

# Can Hospital Cultural Competency Reduce Disparities in Patient Experiences With Care?

Robert Weech-Maldonado, MBA, PhD,\* Marc Elliott, PhD,† Rohit Pradhan, PhD,\*  
Cameron Schiller, MS,‡ Allyson Hall, PhD,§ and Ron D. Hays, PhD†||

**Background:** Cultural competency has been espoused as an organizational strategy to reduce health disparities in care.

**Objective:** To examine the relationship between hospital cultural competency and inpatient experiences with care.

**Research Design:** The first model predicted Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores from hospital random effects, plus fixed effects for hospital cultural competency, individual race/ethnicity/language, and case-mix variables. The second model tested if the association between a hospital's cultural competency and HCAHPS scores differed for minority and non-Hispanic white patients.

**Subjects:** The National CAHPS Benchmarking Database's (NCBD) HCAHPS Surveys and the Cultural Competency Assessment Tool of Hospitals Surveys for California hospitals were merged, resulting in 66 hospitals and 19,583 HCAHPS respondents in 2006.

**Measures:** Dependent variables include 10 HCAHPS measures: 6 composites (communication with doctors, communication with nurses, staff responsiveness, pain control, communication about medications, and discharge information), 2 individual items (cleanliness and quietness of patient rooms), and 2 global items (overall hospital rating, and whether patient would recommend hospital).

**Results:** Hospitals with greater cultural competency have better HCAHPS scores for doctor communication, hospital rating, and hospital recommendation. Furthermore, HCAHPS scores for minorities were higher at hospitals with greater cultural competency on 4 other dimensions: nurse communication, staff responsiveness, quiet room, and pain control.

**Conclusions:** Greater hospital cultural competency may improve overall patient experiences, but may particularly benefit minorities in their interactions with nurses and hospital staff. Such effort may not only serve longstanding goals of reducing racial/ethnic disparities in inpatient experience, but may also contribute to general quality improvement.

**Key Words:** cultural competency, diversity management, Cultural Competency Assessment Tool for Hospitals (CCATH), CAHPS, health disparities

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Health care organizations (HCOs) are increasingly recognizing cultural competency as an organizational strategy to address the needs of diverse patient populations.<sup>1</sup> Cultural competency has been defined as an “ongoing commitment or institutionalization of appropriate practices and policies for diverse populations”<sup>2</sup> (p. 183). Similarly, the National Quality Forum (NQF)<sup>3</sup> (p. 2) has defined cultural competency as the “ongoing capacity of health care systems, organizations, and professionals to provide for diverse patient populations high-quality care that is safe, patient and family centered, evidence based, and equitable.”

Cultural competency has been espoused as a strategy to enhance customer satisfaction, facilitate internal communication within the workforce, and improve organizational performance.<sup>3–5</sup> Similarly, cultural competency has been proposed as a way for HCOs to reduce disparities in care.<sup>2</sup> Studies have examined the impact of specific practices (eg, use of interpreters, recruitment and retention of minority staff, and diversity training) on racial/ethnic disparities in care.<sup>6</sup> However, very few studies have examined the impact of system-wide organizational cultural competency on patient outcomes. Lieu et al<sup>7</sup> found that practice sites with highest cultural competence reported better asthma outcomes for Medicaid recipients. This study was limited to asthma and children. Our study makes a contribution to the literature by studying the relationship of hospital cultural competency with patient experiences with care in California hospitals.

From the \*Department of Health Services Administration, University of Alabama at Birmingham, AL; †RAND Corporation, Santa Monica, CA; ‡Schiller Research Consulting, Gainesville, FL; §Department of Health Services Research, Management & Policy, University of Florida, Gainesville, FL; and ||Department of Medicine, University of California, Los Angeles, CA.

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Reprints: Robert Weech-Maldonado, MBA, PhD, Department of Health Services Administration, University of Alabama at Birmingham, 1675 University Boulevard, 520 Webb, Birmingham, AL 35294. E-mail: rweech@uab.edu.

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## MEASURING HOSPITAL CULTURAL COMPETENCY

Successful implementation of cultural competency requires an organizational commitment toward a systems approach.<sup>8</sup> System level cultural competency has been defined as “a set of congruent behaviors, attitudes, and policies that come together in a system, agency, or among professionals and enable that system, agency, or those professionals to work effectively in cross-cultural situations”<sup>9</sup> (p. 20). HCOs that adopt a systems approach integrate cultural competency practices throughout their management and clinical subsystems. Furthermore, HCOs engage their communities in meaningful participation in the organization’s decision making and power structures.<sup>9</sup>

To evaluate whether organizational structures and processes meet the needs of a diverse patient population, a holistic measurement framework is required. Organizational assessments provide a useful tool to evaluate the structure (policies, programs) and processes (practices, culture) for cultural competency. The Cultural Competency Assessment Tool for Hospitals (CCATH) draws from 2 organizational cultural competency frameworks: (1) The US Department of Health and Human Services’ Office of Minority Health national standards for culturally and linguistically appropriate services (CLAS) in health care<sup>10</sup>; and (2) NQF’s<sup>3</sup> “A Comprehensive Framework and Preferred Practices for Measuring and Reporting Cultural Competency.”

