The Characteristics And Performance Of Hospitals That Care For Elderly Hispanic Americans

Interventions that target hospitals serving elderly Hispanics could have a large impact on the health of these Americans.

by Ashish K. Jha, E. John Orav, Jie Zheng, and Arnold M. Epstein

ABSTRACT: The site of care may play an important role in health care disparities. We examined the 5 percent of U.S. hospitals with the highest proportion of elderly Hispanic patients and found that these hospitals cared for more than half of elderly Hispanics. These hospitals were more often for-profit, with higher rates of Medicaid patients and low nurse-staffing levels. They also provided a modestly lower quality of care for common medical conditions. Our finding that care for Hispanics is concentrated among a small number of hospitals provides an opportunity for targeted efforts to improve care for this group of Americans. [Health Affairs 27, no. 2 (2008): 528–537; 10.1377/hlthaff.27.2.528]

Racial and ethnic differences in health care are widely acknowledged, although the reasons for these gaps are not well understood. Increasingly, policymakers have focused on the location of care as an explanation for important disparities in health outcomes. We now understand that whites and minorities might receive care in very different settings and that the institutions caring for minorities might provide lower quality of care. Recent research on how location of care propagates disparities has focused on understanding differences between whites and blacks. To our knowledge, there are no data on differences in where Hispanics and whites receive care and whether or not these differences might contribute to ethnic disparities in care.

This lack of data should not be surprising. Although Hispanics are now the largest U.S. minority group, researchers and policymakers have focused less attention on differences between Hispanics and non-Hispanics, partly because in some clinical settings, Hispanics have outcomes comparable to those of whites. The
landmark Institute of Medicine (IOM) report, Unequal Treatment, stated that “a central concern of the committee...has been the relative paucity of data on non-African-American racial and ethnic minority groups.” Although there are data showing that Hispanics likely receive lower quality of care than non-Hispanic whites, we know little about why.

Studies on African Americans suggest that their care, in both ambulatory and hospital settings, is concentrated among a small number of providers, and the physicians and hospitals that disproportionately care for blacks may be at risk for providing lower quality of care. Whether the care for Hispanics is similarly concentrated and whether providers that care for elderly Hispanics provide care of worse quality is not known.

Therefore, we sought to determine the level of concentration of hospital care for Hispanics and the characteristics of hospitals that disproportionately care for them. We also examined whether the hospitals that care for sizable Hispanic populations had lower quality of care than other institutions.

**Study Data And Methods**

- **Data.** We used the 100 percent Medicare Part A files from 2004 to calculate the number and proportion of Hispanic patients who were discharged from each hospital participating in Medicare. We also used hospital quality data from the Hospital Quality Alliance (HQA) program, which reports on performance scores for acute care provided during calendar years 2004 and 2005. Hospitals that do not report to the HQA program are typically small or specialty hospitals that care for very few patients with common medical conditions.

  Although the HQA now provides data on twenty-two process measures, we limited our analyses to the original ten because during the study period, the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003 only provided financial incentives for reporting these measures. Finally, we linked both sets of data to the American Hospital Association (AHA) annual hospital survey with information on hospitals’ profit status, bed size, geographic location, membership in the Council of Teaching Hospitals (COTH), percentage Medicare and Medicaid, nursing-to-census ratio (calculated by dividing the number of nurses on staff by 100 patient days), and presence of an intensive care unit (ICU). We excluded hospitals from Puerto Rico, although in a sensitivity analysis, we examined our results with Puerto Rico included.

- **Categorizing hospitals.** We ranked each hospital by the proportion of discharged Hispanic patients. We then chose two cutpoints: hospitals in the top quartile of proportion of Hispanic patients, and those in the top 5 percent of proportion of Hispanic patients. We labeled the top 5 percent of hospitals as “high Hispanic proportion,” those in the 5–25 percent range as “medium Hispanic proportion,” and the remaining hospitals as “low Hispanic proportion.”

