

## **5. Differences in CAHPS® Adult Survey Ratings and Reports by Race and Ethnicity: An Analysis of the National CAHPS® Benchmarking Data 1.0**

### **Abstract**

**Objective:** To examine racial/ethnic group differences in consumer reports and ratings of care using data from the National CAHPS® Benchmarking Database (NCBD) 1.0.

**Data Sources:** Adult data from the NCBD 1.0 is comprised of CAHPS® 1.0 survey data from 54 commercial and 31 Medicaid health plans from across the United States. A total of 28,354 adult respondents (age≥18 years) were included in this study. Respondents were categorized as belonging to one of the following racial/ethnic groups: Hispanic (n=1,657); non-Hispanic White (n=20,414); Black or African-American (n=2,942); Asian and Pacific Islander (n=976); American Indian and Alaskan Native (n=588); and Other racial/ethnic group or Multiracial (n=553). Persons who failed to indicate any racial/ethnic background were placed in a "Missing" category (n=1,224).

**Study Design.** Four single item global ratings (personal doctor; specialty care; overall rating of health plan; and overall rating of health care) and five multiple item report composites (access to needed care; provider communication; office staff helpfulness; promptness of care; and health plan customer service) from the CAHPS® 1.0 surveys were assessed.

**Statistical Analyses.** Multiple regression models were estimated to assess differences in global ratings and report composites between whites and members of other racial/ethnic groups, controlling for age, gender, perceived health status, educational attainment, and insurance type.

**Principal Findings:** Whites were more positive in reports about most aspects of care than members of other racial/ethnic groups. Inter-racial/ethnic group differences were diminished in global ratings of care.

**Conclusions:** Improvements in quality of care for racial/ethnic minority groups are needed. Comparisons of care in diverse populations based on global ratings of care should be interpreted cautiously.

**Keywords:** Reports and Ratings of Care, CAHPS®, Racial/Ethnic Differences, Patient Assessed Quality of Care.

## **Introduction**

Dramatic changes are occurring in the racial/ethnic makeup of the United States. By 2050, the proportion of the US population who are white is projected to drop to below 50%, while the proportions of the US population who are Hispanic, Asian/Pacific Islander, and African-American are expected to exceed 25%, 13%, and 20%, respectively (Smith & Edmonston, 1997). In some states such as California, whites have already ceased to be the majority group (Johnson, 1999). For medical providers, these dramatic demographic changes pose the formidable challenge of providing effective and relevant healthcare to patients of many different racial/ethnic backgrounds.

Surveys that ask patients to assess their healthcare are important tools for determining how well doctors and other healthcare providers meet the needs of their patients. Properly constructed, these survey instruments can capture patients' experiences with care (reports) and evaluations of care (ratings) in a reliable and valid manner in multicultural settings. Furthermore, when analyzed according to the racial/ethnic background of the respondents, patient surveys can yield information about how well medical providers are meeting the needs of patients belonging to particular racial/ethnic subgroups. Although numerous studies have examined access to care for members of racial/ethnic subgroups, there have been relatively few studies of reports and ratings of care by members of racial/ethnic subgroups.

Most previous research on racial/ethnic differences in reports and ratings of care has focused on Hispanics and African-Americans. In a population-based study conducted in 1981, Anderson et al. (1981)

found more dissatisfaction with care among Hispanics compared to the US population. In more recent studies, Baker et al. (1996) reported greater dissatisfaction with ER provider communication among monolingual Spanish speaking patients than English speaking patients, and Morales et al. (1999) found greater dissatisfaction with primary care provider communication among Hispanics than whites.

Patient satisfaction research involving African Americans has yielded mix results. Bashshur et al. (1967) noted greater satisfaction with care among Blacks than whites in a HMO population. Subsequent studies, however, found that Blacks are more dissatisfied with care than whites. Hulka et al. (1975) reported more dissatisfaction with care among Blacks than whites in a sample community-based sample. Taira et al. (1997) also reported more dissatisfaction among Blacks than whites in a sample of patients from a university based primary care practice. Finally, Meredith and Sui (1995) reported more dissatisfaction with care among Blacks than whites in the Medical Outcomes Study (MOS).

Studies of satisfaction with care among Asians are few. Meredith and Sui (1995), using data from the MOS, reported greater dissatisfaction with care among Asians than whites, Blacks and Latinos. Taira et al. (1997) reported that Asians gave lower ratings of care than whites on multiple dimensions of care including communication, trust, interpersonal treatment and comprehensiveness of care provided. In a recent study of access and satisfaction with care conducted in physician group practices primarily on the west coast, Asians reported worse access to care and gave lower ratings of care than whites or

Latinos (Snyder et al., in press). We are unaware of any studies that have examined patient satisfaction among Asian/Pacific Islander sub-groups or patient satisfaction among American Indians/Alaskan Natives.

This study is based on data from the Consumer Assessment of Health Plans (CAHPS®) benchmarking database. The National CAHPS® 1.0 Benchmarking Database (NCBD 1.0) is the first nationwide aggregation of reports and ratings of care collected using the CAHPS® 1.0 survey instrument. In this study, we examine differences in CAHPS® reports and ratings of care among non-Hispanic Whites, Hispanics, Blacks, Asians/Pacific Islanders, American Indians/Alaskan Natives, and persons indicating membership in multiple race/ethnic groups or other race/ethnic groups. In addition, we classified separately those persons who did not indicate any race/ethnic category in the survey.

Based on our review of prior research, we hypothesized that Hispanics and Asian/Pacific Islanders would give worse reports and ratings of care than whites. Because the results of research comparing satisfaction with care between Blacks and whites are inconsistent, we hypothesized no difference in satisfaction with care between Blacks and whites. Due to the lack of published research on patient satisfaction among American Indians/Native Alaskans, or persons of multiple races/ethnicities, we did not formulate any specific hypotheses regarding these groups.

## **Methods**

### *CAHPS® Survey Instruments*

The CAHPS® surveys are currently the gold standard for assessing patient experiences with ambulatory care. CAHPS® has been adopted by Medicare (Schnaier et al., 1999), state Medicaid programs (Brown et al., 1999), the Office of Personnel Management, and the National Committee on Quality Assurance as part of its accreditation process (NCQA, 1998).