The CLAS standards provide guidelines on policies and practices aimed at developing culturally appropriate systems of care.<sup>10</sup> The CLAS standards were developed through an extensive process that included: (1) an initial draft of the national standards by the Resources for Cross Cultural Health Care and the Center for the Advancement of Health; (2) review of the proposed standards by a national advisory committee constituted by representatives from Federal and state health agencies, provider groups, and academic research; (3) focus group designed to evaluate the revised set of standards recommended by the national advisory committee; (4) a national process of public comment to facilitate input from stakeholder groups on the draft standards; and a final version of the CLAS standards in 2000.<sup>10</sup> The 14 CLAS standards are categorized into 3 themes: Culturally Competent Care (standards 1–3), Language Access Services (standards 4–7), and Organizational Supports for Cultural Competence (standards 8–14).

On the basis of NQF’s framework, we propose 6 domains for hospital cultural competency: (1) leadership; (2) integration into management systems and operations; (3) workforce diversity and training; (4) community engagement; (5) patient-provider communication; and (6) care delivery and supporting mechanisms.<sup>3</sup> *Leadership* recognizes that organizational leaders, including clinical leaders, administrative leaders, and the Board of Trustees, play an essential role in developing and implementing cultural competency activities, in setting organizational policy and strategy, and in monitoring organizational performance. *Integration into management systems and operations* focuses on whether cultural competency is integrated throughout all management practices of the organization. *Workforce*

*diversity and training* can be viewed as a mean to providing more effective services for culturally diverse populations through human resource practices; it also relates to whether training and development activities include state-of-the-art content in cultural competency. *Community engagement* refers to active outreach as well as community inclusion and partnership in organizational decision making. *Patient-provider communication* includes all communication between the patient and clinicians as well as support staff. *Care delivery and supporting mechanisms* encompasses the delivery of care, the physical environment of where the care is delivered, and links to supportive services and providers. Although the first 4 domains pertain to management subsystems, the latter 2 are considered clinical subsystems. On the basis of the systems approach, organizations become culturally competent by adapting their management and clinical subsystems to the needs of a more diverse workforce and patient population. Appendix 1 (<http://links.lww.com/MLR/A320>) shows the relationship between the NQF cultural competency domains and the CLAS standards.

## CONCEPTUAL FRAMEWORK

Donabedian<sup>11</sup> Structure-Process-Outcome (SPO) model has been used in health services research to examine the relationship between organizational characteristics, such as size, profit status, and chain affiliation with outcomes of care.<sup>12–16</sup> In the SPO model, structure is defined as the professional and organizational resources that can be associated with providing care, such as facility operating capacities, human resources, and staff credentials.<sup>17</sup> The organization of the physical and human resources, and the quality of those resources is also construed as part of organizational structure.<sup>18</sup> Process refers to actions that are performed on or done to patients, such as the communication between staff and patients.<sup>19</sup> Outcomes are the states that result from care processes, such as improvements in health status<sup>20</sup> or patient satisfaction with care.<sup>18,21</sup> Appropriate structures increase the likelihood of good processes, and appropriate processes increase the likelihood of good outcomes.

We developed a model that explicitly links hospital cultural competency (structure) with patient experiences with care (outcomes of care). The degree of hospital cultural competency is a structural element, because it implies having policies and practices in place that facilitate the delivery of appropriate services to diverse populations including understanding the needs of the population that they serve; training staff to be culturally competent; and providing interpreters and translation services.

Patient reports and ratings of health care experiences serve as an indicator of the quality of care provided by health plans and health care providers. These evaluations provide important information about how well providers meet the needs of their consumers.<sup>22,23</sup> The Consumer Assessment of Healthcare Providers and Systems (CAHPS<sup>®</sup>) Hospital Survey scores are included in the Centers for Medicare and Medicaid Services’ (CMS) public reporting of hospital quality of care,

known as Hospital Compare.<sup>24,25</sup> These measures are used as outcomes of care in this study.