  There is some concern about the ability of the Medicare Provider Analysis and
Review (MEDPAR) database to accurately identify Hispanics. Therefore, as a sensitivity analysis, we used census data to assign each discharged patient a likelihood of being Hispanic based on the percentage of elderly Hispanics living in that patient’s ZIP code area. We then re-ranked all of the hospitals based on the proportion of Hispanic patients, using this approach, and we examined the correlation between a hospital’s ranking on proportion Hispanic using the census-based approach and our primary methodology (using Medicare designation of ethnicity). We found that the correlation was 0.81 \((p < 0.001)\). Given that the designation for blacks is considered far more reliable, we performed the same calculations for ranking hospitals by their proportion of black patients using Medicare and census-based data and found a similar degree of agreement (correlation of 0.88, \(p < 0.001\)).

- **Hospital quality metrics.** For each hospital, we used the HQA process measures to calculate summary performance scores for each of three conditions: acute myocardial infarction (AMI), congestive heart failure (CHF), and pneumonia. There were five performance indicators for AMI: aspirin at arrival and at discharge, beta-blocker at arrival and at discharge, and angiotensin-converting enzyme (ACE) inhibitor for left ventricular systolic dysfunction (LVSD); two indicators for CHF: left ventricular function assessment and ACE inhibitor for LVSD; and three indicators for pneumonia: initial antibiotic timing, pneumococcal vaccination, and oxygenation assessment. To create summary scores for each condition, we used a methodology prescribed by the Joint Commission. Composite scores were only calculated if a hospital had at least thirty patients for at least one of the measures of each condition.

- **Analyses.** We used analysis of variance (ANOVA) and chi-square tests, as appropriate, to compare the characteristics of hospitals by the proportion of their patients that were Hispanic. We next created regression models using HQA summary scores as the outcome and the proportion of Hispanic patients as the primary predictor. Our outcome variable, the HQA summary score, was weighted by the hospital’s number of patients with that condition. The first set of models consisted of simple bivariate analyses that examined the unadjusted relationship between the proportion of Hispanic patients and performance on HQA indicators. The second set of models adjusted for differences in hospital characteristics, including bed size, profit status, ownership (public versus private), location (urban versus rural), teaching status (member of COTH versus not), the presence or absence of a medical ICU, the presence or absence of a cardiac ICU, the percentage of patients who had Medicare, and the percentage of patients who had Medicaid. By studying the two stages of the model, we hoped to determine whether quality deficits were present in hospitals that served a large proportion of Hispanic patients (stage 1) and whether specific hospital characteristics accounted for these deficits (stage 2).

Next, because Hispanics are geographically clustered in a small number of regions, we restricted our analyses using Hospital Referral Regions (HRRs) to the thirty local regions with the largest Hispanic patient populations. We examined...
the quality of care in these thirty HRRs compared to other regions. In analyses restricted to these thirty HRRs, we again ranked all hospitals by the proportion of their patients that were Hispanic and used similar cutoffs (top 5 percent, rest of the top quartile, and all other hospitals) to examine hospitals’ performance on the three conditions. By studying hospitals with a high proportion of Hispanic patients within these thirty regions, we could determine whether quality deficits were just endemic to certain geographic regions or if, within those regions, Hispanics were still cared for by poorly performing hospitals. Finally, to better understand the range of performance of the hospitals that care for the largest number of Hispanic patients, we examined the range of performance among the 222 hospitals nationally with a high proportion of Hispanic patients.

All analyses were conducted using SAS 9.1. The study was approved by the Human Subjects Committee of the Harvard School of Public Health.

Study Results

In 2004, there were 4,552 hospitals in the United States that provided medical or surgical care to Medicare patients. Of these, the 5 percent designated as “high Hispanic proportion” cared for more than half of all elderly Hispanic Americans (Exhibit 1). An additional 910 (20 percent) “medium-proportion” hospitals cared for an additional 40 percent of elderly Hispanic Americans. Thus, the top quartile of hospitals with the largest proportion of Hispanic patients provided care for more than 90 percent of all elderly Hispanics in 2004 (Exhibit 1).

