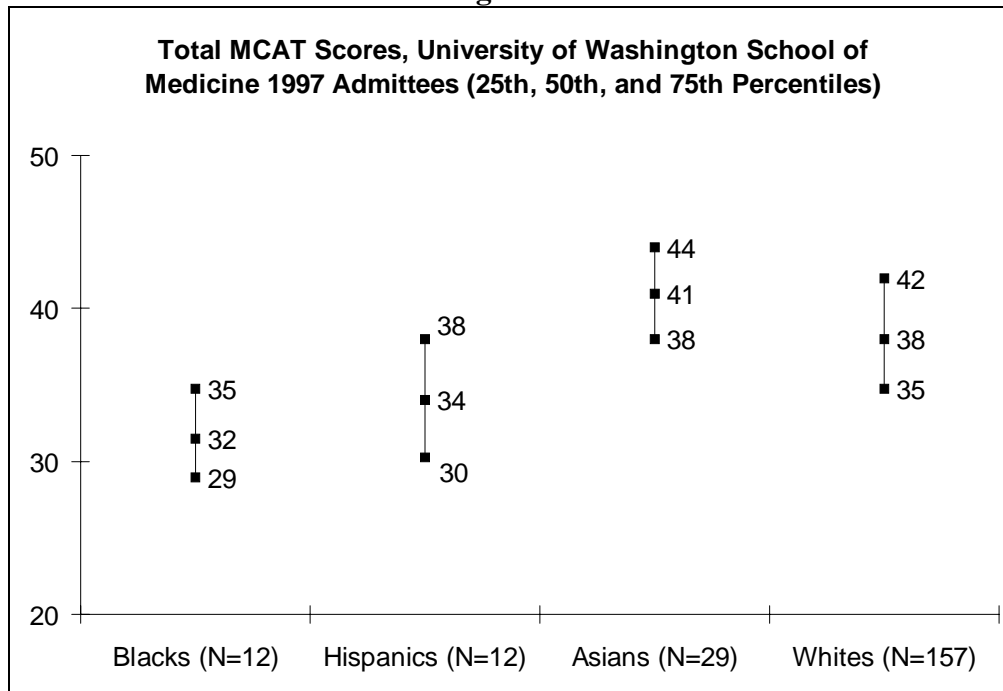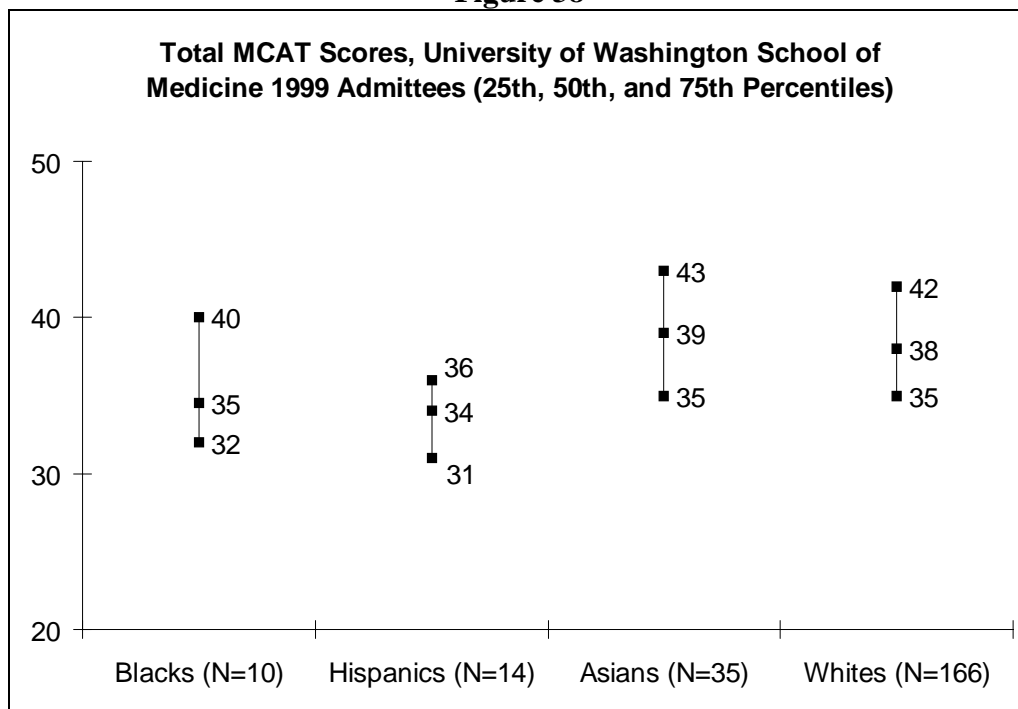

Black and Hispanic total MCAT scores are substantially lower than Asian and white scores. The median black MCAT score is 32, which is nine points lower than the median Asian score (41), and six points lower than the median white score (38). The Hispanic median MCAT score of 34 is seven points lower than the Asian score and four points lower than the median white score.

Black and Hispanic non-median scores are also generally lower than those of Asians and whites. The MCAT score for blacks at the 75th percentile is 35, which is one point lower than the median Hispanic score. It is, moreover, the same as the MCAT score for whites at the 25th percentile, and three points lower than the score for Asians at the 25th percentile (38). This means that 75 percent of blacks admitted to the medical school had MCAT scores lower than half the Hispanics and 75 percent of whites and Asians.

Gaps between whites and Hispanics and between Asians and whites are smaller. Still, the Hispanic score at the 75th percentile is the same as the white median and Asian scores at the 25th percentile. Thus, 75 percent of Hispanics were admitted with scores equal to or lower than half the white admittees, and 75 percent of Asians.

Figure 38

Total MCAT Scores, University of Washington School of Medicine 1999 Admittees (25th, 50th, and 75th Percentiles)

Test scores in 1999 do not noticeably improve for Hispanic admittees, but significantly improve for blacks. There are still gaps between blacks compared to Asians and whites, with the black median four points lower than the Asian median and three points lower than the white median. But this is less than in 1997, where there was a nine-point gap between blacks and Asians and a six-point gap between blacks and whites. The Hispanic median is the same as in 1997.

Black scores at the 25th percentile are three points higher in 1999 than in 1997. Black scores at the 75th percentile are also higher in 1999: It falls between the median and 75th percentile score for Asians and for whites while, in 1997, the black score at the 75th percentile was equal to or lower than the 25th percentile score for these two groups.

Differences in Science GPAs

A similar pattern is found comparing groups with regard to college GPAs: Differences in science GPAs are smaller in 1999 than in 1997. Figures 39 and 40 display undergraduate science GPAs for each group at the 25th, 50th, and 75th percentiles.