The CAHPS® survey instruments were developed by a consortium of investigators from RAND, Harvard Medical School, Research Triangle Institute, and Westat with funding from the Agency for Healthcare Research and Quality and the Healthcare Financing Administration. The principal goal was to produce survey instruments that could be used to collect reliable and valid information from health plan enrollees about the care they have received (Crofton et al., 1999). The data generated by the surveys is principally intended to provide information for consumers choosing among different health plans.

CAHPS® surveys have been developed for use in fee-for-service or managed care and in various types of settings including commercial, Medicare, and Medicaid. In addition, CAHPS® surveys are available for assessing adult and childcare and for administration via mail or telephone. English and Spanish versions of the CAHPS® surveys exist (Weidmer et al., 1999).

CAHPS® surveys ask a core set of questions that are applicable across settings (Hays et al., 1999). The core questions include reports and ratings. The reports items assess the frequency with which specific experiences took place (e.g., How often did doctors or other health professional listen carefully to you?). The ratings of care capture global perceptions of care (e.g., How would you rate all your health care?).

#### *Data Source*

The data for this study is the National CAHPS® Benchmarking Database 1.0 (NCBD 1.0). The NCBD 1.0 is comprised of CAHPS® 1.0 survey results collected by commercial and Medicaid health plans from across the United States. It includes the results of both adult and child CAHPS surveys, administered by telephone and mail, and in English and Spanish. Data limitations prevent us from identifying the mode or language that the survey was administered. Previous research, however, demonstrates the equivalence of CAHPS information collected via telephone and mail (Fowler et al., 1999).

The NCBD 1.0 contains survey results from 7 Medicaid sponsors comprising 31 health plans. The 31 Medicaid health plans consist of 29 health maintenance organizations and 2 primary care case management plans from the District of Columbia, Arkansas, Kansas, Minnesota, Oklahoma, and Washington. The mean response rate among the Medicaid health plans was 34% (Median = 37%) and ranged from 17% to 50%.

The NCBD 1.0 also contains survey results from 6 commercial sponsors comprising 54 health plans. The commercial health plans include 27 HMOs, 8 physician-provider organizations, 3 point-of-service, 1 fee-for-service, and 15 other unspecified types of health plans from the District of Columbia, Florida, Kansas, New Jersey, Oklahoma and Washington. The mean response rates among the commercial health plans was 63% (median = 54%) and ranged from 48% to 83%.

Together, the Medicaid (n = 8,813) and commercial databases (n = 19,541) contain 28,354 completed adult surveys. The mean response rate across the combined sample of commercial and Medicaid health plans is 52% (Median = 52%).

All participants contributed their data to NCBD 1.0 voluntarily. The purpose of this database is to facilitate comparisons among various users of CAHPS® surveys and to support research on consumer assessments of health care. The surveys were fielded in 1997 and 1998.

#### **CAHPS® Measures**

The dependent variables in this study are the four global rating questions (Personal MD, Specialists, Health Care, and Health Plan) and five multiple item reports (composites) (Access to Care, Promptness of Care, Doctor Communication, Office Staff, Health Plan Customer Service) derived from the adult core CAHPS® 1.0 survey (Table 1). The four rating questions are asked using a 0-10 response format, where 10 is the best possible rating. All of the questions included in the composites are asked using a *Never, Sometimes, Usually, Always* response

format except for the *Access to Needed Care* composite. This composite includes two questions asked using a *Yes, No* response format and two questions asked with a *Never, Sometimes, Usually, Always* response format. The composite summary scores were computed by first transforming linearly each individual item score to a 0-100 possible range, and then averaging individual item scores within each scale. To facilitate comparisons between rating and composite scores, the 0-10 rating scores were also transformed linearly to a 0-100 possible range.

The main independent variable in this study is race/ethnicity. The case-mix variables included in this study are age, gender, perceived health status, educational attainment, and insurance type. Patient gender is a binary variable (male, female). Seven indicator variables for age were constructed from the seven age categories (18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75+) asked in the survey. Five indicator variables for perceived health status were constructed from the five categories (excellent [reference category], very good, good, fair, poor) asked in the survey. Six indicator variables for education were constructed from the six education categories (8<sup>th</sup> grade or less; some HS, but did not complete; HS graduate or GED; 1-3 years of college; 4-year college graduate; more than 4-year college degree) asked in the survey. Insurance type is a binary variable indicating whether an observation belonged to a commercial or Medicaid health plan.

Respondents were assigned to racial/ethnic categories based on their answers to the following questions (both questions were asked of all respondents):

1. Are you of Hispanic or Spanish Family Background?

Yes

No

2. How Would You Describe Your Race?

American Indian or Alaskan native

Asian or Pacific Islander

Black or African-American

White

Another Race or Multiracial (*write in*) \_\_\_\_\_

Survey respondents who answered "yes" to (1) were categorized as Hispanic, regardless of race (see Figure 1). Respondents who answered "no" to (1) were categorized according to their response to (2). Respondents that wrote in a response to (2) were placed in the category that most closely matching their stated race or ethnicity. For instance, if a respondent wrote in "Persian," they were placed in the Another Race/Multiracial category. Respondents who did not answer (1) or (2) or who answered "no" to (1) but did not indicate a race were also placed in the "Missing" category. Respondents who only answered (2) were assumed to be non-Hispanic.

Analysis Plan

Cross-tabulations of race/ethnicity with each of the other independent variables are provided for the sample. A chi-square

statistic was computed for each cross-tabulation to test the significance of the associations.

Unadjusted mean scores by racial/ethnic group were computed on each of the single item global ratings and the individual items comprising the multiple-item report composites. Intra-item racial/ethnic group mean differences were tested for statistical significance using one-way ANOVA models.

Cronbach's alpha was computed to assess internal consistency reliability of each multiple-item composite (Cronbach, 1951)

Multiple regression analyses were conducted to assess differences in global ratings and composites between whites and members of the other race-ethnic groups, controlling for age, gender, perceived health status, educational attainment, and insurance type. The CAHPS® developers recommend adjusting for age and health status when making comparisons between health plans (CAHPS® 2.0 Survey and Reporting Kit). We included gender (Like & Zyzanski, 1987; Weiss, 1988) and educational attainment (Fiscella, 1999; Ware et al., 1982; Fox & Storms, 1981) in our multivariate models because prior research has found significant associations between these variables and satisfaction with care. A separate ordinary least squares regression model was estimated for each global rating item and composite report. All regressions included the five case-mix adjustment variables.

