

Racial and ethnic disparities in the quality of primary care for children

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Key Points for Clinicians

Asian American children experience the greatest disparities in quality across most aspects of primary care delivery. Asian children had the largest deficits in seeking first-contact care from their providers, establishing effective patient-provider interpersonal relationships, and receiving the full complement of preventive services. The results suggest that racial disparities in primary care quality are not simply a reflection of ability to pay, health status disparities, or racial differences in expectations for care.

Health plans and providers should extend efforts to encourage development of a regular source of primary care for minority children, in particular Asian Americans. Delivery of high-quality primary care is particularly important for Asian American children because they are more likely to be in poor health and at greater risk for contracting certain communicable diseases than other racial groups.

- **OBJECTIVES:** Healthy People 2010 calls for greater access to high-quality primary care as a means to reduce racial and ethnic disparities in children's health. Disparities in primary care quality have rarely been studied for children, and the few studies that have been conducted among adults are not readily applicable to children because of the different health care needs of the 2 populations. This study compared the quality of primary care experienced specifically by children of different racial and ethnic groups.
- **STUDY DESIGN:** We used a random cross-sectional community sample of children. Parents were questioned via structured telephone interview with the Primary Care Assessment Tool about a selected child's primary care experiences. Responses were compared across racial and ethnic groups, with white children as the reference group.
- **POPULATION:** The sample consisted of parents of 413 elementary school children, ages 5 to 12 years, enrolled in 1 school district spanning 3 suburban cities in San Bernardino County, California.
- **OUTCOMES MEASURED:** We measured cardinal features of primary care quality including first-contact care (accessibility and utilization), longitudinality (strength of affiliation and interpersonal relationship), comprehensiveness (services offered and received), and coordination of care.
- **RESULTS:** After controlling for family demographics, socioeconomic status, and health system characteristics, minority children experienced poorer quality of primary care across most domains of care compared with white children. Asian Americans reported the lowest quality of care across most domains, but particularly in first-contact utilization, interpersonal relationship, and comprehensiveness of services received.
- **CONCLUSIONS:** Racial and ethnic disparities in quality persist in many aspects of primary care delivery. The

findings suggested that these disparities are not simply reflections of ability to pay, health disparities, sociodemographics, or racial variations in expectations for care. The findings in this study that parents of minority children, in particular Asian Americans, report lower quality of primary care is consistent with previous research among adults but had not been demonstrated previously for children.

key words Primary health care; children; race and ethnicity; quality assessment; physician-patient relations. (J Fam Pract 2002; 51:573)

Substantial disparities in children's health and health care continue to exist across racial and ethnic groups in the United States.¹⁻⁴ With the release of Healthy People 2010, the United States has reaffirmed its commitment to eliminating these growing racial and economic disparities in children's health. Healthy People 2010 calls for greater and more equitable delivery of high-quality primary care* and prevention to reduce these disparities. A strong primary care-oriented health care system is associated with more frequent and complete delivery of preventive services for children,⁷⁻¹⁰ fewer complications from chronic illnesses,¹¹⁻¹⁴ and better health outcomes.¹⁵⁻¹⁷

However, intensifying pressures to contain medical care costs in the US health care system have meant that even children with financial access to care are not guaranteed to receive high quality primary care. The for-profit nature of many health care delivery systems continues to raise serious concerns about quality because of the financial interest to reduce use of services. Safety-net providers such as community health centers are being forced to compete in the market-driven system and may have to compromise the quality of care they provide to vulnerable, primarily minority populations.¹⁸ Because of these concerns, consumers, providers, purchasers, and federal and state agencies are demanding better monitoring of the quality of primary care, particularly for vulnerable populations.¹⁹

Previous studies have identified significant racial and ethnic disparities in the quality of primary care among adults. Shi used nationally representative data from the Medical Expenditure Panel Survey and found that racial and ethnic minority adults experience worse primary care across most of its cardinal attributes, with the greatest differences being in the accessibility of medical care.²⁰ Murray-Garcia and colleagues²¹ also found that Asian American adults tend to report the lowest quality of primary care among racial and ethnic groups, although the results may be attributable in part to differences in patient expectations or survey response practices rather than to actual differences in quality. In 2 separate studies, Taira and colleagues^{22,23} previously demonstrated similar findings regarding lower reported quality of primary care among Asian American adults. Finally, Morales et al²⁴ found that, with the exception of Asians and Pacific Islanders, there were few differences between minorities and whites in satisfaction with primary care and ratings of access and communication.