In summary, it is expected that patients in hospitals with greater cultural competency will have better reports of inpatient care. Furthermore, we expect this to be an overall positive effect across all racial/ethnic groups and not limited to racial/ethnic minority groups. Cultural competency policies and practices are intended to facilitate cross-cultural interactions across a range of sociocultural factors, such as “race/ethnicity, nationality, language, health literacy, gender, socioeconomic status, immigrant status, (age at immigration and length of time in the United States), physical and mental ability, mental health, sexual orientation and gender identity, religion, age, and occupation”<sup>3</sup> (p. 2). Therefore, a system-wide effort toward cultural competency is likely to have an overall positive effect across all hospital patients.

*Hypothesis 1:* Patients receiving care in hospitals with greater cultural competency will report better experiences with inpatient care.

Generally cultural competency activities have focused on racial/ethnic and language issues. As such, racial/ethnic/linguistic minorities stand to benefit the most from cultural competency policies and practices. Therefore, compared with non-Hispanic white English speakers, racial/ethnic minorities are hypothesized to have better patient experiences in hospitals with greater cultural competency.

*Hypothesis 2:* The experiences of minority patients relative to non-Hispanic white English-speaking patients will be better at hospitals with a higher degree of cultural competency than at hospitals with lower degree of cultural competency.

## METHODS

### Data

Two sources of data are used: the 2006 National CAHPS Benchmarking Database’s (NCBD) Hospital Surveys [Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)] and the 2006 CCATH Surveys for California hospitals in 2006. The 2006 NCBD HCAHPS includes data from sponsors that voluntarily participate, and includes patients discharged between December 2005 and September 2006.<sup>26</sup> HCAHPS targets a random sample of adult patients (18 y of age or older) with a non-psychiatric primary discharge diagnosis for medical, surgical, or maternity care; who had an overnight stay (or longer) as an inpatient; and who were alive at discharge.<sup>24</sup> In the NCBD data 148,210 surveys (78%) were completed by mail; 36,822 (19%) by telephone; and 5658 (3%) by interactive voice response. There were 7274 surveys (4%) completed in Spanish and 112 (0.1%) in Chinese. Surveys completed in Chinese were dropped from the analytic sample because of their small number. Once we apply additional hospital-level exclusion criteria (response rate <10%, number of completes <50, and hospital located outside of California), the hospital analytic sample consists of 138 hospitals. The average response rate for the hospitals in the analytic sample was 30%.

The sampling frame for the CCATH mail survey consisted of all 344 general and children hospitals listed in

the California Hospital Association Directory in 2006. We followed a modified approach to the Total Design Method.<sup>27</sup> A cover letter, explaining the purpose of the survey along with the actual survey was mailed to the chief executive officer. The chief executive officer was asked to designate a survey coordinator to collect all the information and respond to the survey. We included a letter of support from the California Institute for Health Systems Performance. In addition, a \$25 incentive payment was included for the survey coordinator. A reminder was mailed to those who had not returned the survey within 2 weeks. A second mailing targeted participants not responding within 1 month, and a new survey was included with the mailing. If the survey had not been returned within 7 weeks, phone calls were made to request respondents to complete the survey. This was followed by email reminders for those who had not returned the survey within 10 weeks. Finally, an email with an electronic version of the survey was sent to those who had not responded within 14 weeks. We obtained a 37% response rate (125 hospitals) with this multistage approach.

### Sample

The final analytic file contained data on 19,583 patients from 66 hospitals that participated in both the HCAHPS Survey and the CCATH Survey. We assessed potential nonresponse bias by comparing respondent hospitals with nonrespondent hospitals. Hospitals in the final analytic sample were more likely to be not-for-profit compared with other hospitals in California (67% vs. 53%), have a large bed size (39% vs. 25%), have a low proportion of Medicaid patient days (21% vs. 31%), and have a high proportion of managed care patient days (38% vs. 29%). These findings are largely consistent with other descriptions of early HCAHPS participants.<sup>28,29</sup> However, respondent hospitals were not significantly different ( $P < 0.05$ ) than nonrespondent hospitals in terms of teaching status, health system affiliation, percent of nonwhite inpatients, total profit margin, market competition (Herfindahl-Hirschman Index), percent of non-white population in the county, percent of non-English speakers in the county, being in a metropolitan area, and per capita income.