Because the distribution of scores on both the global ratings and composites were negatively skewed (bunching at more positive end of the scale), each model was estimated using transformed as well as

untransformed dependent variables. The transformation we used - dividing the square of the variable by 100 - yielded approximately normal distributions. The regression results using the transformed and untransformed dependent variables were very similar. Thus, we only present results using the untransformed dependent variables.

To guard against finding statistically significant differences by chance alone, we examined the coefficients on all the race/ethnic indicator variables jointly (omnibus test) before testing the significance of individual coefficients on the race-ethnic indicator variables. Robust standard errors (correcting for intra-plan clustering) were estimated for all regression coefficients (Huber, 1964).

Because response rates varied across health plans, we derived non-response weights for this study. A weight proportional to the inverse of the response rate was computed for each plan (Brick and Kalton, 1996). Thus respondents belonging to a plan with a low response rate received a greater weight than respondents belonging to a plan with a higher response rate, and all respondents within the same plan received the same weight.

To interpret the magnitude of the differences in reports and ratings between the race/ethnic groups in this study, we estimated differences in CAHPS® reports and ratings in terms of intentions to change medical providers. Because intention to change providers was not measured on the same subjects as the CAHPS® measures, a two-stage procedure was necessary. Specifically, we regressed intentions on a

rating of access to care in the 1994-95 United Medical Group Study (UMGA) dataset (Hays et al., 1998) and used the regression coefficient to estimate the corresponding relationship between a CAHPS® report composite and intentions. We also regressed intentions on a rating of quality of care in the UMGA dataset and used the regression coefficient to estimate the corresponding relationship between the CAHPS global rating of care and intentions. These estimates provided a rough basis for interpreting the clinical meaningfulness of observed differences between race/ethnic groups.

All analysis was conducted using STATA, version 6.0 (StataCorp., 1999).

## **Results**

### *Sample Description (Table 2)*

There were significant differences ( $p < 0.01$ ), as assessed by chi-square tests, in the distributions of all case-mix variables across the race/ethnic groups. Specifically, the distributions of age, gender, perceived health status, educational attainment, and type of insurance differed across Hispanics, whites, Blacks, Asian/Pacific Islanders, American Indian/Alaskan Natives, and persons in the Other/Multiracial and Missing race/ethnicity categories.

### *Item Means and Standard Errors by Racial/Ethnic Group (Table 3)*

Table 3 presents mean item scores by racial/ethnic group. This table provides the reader with the data to "drill down" below the level of composite scores. For example, one can compare mean scores on

individual items that constitute the *Access to Care* composite for Asian/Pacific Islanders - the Asian/Pacific Islander mean scores on *Ease of Finding an MD* and *Ease of Getting Approvals and Payments* were 81.34 (SE=1.46) and 49.49 (SE=2.06), which is significant at a  $p < 0.01$  level based on a two sample t-test with equal variances (Kanji, 1993). Similar pair wise comparisons can be made between other pairs of item mean scores. All items differed significantly by racial/ethnic group at the  $p < 0.01$  level.

#### *Scale Internal Consistency Reliability*

Internal consistency reliability estimates for the five multiple item composites ranged from moderate to high (0.62 to 0.89). Specifically, the alpha for *Access to Care* was 0.62; the alpha for *Promptness of Care* was 0.68; the alpha for *Doctor Communication* was 0.89; the alpha for *Office Staff* was 0.67; and the alpha for *Health Plan Customer Service* was 0.63.

#### *Multivariate Results (Table 3)*

With a few exceptions, whites gave better reports and higher ratings of care than non-whites, though there were fewer significant differences between whites and non-whites on ratings than reports. No group gave better reports about care than whites on the *Access to Care*, the *Promptness of Care*, or the *Health Plan Customer Service* composites, and only Blacks gave higher reports on the *Provider Communication* and the *Office Staff Helpfulness* composites than whites. Hispanics gave worse reports than whites on the *Access to Care*, *Promptness of Care* and *Health Plan Customer Service* composites. American Indian/Alaska Natives gave reports about care to similar whites.

The greatest number of significantly worse reports (compared to whites) was obtained from Asians/Pacific Islanders, persons in the multiple/other race category, and persons who did not report their race/ethnic information (race-missing). Asians/Pacific Islanders and persons in the race-missing category reported significantly worse care than whites on all composite reports. Persons in the multiple/other race category reported significantly worse care than whites in on all composites except *Health Plan Customer Service*.

There were fewer significant differences in global rating of care scores between whites and non-whites. Interestingly, there were no significant differences in global ratings between whites and Asians/Pacific Islanders. Persons in the race-missing category rated the *Health Care* and *Health Plan* global rating questions lower than whites. Hispanics rated the *Health Plan* rating question higher than whites and Blacks rated the *Health Plan* and *Health Care* rating questions higher than whites. American Indian/Alaskan Natives rated both *Personal Physician* and *Specialist Physician* rating questions lower than whites. Persons in the other race/multiracial category rated the *Personal Physician*, *Health Care*, and *Health Plan* rating questions lower than whites.

In summary, Hispanics gave worse reports about care than whites on three report composites, but rated care higher than whites on one global rating question. Blacks gave better reports about care than whites on two report composites, and rated care higher than whites on two global questions. Asians/Pacific Islanders gave worse reports about care than whites on all five report composites, but rated their care similarly to whites on all the global rating questions. American

Indians/Alaskan Natives gave reports about care similar to whites, but rated care lower than whites on two global rating questions. Persons in the other race/multiracial category reported worse care on four report composites and rated care lower than whites on three global ratings questions. Persons in the missing-race category reported worse care than whites on all report composites and rated care worse than whites on two rating questions.

*Effect of Differences in Satisfaction on Intent to Change Medical Groups (Table 5) SEE PAGE 149*

Based on differences in the access to needed care composite, we estimated that the odds ratio of intent to change providers was 1.11 for Hispanics, 1.27 for Asians/Pacific Islanders, 1.58 for persons in the multiracial/other race category, and 1.47 for persons in the missing race category relative to whites. Intent to change provider odds ratios were estimated and reported only for beta coefficients that were significant in the regression analyses.