1997

Figure 39

**Science GPAs, University of Washington School of Medicine
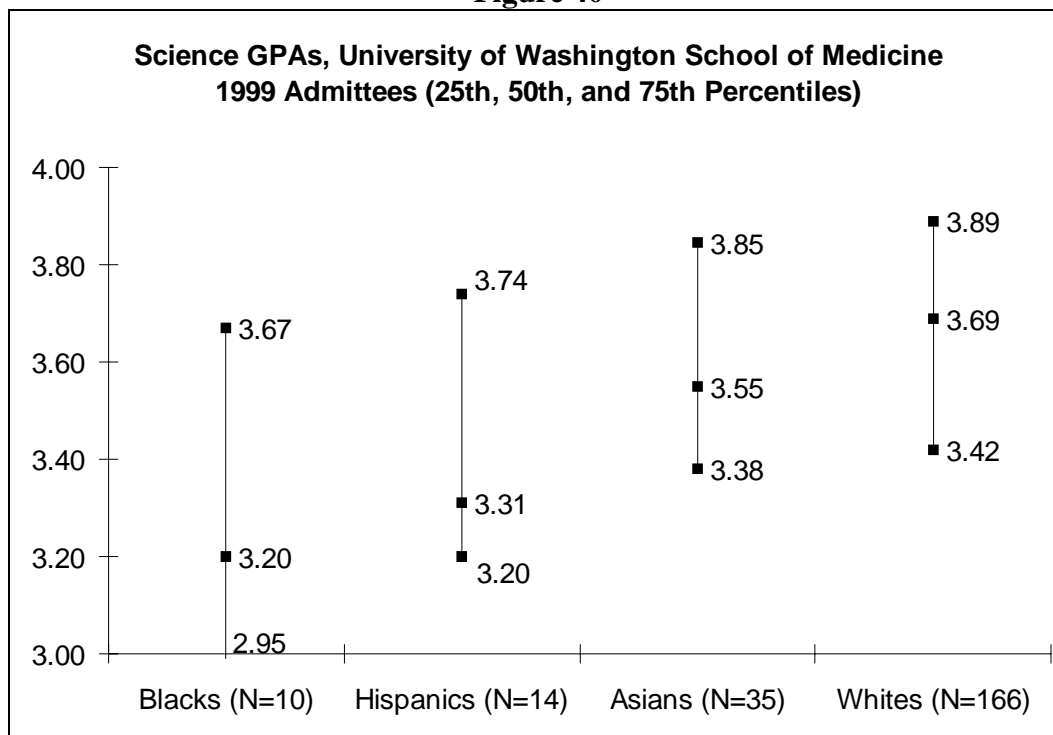1997 Admittees (25th, 50th, and 75th Percentiles)**
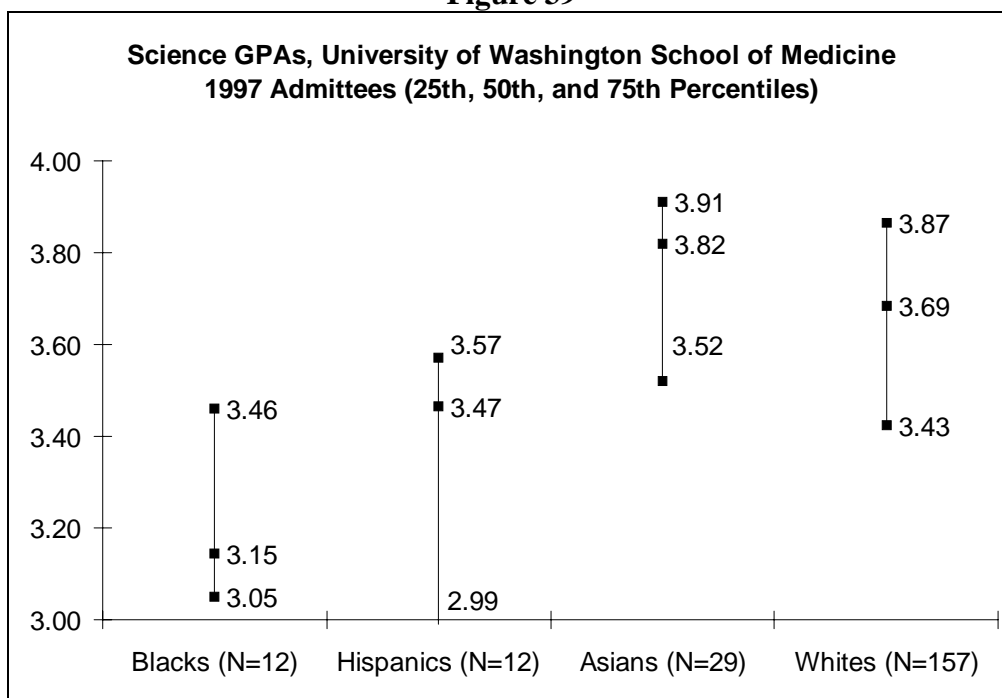
In 1997, science GPAs of blacks and, to a lesser extent, Hispanics were lower than science GPAs of Asians and whites. The median science GPA of black admittees was 3.15. It was almost seven-tenths of a point lower than the median GPA of Asians (3.82), and roughly half a grade-point lower than the median GPA of whites (3.69). At the 75th percentile, the science GPA of black admittees was roughly the same as the science GPAs at the 25th percentile for Asian and white admittees.

For Hispanic admittees, the median science GPA (3.47) was lower than that for Asians (3.82) and whites (3.69). The gap was 0.35 between Hispanic and Asian admittees, and is roughly two-tenths of a point between Hispanics and whites. The Hispanic median is lower than Asian scores at the 25th percentile (3.52) and only a little higher than the white 25th percentile score (3.43).