Studies of primary care among adults, however, are not readily applicable to children for several reasons.²⁵ First, a unique set of primary care financing, organization, and delivery systems has been developed for children. Examples include the recent State Children's Health Insurance Program and nontraditional delivery settings such as school-based health centers. Second, childhood is a unique developmental stage of life during which children's health care experiences strongly influence their future health and health care utilization. Third, primary care for children emphasizes preventive care rather than acute care as for adults and therefore must be evaluated differently.

Racial and ethnic disparities in primary care quality have rarely been studied for children.²⁶ Although several studies have evaluated racial differences in children's use of primary care services, few have evaluated racial differences in more qualitative primary care experiences. Weech-Maldonado and colleagues, conducting the only study of this type, found that Asian, black, and Hispanic children experienced poorer access, timeliness to care, and communication with providers compared to whites. However, language appeared to play an important factor in these disparities.²⁷

The purpose of this study was to examine racial and ethnic differences in the quality of primary care specifically for children. Primary care was uniquely assessed, pursuant to the Institute of Medicine's definition, with the use of a reliable and valid instrument asking parents to report on, rather than rate, the quality of care for their children. The study sought to identify deficits in primary care quality among children to lay groundwork for the development of clinical strategies and

health care policies to eliminate health disparities.

■ METHODS

Study design and setting

A cross-sectional community-based survey was conducted in a random sample of 1200 parents of elementary school children in 1 school district. The district spans 3 large suburban communities in San Bernardino County, California, near Los Angeles. The area encompasses a population of about 300,000 and approximately 17% of the population live in poverty. In San Bernardino County, there are 72.5 health care providers per 100,000 inhabitants; this rate is lower than the overall rate of 90 providers per 100,000 for the State of California.²⁸ Because the county has several rural areas (with low physician presence) that are not served by the school district, the physician ratio is likely to be an underestimate for the more urban geographic area under study.

A school district was selected as the setting for this study because it provides the single most comprehensive list of children in a community. A community sample avoids the biases associated with research based in provider settings that generally include only the most frequent users of health services.

The school district serves a population of 18,000 racially and socioeconomically diverse elementary school children in 20 elementary schools (kindergarten through grade 6). The racial and ethnic makeup of the population is approximately 43% Hispanic; 42% white; 10% Asian, Filipino, and Pacific Islander; 5% black; and fewer than 1% American Indian. The sampling frame was sorted and systematically sampled by the child's sex, grade level, and school strata to ensure that the sample was representative of the community. To improve the analytic capacity of the sample, Asian and black subgroups were oversampled at 4 times the rate for Asians (compared with whites) and 16 times the rate for blacks to obtain approximately equal numbers of respondents across racial and ethnic groups.

In San Bernardino County, as in a growing number of other counties in California and throughout the United States, non-white racial and ethnic groups are beginning to represent more of the population. In this study, Hispanics are the numerical majority, but we continue to use the term "minority" to represent Asian, black, and Hispanic racial and ethnic groups because in most areas of the United States these groups continue to be the numerical minority.

Data collection

The Johns Hopkins University Office for Research Subjects approved the survey instrument and administration procedures. Questionnaires were administered through structured telephone interviews between November 2000 and January 2001.

Two rounds of informational mailers were sent to parents in advance of contact by telephone. To maintain legal privacy protections for parents, clerks employed by the school district made initial contact with families to schedule appointments for interviewers to complete the telephone interview. Reminder letters were mailed to parents who had scheduled an appointment but were not reached by telephone contact.

Of the original sample of 1200 children, 289 families had moved or left the school district, disconnected their telephone number, or had a telephone number that was busy or not answered on repeated (10+) attempts; 59 families were unable to participate because of language difficulties. Parents who reported to the study clerks that they were unable to complete the survey in English or Spanish were excluded from participation. Negative wording of 2 questions and alternate wording of 2 similar questions were used to check comprehension. Concern was raised in 1 case, but this was resolved through follow-up questioning.

Interviews were completed with the families of 413 children. After subtracting the unreachable families from the original sampling frame, the overall response rate was 49%. Children without a regular source of care were excluded from the analyses, leaving 403 respondents in the analytic sample.

Nonrespondents were similar to respondents in terms of child's sex, race and ethnicity, and school in which the child was enrolled. Respondents were slightly more likely than nonrespondents ($P < .05$) to have a younger child (mean age = 8.1 vs 8.4 years). Data for these comparisons were available through an administrative data set provided by the school district and assembled each school year through an enrollment form completed by parents.