**Discussion**

*Differences in Reports and Ratings of Care*

In this study we found significant differences in reports and ratings of care between whites and members of other racial/ethnic groups. In general, whites reported more positive experiences with care and rated their care more highly and non-whites.

Consistent with prior research and our initial hypotheses, Hispanics were less positive about their care than whites. Specifically, Hispanics reported worse promptness in receiving care and worse health plans customer service than whites. These results suggest that Hispanics may be at risk for worse outcomes care than whites due to delays in obtain needed care. In addition, poor health plan customer service can discourage proper utilization of the health care system by failing to communicate important information about accessing care. Appropriate customer service staff for Hispanic populations should include bilingual customer service agents, who are more difficult to recruit and can demand higher wages than mono-lingual English employees. Further, written materials need to be translated to Spanish and of the appropriate readability level for the target population's literacy level.

Contrary to our initial hypotheses, but consistent with prior research, Blacks rated their health care more highly and reported more positive experiences with care than whites. Specifically, Blacks reported significantly more positive experiences with physician communication and physician office staff, and rated their health care and health plan better than whites. These results indicate that on average, Black patients are more likely to report that doctors are taking as enough time to listen and explain things than white patients are. Furthermore, these results suggest that doctor's office staffs are providing courtesy or respect to Black patients.

Asian/Pacific Islanders had worse reports about care than whites across all domains of care probed by the CAHPS® surveys. These results

indicate that Asian/Pacific Islanders are on average, having more difficulty than whites finding a personal doctor, obtaining needed treatments, obtaining referrals to see specialists, and obtaining acute and routine care visits. They also indicate that Asian/Pacific Islanders are less likely than whites to have a doctor listen to them carefully, explain their treatments and diagnosis clearly, and spend enough time with them. Taken at face value, these results indicate that Asian/Pacific Islanders are experiencing significantly lower quality of care than whites and are at risk for poorer outcomes of care.

American Indian/Native Alaskans rated their personal doctors and specialists lower than whites, but did not differ significantly from whites on any of the reports about care. These generally positive results are surprising in light of the poor access to care and quality of care documented for American Indians and Native Alaskans in other studies (Cunningham et al., 1995). They suggest that the subgroup of American Indians/Alaskan Natives in our study sample is not representative of American Indians/Alaskan Natives in general. Excluded from our sample are American Indians living on reservations, who may be at greatest risk for low quality of care. Our study results suggest, however, that those American Indians and Alaskan Natives in our sample are relatively pleased with their care.

Compared to whites, persons who indicated multiple races or a race other than white, Black, American Indian/Alaskan Native, or Asian/Pacific Islander reported worse experiences with care and rated their healthcare lower. Little is know about persons who indicate multiple races. The sample description (Table 2) suggests that they

are predominantly middle-aged, educated beyond high school, and from the commercial sector. Although this group constituted only 2% of the NCBD 1.0 sample, more research is needed to better characterize this population in light of the 2000 census, which allows respondents to indicate multiple races ([www.census.gov](http://www.census.gov)).

Persons in the missing race category reported worse experiences with care and rated their healthcare lower than whites. Little is known about persons who fail to give a racial/ethnic background. In the NCBD 1.0, persons not indicating a racial/ethnic group constituted 4% of the sample, tended to be middle-aged and educated beyond high school. Because this group of survey respondents had such negative perceptions about their care, it is possible that skipping questions is a form of protest against their health plan.

#### *Intentions to Change Providers*

One important consequence of lower reports and ratings of care is changing providers (Schlesinger et al., 1999; Allen and Rodgers, 1997; Newcomer et al., 1996). Based on differences in the access to care composite, we estimated that Hispanics (Odds Ratio [OR] = 1.11) Asian/Pacific Islanders (OR = 1.27), persons in the multiracial/other race category (OR = 1.58), and persons in the missing race category (OR = 1.47) were more likely to change providers than whites. Assuming that 14% whites intend to change providers, the odds ratio for Hispanics indicates that 15% of Hispanics intend to change providers representing a 9% difference in intentions to change providers between Hispanics and whites. Similar analyses indicate that 17% Asian/Pacific Islanders intend to change providers representing a 22% difference in

intentions between Asian/Pacific Islanders and whites; that 20% of persons in the multiracial/other race category intend to change providers representing a 46% difference between this group and whites; and that 19% of persons in the missing race category intend to change providers representing a 38% difference between persons in this group and whites.

Differences in the quality of care global rating item tell a similar story. Once again, assuming that 14% of white intend to change providers, we predict that 25% persons in the missing race category (OR = 1.54) and 26% of persons in the missing race category (OR = 1.57) intend to change providers. These differences respectively represent a 43% and 45% greater intent to change providers compared with whites, assuming that 14% of whites report the intent to change providers.

While not all persons expressing the intent to change providers actually follow through, a significant number do. Research shows that intent to change medical providers is an important signal that a health plan may not be providing adequate medical treatment (Schlesinger et al., 1999). Thus, the differences in the CAHPS® access to care report composite and global quality of care rating item that we observe by racial/ethnic group in this study, suggest that Asians/Pacific Islanders, persons in the multiracial/other category, and persons in the missing category, in particular, are at higher risk than whites to receive low quality care.

*Inconsistencies between Report Composites and Global Rating Items*

The inconsistency of the global ratings and composite scores in some instances are not entirely unexpected (Pasco, 1983). On the one hand, global ratings assess satisfaction by measuring beliefs about overall care, thus making few explicit assumptions about the specific domains of care relevant to respondents making these evaluations. On the other hand, composites assess satisfaction by measuring the frequency with which specific experiences take place, explicitly defining the domains of care used by respondents making these evaluations. Thus, if members of different racial/ethnic make their evaluations of care using non-identical domains of care or using similar domains of care but assigning different relative importance to them, then we would expect to find inconsistent relationships between global ratings and composite scores.

