Minority and Nonminority Pediatricians’ Care of Minority and Poor Children

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Background: Although it has been established that minority physicians tend to see more minority and more poor or uninsured patients, pediatrics as a specialty has not been studied in this regard.

Objective: To determine if minority pediatricians disproportionately provide care to minority children and to poor and uninsured children, relative to nonminority pediatricians, while controlling for possible confounding variables (socioeconomic background, sex, use of non-English languages in practice, and subspecialty training).

Methods: In 1996, a stratified random sample of 1044 pediatricians, half of whom were underrepresented minorities (URMs) (African, Native, and Mexican Americans, mainland Puerto Ricans, and other Hispanics) and half of whom were Asian or Pacific Islanders, commonwealth Puerto Ricans, and whites (non-URMs), were surveyed about personal, practice, and patient characteristics.

Results: Multivariate analyses reveal that, independent of other variables, being a URM pediatrician is significantly (P = .001) and positively associated with caring for a greater proportion of minority and Medicaid-insured or uninsured patients. Underrepresented minority pediatricians saw 24 percentage points more minority patients and 13 percentage points more Medicaid-insured or uninsured patients than did non-URM pediatricians.

Conclusions: Compared with what non-URM pediatricians report, URM pediatricians report caring for significantly (P = .001) more minority and poor and uninsured patients. Given the few pediatricians who are URM, non-URM pediatricians should be adequately prepared to provide care for minority patients, as the proportion of minority children is high and will be increasing significantly in the next several years. Most important, efforts to ensure a racially and ethnically diverse health care workforce should be greatly enhanced, as its diversity, and hence representativeness, will improve the health care system for all Americans.


Research examining the relationship between physician race or ethnicity and the race or ethnicity of patients has produced fairly consistent results, demonstrating that there is a strong positive correlation between physician race or ethnicity and patient race or ethnicity. Minority physicians tend to report caring for more minority patients than do nonminority physicians, and minority patients have a higher likelihood of consulting a minority physician than do nonminority patients. Several studies have shown an apparent specific race or ethnicity pairing between physicians and patients, whereas other studies have found a more general relationship (ie, minority patients of nonspecified racial or ethnic status seeing more nonwhite physicians).

Besides serving more minority patients, minority physicians, compared

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SUBJECTS AND METHODS

We developed a questionnaire inquiring about the racial or ethnic and socioeconomic background of pediatricians and their patients, which we pretested with a sample of minority and nonminority pediatricians. In the fall of 1996, this questionnaire was sent to a stratified random sample of 1044 pediatricians obtained from the Association of American Medical Colleges’ Student and Applicant Information System. The Student and Applicant Information System was designed to track self-reported demographic information on all applicants and matriculants of US medical colleges and includes detailed race and ethnicity data. Half of the sample were classified by the Association of American Medical Colleges as underrepresented minority (URM) pediatricians (African, Native, and Mexican Americans and mainland Puerto Ricans). “Other Hispanics” were also included in this half of the sample. The other half of the sample (non-URM pediatricians) were Asian or Pacific Islanders, commonwealth Puerto Ricans, and whites. The URM/non-URM designation is based on the proportion of medical school applicants and matriculants from the various racial or ethnic groups relative to the proportion of the same groups in the general population (eg, there are proportionately fewer African American medical school applicants than there are African Americans in the general population). The population of pediatricians from which this sample was drawn was 90.2% non-URM and 9.8% URM. Our interest in pediatricians using non-English languages in practice led us to include other Hispanics in the URM category (thus, oversampling them). Because the actual number of URM pediatricians is small, 64% of all URM pediatricians were included in the sample, vs 7% of all non-URM pediatricians. All pediatricians in the sample had graduated from US medical schools between 1983 and 1989; the Student and Applicant Information System began in 1983, and 1989 was considered the latest year of graduation that would allow a new physician enough years to complete residency training and establish a practice by the survey year of 1996. After 5 mailings, the response rate was 60%. Non-URM pediatricians were significantly more likely to respond (63.0% vs 54.0%; χ²=8.7, P<.005). There were no sex or age differences in the likelihood of responding.

We used χ² tests, t tests, analyses of variance (ANOVAs), and multiple regression statistics to compare self-reported personal, practice, and patient characteristics of URM and non-URM pediatricians, and we used respondents’ racial or ethnic self-identification from the questionnaire (which rarely differed from the Association of American Medical Colleges’ designation). The dependent variables are the respondents’ estimated percentage of patients who are minority (African American, Hispanic, Asian or Pacific Islander, and Native American) and the estimated percentage of patients who either are uninsured or are enrolled in the Medicaid program. All multiple regressions and ANOVAs were also done using a logit transformation of the percentages used as the dependent variables. These models were all close to the regressions shown on the untransformed percentages and, in particular, produced no changes in the significance of any of the variables.