### Variables

#### Dependent Variables

The study included 10 HCAHPS measures of patient experience with care: 6 composite measures, 2 individual reports, and 2 global ratings. The 6 composite measures are constructed from 14 HCAHPS items: communication with doctors, communication with nurses, staff responsiveness, pain control, communication about medications, and discharge information.<sup>30</sup> Composites were scored as the average of applicable items within a composite.<sup>31–33</sup> Support for the reliability and validity of these domains of care have been provided in prior work.<sup>25,31,34–36</sup> In addition, the 2 stand-alone report items (cleanliness of hospital environment and quietness of hospital environment) and the 2 global items (recommendation of hospital to friends and family, and overall rating of hospital) were included. Response options are *always*, *usually*, *sometimes*, or *never* for all composite

items; *yes* or *no* for the cleanliness and quietness items; *definitely no*, *probably no*, *probably yes*, and *definitely yes* for the recommendation to friends and family; and 0–10 for the overall rating item (with 0 labeled *worst possible* and 10 labeled *best possible*). To facilitate comparisons, all dependent variables were transformed linearly to a 0–100 possible range.

**Independent Variables**

The independent variables of primary interest were hospital cultural competency and the patient-level indicators of race/ethnicity/language. The degree of hospital cultural competency is represented as an average of the CCATH scales. The CCATH measures were developed to reflect the 6 NQF domains and 14 CLAS standards.<sup>5</sup> The CCATH has been subject to pilot testing, focus groups, cognitive interviews, and field testing.<sup>5,37</sup>

Exploratory and confirmatory factor analysis of field test data supported 12 CCATH composite scales: Leadership and Strategic Planning, Data Collection on Inpatient Population, Data Collection on Service Area, Performance Management Systems and Quality Improvement (QI), Human Resources Practices, Diversity Training, Community Representation, Availability of Interpreter Services, Interpreter Services Policies, Quality of Interpreter Services, Translation of Written Materials, and Clinical Cultural Competency Practices. The 12-factor model provided good fit to the data:  $\chi^2=90.8$  ( $P$  value=0.17); comparative fit index=0.96; Tucker-Lewis index=0.97; and the root mean square error of approximation=0.04.<sup>5</sup> Appendix 1 (<http://links.lww.com/MLR/A320>) shows the relationship between the NQF domains, the CCATH scales, and the CLAS standards, whereas Appendix 2 (<http://links.lww.com/MLR/A320>) shows the CCATH scales and items. Table 1 provides Cronbach<sup>5</sup> coefficient  $\alpha$ 's and the mean score for each CCATH scale. All the CCATH scales had  $\alpha$ 's > 0.60, and 9 of the 12 composites had  $\alpha$ s > 0.70. Mean scores for each CCATH composite were obtained by: (1) linear transformation of each item to a 0–100 possible range; and (2) calculating the average of the items within each composite.

An average score for the 12 CCATH scales was calculated and used as the dependent variable. Second-order

factor analysis results confirmed that it was appropriate to aggregate the CCATH composites to obtain an overall mean:  $\chi^2=92.9$  ( $P$  value=0.12); comparative fit index=0.95; Tucker-Lewis index=0.96; and root mean square error of approximation=0.039.

Respondents were assigned to racial/ethnic/language categories based on their self-reported race, ethnicity, and language spoken at home, as well as the survey language.<sup>5,33</sup> First, any respondent that was of Hispanic or Latino origin or descent was categorized as Hispanic, regardless of stated race. The remaining respondents were categorized as white, black, Asian or Pacific Islander, American Indian, multi-racial, and missing race/ethnicity based on the race categories selected. These categories were further subdivided by language preference, based on survey language and language spoken at home. Language subgroups for blacks, American Indians, or multiracial were not large enough for separate analysis. Any respondent not selecting any race/ethnicity or language question was categorized as missing race/ethnicity or language. The final groupings were: white, English Survey, English spoken at home (white English speakers); white, English Survey, non-English spoken at home (white non-English speakers); Hispanic, English Survey, English spoken at home (Hispanic English speakers); Hispanic, English Survey, Spanish spoken at home (Hispanic bilinguals); Hispanic, Spanish Survey, Spanish spoken at home (Hispanic Spanish speakers); black, English Survey, English spoken at home (black); Asian or Pacific Islander, English Survey, English spoken at home (Asian English speakers); Asian or Pacific Islander, English Survey, other language spoken at home (Asian non-English speakers); American Indian; multiracial; and missing race/ethnicity or language. A similar classification of racial/ethnic and language groups was used in prior CAHPS research.<sup>5,33</sup>

**Case-mix Adjustment**

An additional set of variables known to be related to systematic differences in survey responses was used as case-mix adjustors: age, education, self-reported health status, service line, and emergency room admission.<sup>5</sup> Age was a categorical variable with 8 categories: 18–29, 30–39, 40–49, 50–59, 60–69, 70–79, 80–89, and 90 or older. Education was

**TABLE 1.** Cultural Competency Assessment Tool for Hospitals (CCATH) Scales, Number of Items, Internal Consistency Reliabilities, Means, and SDs

