

HEALTHCARE COST AND UTILIZATION PROJECT

STATISTICAL BRIEF #61

October 2008

Potentially Preventable Hospitalizations among Hispanic Adults, 2006

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Introduction

A major aim of U.S. health care policy is to improve the quality of care in the nation. To accomplish this, the socioeconomic, racial, ethnic and gender inequalities which exist in access, treatment and outcomes of care must be addressed. The most recent National Healthcare Disparities Report found that Hispanics had lower quality of care than non-Hispanic whites on two-thirds of its 32 core quality measures and lower levels of access to care on 6 of 10 core access measures.¹

Rates of potentially preventable hospitalizations—inpatient stays that might be avoided through high quality outpatient treatment and disease management—are one dimension of the quality of outpatient treatment received by Hispanic adults that can be explored through hospital records. High quality outpatient treatment may reduce the need for hospitalization for conditions that can be controlled on an outpatient basis.

This Statistical Brief presents data from the Healthcare Cost and Utilization Project (HCUP) on rates of potentially preventable hospitalizations among Hispanic adults. The Agency for Healthcare Research and Quality (AHRQ)'s Prevention Quality Indicators (PQIs) were used to develop hospitalization rates² for selected chronic and acute conditions in adults for 2001 and 2006. Rates of Agency for Healthcare Research and Quality

Highlights

- Potentially preventable stays for chronic conditions were 42 percent higher among Hispanic adults than among non-Hispanic white adults.
- Between 2001 and 2006, there was essentially no change in the preventable hospitalization rates for Hispanics even though these rates improved significantly for non-Hispanic whites.
- Disparities between Hispanics and non-Hispanic whites were greater for diabetes (37 versus 17 hospitalizations per 10,000 population, respectively) than for other chronic conditions.
- Disparities exist in both low income and high income communities. Hispanics living in high income communities had about twice the rate of potentially preventable hospitalizations for diabetes as non-Hispanic whites. A similar gap existed for those in low income communities.

hospitalization for chronic conditions were based on admissions for diabetes, specific respiratory conditions and specific circulatory conditions. Rates of hospitalization for acute conditions were based on admissions for dehydration, bacterial pneumonia and urinary tract infections. All differences between estimates noted in the text are statistically significant at the 0.05 level or better.

¹ Agency for Healthcare Research and Quality. *2007 National Healthcare Disparities Report.* Rockville, MD: U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality; February 2008. AHRQ Pub. No. 08-0041.

² Rates are adjusted by age and gender using the total U.S. population for 2000 as the standard population.

Findings

Hispanic and Non-Hispanic White Comparisons: Acute and Chronic Conditions As shown in figure 1, potentially preventable hospital stays for chronic conditions were 42 percent more common among Hispanic adults than they were among non-Hispanic white adults (122 versus 86 discharges per 10,000 population). Potentially preventable hospitalization stays for acute conditions were also 12 percent higher for Hispanics than non-Hispanic whites (70 versus 62 discharges per 10,000 population, respectively).

While the situation improved for non-Hispanic whites between 2001 and 2006, it did not improve for Hispanics (figure 2). For non-Hispanic white adults, there were fewer preventable hospitalizations in 2006 than in 2001—hospitalizations for acute conditions declined by 9 percent and the hospitalizations for chronic conditions declined by 16 percent for non-Hispanic white adults. However, there was essentially no change in these rates among Hispanic adults.

Hispanic and Non-Hispanic White Comparisons: Types of Chronic Conditions

To further explore the pronounced differences in chronic conditions, figure 3 examines three subgroups of chronic conditions. The gap between Hispanics and non-Hispanic whites was greatest for diabetes. Potentially preventable hospital stays for diabetes occurred more than twice as often among Hispanic adults than among non-Hispanic white adults—37 versus 17 discharges per 10,000 population, respectively (figure 3). The rate of potentially preventable hospital stays for Hispanics was also higher for circulatory conditions—60 versus 42 discharges per 10,000 population for Hispanic adults versus non-Hispanic white adults The total rates of hospitalization for the chronic respiratory conditions examined were similar among Hispanics and non-Hispanic whites—almost 30 discharges per 10,000 population for both groups.

Table 1 provides further detail by comparing Hispanics and non-Hispanic whites for nine specific chronic conditions that comprise the three subgroups—diabetes, respiratory, and circulatory—and shows that rates were significantly higher among Hispanics for all conditions except chronic obstructive pulmonary disease. The largest differences were seen for three specific diabetes conditions (long term complications, uncontrolled diabetes, and lower extremity amputation), for which hospitalization rates were two to three times higher among Hispanics. In addition, hospitalization rates were two times higher among Hispanics.