The most striking discrepancy between evaluations obtained using the global ratings and composites is among Asian/Pacific Islanders. Based on global ratings, Asian/Pacific Islanders and whites received similar care. Based on the report composites, however, Asians/Pacific Islanders are receiving significantly lower quality care than whites. Prior research has documented lower satisfaction with care among Asian/Pacific Islanders than whites. Although cultural reasons for more dissatisfaction among Asian/Pacific Islanders have been cited, our analysis documents both worse reports about care than whites and similar ratings of care between Asian/Pacific Islanders and whites. If a cultural bias in responding to survey assessment questions underlies the poor reports about care we observe among Asian/Pacific Islanders, why does it not also result in lower ratings? Without further research on item functioning among whites and Asian/Pacific Islanders, it is

impossible to determine whether the worse reports about care among Asian/Pacific Islanders than whites are attributable to bias or worse experiences with care.

Overall it appears that when patients are asked to provide global ratings, differences between whites and other racial/ethnic groups are diminished, and when patients are asked to provide specific reports about care experiences (composites), differences between whites and other race-ethnic groups are amplified.

#### Limitations

The overall mean response rate across both commercial and Medicaid health plans was 52% (median = 52%). To determine whether this response rate significantly biased our results, we would need to know whether the response rates varied by racial/ethnic group and whether reports of care and ratings of respondents differed from that of non-respondents for each racial/ethnic group. These data would allow us to assess the representativeness of our sample for each of the racial/ethnic groups in our analyses and the direction and magnitude of any non-response bias. Without these data we cannot know, for example, how representative Blacks in our study are of all Blacks in the surveyed health plans and whether the experiences of Blacks responding to the survey are similar to those not responding to the survey. Unfortunately, data limitations prevent us from estimating racial/ethnic group specific response rates. Nor can we estimate differences in reports about care and ratings between respondents and non-respondents by racial/ethnic group.

Another limitation of our data source is that it does not allow us to disaggregate Hispanics or Asian/Pacific Islanders by cultural/linguistic group, thus potentially obscuring important variation at the subgroup level. Information on each respondent's English proficiency, level of acculturation, national origin or immigration/refugee status may provide important insights into how race/ethnicity. For example, respondents with limited English proficiency (LEP) may have much lower levels of satisfaction with provider communication than respondents with high levels of English language proficiency (Morales et al., 1999; Baker et al., 1997), but because LEP respondents represent a small fraction of all respondents, these findings are obscured in the current analyses.

Previous studies have raised additional methodological concerns in surveying ethnically and linguistically diverse populations (Hayes et al., 1999; Marin et al., 1992; Ross and Mirowski, 1984; Warnecke et al., 1997; Pearl and Fairley, 1985; Ware, 1978; Bachman and O'Malley, 1984; Hui and Triandis, 1989). These concerns focus on differences in the measurement properties of survey instruments across racial/ethnic groups. For instance, investigators have reported that African Americans and Hispanics tend to choose the extremes of Likert response scales (extreme response tendency) more often than whites or to answer affirmatively to yes/no questions (acquiescent response tendency), regardless of question content or phrasing (Marin et al., 1992; Bachman and O'Malley, 1984; Hui and Triandis, 1989). The discrepancies we have observed between global and composite measures support these concerns.

Recent research has addressed, at least in part, the issue of measurement equivalence in diverse populations. Morales et al. (in

press) used item response theory methods to evaluate the equivalence of a composite measure of satisfaction with care administered to a sample of non-Hispanic white and Hispanic survey respondents. This research showed that in spite of small differences in item functioning in some items, valid comparisons between these groups using a multiple item scale is possible. Similar studies of item and scale functioning need to be performed on samples that include Asians/Pacific Islanders, Blacks, and American Indians/Alaskan Natives.

### **Conclusions and Policy Implications**

Race and ethnicity continue to play an important role in American society. This study documents significant differences in reports and ratings of care between whites and non-whites. These racial and ethnic differences may put nonwhites at increased risk for low quality of care and poor outcomes of care. Until there is more complete public accountability of health plans and physician groups for the care they deliver to their patients, it is unlikely that the particular needs of their diverse and vulnerable patients will be addressed adequately.

Healthcare providers and purchasers of care need to collect information about the race and ethnicity of the individuals they serve. Without this critical information, representative sampling of non-whites will remain unverifiable. Available methods for assessing the equivalence of survey instruments across race and ethnic groups should be applied to widely used survey instruments such as CAHPS. Without these studies, doubt will continue to shroud the validity of racial/ethnic differences in reports and ratings of care. Quality

improvement strategies designed to improve the relevance to and effectiveness of healthcare in diverse patient populations are needed.

## References

- Allen, H. M., and W.H. Rogers. 1997. "The Consumer Health Plan Value Survey: Round Two." *Health Affairs* 16: 156-166.
- Anderson, R., S. Zelman-Lewis, A.L. Giachello, L.A. Aday, and G. Chu. 1981. "Access to Medical Care Among the Hispanic Population of the Southwestern United States." *Journal of Health and Social Behavior* 22, (March): 78-89.
- Bachman, J.G., and P.M. O'Malley. 1984. "Yea-Saying, Nay-Saying, and Going to Extremes: Black-White Differences in Response Styles." *Public Opinion Quarterly* 48: 491-509.
- Baker, D.W., R.M. Parker, M.V. Williams, W.C. Coates, and K. Pitkin. 1996. "Use and Effectiveness of Interpreters in an Emergency Department." *Journal of the American Medical Association* 275: 783-8.
- Bashshur, R.L., C.A. Metzner, and C. Worden. 1967. "Consumer Satisfaction With Group Practice, the CHA Case." *American Journal of Public Health and the Nations Health* 57, no.11 (Nov.):1991-9.
- Brick, J.M., and G. Kalton. 1996. "Handling Missing Data in Survey Research." *Statistical Methods in Medical Research* 5: 215-238.
- Brown, J.A., S.E. Nederend, R.D. Hays, P.F. Short, and D.O. Farley. 1999. "Special Issues in Assessing Care of Medicaid Recipients." *Medical Care* 37, no.3: MS79-MS88.
- CAHPS® 2.0 Survey and Reporting Kit. Agency for Healthcare Quality and Research, U.S. Department of Health and Human Services, AHRQ Publication No: 99-0039, October 1999.