CCATH Scale	No. Items	$\alpha$	Mean*	SD
Leadership and Strategic Planning	6	0.79	35.8	33.6
Data Collection on Inpatient Population	2	0.70	87.1	29.8
Data Collection on Service Area	7	0.84	60.5	31.3
Performance Management Systems and QI	3	0.78	33.3	35.0
Human Resources Practices	8	0.66	62.2	21.4
Diversity Training	3	0.68	53.7	35.5
Community Representation	2	0.84	40.2	45.6
Availability of Interpreter Services	4	0.87	70.2	25.7
Interpreter Services Policies	4	0.65	61.1	32.5
Quality of Interpreter Services	3	0.75	58.1	40.7
Translation of Written Materials	6	0.81	52.3	22.8
Clinical Cultural Competency Practices	4	0.76	81.4	23.3

\*Possible range is 0–100, with 100 indicating full adherence to each respective CCATH subdomain.

a categorical variable with 6 categories: eighth grade or less, some high school but did not graduate, high school graduate or GED, some college/2-year degree, 4-year college graduate, and more than 4-year college degree. Health status was a categorical variable measuring how respondents rate their overall health: excellent, very good, good, fair, and poor. Service line was a 3-category variable (obstetric, medical, or surgical). Interaction terms of age and service line was included as an additional case-mix adjustor. This approach is similar to what is currently used in HCAHPS public reporting.<sup>5,25</sup> Educational attainment and self-rated health status were obtained from the survey response; other case-mix variables came from administrative records.

## Analyses

Descriptive statistics were calculated for the independent and dependent variables, and then 2 linear mixed effect regression models were fitted to the data. The first model predicted overall HCAHPS scores from hospital random effects, plus fixed effects for hospital's degree of cultural competency, individual race/ethnicity/language, and case-mix variables. The second model tested if the association between a hospital's degree of cultural competency and HCAHPS scores differed for minority and nonminority patients by adding a fixed effects interaction between hospital cultural competency and a patient minority racial/ethnic or language group indicator (an indicator of all groups other than English-speaking non-Hispanic whites, collapsed to improve statistical power); an interaction between hospital cultural competency and missing racial/ethnic/language status was also included. For ease of interpretation, hospital cultural competency was entered into the models as a standardized score. Although all tests corresponded to a priori hypotheses, Bonferroni adjustments for multiple comparisons were run as sensitivity tests.

## RESULTS

Descriptive statistics for the dependent and independent variables are shown in Table 2, whereas Table 3 shows the regression results for the first model. Greater degree of cultural competency was positively associated with doctor communication ( $P < 0.05$ ), the overall hospital rating ( $P < 0.01$ ), and hospital recommendation ( $P < 0.01$ ); providing partial support for hypothesis 1. Hospital recommendation remained statistically significant after Bonferroni adjustment for multiple testing ( $P < 0.05$ ). Each additional SD in the cultural competency score is associated with an increase of 0.7 points in doctor communication (0.4 hospital-level SDs), 1.2 points in hospital rating (0.4 hospital-level SDs), and 1.6 points in hospital recommendation (0.5 hospital-level SDs). Overall, patient experiences are better in hospitals with higher degree of cultural competency. These effects are small to medium size at the hospital level<sup>38</sup> and are noteworthy; 1 SD of degree of cultural competency is associated with approximately 6–19 percentiles of hospital rank in HCAHPS.

The addition of an interaction between degree of cultural competency and a patient-level minority racial/ethnic/language indicator provided evidence of significantly greater

**TABLE 2.** Descriptive Statistics for Variables

Dependent Variables	
Nurse communication, mean (SD)	84.9 (19.8)
Staff responsiveness, mean (SD)	76.9 (25.7)
Doctor communication, mean (SD)	88.7 (19.2)
Clean room, mean (SD)	82.6 (28.1)
Quiet room, mean (SD)	71.9 (30.2)
Pain control, mean (SD)	84.2 (21.2)
Medication communication, mean (SD)	69.3 (31.2)
Discharge communication, mean (SD)	24.9 (35.2)
Hospital rating, mean (SD)	83.5 (20.8)
Hospital recommendations, mean (SD)	85.2 (23.8)
Independent variables	
Degree of cultural competency, mean (SD)	63.6 (19.3)
Racial/ethnic/language group (%)	
White non-Hispanic	88.1
Hispanic English speakers	14.3
Hispanic bilinguals	5.4
Hispanic Spanish speakers	11.8
Black non-Hispanic	6.5
Asian English speakers	6.0
Asian English nonspeakers	4.1
American Indian	0.9
Multiracial	2.5
Missing race/ethnicity/language	13.8
Age groups (%)	
18–24	6.1
25–34	12.4
35–44	8.3
45–54	9.6
55–64	13.9
65–74	18.5
75–84	19.9
85+	7.7
Education (%)	
Eighth grade or less	7.1
Some high school	8.6
High school graduate/GED	23.6
Some college/2-y degree	30.3
4-y college graduate	11.3
More than 4-y college graduate	13.1
Self-reported health status (%)	
Excellent	16.3
Very good	27.6
Good	28.6
Fair	18.5
Poor	6.0
Emergency department admission (%)	28.8
Principal reason for admission (%)	
Obstetric	19.2
Medical	46.5
Surgical	34.3