Hispanic and Non-Hispanic White Comparisons for Chronic Conditions: Differences by Community Income Level

For six of these specific types of chronic conditions, the higher rate of potentially preventable hospitalizations noted above for Hispanics existed at both the highest and lowest community income levels (table 2). The gap was most pronounced for diabetes. Hospitalization rates for diabetes complications among Hispanic adults in the lowest income quartile was 2 times higher than for non-Hispanic white adults in the same community income quartile (figure 4). The same pattern of disparity was evident in the highest community income quartile where hospitalization rates for Hispanic adults was 1.8 times higher than for non-Hispanic white adults.

The pattern for chronic obstructive pulmonary disease stands in sharp contrast. Consistent with the pattern for the overall rate, Hispanics had lower hospitalization rates than non-Hispanic white adults within the same community income level (table 2).

Hospitalizations for Acute and Chronic Conditions among Hispanics

Rates of potentially preventable hospitalizations within the Hispanic population are highlighted in table 3. For Hispanic adults, potentially preventable hospital stays were more frequent for chronic conditions than for acute conditions. At 122 discharges per 10,000 population, the rate of potentially preventable hospitals stays for chronic conditions was 1.7 times higher than the rate for acute conditions (70 discharges per 10,000 population).

Individuals 65 years and over had the highest rates of preventable stays for both chronic and acute conditions (437 and 268 discharges per 10,000 population, respectively), with chronic stays being 1.6 times more common than acute stays for individuals in this age group of Hispanics (table 3). Individuals aged 18 to 44 had the lowest number of potentially preventable stays for both chronic and acute conditions (20 and 14 discharges per 10,000 population, respectively), and the magnitude of difference between the rates for the two types of conditions was similar to that of the oldest age group.

Although individuals 45 to 64 years of age had lower rates of preventable hospitalizations than the oldest age group, the magnitude of the difference between stays for chronic and acute conditions was much larger in this younger group: chronic stays were 2.5 times more common than acute stays for 45-64 year old Hispanics (109 versus 43 discharges per 10,000 population).

The number of preventable stays for Hispanics for both chronic and acute conditions decreased as community income increased. There were 83.7 hospital stays per 10,000 population for acute conditions in the lowest income communities compared to 58.5 stays per 10,000 in the highest income communities. Similarly there were 160.3 potentially preventable stays per 10,000 population for chronic conditions in the lowest income communities compared with 88.4 stays per 10,000 in the highest income communities.

In addition, within community income level the differences were more pronounced for chronic conditions than acute conditions for Hispanics. In the lowest income communities, discharges for chronic conditions were 92 percent higher than discharges for acute conditions (160.3 versus 83.7 discharges per 10,000 population). In comparison, for individuals living in the highest income communities, the difference was smaller—discharges for chronic conditions were 51 percent higher than discharges for acute conditions (88.4 versus 58.5 discharges per 10,000 population).

Hispanic females had slightly higher rates of preventable hospitalizations for acute conditions than Hispanic males (77 compared to 63 discharges per 10,000 population), although both had similar rates of preventable stays for chronic conditions. Patients residing in metropolitan "fringe" areas (suburbs) had lower rates of preventable hospitalizations for acute and chronic conditions than patients residing in almost all other locations.

Data Source

The estimates in this Statistical Brief are based upon data from the Healthcare Cost and Utilization Project (HCUP) 2001 and 2006 State Inpatient Database (SID) disparities analysis files. These files are designed to provide national estimates on disparities for the National Healthcare Disparities Report using records from a sample of hospitals with good reporting of race and ethnicity from the following 25 states combined: AR, AZ, CA, CO, CT, FL, GA, HI, KS, MA, MD, MI, MO, NH, NJ, NY, OK, RI, PA, SC, TN, TX, VA, VT, and WI. States are weighted to national estimates. The sample is designed to approximate a 40 percent stratified sample of U.S. community hospitals with information on all their discharges. Sampling stratifiers include hospital region, bed size, ownership, teaching status, and urban/rural location. The sample includes about 15 million discharges from almost 1,900 hospitals.

The population bases for rates were obtained from Claritas, a vendor that compiles data from the U.S. Census Bureau.

Definitions

Types of hospitals included in HCUP

HCUP is based on data from community hospitals, defined as short-term, non-Federal, general and other hospitals, excluding hospital units of other institutions (e.g., prisons). HCUP data include obstetric-gynecologic; ear, nose, and throat; orthopedic; cancer; pediatric; public; and academic medical hospitals. They exclude long-term care, rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals, but these types of discharges are included if they are from community hospitals.