Measurement

Race and ethnicity. Race data were available through the parent-completed school enrollment files provided by the school district. The categories of race or ethnicity were white (non-Hispanic), Hispanic, black (non-Hispanic), Asian, Filipino, Pacific Islander, and American Indian. To ensure a sufficiently large sample size, we combined Asian, Filipino, and Pacific Islander into a single category called Asian. We also excluded American Indian from the study sample because of extremely small numbers.

Primary care quality. For this study we used the Pediatric Primary Care Assessment Tool (PCAT) developed by the Johns Hopkins Primary Care Policy Center for the Underserved to evaluate 4 cardinal attributes of primary care quality: first-contact care, longitudinality, comprehensiveness, and coordination **Table 1**. Scale scores were generated for each attribute based on summed responses to questions, with 4 Likert-type response choices: definitely (score = 4), probably (score = 3), probably not (score = 2), and definitely not (score = 1). "Don't know" responses were coded as the middle score (2.5) because we assumed that not knowing about an important feature of primary care signified some partial failure to convey the availability of that particular feature. For example, parents' not knowing whether their child could receive immunizations from the provider signified some partial communication failure on the part of the provider. Both child and adult versions of the instrument have been developed, the reliability and validity of which are reported elsewhere.^{29,30}

Within each cardinal attribute, the PCAT assesses structural characteristics of the facility or provider that reflect the capacity to achieve quality primary care and processes of care that indicate the achievement of the function in actual practice. Only patients who reported a regular source of care ($n = 403$) were asked to assess the quality of primary care.

First-contact care. Two subdomains of first-contact care are measured by the PCAT: accessibility of the provider and the degree to which the provider is used as a single point of entry into the medical care system. Accessibility is evaluated with 8 questions about characteristics of the health system that facilitate access (eg, If the facility is open on weekends, would the provider see the child the same day?). The utilization subdomain is scored with an algorithm that assigns a higher score for each type of service (acute illness, regular check-up, and immunizations) that is sought from the parent-identified regular source of care.

Longitudinality. Two subdomains of longitudinality are measured by the PCAT: interpersonal relationship with the provider and extent of affiliation. The relationship subdomain is evaluated with 14 questions concerning the parents' perception of the "person orientation" of the interactions between provider, parents and child (eg, the degree of interest the provider has in the child as a person rather than as someone with a medical problem). The extent of affiliation subdomain addresses the extent of the child's relationship with a specific provider. This is scored with an algorithm that assigns a higher score if the provider identified as the regular source of care also knows the child best and is the provider from whom care would be sought for a new problem.

Comprehensiveness. Two subdomains of comprehensiveness are measured by the PCAT: services available and services provided. Six questions address the availability of specific primary care services (eg, immunizations and tests for lead poisoning). Another 5 questions address the services received from the primary care source (eg, discussions of ways to stay healthy such as eating nutritious foods and getting enough sleep).

Coordination. For children who have visited a specialist ($n = 135$), 7 questions address the degree of interaction and integration between the primary care physician and specialist services (eg, Did the primary care provider know that you made the visit to the specialist?).

Covariates. We selected covariates based on previous studies demonstrating a relation between the variables and

aspects of primary care quality such as accessibility and continuity of care. We controlled for socioeconomic status (income, employment, and education), characteristics of the health care system (provider specialty, practice setting, and cost-sharing requirements), and demographics (child's age, sex, general health status, and insurance coverage). Because of extensive managed care penetration in California, we clarified the range of practice settings by using names of local managed care clinics, public health centers, and group practices as examples.

Analysis

The independent variable was racial and ethnic background, and its analytic categories included Asian, black, Hispanic, and white. Comparisons were made between race or ethnicity and the study covariates and scores for the primary care subdomains. Frequencies of the study covariates were compared across racial and ethnic groups, and the significance of these differences was assessed with chi-squared tests of association. Generalized linear model procedures were used to assess differences in primary care quality across racial and ethnic groups after adjusting for study covariates. Bonferroni t tests were used to test significance and account for multiple comparisons.

Two total primary care scores were generated by summing the mean scores for the primary care subdomains. The first total primary care score (A) included coordination of care, a domain that was answered only by a subset of the population that reported they had visited a specialist since they first saw their regular provider. Therefore, total score A was limited to 1 subset of the population ($n = 135$). The second total primary care score (B) did not include coordination of care and thus included the full study sample.