- Chronbach, L.J. 1951. "Coefficient alpha and the internal structure of tests." *Psychometrika* 16, 297-334.
- Crofton, C., J.S. Luliban, and C. Darby. 1999. "Foreword." *Medical Care* 37: MS1-MS9.
- Cunningham, P.J., and L.J. Cornelius. 1995. "Access to Ambulatory Care for American Indians and Alaskan Natives; the Relative Importance of Personal and Community Resources." *Social Science and Medicine* 40, no.3: 393-407.
- Fiscella, K., and P. Franks. 1999. "Influence of Patient Education on Profiles of Physician Practices." *Annals of Internal Medicine* 131, no.10 (November): 745-51.
- Fowler, F.J., P.M. Gallagher, and S.E. Nederend. 1999. "Comparing Telephone and Mail Responses to the CAHPS® Survey Instruments." *Medical Care* 37, no.3: MS41-MS49
- Fox, J.G., and D.M. Storms. 1981. "A Different Approach to Sociodemographic Predictors of Satisfaction to Health Care." *Social Science and Medicine* 15(A): 557-64.
- Hays, R.D., J.A. Brown, K.L. Spritzer, W.J. Dixon, and R.H. Brook. 1998. "Member Ratings of Health Care Provided by 48 Physician Groups." *Archives of Internal Medicine* 158 (April): 785-90.
- Hays, R.D., J.A., Shaul, V.S.L. Williams, J.S. Lubalin, L.D. Harris-Kojetin, S.F. Sweeny, and P.D. Cleary. 1999. "Psychometric Properties of the CAHPS 1.0 Survey Measures." *Medical Care* 37, no. 3: MS22-MS31.
- Hayes, R.P., and D.W. Baker. 1998. "Methodological Problems in Comparing English-Speaking and Spanish-Speaking Patients'

- Satisfaction with Interpersonal Aspects of Care." *Medical Care* 36: 230-6.
- Huber, P.J. 1964. "Robust Estimation of a Location Parameter." *Annals of Mathematical Statistics* 35: 73-101.
- Hui, H., and H.C. Triandis. 1989. "Effects of Culture and Response Format on Extreme Response Style." *Journal of Cross-Cultural Psychology* 20, no.3 (September): 296-309.
- Hulka, B.S., L.L.Kupper, M.B.Daly, J.C.Cassel, F. Schoen. 1975. "Correlates of Satisfaction with Medical Care: A Community Perspective." *Medical Care* 13, no.8: 648-658.
- Johnson, H.P. 1999. "How Many Californians? A Review of Population Projections for the State. California Counts, Population Trends and Profiles." *Public Policy Institute of California* 1, no.1 (October).
- Kanji, G.K. 1993. *100 Statistical Tests*. Thousand Oaks, CA: Sage Publications.
- Like, R., and S.J. Zyzanski. 1987. "Patient Satisfaction with the Clinical Encounter: Social Psychological Determinants." *Social Science and Medicine* 24, no.4: 351-57.
- Marin, G., R.J. Gamba, and B.V. Marin. 1992. "Extreme Response Style and Acquiescence Among Hispanics—The Role of Acculturation and Education." *Journal of Cross-Cultural Psychology* 23, no.4 (December): 498-509.
- Meredith, L.S., and A.L. Sui. 1995. "Variation and Quality of Self-Report Health Data. Asians and Pacific Islanders Compared with Other Ethnic Groups." *Medical Care* 33, no.11: 1120-31.

- Morales, L.S., S.P. Reise, and R.D. Hays. "Evaluating the Equivalence of Health Care Ratings by Whites and Hispanics." In Press: Medical Care, May, 2000.
- Morales, L.S., W.E. Cunningham, J.A. Brown, H. Liu, and R.D. Hays. 1999. "Are Latinos Less Satisfied with Communications by Health Care Providers?" Journal of General Internal Medicine 14: 409-17.
- National Committee for Quality Assurance. 1998. Accreditation '99: Standards for the Accreditation of Managed Care Organizations, pages 11-17.
- Newcomer, R., S. Preston, and C. Harrington. 1996. "Health Plan Satisfaction and Risk of Disenrollment Among Social/HMO and Fee-For-Service Recipients." Inquiry 33: 144-54.
- Pasco, G.C. 1983. "Patient Satisfaction in Primary Health Care: a Literature Review and Analysis." Evaluation and Program Planning 6: 185-210.
- Pearl, D.K., and D. Fairley. 1985. "Testing for the Potential for Nonresponse Bias in Sample Surveys." Public Opinion Quarterly 49: 553-60.
- Ross, C.E, and J. Mirowski. 1984. "Socially-Desirable Response and Acquiescence in a Cross-Cultural Survey of Mental Health." Journal of Health and Social Behavior 25 (June): 189-97.
- Schlesinger, M., B. Druss, and T. Thomas. 1999. "No Exit? The Effect of Health Status on Dissatisfaction and Disenrollment for Health Plans." Health Services Research 34: 547-76.
- Schnaier, J.A., S.F. Sweeny, V.S.L. Williams, B. Kosiak, J.S. Lubalin, R.D. Hays, and L.D. Harris-Kojetin. 1999. "Special Issues Addressed in the CAHPS Survey of Medicare Managed Care Beneficiaries." Medical Care 37, no.3: MS69-MS78.

- Smith, J.P., and B. Edmonston. 1997. *The New Americans: Economic, Demographic, and Fiscal Effects of Immigration*. Washington, DC: National Academy Press.
- Snyder, R., W. Cunningham, T.T. Nakazono, and R.D. Hays. "Access to Medical Care Reported by Asians and Pacific Islanders in a West Coast Physician Group Association." In Press.
- StataCorp. 1999. *Stata Statistical Software: Release 6.0*. College Station, TX: Stata Corporation.
- Taira, D.A., D.G. Safran, T.B. Seto, W.H. Rogers, M. Kosinski, J.E. Ware, N. Lieberman, and A.R. Tarlov. 1997. "Asian-American Patient Ratings of Physician Primary Care Performance." *Journal of General Internal Medicine* 12 (April): 237-242.
- Warnecke, R.B., T.P. Johnson, N. Chavez, S. Sudman, D.P. O'Rourke, L. Lacey, and J. Horm. 1997. "Improving Question Wording in Surveys of Culturally Diverse Populations." *Annals of Epidemiology* 7, no. 5 (July): 334-42.
- Ware, J.E. 1978. "Effects of Acquiescent Response Set on Patient Satisfaction Ratings." *Medical Care* 16, no. 4 (April): 327-36.
- Ware, J.E., A. Davies-Avery, and A.L. Stewart. 1982. "The Measurement and Meaning of Patient Satisfaction." *Health and Medical Care Services Review* 1, no. 1: 2-28.
- Weidmer, B., J. Brown, and L. Garcia. 1999. "Translating the CAHPS 1.0 Survey Instrument into Spanish." *Medical Care* 37: MS89-MS97.
- Weiss, G.L. 1988. "Patient Satisfaction with Primary Care: Evaluation of Sociodemographic and Predispositional Factors." *Medical Care* 26, no.4: 383-92.