relative benefits to those who were not English-speaking non-Hispanic whites for 4 of the 10 measures examined: nurse communication ( $P < 0.01$ ), staff responsiveness ( $P < 0.01$ ), quiet room ( $P < 0.05$ ), and pain control ( $P < 0.001$ ) (Table 4). This provided partial support for hypothesis 2. Pain control and staff responsiveness remained statistically significant after Bonferroni adjustment for multiple testing. Among minorities, each additional SD in the cultural competency score results in an increase of 0.9 points in nurse communication (0.4 hospital-level SDs), 1.3 points in staff responsiveness (0.5 hospital-level SDs), 1.0 points in quiet room (0.2 hospital-level SDs), and 1.5 points in pain

control (0.5 hospital-level SDs). These are small to medium effect sizes.<sup>38</sup>

### CONCLUSIONS

The national CLAS standards in health care and the NQF framework for measuring and reporting cultural competency were intended to provide guidelines on policies and practices for culturally competent systems of care.<sup>3,10</sup> We used Donabedian SPO model to examine the relationship between hospital cultural competency (structure) and inpatient experiences with care (outcome). Results indicate that hospitals with greater cultural competency have better scores for doctor communication, hospital rating, and hospital recommendation. Organizational structural attributes associated with cultural competency, therefore, are associated with improved processes of care. These findings suggest that cultural competency activities may both improve patients' overall hospital experiences and doctor communication in general, perhaps by emphasizing attentive, tailored, and patient-centered care.<sup>39</sup>

Although the degree of cultural competency is associated with better overall patient experiences for some dimensions of care, our results suggest that the impact of cultural competency on other dimensions of care is greater among minority patients compared with non-Hispanic white English speakers and in particular extends to dimensions that include interaction with nonphysician hospital staff. Particular benefit to minority patients was apparent for nurse communication, staff responsiveness, quiet room, and pain control. Improved cultural competency thus has the potential to reduce racial/ethnic disparities on these important dimensions of hospital care. The potential benefit to minority patients in nurse communication is notable, given research showing that communication with nurses is the strongest predictor of overall assessments.<sup>40,41</sup> The targeted benefit of cultural competency for minority patients for dimensions such as staff responsiveness and nurse communications suggests that lack of cultural competency in some hospitals may adversely affect minority patients on those dimensions in particular.

The study has several limitations. First, it was limited to the state of California, which limits generalizability of the study findings. Despite this shortcoming, California is an important state to study issues related to cultural competency given that it is the most populous and one of the most diverse states in the United States in terms of race/ethnicity/language. Second, hospitals that were early participants in the HCAHPS survey and that also participated in the CCATH survey represent a subset of hospitals in California. Hospitals in the final analytic sample were more likely to be larger and not-for-profit, and had less Medicaid but more managed care patients. Elliott et al<sup>42</sup> have shown that smaller hospitals tend to perform better on HCAHPS scores. Hospitals in our sample may have also been better than average or more interested than average in cultural competency issues. However, sample hospitals were not different from other hospitals in California in a large number of other variables. Moreover, any restriction of range of CCATH scores that might have

**TABLE 3. Hospital CAHPS Reports and Ratings (0–100 Scale) Predicted From Degree of Cultural Competency, Race/Ethnicity/Language, Hospital Random Effects, and Case-mix Adjustors**

