



Racial and Ethnic Disparities in Hospital Charges in Connecticut: Data Update

Community, Family, and Health Equity Section • September 2016

Introduction

Quantifying health disparities, specifically the disparities in hospital charges, demonstrates the need to address health disparities and promote health equity in an effort to reduce excess hospital costs and improve the health of Connecticut's residents.

This data brief updates *Quantifying the Potential Economic Benefits of Health Equity in Connecticut: Disparities in Hospital Charges and Costs among Blacks and Hispanics compared to Whites, 2005-2012*, a poster presented at the Keeneland Conference in Lexington, Kentucky on April 21, 2015.ⁱ

Analysis*

In this analysis the total disparity (excess) in hospital charges is the sum of frequency and severity disparities. The frequency disparity is an excess in hospital charges resulting from a group having more hospitalizations than the comparison group. The severity disparity is the result of a group having more complicated or costly hospitalizations than the comparison group. This analysis used and expanded upon a methodology developed by the Maryland Office of Minority Health and Health Disparities.ⁱⁱ

The data source for this analysis is the Acute Care Hospital Inpatient Discharge Database (HIDD) of the Connecticut Office of Health Care Access (OHCA). This database contains information, such as race, ethnicity, and hospital charges, from all non-federal acute care hospitals in the state. The HIDD data used for this analysis excluded newborn, birth, and pregnancy-related hospital discharges.

First, the frequency disparity was calculated. The first step in determining the frequency disparity was to calculate the hospital discharge rate per 100,000 population by dividing the number of hospital discharges by the corresponding year's annual July 1 population estimates for White, Black or African American, and Hispanic or Latino/a residents within ten age strata.ⁱⁱⁱ The next step was to calculate the ratio of Black or

KEY POINTS:

- In 2014, the total excess hospital charges for Black or African American and Hispanic or Latino/a residents relative to White residents were \$658 and \$212 million, respectively.
- While the disparities in hospital charges have decreased over recent years for Black or African American and Hispanic or Latino/a residents, there is further need to address health disparities to reduce excess hospital charges and to enable all residents to attain their full health potential.

* The racial grouping of "Black" and "White" exclude persons of Hispanic ethnicity. Therefore, the modifier "Non-Hispanic or Latino" is assumed. The "Hispanic or Latino/a" ethnicity category may include persons of any racial group.

African American and Hispanic or Latino/a hospital discharge rate to the White discharge rate. These ratios were used to calculate the attributable risk $((\text{ratio}-1)/\text{ratio})$ for each age group. Multiplying each age group's attributable risk by the corresponding total charges and summing the products of all the age groups yielded the frequency disparity.

Second, the severity disparity was calculated. The first step in producing the severity disparity was to subtract the overall average charge of Whites from the overall average charge of Black or African American and Hispanic or Latino/a residents. Multiplying the differences by the overall White discharge rate produced the severity disparity.

Summing the frequency and severity disparities yielded the total disparity in hospital charges. The annual total disparities in charges from 2005 to 2014 were adjusted to 2014 dollars using the US Bureau of Labor Statistics Consumer Price Index for All Urban Consumers for hospital and related services (CPI-U). The trends in the annual total disparities in adjusted charges were analyzed using the Joinpoint Regression Program version 4.2.0.2 (Statistical Research and Applications Branch, National Cancer Institute). The Joinpoint Regression Program estimates the annual percent change (APC) using a regression model. The program uses statistical criteria to determine when and how often the APC changes.^{iv} For this reason, the time periods of the trends for Black or African American and Hispanic or Latino/a residents differ.

Disparities in 2014

The frequency disparity in charges for Black or African American and Hispanic or Latino/a residents relative to White residents was \$658 and \$212 million, respectively. The severity disparity in charges for Black or African American and Hispanic or Latino/a residents relative to White residents was \$16 and -\$33 million, respectively. The total excess hospital charges for Black or African American and Hispanic or Latino/a residents relative to White residents were \$674 and \$179 million, respectively.