Table 1. CAHPS® 1.0 questions from the 1.0 NCBD database.

<b>Single Item Global Ratings</b>	<b>Response Format</b>
<i>Health Plan</i>	
We want to know your rating of all your experience with your health insurance plan. How would your health plan?	0 - 10 Scale.
<i>Health Care</i>	
We want to know your rating of all your health care in the last 6 months from all doctors and other health professionals. How would you rate all your health care?	0 - 10 Scale.
<i>Specialists</i>	
We want to know your rating of the specialist you saw most often in the last 6 months. How would you rate the specialist?	0 - 10 Scale.
<i>Personal MD</i>	
We want to know your rating of your personal doctor or nurse. How would you rate your personal doctor or nurse?	0 - 10 Scale.
<b>Multiple Item Composites</b>	
<i>Access to Care</i>	
With the choices that your health plan gives you, was it easy to find a personal doctor or nurse for yourself?	Yes (1) No (0)
In the last 6 months, was it easy to get a referral when you needed one?	
In the last 6 months, how often did you the tests or treatment you thought were needed?	Never (1) Sometimes (2)
In the last 6 months, how often did your health plan deal with approvals or payments without taking a lot of your time and energy?	Usually (3) Always (4)
<i>MD Communication</i>	
In the last 6 months, how often did doctors or other health professional listen carefully to you?	
In the last 6 months, how often did doctors or other health professionals explain things in a way you could understand?	Never (1) Sometimes (2)
In the last 6 months, how often did doctors or other health professionals show respect for what you had to say?	Usually (3) Always (4)
In the last 6 months, how often did doctors or other health professionals spend enough time with you?	

<i>MD Staff</i>	
In the last 6 months, how often did office staff at a doctor's office or clinic treat you with courtesy and respect?	Never (1) Sometimes (2)
In the last 6 months, how often did office staff at a doctor's office or clinic as helpful as you thought they should be?	Usually (3) Always (4)
<i>Promptness of Care</i>	
In the last 6 months, how often did you get the medical help you needed when you phoned the doctor's office or clinic during the day Monday to Friday?	Never (1) Sometimes (2)
In the last 6 months, when you tried to be seen for an illness or injury, how often did you see a doctor or other health professional as soon as you wanted?	Usually (3) Always (4)
In the last 6 months, when you needed regular or routine care, how often did you get an appointment as soon as you wanted?	
In the last 6 months, how often did you wait in the doctor's office or clinic more than 30 minutes past your appointment time to see the person you went to see?	
<i>Health Plan Customer Service</i>	
In the last 6 months, how often did you get all the information or other help you needed when you called the health insurance plan's customer service?	Never (1) Sometimes (2)
In the last 6 months, how often were people at the health insurance plan's customer service as helpful as you thought they should be?	Usually (3) Always (4)
In the last 6 months, how often did you have more forms to fill out for your health insurance plan than you thought was reasonable?	

Table 2. Sample Characteristics.

	Hispanic	White	Black	Asian / PI	AI / NA	Other / Multi	Missing
N	1,657	20,414	2,942	976	588	553	1,224
Age (%)							
18-34	51	37	48	41	49	43	41
35-54	42	74	43	48	45	49	50
55+	7	12	9	11	7	9	9
Gender (%)							
Female	75	72	82	64	83	68	75
Male	25	28	17	36	17	33	25
Education (%)							
<HS	24	10	20	14	20	7	10
HS	30	30	38	23	36	27	22
>HS	45	61	42	64	44	66	69
Health Status (%)							
E	16	16	16	18	12	17	16
VG	29	36	27	33	23	32	34
G	34	34	32	37	37	35	32
F	17	12	20	11	21	14	14
P	4	3	5	2	8	2	4
Insurance Type (%)							
Commercial	48	62	30	64	30	66	52
Medicaid	53	38	70	36	70	35	48

Note. All P-values statistically significant at 0.05 level.

Table 3. Item means and standard errors by race and ethnicity.

	Hispanic (n=1,657)	White (n=20,414)	Black (n=2,942)	API (n=976)	AI/NA (n=588)	M/O (n=533)	Miss (n=1,224)
<b>Global Ratings</b>							
Personal MD	79.72 (0.72)	79.35 (0.17)	77.25 (0.61)	77.65 (0.82)	72.06 (1.53)	75.18 (1.15)	77.63 (0.73)
Specialists	77.63 (1.16)	77.01 (0.30)	70.36 (1.04)	77.03 (1.35)	63.17 (2.53)	70.92 (1.98)	73.93 (1.17)
Health Care	79.45 (0.70)	78.83 (0.18)	80.39 (0.52)	77.84 (0.85)	75.50 (1.25)	72.95 (1.25)	73.33 (0.83)
Health Plan	77.43 (0.57)	73.43 (0.16)	77.60 (0.44)	74.58 (0.69)	73.89 (1.03)	68.72 (1.07)	67.74 (0.72)
<b>Access to Care</b>							
Finding personal MD	80.98 (1.06)	80.58 (0.31)	82.24 (0.77)	81.34 (1.46)	71.76 (2.03)	71.47 (2.19)	70.71 (1.51)
Get referrals	66.51 (2.07)	70.17 (0.55)	68.66 (1.59)	74.65 (2.71)	65.20 (3.50)	65.80 (3.30)	60.63 (2.36)
Getting tests and treatments	71.70 (1.39)	77.17 (0.32)	69.76 (1.11)	69.59 (1.73)	71.17 (2.15)	65.66 (2.35)	69.41 (1.44)
Getting approvals and payments	54.47 (1.50)	66.71 (0.35)	50.72 (1.18)	49.49 (2.06)	58.53 (2.41)	58.92 (2.24)	62.03 (1.83)
<b>MD Communication</b>							
MD listens carefully	81.25 (0.80)	80.58 (0.21)	83.27 (0.60)	79.83 (1.04)	80.41 (1.29)	76.92 (1.45)	76.30 (0.96)
MD explained things well	81.64 (0.83)	83.76 (0.20)	84.65 (0.59)	79.58 (1.14)	83.11 (1.28)	81.71 (1.25)	80.91 (0.87)
MD respected your comments	82.80 (0.77)	81.83 (0.21)	84.61 (0.59)	78.23 (1.11)	81.93 (1.27)	77.22 (1.40)	75.89 (0.97)
MD spend	72.69	75.29	75.49	71.77	73.38	70.04	69.82

enough time	(0.91)	(0.23)	(0.70)	(1.23)	(1.45)	(1.54)	(1.03)
-------------	--------	--------	--------	--------	--------	--------	--------