Effect	Nurse Communication	Staff Responsiveness	Doctor Communication	Clean Room	Quiet Room	Pain Control	Medication Communication	Discharge Information	Hospital Rating	Hospital Recommendation
Degree of cultural competency (per SD)	0.38	0.10	0.75 <sup>b</sup>	-0.23	0.12	0.11	-0.24	-0.55	1.22 <sup>c</sup>	1.55 <sup>c</sup>
Racial/ethnic/language groups (reference group: white)										
Hispanic English speakers	1.80 <sup>d</sup>	1.42 <sup>b</sup>	1.33 <sup>c</sup>	-0.77	3.40 <sup>d</sup>	3.12 <sup>d</sup>	2.61 <sup>b</sup>	-0.17	2.24 <sup>d</sup>	1.27 <sup>b</sup>
Hispanic bilinguals	0.78	1.99 <sup>a</sup>	0.03	-0.62	6.15 <sup>d</sup>	3.94 <sup>d</sup>	6.03 <sup>d</sup>	-3.56 <sup>b</sup>	3.56 <sup>d</sup>	3.50 <sup>d</sup>
Hispanic Spanish speakers	1.08 <sup>a</sup>	1.63 <sup>a</sup>	0.95	2.82 <sup>d</sup>	10.03 <sup>d</sup>	2.17 <sup>c</sup>	6.40 <sup>d</sup>	-4.66 <sup>d</sup>	7.58 <sup>d</sup>	7.41 <sup>d</sup>
Black	2.87 <sup>d</sup>	2.82 <sup>c</sup>	3.20 <sup>d</sup>	2.04 <sup>b</sup>	11.21 <sup>d</sup>	3.86 <sup>d</sup>	5.19 <sup>c</sup>	0.42	3.75 <sup>d</sup>	1.92 <sup>b</sup>
Asian English speakers	0.72	-0.71	-1.27 <sup>a</sup>	-1.31	4.18 <sup>d</sup>	0.36	2.26	2.41 <sup>a</sup>	1.17	1.44 <sup>a</sup>
Asian non-English speakers	-1.72 <sup>a</sup>	-2.75 <sup>b</sup>	-2.72 <sup>c</sup>	-1.23	5.95 <sup>d</sup>	-4.57 <sup>d</sup>	1.40	-5.73 <sup>d</sup>	0.31	1.14
American Indian	-2.48	-1.85	-0.25	-8.16 <sup>d</sup>	-2.20	0.02	5.43	-9.17 <sup>c</sup>	-0.27	-0.31
Multiracial	-0.33	-2.48 <sup>a</sup>	0.42	-1.31	2.56	0.31	-0.59	1.52	-0.29	-0.52
Missing race/ethnicity/language	-0.40	-1.04	0.48	-1.97 <sup>c</sup>	4.13 <sup>d</sup>	-1.12 <sup>a</sup>	2.44 <sup>b</sup>	0.05	0.98 <sup>a</sup>	-0.41
SD of hospital-level random effect	2.42 <sup>d</sup>	3.37 <sup>d</sup>	1.79 <sup>d</sup>	3.10 <sup>d</sup>	4.77 <sup>d</sup>	2.10 <sup>d</sup>	2.77 <sup>d</sup>	3.29 <sup>d</sup>	2.88 <sup>d</sup>	3.44 <sup>d</sup>

Case-mix adjustors: age, education, self-reported health status, service line, and emergency room admission.

<sup>a</sup>P < 0.10.

<sup>b</sup>P < 0.05.

<sup>c</sup>P < 0.01.

<sup>d</sup>P < 0.001.

CAHPS indicates Consumer Assessment of Healthcare Providers and Systems.

**TABLE 4. Hospital CAHPS Reports and Ratings Predicted From Degree of Cultural Competency, Race/Ethnicity/Language, Hospital Random Effects, and Case-mix Adjustors**