**Hospitals’ structural characteristics.** Acute care facilities with high proportions of Hispanic patients had much different characteristics from those with low proportions of Hispanic patients (Exhibit 2). High-proportion hospitals were more likely to be medium-size and located in the urban areas in the West region of the country. They were also three times as likely as low-proportion hospitals were to be

### EXHIBIT 1
**Distribution Of Hospitals, And The Numbers Of Patients They Serve, By The Percentage, Volume, And Proportion Of Hispanic Patients, 2004**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Proportion of Hispanic discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Number (% of hospitals)</td>
<td>227 (5%)</td>
</tr>
<tr>
<td>Cumulative number (% of hospitals)</td>
<td>227 (5%)</td>
</tr>
<tr>
<td>Hispanic discharges, median (range)</td>
<td>296 (114–1,526)</td>
</tr>
<tr>
<td>Percent Hispanic, median (range)</td>
<td>27% (14%–52%)</td>
</tr>
<tr>
<td>Number (% of Hispanic patients)</td>
<td>67,130 (51.3%)</td>
</tr>
</tbody>
</table>

**SOURCE:** Authors’ analyses of Medicare data.

**NOTES:** High proportion is the 5 percent of hospitals with the largest proportion of Hispanic discharges. Medium proportion is the rest of the top quartile. Low proportion is the second through fourth quartiles of hospitals with the largest proportion of Hispanic discharges.
for-profit. Further, these hospitals were much less likely to have cardiac and medical ICUs. Finally, the high-proportion hospitals were more likely than low-proportion hospitals to be major teaching hospitals, although this difference was small (Exhibit 2).

Revenue source and nurse-staffing ratios. High-proportion hospitals cared for fewer Medicare patients but more Medicaid patients compared to low-proportion hospitals (Exhibit 2). Finally, high-proportion hospitals had a much lower nurse-to-patient census ratio compared to low-proportion hospitals.

Quality of care. Of the 4,552 hospitals in the MEDPAR database, only 3,669 hospitals reported HQA data with adequate sample sizes for us to calculate summary scores. Hospitals not reporting to the HQA or those with inadequate numbers to calculate a summary score were generally small rural hospitals with very few patients and almost no Hispanics. The hospitals reporting adequate data to allow for the calculation cared for more than 96 percent of Medicare enrollees with AMI, CHF, or pneumonia (Exhibit 3).

High-proportion hospitals had lower performance on quality indicators for all three conditions, compared to either medium- or low-proportion hospitals (Ex-
For example, in unadjusted analyses, high-proportion hospitals had modestly worse performance on AMI and CHF and markedly worse performance on pneumonia. After adjusting for baseline differences in hospital characteristics, including size, profit status, location, revenue sources, and other structural factors, we found that high-proportion hospitals continued to have worse care for all three conditions (Exhibit 3), although some of the differences had narrowed. When we repeated these analyses with hospitals in Puerto Rico included, we found that the results were qualitatively similar (data not shown).

When we examined the thirty regions with the largest Hispanic populations (accounting for 78.9 percent of all elderly Hispanic discharges), we found that the quality of care in those regions was comparable to that in the rest of the country: 89.3 versus 89.9 for AMI, 79.6 versus 80.9 for CHF, and 76.4 versus 76.0 for pneumonia. In analyses that were restricted to performance of hospitals within these thirty regions, we found a similar pattern to the one observed nationally: high-proportion hospitals provided worse care for the three conditions than low-proportion hospitals did (Exhibit 4).

Finally, when we examined the range of performance among high-proportion hospitals, we found that some hospitals’ quality scores were near 100 percent while others were much lower (Exhibit 5). For example, City Hospital Center in Elmhurst, New York, had nearly perfect scores for AMI and CHF, while Starr County Memorial Hospital in Rio Grande, Texas, failed to provide these basic measures for pneumonia and CHF more than half the time.