Our independent variable of primary interest is the minority status of the pediatrician (URM or non-URM). Our confounding variables are personal and training characteristics of the pediatricians: sex; use of non-English languages by the pediatricians in their practice; variables assessing the socioeconomic background of the pediatrician, ie, highest educational level of either parent (college graduate vs less than college graduate); highest occupational level of either parent (health, business, or other professional vs other occupations); whether the pediatrician had a service obligation with the National Health Service Corps (NHSC); educational debt on graduation; and educational debt remaining at the time of the questionnaire. These socioeconomic background variables have been studied in relation to physicians in general and to the socioeconomic characteristics of their patients. In addition, completion of pediatric subspecialty training is also considered a confounding variable, as subspecialty fellowship training may lead to a career in an academic medical center, many of which disproportionately serve poor, inner-city communities. The interactions of each of these confounding variables with the URM/non-URM variable were examined using ANOVAs. For these analyses, we included only pediatricians in direct patient care, and excluded pediatricians living in Puerto Rico, as all patients in Puerto Rico would likely be classified as “minority” according to our definition. Since we are interested in the background characteristics of pediatricians that predict providing health care to poor and minority patients, we did not include practice location, as we consider it an outcome variable. As such, we suspect that practice location would be highly correlated to the percentage of patients who are minority or poor and, therefore, its inclusion would introduce a high degree of collinearity. We grossly simplified pediatrician and patient race and ethnicity into 2 categories each. It was beyond the scope of this study to allow for comparisons between distinct racial and ethnic groups.

that have patient populations that are similar to them. The United States’ increasingly multicultural population, and the resulting potential language barriers to health care, has been less extensively studied. Of non–native English speakers in the United States, 44% do not have good English-language skills. Possibly more important than pairing by race and ethnicity is the ability to overcome language barriers when communicating medical information. Although some prior studies have singled out primary care specialties as a group to compare with other specialties, and pediatricians have been included in most of those studies, none have had enough pediatricians in the sample to make comparisons between minority and non-minority pediatricians feasible. This study determines if
minority pediatricians provide disproportionately more care to minority patients and to poor and uninsured patients, relative to nonminority pediatricians, while controlling for possible confounding variables (personal and training characteristics that have been posited or found to be associated with the care of poor and minority patients).

RESULTS

Nearly half (46.6%) of the URM pediatricians surveyed are African American, 7.2% are mainland Puerto Rican, 13.4% are Mexican American, 13.4% are other Hispanic, 1.4% are Native American, and 18.0% are other (ie, mixed ethnicity) (these are self-designated racial or ethnic categories). Most non-URM pediatricians surveyed are white (93.4%); the remainder are Asian or Pacific Islander (5.6%) or native Puerto Rican (1.0%).

Table 1 presents the \( \chi^2 \) distribution of the independent variables for the 2 groups of pediatricians. Significant parental educational and occupational differences exist; parents of URM pediatricians vs non-URM pediatricians were less likely to have a college education or to have professional occupations. Underrepresented minority pediatricians were nearly 4 times as likely to have had service obligations with the NHSC, had higher debt on graduation from medical school, were less likely to have completed a pediatric fellowship, and were more likely to use a non-English language in their practices. There were no significant differences between the groups for sex distribution and remaining educational debt at the time of the questionnaire. Other variables examined but not significant (data not shown) were age (37 years was the average; \( P = .40 \)) and year in which the pediatric residency was completed (\( P = .90 \)).

Table 2 presents the results of \( t \) tests for the 2 dependent variables of percentage minority patients and percentage uninsured or Medicaid-insured patients. Underrepresented minority pediatricians reported seeing significantly more African American and Hispanic patients, while non-URM pediatricians saw more white, non-Hispanic patients. Altogether, nearly two thirds of the patients of URM pediatricians were minority children, and more than half were uninsured or enrolled in the Medicaid program. Approximately 40% of the patients of non-URM pediatricians were minority children, and approximately the same percentage were either uninsured or enrolled in the Medicaid program.

Presented in Table 3 is the average percentage of minority group patients seen per week by the pediatrician.
cian URM/non-URM categorization and related characteristics. We conducted 2-way ANOVAs including each of the 6 variables related to URM/non-URM status, with the percentage of minority patients as the dependent variable. In each of the analyses, the pediatrician URM/non-URM variable was significantly and positively related to the percentage of minority patients seen per week. In addition, pediatricians who had had a service obligation with the NHSC and who use non-English languages in practice saw more minority patients. The completion of a fellowship, and the interaction of this variable with the URM/non-URM variable, were also significant.