Multiple linear regression analyses were conducted to predict primary care quality. Four models were constructed incrementally, with the first including only dummy variables of race and ethnicity (with white "race" as the reference group). Additional models controlled for (1) socioeconomic status covariates, (2) health system characteristics, and (3) socioeconomic status, health system characteristics, and demographics. The models were constructed separately for primary care scores A and B. Regression coefficients and respective P values are reported for race/ethnicity categories and study covariates. The coefficient of determination (R^2 and adjusted R^2) is reported for each model to describe how much of the variance in primary care quality was explained by the study variables.

Table 2 compares the unadjusted socioeconomic status, health system characteristics, and demographic factors of our analytic sample across racial and ethnic groups. As per the sampling strategy, respondents were nearly equally divided among the 4 categories of race and ethnicity. Most respondents (74.3%) had family incomes greater than \$36,000/year, although a significantly smaller proportion of black (64.2%) and Hispanic (67.7%) families had incomes above this amount compared with whites (90.2%) and Asians (84.0%; $P < .001$). Racial and ethnic groups also differed in maternal education and employment, with Asians reporting the highest proportion with a high school education or greater ($P < .01$) and blacks reporting the highest employment among mothers ($P < .001$).

With regard to health system factors, Asians and whites were most likely to report seeking care at a doctor's office (58.8% and 57.0%, respectively) compared to seeking care from a health maintenance organization clinic or other setting ($P < .001$). Hispanics reported the largest proportion of children receiving care from a health maintenance organization clinic setting (39.4%), and Asians reported the smallest proportion (20.6%; $P < .05$). White respondents had the highest proportion covered by private health insurance (86.6%) and Hispanic respondents had the lowest (79.1%; $P < .05$). Hispanics were most likely to be uninsured (13.13%; $P < .05$).

Asians were most likely to report having any cost sharing such as a deductible or co-payment (83.2%; $P < .01$). There were no significant differences in child's age, sex, or health status across racial and ethnic groups.

Table 3 compares adjusted primary care quality scores across racial and ethnic groups. The attribute scales were standardized by summing the responses to each question in the attribute and dividing by the number of questions (range, 1-4). In general, Asian, black, and Hispanic parents reported slightly lower quality of primary care than did whites. Minority parents reported lower scores for 6 of the 7 subdomains, although only some of the findings were significant. Asian respondents reported the lowest (or statistically equivalent to the lowest) primary care quality for 5 of the 7 domains, reflecting differences of approximately 5% to 10%. These scores were significantly lower than those reported

by whites for first-contact accessibility ($P < .05$), first-contact utilization ($P < .01$), interpersonal relationship ($P < .05$), and comprehensiveness of services received ($P < .001$). Moreover, Asians reported significantly lower mean scores than did whites for both total primary care scales. Black respondents reported significantly worse first-contact utilization but slightly greater accessibility than did whites, although the difference was not significant.

Table 4 presents 4 multiple regression models for the 2 versions of total primary care quality after successive adjustment for socioeconomic status, health system characteristics, and demographics. In model 1A (not adjusted for any covariates) Asian and black races (vs whites) were significant negative predictors of primary care quality. In model 1B (ie, coordination of care domain excluded) all minority groups (vs whites) were significant negative predictors of quality ($P < .01$). In models 2B and 3B, after controlling for socioeconomic status and health system characteristics, respectively, 2 additional covariates positively predicted total primary care quality. These were family income greater than \$36,000 ($P < .01$) and having a pediatrician as opposed to any other type of family practitioner or generalist primary care provider ($P < .001$). Despite the addition of these covariates to models 2 and 3, minority racial and ethnic groups remained significant negative predictors for both versions of primary care quality ($P < .05$). Asian race remained a particularly significant predictor of quality ($P < .001$).

In model 4A, which controlled for all covariates, older child age and, nonintuitively, being uninsured were significant positive predictors of quality (likely due to the small number of uninsured respondents). In model 4B, health status was a significant predictor of quality ($P < .05$). With the addition of the full complement of covariates, Hispanic and black race and ethnicity became nonsignificant in both models despite small changes in the magnitude of the coefficients and P values (.07 and .06, respectively). The loss of significance in this model is likely attributable to the number of variables that was controlled for given the moderate sample size rather than to any confounding effects of specific covariates. In model 4A, Asian race remained a significant negative predictor of quality ($P < .05$). In model 4B, Asian race remained a strong negative predictor of quality and having a pediatrician remained a strong positive predictor ($P < .001$ for both). After adjustment for the natural rise in R^2 associated with the inclusion of additional covariates, the final models for both total scales (A and B) explained only about 8% and 11%, respectively, of the variation in primary care quality.