Unit of analysis

The unit of analysis is the hospital discharge (i.e., the hospital stay), not a person or patient. This means that a person who is admitted to the hospital multiple times in one year will be counted each time as a separate "discharge" from the hospital.

Prevention Quality Indicators

The Prevention Quality Indicators (PQIs) are part of a set of AHRQ Quality Indicators (QIs) developed by investigators at Stanford University and the University of California under a contract with AHRQ. The PQIs are a set of measures that can be used with hospital inpatient discharge data to identify quality of care for "ambulatory care-sensitive conditions." These are conditions for which good outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease. PQI rates can also be affected by other factors, such as disease prevalence.

In addition to providing rates for particular conditions, PQI software generates rates for a composite measure of acute care and a composite measure of chronic care. The acute care composite is based on rates of admission for dehydration (PQI 10), bacterial pneumonia (PQI 11), and urinary tract infections (PQI 12). The chronic care composite is based on rates of admission for diabetes short-term complications (PQI 1), diabetes long-term complication (PQI 3), chronic obstructive pulmonary disease (PQI 5), hypertension (PQI 7), congestive heart failure (PQI 8), angina without procedure (PQI 13), uncontrolled diabetes (PQI 14), adult asthma (PQI 15), and lower-extremity amputation among patients with diabetes (PQI 16).

Further information on the AHRQ QIs, including documentation and free software downloads, is available at <u>http://www.qualityindicators.ahrq.gov</u>. This Web site includes information on the new version of the PQIs, Version 3.2. PQIs which summarize rates of preventable hospitalization for acute conditions and for chronic conditions are incorporated in this version.

Populations for calculating admission rates

The populations used to calculate admission rates for the PQIs in this Statistical Brief include individuals 18 years and older. Denominator populations for all PQIs in this brief are derived from Claritas year-specific U.S. population data. All PQIs are adjusted for age and gender using the total U.S. population for the year 2000 as the standard population.

Reporting of race and ethnicity

Race and ethnicity measures can be problematic in hospital discharge databases. Some states do not collect information on race/ethnicity from hospitals, and within states that collect the information, some hospitals do not code race and ethnicity reliably. The 2006 SID disparities analysis file was limited to 24 states, and to hospitals within those states with good reporting of race and ethnicity.

Data on Hispanics are collected differently among the states and also can differ from the Census methodology of collecting information separately on race (white, African American, Asian, American Native) and ethnicity (Hispanic, non-Hispanic). State data organizations often collect Hispanic ethnicity as one of several categories that include race. Therefore, for multistate analyses, HCUP creates the combined categorization of race and ethnicity for data from states that report ethnicity separately. When a state data organization collects Hispanic ethnicity separately from race, HCUP uses Hispanic ethnicity to override any other race category to create an Hispanic category for the uniformly coded race/ethnicity data element, while also retaining the original race and ethnicity data.

Median income of the patient's ZIP Code

Median community-level income is the median household income of the patient's ZIP Code of residence. In 2006, the lowest income quartile ranged from \$1–\$36,999, while the highest income quartile was defined as \$61,000 or above.

About HCUP

HCUP is a family of powerful health care databases, software tools, and products for advancing research. Sponsored by the Agency for Healthcare Research and Quality (AHRQ), HCUP includes the largest all-payer encounter-level collection of longitudinal health care data (inpatient, ambulatory surgery, and emergency department) in the United States, beginning in 1988. HCUP is a Federal-State-Industry Partnership that brings together the data collection efforts of many organizations—such as State data organizations, hospital associations, private data organizations, and the Federal government—to create a national information resource.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

Arizona Department of Health Services Arkansas Department of Health California Office of Statewide Health Planning and Development **Colorado** Hospital Association **Connecticut** Integrated Health Information (Chime, Inc.) Florida Agency for Health Care Administration Georgia Hospital Association Hawaii Health Information Corporation **Illinois** Department of Public Health Indiana Hospital Association Iowa Hospital Association Kansas Hospital Association Kentucky Cabinet for Health and Family Services Maine Health Data Organization Maryland Health Services Cost Review Commission Massachusetts Division of Health Care Finance and Policy Michigan Health & Hospital Association Minnesota Hospital Association Missouri Hospital Industry Data Institute Nebraska Hospital Association Nevada Department of Health and Human Services New Hampshire Department of Health & Human Services New Jersey Department of Health and Senior Services New York State Department of Health North Carolina Department of Health and Human Services **Ohio** Hospital Association **Oklahoma** State Department of Health **Oregon** Association of Hospitals and Health Systems Rhode Island Department of Health South Carolina State Budget & Control Board South Dakota Association of Healthcare Organizations Tennessee Hospital Association **Texas** Department of State Health Services Utah Department of Health Vermont Association of Hospitals and Health Systems Virginia Health Information Washington State Department of Health West Virginia Health Care Authority Wisconsin Department of Health and Family Services