We performed similar ANOVAs with the percentage of patients who are uninsured or enrolled in the Medicaid program as the dependent variable. Table 4 presents the results of the 6 two-way ANOVAs. The percentage of patients uninsured or enrolled in the Medicaid program that URM pediatricians saw was significantly higher than that of non-URM pediatricians in each of these analyses. Pediatricians who had completed a fellowship saw more uninsured or Medicaid-insured patients than those without additional training. There were no other significant main effects or interactions.

The results of the stepwise multiple regression estimating the percentage of minority patients, while controlling for the confounding independent variables and their interaction with the URM/non-URM variable, are shown in Table 5. Confounding variables were controlled by entering these variables into the equation first, followed by the URM/non-URM variable. Altogether, the model explained 19% of the variance in the percentage of minority patients; the $r^2$ change when the URM/non-URM variable entered the model was 0.06. Being a URM pediatrician, completing a fellowship, speaking a language other than English in the practice, and having a service obligation with the NHSC are characteristics independently related to an increase in the proportion of minority patients. Independent of the other variables, URM pediatricians saw 24 percentage points more minority patients than did non-URM pediatricians. The significant interaction between URM/non-URM and fellowship completion results from URM pediatricians who have completed a fellowship seeing fewer minority patients than URM pediatricians who have not completed a fellowship; the opposite is true for non-URM pediatricians.

Fewer variables enter the stepwise multiple regression estimating the percentage of patients who are uninsured or enrolled in the Medicaid program, and less variance is explained (Table 5). Being a URM pediatrician and completing a fellowship are independently related to having more patients who are uninsured or enrolled in the Medicaid program.

**COMMENT**

Similar to other research on physicians in general, we found that, compared with what nonminority pediatricians report, minority pediatricians report caring for significantly more minority and poor patients. Self-reported data on patient and practice characteristics are, admittedly, imperfect measures that may lead to overestimation or underestimation; however, short of a practice audit, they are the best available for a survey of this size, ie, one that can lead to generalizable findings. One study found that pediatricians tend to overestimate the proportion of minority patients in their practices. If URM pediatricians are no more likely than non-URM pediatricians to overestimate the proportion of minority patients, then this potential source of error would not create a systematic bias and, therefore, should not affect the results. If anything, we might intuitively expect that non-URM pediatricians would be more likely to make such an overestimation error, the result of social desirability bias.

These findings are from a sample of pediatricians who graduated from US medical schools and whose average age is 37 years, and as such do not represent the whole spectrum of pediatricians, 29% of whom are international medical graduates (IMGs) and whose average age is undoubtedly older. These pediatricians are still in an early career stage, and their practice characteristics may still be in flux. Nevertheless, these pediatricians do represent most young pediatricians, and there is no reason to suspect that significant changes in the characteristics of their patients will

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Table 4. Results of 6 ANOVAs of Estimated Percentage of Patients Who Are Uninsured or Enrolled in the Medicaid Program by Pediatrician Characteristics and the URM/Non-URM Variable

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>URM Pediatricians (n = 257)</th>
<th>Non-URM Pediatricians (n = 328)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental educational level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At least a BA degree</td>
<td>55.0</td>
<td>41.7</td>
</tr>
<tr>
<td>Less than a BA degree</td>
<td>49.6</td>
<td>35.1</td>
</tr>
<tr>
<td>Parental occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health, business, or other professional</td>
<td>54.6</td>
<td>40.8</td>
</tr>
<tr>
<td>Other occupation</td>
<td>50.2</td>
<td>38.0</td>
</tr>
<tr>
<td>Debt on graduating from medical school, $</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;40,000</td>
<td>55.3</td>
<td>43.3</td>
</tr>
<tr>
<td>≤40,000</td>
<td>51.1</td>
<td>39.0</td>
</tr>
<tr>
<td>Fellowship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed</td>
<td>60.6</td>
<td>50.4</td>
</tr>
<tr>
<td>Not completed</td>
<td>49.9</td>
<td>35.5</td>
</tr>
<tr>
<td>NHSC service obligation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>60.8</td>
<td>44.4</td>
</tr>
<tr>
<td>No</td>
<td>51.2</td>
<td>40.1</td>
</tr>
<tr>
<td>Use of a non-English language in practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>52.2</td>
<td>45.0</td>
</tr>
<tr>
<td>No</td>
<td>53.1</td>
<td>37.6</td>
</tr>
</tbody>
</table>

*The main effect of the URM/non-URM variable was significant for 4 of the 6 ANOVAs (P<.001); for completed fellowship and NHSC ANOVAs, the significance level was P<.05. Completion of a fellowship was a significant main effect (P<.001). ANOVA indicates analysis of variance; URM, underrepresented minority; BA, bachelor of arts; and NHSC, National Health Service Corps.*
occurs as a result of further career development nor is there any reason to suspect that even younger pediatricians will behave any differently. One possible age-related finding is that pediatricians who had a service obligation with the NHSC saw more minority patients. By the age of 37 years, the average of our respondents, most physicians have completed their obligation (typically 3 years in length, and no more than 4) and, therefore, this should not be the result of pediatricians practicing in the NHSC. The NHSC in general has a low retention rate, and minority physicians placed in rural NHSC sites have been found to have the same retention rates as nonminority NHSC physicians. In addition, less than 17% of minority or nonminority NHSC rural physicians relocate to another practice within the same underserved community.