**Discussion**

We examined the concentration of hospital care for elderly Hispanics in the United States and found that just 5 percent of hospitals provided care for more than half of elderly Hispanics in 2004 and that nearly all elderly Hispanics received care in just one-quarter of U.S. hospitals in that year. The hospitals that dis-
proportionately cared for Hispanics were more than three times as likely as others to be for-profit and less likely to have medical or cardiac ICUs. Further, these hos-

EXHIBIT 4
Quality Of Hospital Care For Three Health Conditions, By Proportion Of Hispanic Patients, In The Thirty Hospital Referral Regions (HRRs) With The Largest Hispanic Populations, 2004

<table>
<thead>
<tr>
<th>Composite score</th>
<th>High proportion</th>
<th>Med. proportion</th>
<th>Low proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>70</td>
<td></td>
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<td></td>
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<tr>
<td>60</td>
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<td></td>
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<tr>
<td>50</td>
<td></td>
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</tr>
</tbody>
</table>

AMI | CHF | Pneumonia
---|-----|-----

SOURCE: Authors’ analysis of Medicare discharge data and Hospital Quality Alliance data.
NOTES: AMI is acute myocardial infarction. CHF is congestive heart failure. For AMI, \( p = 0.02 \). For CHF, \( p = 0.01 \). For pneumonia, \( p < 0.001 \).

EXHIBIT 5
The Best- And Worst-Performing Hospitals That Have A High Proportion Of Hispanic Patients, 2004

<table>
<thead>
<tr>
<th>Hospital</th>
<th>AMI score</th>
<th>Hospital</th>
<th>CHF score</th>
<th>Hospital</th>
<th>Pneumonia score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top performers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harlingen Medical Center (TX)</td>
<td>99.9</td>
<td>New York Westchester Square Medical Center, Bronx, NY</td>
<td>100.0</td>
<td>St. Mary and Elizabeth Medical Center—Claremont Campus, Chicago, IL</td>
<td>89.4</td>
</tr>
<tr>
<td>City Hospital Center, Elmhurst, NY</td>
<td>99.2</td>
<td>Lincoln Medical Center, Bronx, NY</td>
<td>98.7</td>
<td>St. Mary Hospital, Hoboken, NJ</td>
<td>89.1</td>
</tr>
<tr>
<td>St. John Regional Medical Center, Oxnard, CA</td>
<td>98.5</td>
<td>City Hospital Center, Elmhurst, NY</td>
<td>98.2</td>
<td>South Miami Hospital (FL)</td>
<td>88.5</td>
</tr>
<tr>
<td>Bottom performers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Beach Community Hospital, Miami Beach, FL</td>
<td>47.1</td>
<td>Fort Duncan Medical Center, Eagle Pass, TX</td>
<td>27.1</td>
<td>Starr County Memorial Hospital, Rio Grande City, TX</td>
<td>46.0</td>
</tr>
<tr>
<td>Community and Mission Hospital of Huntington Park (CA)</td>
<td>62.6</td>
<td>Starr County Memorial Hospital, Rio Grande City, TX</td>
<td>44.3</td>
<td>McAllen Medical Center (TX)</td>
<td>47.0</td>
</tr>
<tr>
<td>Pioneers Memorial Healthcare District, Brawley, CA</td>
<td>64.0</td>
<td>Christus Spohn Hospital Kesberg, Kinnsville, TX</td>
<td>48.2</td>
<td>RE Thomsan Medical Center, El Paso, TX</td>
<td>47.3</td>
</tr>
</tbody>
</table>

SOURCE: Authors’ analysis of Medicare discharge data and Hospital Quality Alliance data.
NOTES: AMI is acute myocardial infarction. CHF is congestive heart failure.
“The concentration of care we found is a reminder that ethnic groups receive care in sites that are largely segregated.”

Hospitals had fewer Medicare but more Medicaid patients and much lower nurse-staffing levels. The high-proportion hospitals provided modestly lower quality of care for all three conditions as measured by HQA measures, a difference that persisted after hospital characteristics were adjusted for.

**Other studies.** Given that Hispanics are now the single largest U.S. minority group, there are surprisingly sparse data on the quality of care they receive. Rosaly Correa-de-Araujo recently found that elderly hospitalized Hispanics were often less likely than non-Hispanic whites were to receive important treatments for AMI and CHF, while Mauricio Cohen found that Hispanics with acute coronary syndromes less often received important invasive therapies. The results of other studies examining ethnic differences in care have also shown worse care for Hispanics than for non-Hispanic whites, but we are not aware of any study on the role that the site of care plays in disparities between Hispanics and non-Hispanics.