The gaps are larger at the lower end of the grade distribution. At the 25th percentile, black admittees' science GPA was 3.05, while the Hispanic science GPA was 2.99. In contrast, the Asian and white GPAs at the 25th percentile were 3.52 and 3.43, respectively—roughly a half-a point higher for Asians, and four-tenths of a point higher for whites.

Figure 40

**Science GPAs, University of Washington School of Medicine
1999 Admittees (25th, 50th, and 75th Percentiles)**

In 1999, the gaps between black and Hispanic grades compared to white and Asian grades are somewhat smaller than those in 1997. Black and Hispanic scores at the 25th and 50th percentiles are still lower than the scores for Asians and whites. The median science GPA for black admittees in 1999 was 3.20. It is 0.35 lower than the median GPA for Asians, and half a grade point lower than the white median. It is lower than the GPAs for Asians and for whites at the 25th percentile (3.38 and 3.42, respectively).

The Hispanic median is 3.31 in 1999. It is lower than the Hispanic median in 1997 (3.47), and also lower than the Asian and white medians in 1999 (3.55 and 3.69, respectively). Like the median GPA for blacks, it is lower than the GPAs for Asians and for whites at the 25th percentile.

The smallest gaps between blacks and Hispanics on the one hand and whites and Asians on the other are at the 75th percentile. The GPA at the 75th percentile for black admittees in 1999 is 3.67. It is roughly two-tenths of a grade point higher than the GPA at the 75th percentile for black admittees in 1997, but is still two-tenths of a grade point lower than the Asian and white admittees' GPA at the 75th percentile. The Hispanic GPA at the 75th percentile is also two-tenths of a point higher than it was in 1997. It is somewhat lower than the Asian science GPA (3.74 compared to 3.85) and white science GPA (3.74 compared to 3.89) at the same percentile.

Rejectees vs. Admittees

1997

In 1997, only 31 out of 2,032 nonresidents were admitted to the University of Washington School of Medicine. 2,001 were rejected. For this reason, we will focus our analysis on in-state rejectees versus admittees.

Among in-state residents, the University of Washington School of Medicine rejected 157 Asians, 9 blacks, 4 Hispanics, and 151 whites. Of these, 111 Asians, 10 Hispanics, and 471 whites were rejected despite higher undergraduate science grades compared to the median science GPA of black admittees. 102 Asians, 10 Hispanics, and 435 whites were rejected despite having higher MCAT scores compared to the average black admittee. Lastly, the University of Washington School of Medicine rejected 81 Asian, 6 Hispanic, and 345 white in-state applicants with better science grades *and* higher test scores compared to the median college grades and MCAT score of black admittees.

1999

In 1999, 39 out of 1,997 nonresidents were admitted. Among in-state residents, the University of Washington School of Medicine rejected 121 Asians, 18 blacks, 22 Hispanics, and 553 whites. Of these, 76 Asians, 10 Hispanics, and 386 whites were rejected despite higher science GPAs than the median GPA of black admittees. Fifty-six Asians, 5 Hispanics, and 290 whites were rejected despite having higher MCAT total scores. Lastly, the University of Washington School of Medicine rejected 37 Asian, 7 Hispanic, and 229 white in-state applicants with better grades *and* higher test scores compared to the median science GPA and MCAT score of black admittees.

Odds Ratios and the Probability of Admission

The University of Washington School of Medicine awarded a large degree of preference to blacks in 1997, but awarded only a moderate degree of preference to blacks over whites in 1999 (see Table 14). In both years, a moderate degree of preference was also given to Hispanics over whites.

Table 14
Odds Ratios
University of Washington School of Medicine

	1997	1999
Black to White	29.89*	4.01**
Hispanic to White	4.86*	4.86*
Asian to White	0.71	0.90
*p≤0.0001 **p≤0.001		