Trends in the Disparity of Charges, 2005-2014

Figures 1 and 2 display the excess CPI-U adjusted hospital charges associated with Black or African American and Hispanic or Latino/a residents from 2005-2014 and the annual percent change (APC).

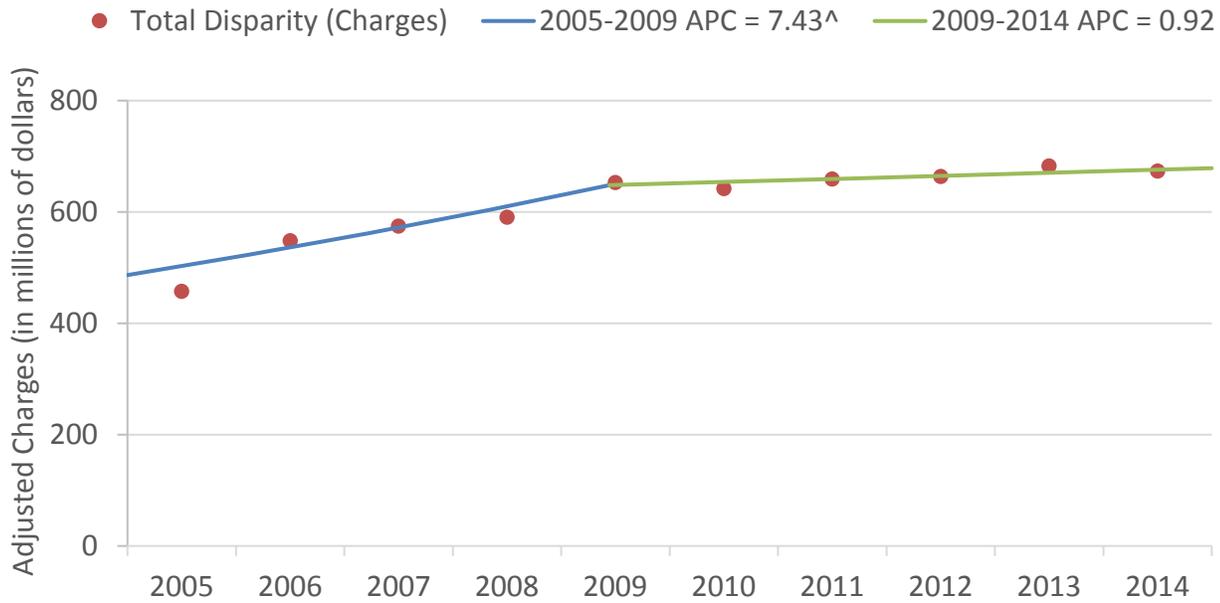
Black or African American Residents

From 2005 to 2009, the disparity in adjusted hospital charges for Black or African American residents relative to White residents increased significantly. From 2009 to 2014, however, there was not a statistically significant change in the disparity of hospital charges.