**Hospital size and quality.** Our results show modest decrements in quality of care at hospitals that care for a high proportion of Hispanics, especially when contrasted with the range of quality overall. Nevertheless, differences of the size we found can have a meaningful association with health outcomes. Based on our previous work, the size of the differences we observed (2–10 points) suggests that patients admitted to high-proportion hospitals likely have 1–10 percent higher relative risk of death compared to patients admitted to low-proportion hospitals. Further, modest disparities between whites and blacks in process measures have been associated with larger differences in clinical outcomes. Therefore, the differences we observed might represent a lower bound on true gaps in care provided at these institutions.

**Comparison with black-white disparities.** The emerging link between Hispanic-white disparities in the quality and location of care also applies to black-white disparities, and the contrast is of interest. In the case of black-white disparities, the gaps in care reflect, in part, regional differences: blacks often live in low-quality regions, with sizable variations in the level of disparities across regions. In contrast, we found that the areas with the largest Hispanic populations had overall quality of care comparable to that in the non-Hispanic regions of the country. However, within the regions with the largest Hispanic populations, hospitals serving a high proportion of Hispanics performed more poorly than hospitals serving a lower proportion of Hispanics.

**Concentration of care.** The concentration of hospital care for Hispanics, like the concentration for African Americans, is attributable to a combination of factors, including economic and social segregation. Language barriers may be an additional concern, pushing some elderly Hispanics to seek care at facilities with large num-
bers of Hispanic patients. Although we lacked information to explain why hospitals that care for large Hispanic populations often provide worse care, we might speculate that it is attributable in part to greater financial stress. These hospitals had fewer Medicare patients (whose care is reimbursed generously), twice as many Medicaid patients, and much lower nurse-staffing ratios. Our results beg for further information about the financial status, quality management, and governance practices of these Hispanic-serving hospitals.

**Study limitations.** There are important limitations to our study. First, as we described earlier, our use of Medicare data is limited by those data’s misclassification of many Hispanics as whites. However, our sensitivity analysis using census-based data suggests that the designation of hospitals as serving large Hispanic populations is relatively robust. Furthermore, the Hispanic population is heterogeneous: Hispanics come from a variety of different countries, and their care is likely affected by other factors such as whether or not they are first generation and their proficiency in English. Because we did not have patient-level data on quality of care, we could not say whether hospitals that disproportionately care for Hispanics treat whites and Hispanics differently within the hospitals. Also, our designation of hospitals was based only on care for the elderly. Finally, we only examined the quality of care for three clinical conditions, and although these conditions are common causes of morbidity and mortality among the elderly population, they clearly do not represent the totality of inpatient medical care.

**Policy implications.** The U.S. population has become increasingly diverse in recent years—a trend that is likely to continue. The concentration of care we found is a reminder that although the U.S. population is diverse, ethnic groups reside in areas and receive their care in sites that are largely segregated. At one time in our country’s history, we focused on reducing disparities through desegregation. But the current patterns of care reflect factors other than enforced segregation. Policymakers might do well to focus on understanding the challenges of delivering high-quality care and finding ways to improve it in a relatively small number of sites that have a large impact on existing disparities.

The authors acknowledge funding from the Robert Wood Johnson Foundation.
NOTES


5. Bach et al., “Primary Care Physicians Who Treat Blacks and Whites”; and Jha et al., “Concentration and Quality of Hospitals.”


9. Correa-de-Araujo et al., “Gender Differences across Racial and Ethnic Groups in the Quality of Care for Acute Myocardial Infarction and Heart Failure”; Correa-de-Araujo et al., “Gender Differences across Racial and Ethnic Groups in the Quality of Care for Diabetes”; and Cohen et al., “Clinical Characteristics, Process of Care, and Outcomes.”


12. Ibid.; and Jha et al., “Concentration and Quality of Hospitals.”