■ DISCUSSION

This community-based study advances the literature by demonstrating that Asian, black, and Hispanic children experience poorer quality of primary care than whites, even after controlling for many differences in socioeconomic status, health system factors, and demographics. This suggests that racial and ethnic differences in quality of care are not simple reflections of ability to pay, health disparities, or other sociodemographics.

The findings in this study that parents of minority children, in particular Asian Americans, report lower quality of primary care is consistent with previous research among adults but has not been demonstrated previously for children.²⁰⁻²⁴ This finding is particularly important because of the growing numbers of Asian Americans in the United States and because Asian children, despite their family's higher education, are more likely than whites and some other ethnic groups to be in fair or poor health, underimmunized, and at risk for contracting preventable illnesses such as hepatitis B.³¹⁻³³ These differences in health and health risk may be remedied in part by the receipt of high-quality primary care.³⁴

Of the primary care measures, the greatest difference between Asians and whites was in comprehensiveness of services received. This domain covered the range of services that patients could receive from their regular provider and included items such as preventive counseling and discussions about growth and development. Although language was unlikely to be a determinant of quality in this study (because we excluded those unable to complete the survey in English or Spanish), it does not discount the potential of undetected or unstudied language difficulties to enhance disparities in health care. For example, even though Asian families in our study were able to communicate sufficiently in English, they might have rated the patient-provider relationship lower because of trouble finding a provider who spoke their language. Regardless, the finding suggests the importance of making services more widely available to minority groups, including improvements in communication about existing primary care services.

An interesting secondary finding was that parents who reported a pediatrician as the child's regular source of care reported higher quality primary care than did parents reporting other generalist providers. In particular, pediatricians

appeared to perform better than other providers on 3 of the attributes: utilization of services ($P < .02$), patient-provider relationship ($P < .0001$), and services provided ($P < .0001$; data not shown). The differences may be attributable in part to the greater frequency of visits to pediatricians for well-child care; thus, greater opportunities may exist for delivery of preventive services and the development of the patient-provider relationship. Future research should explore the experience of minority patients receiving care from various provider specialties.

Despite significant findings, the most comprehensive regression models explained only a small proportion of the variation in primary care quality (about 11%). Other factors that may play a role in determining primary care quality, but were not included in this analysis, include health insurance plan restrictions (discussed in an upcoming paper), practice arrangements, racial concordance between the patient and provider, family mobility, and perhaps provider-specific factors such as training or years in practice.

This study has several limitations. First, the cross-sectional design and analysis allowed the demonstration of association and not of causality. Second, this study examined only 4 broad classifications of race and ethnicity that do not capture within-group variations in ethnicity or culture that could be associated with differences in quality of care received. Standard measurements of race and ethnicity also do not fully capture biologic, cultural, socioeconomic, and political aspects of multiculturalism that may interact and produce more complex findings than those reported.³⁵

Third, because of the moderate response rate, the respondents in this study may not be fully representative of the population under study. Although respondents were demographically similar to nonrespondents, participants may have been more likely than nonrespondents to have children in poorer health status or have more negative experiences with the health care system. Although this does not threaten the internal validity of this study (because response rates did not differ substantially across racial groups), such bias could lead to lower overall estimates of primary care quality regardless of racial group.

Fourth, studies that rely on patient reporting to compare quality of care across racial groups often may capture racial and ethnic group variations in perceptions of care or different standards for assessing care. In this study, we used an instrument for assessing quality of care that relies heavily on factual reporting (eg, waiting times and receipt of particular services) rather than on satisfaction or performance ratings, so our study was less subject to these biases.

In conclusion, this study demonstrated significant differences in the quality of primary care for children across racial and ethnic groups. These findings in part suggest that ensuring adequate health insurance coverage may not be sufficient to reduce racial and ethnic disparities in quality of care. Although the cause or mechanism of these disparities in quality is not entirely established, the findings encourage careful additional monitoring of the delivery of primary care, in particular to minority children. At a minimum, health care providers and organizations should make primary care services more accessible to minority families, provide the services in a culturally and linguistically competent manner (to encourage the development of the physician-patient relationship), and communicate more effectively with families about the range of child health services offered.

*The Institute of Medicine defines primary care as “the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community.”⁵ The practice of primary care is best characterized as a set of attributes or functions that, only when performed together, constitute the delivery of primary care. Empirical studies have further delineated and operationalized 4 core attributes of primary care: first-contact care with a designated primary care physician; longitudinality, or ongoing care, with a physician or place of care; comprehensiveness of services; and coordination or integration of those services⁶**Table 1.**

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