About the SID

The HCUP State Inpatient Databases (SID) are hospital inpatient databases from data organizations participating in HCUP. The SID contain the universe of the inpatient discharge abstracts in the participating HCUP states, translated into a uniform format to facilitate multistate comparisons and analyses. Together, the SID encompass almost 90 percent of all U.S. community hospital discharges in 2006. The SID can be used to investigate questions unique to one state; to compare data from two or more states; to conduct market area variation analyses; and to identify state-specific trends in inpatient care utilization, access, charges, and outcomes.

About the NHDR

The NHDR is an annual report, commissioned by Congress in 1999 and first published in 2003, which tracks disparities in health care delivery. Although the emphasis is on disparities related to race, ethnicity, and socioeconomic status (SES), this directive includes a charge to examine disparities in "priority populations"—groups with unique health care needs or issues that require special focus. The *National Healthcare Disparities Report* (NHDR) was designed and produced by AHRQ, with support from the Department of Health and Human Services (HHS).

For More Information

For more information about HCUP, visit www.hcup-us.ahrq.gov.

For additional HCUP statistics, visit HCUPnet, our interactive query system, at <u>www.hcup.ahrq.gov</u>.

For information on other hospitalizations in the U.S., download *HCUP Facts and Figures, 2006: Statistics on Hospital-based Care in the United States*, located at <u>http://www.hcup-us.ahrq.gov/reports.jsp</u>.

For a detailed description of HCUP please refer to the following publication:

Steiner, C., Elixhauser, A., Schnaier, J. The Healthcare Cost and Utilization Project: An Overview. *Effective Clinical Practice* 5(3):143–51, 2002.

For more information on the AHRQ Quality Indicators, inpatient quality, and how estimates were developed for this Statistical Brief, see the following publications:

AHRQ Quality Indicators—Guide to Prevention Quality Indicators: Hospital Admission for Ambulatory Care Sensitive Conditions. Online. March 12, 2007. U.S. Agency for Healthcare Research and Quality http://www.qualityindicators.ahrq.gov/downloads/pqi/pqi_guide_v31.pdf

Coffey R, Barrett M, Houchens R, Moy E, Andrews, R. *Methods Applying AHRQ Quality Indicators to Healthcare Cost and Utilization Project (HCUP) Data for the Fifth (2007) National Healthcare Disparities Report.* HCUP Methods Series Report # 2007-07. Online January 4, 2008. U.S. Agency for Healthcare Research and Quality.

Available: http://www.hcup-us.ahrq.gov/reports/methods.jsp.

Suggested Citation

Stranges, E. (Thomson Reuters), Coffey, R.M. (Thomson Reuters), and Andrews, R.M. (AHRQ). *Potentially Preventable Hospital Stays among Hispanics, 2006.* HCUP Statistical Brief #61. October 2008. Agency for Healthcare Research and Quality, Rockville, MD. <u>http://www.hcup-us.ahrq.gov/reports/statbriefs/sb61.pdf</u>

AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of health care in the United States. We also invite you to tell us how you are using this Statistical Brief and other HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please e-mail us at <u>hcup@ahrq.gov</u> or send a letter to the address below:

Irene Fraser, Ph.D., Director Center for Delivery, Organization, and Markets Agency for Healthcare Research and Quality 540 Gaither Road Rockville, MD 20850 * * *

	Number of Admissions per 10,000 Population				
	Hispanic Adults	Non- Hispanic White Adults			
Diabetes					
Short Term Diabetes Complications (PQI 1)	5.5*	4.5			
Long Term Diabetes Complications (PQI 3)	21.2*	8.8			
Uncontrolled Diabetes (PQI 14)	4.0*	1.2			
Lower-Extremity Amputation (PQI 16)	6.0*	2.5			
Chronic Respiratory Conditions					
Chronic Obstructive Pulmonary Disease (PQI 5)	13.7*	19.0			
Adult Asthma (PQI 15)	15.5*	8.9			
Circulatory Conditions					
Hypertension (PQI 7)	6.3*	3.2			
Congestive Heart Failure (PQI 8)	49.5*	36.1			
Angina without Procedure (PQI 13)	4.1*	2.9			

Table 1. Hospitalization rates for potentially preventable chronic conditions among Hispanic adults and non-Hispanic white adults, 2006.

*Significantly different from the rate of non-Hispanic white adults, at the 0.05 level or better.