The interaction of completing a fellowship and minority status in estimating the proportion of minority patients seen is somewhat puzzling. It is possible that either in the pursuit of additional training, or by the influence of employment settings most appropriate for subspecialty practice, URM and non-URM pediatricians with fellowship training have more similar practice styles to each other than those without additional training. For example, many with additional training are likely to become subspecialists, seeing patients who are, for the most part, referred to them. In these circumstances, patients are not likely to have much control over the choice of physician seen. This would result in the opposing effects on the percentage of minority children seen, ie, non-URM pediatricians seeing more minority children than their non-URM status alone would predict, and URM pediatricians seeing fewer.

Because of our need for detailed race and ethnicity data, available through the Association of American Medical Colleges, our sample did not include IMG pediatricians. International medical graduate physicians are more likely to treat underserved populations compared with US-educated physicians; however, this may reflect more on the circumstances of their training location and visa agreements stipulating care in underserved areas than their personal choices of practice location or the choices of their patients. To the extent that IMG pediatricians serve immigrant communities similar in background to their own, their contribution to children’s health care is vital; however, there is no evidence thus far to suggest that IMG physicians choose practice locations based on racial or ethnic correspondence. The possibility that there could be a reduction in the number of IMGs allowed to train in or possibly to stay on to practice in the United States intensifies the need to examine the practice choices of US-educated pediatricians, and to examine these choices in further detail than we were able to do herein, ie, studying the practice differences and choice of physicians of distinct racial and ethnic groups.

A limitation to our study is that it combines racial and ethnic data of the pediatricians and of the patients. Important additional analyses should be undertaken in supplemental research to further disentangle the relationships across and between specific population subgroups.

The use of non-English languages in medical practice will likely become more common as the US population becomes more culturally diverse. Underrepresented minority pediatricians are much more likely to use an additional language other than English in their practices than non-URM pediatricians, even though they have the same proportion of non–English-speaking patients (analyses not shown). Parents may deliberately choose pediatricians of similar background to provide care for their children as they may feel more comfortable with those physicians; however, non-URM pediatricians should be adequately prepared to provide for minority patients, as the proportion of minority children is high and will be increasing significantly in the next several years. In addition, especially in communities with many non-English speakers, language training as part of the medical curriculum (undergraduate, graduate, and continuing medical education) and the appropriate and unconstrained use of interpreters should become routine.

Disparities in the health status of minority and poor individuals relative to the rest of the population necessitate measures that can mitigate such inequities. Assuring a health care workforce that can competently and responsively provide care to the underserved is essen-

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**Table 5. Results of Multiple Regression Analysis Predicting Pediatricians’ Estimated Percentages of Minority Patients and of Uninsured or Medicaid-Insured Patients***

<table>
<thead>
<tr>
<th>Significant Variables</th>
<th>% Minority Patients†</th>
<th>% Uninsured or Medicaid-Insured Patients†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regression Coefficient</td>
<td>SE</td>
</tr>
<tr>
<td>URM‡</td>
<td>24.08</td>
<td>2.90</td>
</tr>
<tr>
<td>Completed fellowship‡</td>
<td>16.12</td>
<td>3.37</td>
</tr>
<tr>
<td>URM by completed fellowship</td>
<td>−18.60</td>
<td>5.29</td>
</tr>
<tr>
<td>Use of a non-English language‡</td>
<td>7.12</td>
<td>2.45</td>
</tr>
<tr>
<td>NHSC service obligation‡</td>
<td>10.68</td>
<td>4.20</td>
</tr>
</tbody>
</table>

*CI indicates confidence interval; URM, underrepresented minority; NHSC, National Health Service Corps; and ellipses, variable did not enter equation.
†‡ for predicting percentage of minority patients was 0.19 and for predicting percentage of uninsured or Medicaid-insured patients was 0.06.
‡ Coded as follows: 0 indicates no; 1, yes.
tial to that goal. Most important, efforts to ensure a racially and ethnically diverse health care workforce should be greatly enhanced, as its diversity, and hence representativeness, will improve the health care system for all Americans.

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REFERENCES