In 1997, the black-white odds ratio was almost 30 to 1, meaning that the relative odds favoring black over white applicants were 30 to 1, all other things being equal. The Hispanic-white odds ratio in 1997 was almost 5 to 1. The black-white and Hispanic-white odds ratios are statistically significant.
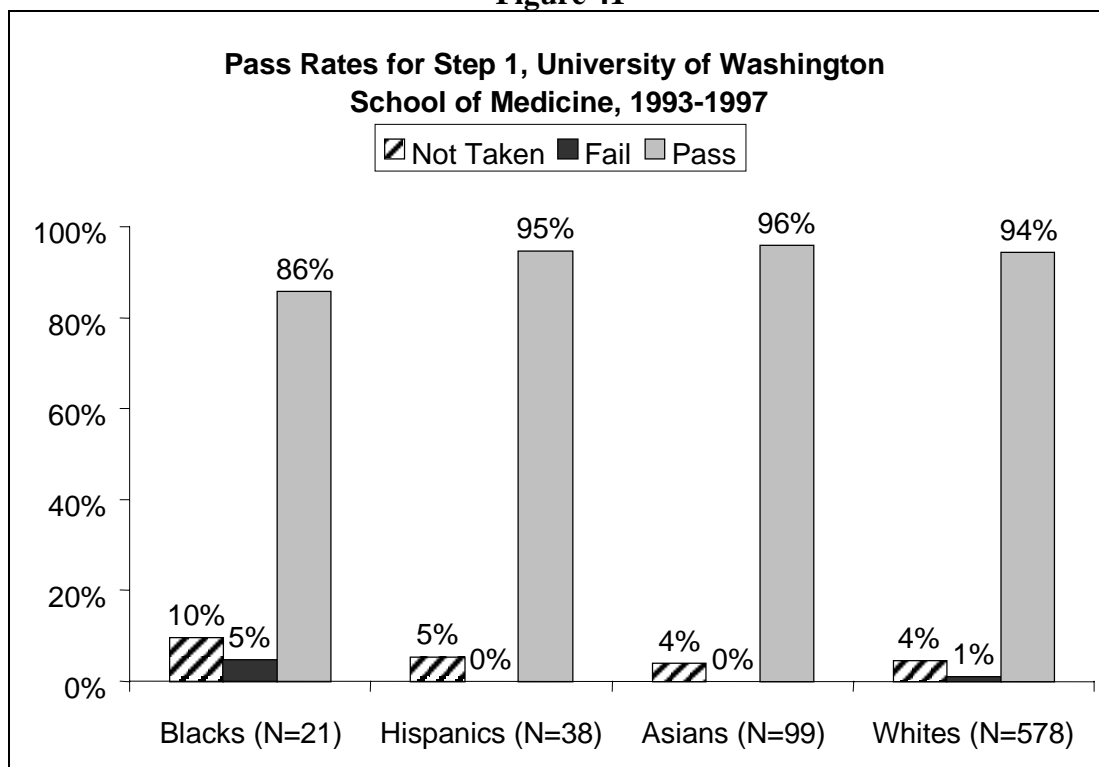
In 1999, the Hispanic-white odds ratios were the same as those in 1997, but black-white odds ratios fell from almost 30 to 1 to about 4 to 1. The latter is lower than the Hispanic-white odds ratios in 1999. Asian-to-white odds ratios in 1997 and 1999 are small and not statistically significant.

USMLE Step 1 Scores

The University of Washington School of Medicine provided Step 1 scores from 1993 through 1997.[61] Unlike other schools in our study, Step 1 scores were kept by the University of Washington in the form of "pass-fail," as opposed to the actual score. While the statistical picture is thus less detailed, we still find differences among groups. Differences in academic qualifications among racial and ethnic groups are reflected in differences in USMLE Step 1 results. Figure 41 displays the pass-fail rates for blacks, Hispanics, Asians, and whites.

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[61] When CEO obtained the data, there were no Step 1 scores for the 1998 and 1999 first-year classes.

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Figure 41

Pass Rates for Step 1, University of Washington School of Medicine, 1993-1997

Legend: ◪ Not Taken ■ Fail ▨ Pass

Chart data:

Group	Not Taken	Fail	Pass
Blacks (N=21)	10%	5%	86%
Hispanics (N=38)	5%	0%	95%
Asians (N=99)	4%	0%	96%
Whites (N=578)	4%	1%	94%

A larger proportion of blacks did not take or failed Step 1 compared to other groups. Five percent of blacks failed Step 1, as did 1 percent of whites, but no Hispanics and Asians. Ten percent of blacks, 5 percent of Hispanics, 4 percent of Asians, and 4 percent of whites did not take Step 1.