<b>MD Staff</b>							
MD staff courteous and respectful	85.66 (0.74)	87.81 (0.18)	88.09 (0.52)	81.96 (1.10)	84.73 (1.17)	84.61 (1.20)	84.39 (0.83)
MD Staff Helpful	78.78 (0.82)	79.09 (0.21)	80.79 (0.61)	75.70 (1.13)	77.05 (1.33)	75.31 (1.45)	73.97 (0.93)
<b>Promptness of Care</b>							
Getting phone help	74.91 (1.01)	78.87 (0.25)	77.40 (0.73)	68.71 (1.41)	73.68 (1.73)	73.22 (1.69)	74.41 (1.18)
Getting acute care	68.25 (1.17)	71.78 (0.30)	69.20 (0.91)	63.80 (1.57)	66.68 (1.87)	65.79 (2.02)	66.90 (1.39)
Getting routine care	68.78 (1.09)	71.93 (0.29)	71.70 (0.78)	66.25 (1.40)	71.12 (1.80)	68.81 (1.89)	66.09 (1.33)
Wait more than 30 minutes	66.16 (1.08)	70.17 (0.28)	68.25 (0.77)	68.44 (1.41)	67.31 (1.57)	65.46 (1.88)	54.66 (1.31)
<b>Health Plan Customer Service</b>							
Getting Information from Customer Service	65.54 (1.40)	67.48 (0.38)	71.91 (1.06)	67.27 (1.63)	69.28 (2.30)	65.82 (2.18)	61.49 (1.60)
Customer Service Helpful	67.45 (1.40)	69.56 (0.37)	73.22 (1.04)	69.04 (1.63)	73.14 (2.06)	68.50 (2.10)	62.01 (1.52)
Paperwork	85.35 (0.67)	87.28 (0.20)	87.50 (0.47)	84.64 (0.92)	86.83 (1.10)	87.68 (1.16)	57.93 (1.32)

Note. All intra-item racial/ethnic group mean differences significant at a  $p < 0.01$  level, as assessed by one-way ANOVA models for each item.

Table 4. Results of Ordinary Least Squares Multivariable Regressions.

	Reports About Care					Ratings of Care			
	Access	Prompt	Comm	Helpful	Service	MD Rate	Spec Rate	Care Rate	Plan Rate
Hispanic	-2.02*	-3.91*	0.32	-0.57	-2.41*	1.14	2.49	1.24	3.35*
	(0.94)	(1.32)	(0.85)	(0.85)	(1.14)	(1.00)	(2.01)	(1.04)	(1.04)
Black	-1.65	-1.03	2.65*	1.90*	-1.02	-0.86	-2.50	2.52*	3.24*
	(1.03)	(0.79)	(0.55)	(0.39)	(1.14)	(1.65)	(1.48)	(0.91)	(0.74)
Asian/Pacific Islander	-4.56*	-8.27*	-5.21*	-8.18*	-3.23*	-1.49	-0.78	-1.23	1.36
	(1.23)	(1.17)	(1.15)	(1.50)	(1.59)	(0.96)	(1.89)	(0.91)	(0.82)
American Indian /Alaskan Native	-6.14	-2.55	-0.73	-2.04	-0.16	-4.91*	-8.59*	-1.68	0.43
	(4.09)	(1.57)	(1.12)	(1.29)	(0.98)	(2.44)	(3.82)	(2.59)	(1.32)
Other Race/ Multiracial	-8.77*	-5.35*	-4.84*	-4.36*	-1.15	-3.98*	-3.61	-5.25*	-3.86*
	(1.59)	(1.62)	(1.21)	(1.05)	(1.24)	(1.38)	(2.54)	(1.57)	(1.35)
Missing	-7.42*	-8.53*	-4.70*	-4.90*	-25.03*	-0.54	-1.04	-5.41*	-5.58*
	(1.61)	(1.95)	(1.12)	(1.06)	(8.04)	(1.53)	(1.85)	(1.36)	(0.98)
Sample Mean Score	75.13	72.29	80.16	83.06	82.17	78.77	75.81	78.64	73.89
Joint F-Test	12.12	13.93	12.58	13.30	2.93	3.40	3.22	9.17	19.47
Regression R <sup>2</sup>	0.04	0.04	0.06	0.04	0.04	0.03	0.09	0.07	0.05

Note. Regression models included age, gender, education, health status, and an indicator for Medicaid. Robust standard errors (in parenthesis) are adjusted for intra-plan clustering of observations. White was the reference group in all regressions. Reports about care scores range from 0-100 (100=best) and ratings of care ranged from 0-10 (10=best).

\*Denotes statistical significance at 0.05 level.

Table 5. Effect of dissatisfaction on intent to change medical groups

	Access to Needed Care Composite		Global Rating of Health Care	
	BETA <sub>CAHPS</sub>	Odds Ratio	BETA <sub>CAHPS</sub>	Odds Ratio
Hispanic	-2.02	1.11	NS	-
Black	NS	-	2.52	0.81
Asian / Pacific Islander	-4.56	1.27	NS	-
American Indian / Alaskan Native	NS	-	NS	-
Other Race / Multiracial	-8.85	1.58	-5.25	1.54
Missing	-7.42	1.47	-5.41	1.57

Note. Whites are the reference group for the odds ratio. NS indicates "Not Significant."

Figure 1. Racial/ethnicity assignment algorithm.