Effect	Nurse Communication	Staff Responsiveness	Doctor Communication	Clean Room	Quiet Room	Pain Control	Medication Communication	Discharge Information	Hospital Rating	Hospital Recommendation
Degree of cultural competency (per SD)	0.11	0.16	0.74 <sup>b</sup>	-0.38	-0.29	-0.48	-0.04	-0.46	1.11 <sup>b</sup>	1.66 <sup>c</sup>
Degree of cultural competency (per SD) × minority indicator	0.88 <sup>c</sup>	1.32 <sup>c</sup>	-0.03	0.30	1.04 <sup>b</sup>	1.51 <sup>d</sup>	-0.41	-0.16	0.25	-0.15
Degree of cultural competency (per SD) × missing race/ethnicity/language indicator	-0.08	-0.50	-0.04	0.75	1.01	1.09	-0.96	-0.57	0.39	-0.74
Racial/ethnic/language groups (reference group: white)										
Hispanic English speakers	1.83 <sup>d</sup>	1.38 <sup>a</sup>	1.32 <sup>c</sup>	-0.75	3.45 <sup>d</sup>	3.21 <sup>d</sup>	2.60 <sup>b</sup>	-0.18	2.26 <sup>d</sup>	1.26 <sup>b</sup>
Hispanic bilinguals	0.72	1.90 <sup>a</sup>	0.04	-0.62	6.12 <sup>d</sup>	3.91 <sup>d</sup>	6.05 <sup>d</sup>	-3.56 <sup>b</sup>	3.55 <sup>d</sup>	3.49 <sup>d</sup>
Hispanic Spanish speakers	1.06	1.72 <sup>a</sup>	0.95	2.83 <sup>c</sup>	10.05 <sup>d</sup>	2.19 <sup>c</sup>	6.40 <sup>d</sup>	-4.68 <sup>d</sup>	7.59 <sup>d</sup>	7.39 <sup>d</sup>
Black	2.82 <sup>d</sup>	2.82 <sup>c</sup>	3.20 <sup>d</sup>	2.03 <sup>b</sup>	11.17 <sup>d</sup>	3.84 <sup>d</sup>	5.22 <sup>c</sup>	0.42	3.74 <sup>d</sup>	1.91 <sup>b</sup>
Asian English speakers	0.64	-0.70	-1.27 <sup>a</sup>	-1.32	4.11 <sup>d</sup>	0.28	2.28	2.41 <sup>a</sup>	1.16	1.44
Asian non-English speaker	-1.77 <sup>a</sup>	-2.62 <sup>b</sup>	-2.72 <sup>c</sup>	-1.24	5.92 <sup>d</sup>	-4.60 <sup>d</sup>	1.42	-5.73 <sup>c</sup>	0.31	1.14
American Indian	-2.01	-0.79	-0.27	-8.01 <sup>d</sup>	-1.64	0.82	5.21	-9.24 <sup>c</sup>	-0.14	-0.38
Multiracial	0.08	1.80	0.40	-1.18	3.04 <sup>a</sup>	1.06	-0.76	1.46	-0.17	-0.59
Missing race/ethnicity/language	-0.32	-0.96	0.48	-2.02 <sup>c</sup>	4.13 <sup>d</sup>	-1.08	2.51 <sup>b</sup>	0.11	-0.99 <sup>a</sup>	-0.35
Hospital-level random effects (SD)	2.42 <sup>d</sup>	2.88 <sup>d</sup>	1.78 <sup>d</sup>	3.09 <sup>d</sup>	4.73 <sup>d</sup>	2.1 <sup>d</sup>	2.76 <sup>d</sup>	1.34 <sup>d</sup>	2.89 <sup>d</sup>	3.44 <sup>d</sup>

Case-mix adjustors: age, education, self-reported health status, service line, and emergency room admission.

<sup>a</sup>  $P < 0.10$ .

<sup>b</sup>  $P < 0.05$ .

<sup>c</sup>  $P < 0.01$ .

<sup>d</sup>  $P < 0.001$ .

CAHPS indicates Consumer Assessment of Healthcare Providers and Systems.

resulted would have served to underestimate the true association of CCATH with HCAHPS. Third, although we requested that hospitals designate a survey coordinator to collect the information and to respond to the survey, ultimately we had no control over how a particular hospital responded to the survey. Fourth, there is potential endogeneity of degree of cultural competency and patient experiences with care. High degree of cultural competency may be a proxy for other unobserved hospital characteristics associated with better care. However, given the differential impact of cultural competency on minority experiences with care, it is less likely that a third factor such as greater resources would explain this differential effect. Further research is needed using longitudinal data or instrumental variables to address potential endogeneity. Finally, not all findings retained statistical significance after adjustment for multiple testing, so some caution should be used in interpreting those findings. Nonetheless, evidence of the overall patterns cited here remains even after such adjustment.

Notwithstanding these limitations, this study provides an important examination of how system-wide hospital cultural competency activities may be associated with organizational processes of care. To the extent that cultural competency practices are associated with better patient experiences, there will be a market incentive for the implementation of such practices in more competitive markets. Better HCAHPS can result in greater market share and potentially better financial performance. Beginning in the fiscal year 2013, CMS will incorporate HCAHPS into its hospital value-based purchasing program providing direct financial incentives for scores improvement through the Affordable Care Act.<sup>43</sup>

Recent public reporting efforts by CMS of HCAHPS scores have resulted in QI initiatives aimed at patient experiences with care<sup>24,44</sup> and there is early evidence of improvement in HCAHPS scores.<sup>42</sup> QI activities tied to cultural competency efforts show notable promise for improving all HCAHPS scores, but particular promise for hospitals with significant racial/ethnic/language minority patient populations. This is especially important given evidence that the overall HCAHPS performance of hospitals serving more racial/ethnic minorities is currently lower on average than for hospitals serving primarily non-Hispanic white patients.<sup>30</sup> Thus, the CCATH instrument may provide diagnostic and actionable information to hospitals seeking to both reduce racial/ethnic disparities and improve their overall patient experiences.

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