Source: Agency for Healthcare Research and Quality, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases disparities analysis file, 2006. This file is designed to provide national estimates on disparities for the National Healthcare Disparities Report using weighted records from a sample of hospitals from the following 24 states: AR, AZ, CA, CO, CT, FL, GA, HI, KS, MA, MD, MI, MO, NH, NJ, NY, OK, RI, SC, TN, TX, VA, VT, and WI.

Table 2. Hospitalization rates for potentially preventable chronic conditions by ethnicity and median income of patient's ZIP Code, 2006.

	Number of Admissions per 10,000 Population				
	Lowest Income Quartile		Highest Income Quartile		
	Hispanic Adults	Non- Hispanic White Adults	Hispanic Adults	Non- Hispanic White Adults	
Diabetes					
Short Term Diabetes Complications (PQI 1)	7.1	6.5	4.0*	3.0	
Long Term Diabetes Complications (PQI 3)	28.6*	11.6	14.3*	7.3	
Uncontrolled Diabetes (PQI 14)	6.1*	2.1	1.8*	0.7	
Lower-Extremity Amputation (PQI 16)	8.0*	3.3	4.1*	2.1	
Chronic Respiratory Conditions					
Chronic Obstructive Pulmonary Disease (PQI 5)	17.0*	28.6	9.6*	14.0	
Adult Asthma (PQI 15)	21.7*	12.3	11.0*	7.3	
Circulatory Conditions					
Hypertension (PQI 7)	8.5*	4.6	4.2*	2.7	
Congestive Heart Failure (PQI 8)	62.9*	44.7	38.6	33.7	
Angina without Procedure (PQI 13)	5.1*	4.5	3.3*	2.3	

*Significantly different from the rate of non-Hispanic white adults of the same income quartile, at the 0.05 level or better.

Source: Agency for Healthcare Research and Quality, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases disparities analysis file, 2006. This file is designed to provide national estimates on disparities for the National Healthcare Disparities Report using weighted records from a sample of hospitals from the following 24 states: AR, AZ, CA, CO, CT, FL, GA, HI, KS, MA, MD, MI, MO, NH, NJ, NY, OK, RI, SC, TN, TX, VA, VT, and WI.

	Number of Admissions per 10,000 Population				
	Acute Conditions	Chronic Conditions			
Total	70.3	122.4			
Gender					
Male	63.0	121.7			
Female	76.5	123.2			
Age					
18-44	13.6	19.8			
45-64	43.1	109.1			
65 and over	268.1	437.2			
Median income of the patient's ZIP Code					
First quartile (lowest income)	83.7	160.3			
Second quartile	62.8	107.0			
Third quartile	63.4	99.0			
Fourth quartile (highest income)	58.5	88.4			
Location of patient residence					
Metropolitan "central" area with population of at least 1 million	68.0	129.7			
Metropolitan "fringe" area with a population of at least 1 million	50.7	86.0			
Metropolitan area with a population of 250,000-999,999	84.8	136.2			
Metropolitan area with a population of 50,000-249,999	NA	NA			
Micropolitan area	89.6	126.4			
Non-metropolitan, non- micropolitan area	102.8	142.7			

Table 3. Hospitalization rates for potentially preventable acute and chronic conditions among Hispanic adults, 2006.

Source: Agency for Healthcare Research and Quality, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases disparities analysis file, 2006. This file is designed to provide national estimates on disparities for the National Healthcare Disparities Report using weighted records from a sample of hospitals from the following 24 states: AR, AZ, CA, CO, CT, FL, GA, HI, KS, MA, MD, MI, MO, NH, NJ, NY, OK, RI, SC, TN, TX, VA, VT, and WI.



Figure 1. Rates of Potentially Preventable Hospital Stays for Chronic Conditions are 40 Percent Higher Among Hispanic Adults than Among Non-Hispanic White Adults







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Figure 3. Rate of Potentially Preventable Hospital Stays for Diabetes Among Hispanic Adults is More than Double the Rate Among Non-Hispanic White Adults



Figure 4. Disparities in Rate of Potentially Preventable Hospital Stays for Diabetes Between Hispanic Adults and Non-Hispanic White Adults Exist Across Income Levels



Source: Agency for Healthcare Research and Quality, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases disparities analysis file, 2006. This file is designed to provide national estimates on disparities for the National Healthcare Disparities Report using weighted records from a sample of hospitals from the following 24 states: AR, AZ, CA, CO, CT, FL, GA, HI, KS, MA, MD, MI, MO, NH, NJ, NY, OK, RI, SC, TN, TX, VA, VT, and WI.