Hispanic or Latino/a Residents

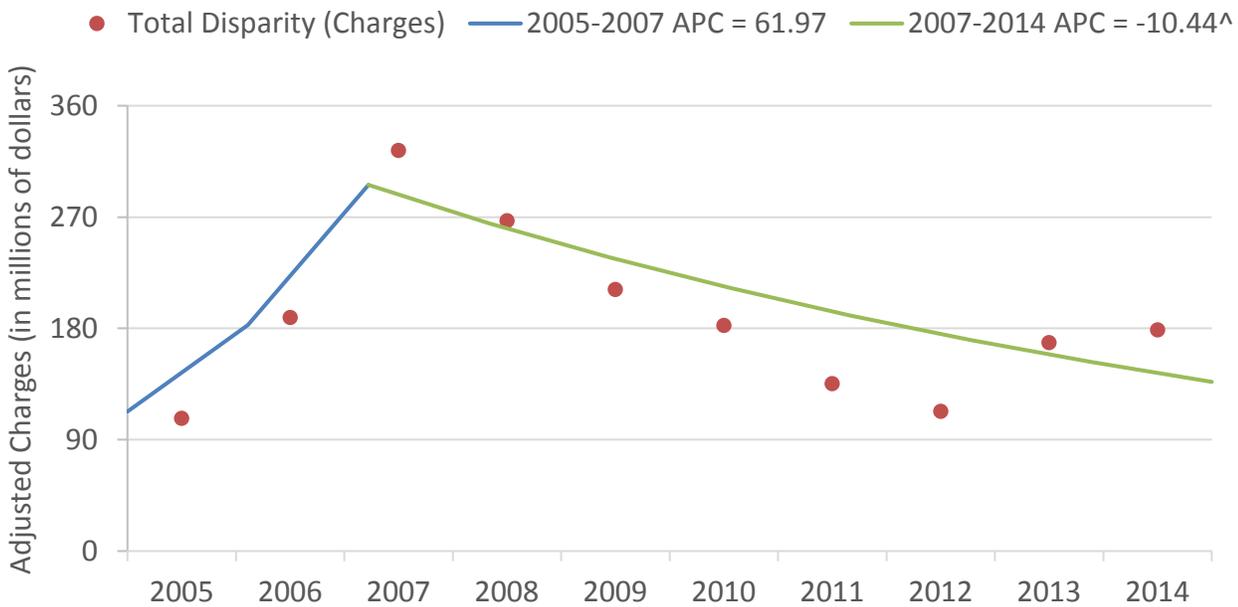
From 2005 to 2007, the disparity in adjusted hospital charges for Hispanic or Latino/a residents relative to White residents did not change significantly. From 2007 to 2014, however, the disparity in adjusted hospital charges decreased significantly.

Figure 1. Total Disparity in CPI-U Adjusted Hospital Charges among Black or African American Connecticut Residents and the Estimated Annual Percent Change (APC), 2005-2014



[^]The APC is significantly different from zero at alpha = 0.05.

Figure 2. Total Disparity in CPI-U Adjusted Hospital Charges among Hispanic or Latino/a Connecticut Residents and the Estimated Annual Percent Change (APC), 2005-2014



[^]The APC is significantly different from zero at alpha = 0.05.

Conclusion

This analysis quantified the disparity in hospital charges for Black or African American and Hispanic or Latino/a residents compared with White residents. It is important to note the difference between hospital charges and costs. Charges include the actual cost of care and an additional amount to generate income for recovering fixed costs, generating funds for future investment and to maintaining profitability.^v Because hospital charge data are more readily available than hospital cost data, charges are often used as a proxy for cost.

The *2015 National Healthcare Quality and Disparities Report and 5th Anniversary Update on the National Quality Strategy* provides some explanation for the trends in the disparities in hospital charges among Black or African American and Hispanic or Latino/a residents.^{vi} For example, nationally, the gaps in uninsurance between Black or African American and White individuals and Hispanic or Latino/a and White individuals have decreased in recent years. Also, the percentage of people with a usual place to go for medical care increased for Black or African American and Hispanic or Latino/a individuals. The increase in a usual place to go for medical care was not statistically significant for White individuals. Increasing access to and the quality of healthcare services that can prevent diseases and their complications and hospitalizations may be affecting the trends in the disparities in hospital charges. However, access to quality care is only one factor that may have influenced the trends. Social, community and economic factors may also have impacted the trends independent of access to care.

While the disparities in hospital charges have not significantly changed for Black or African American residents and have decreased for Hispanic or Latino/a residents, health disparities still exist and there is further need to address these disparities. Preventing excess hospital charges among Black or African American, Hispanic or Latino/a and other population groups should involve ensuring that all people have the opportunity to make the choices that allow them to live long, healthy lives, regardless of their income, education or ethnic background.

Author

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ⁱ Dalal M, Poulin S, Kianoush S. Quantifying the Potential Economic Benefits of Health Equity in Connecticut: Disparities in Hospital Charges and Costs among Blacks and Hispanics compared to Whites, 2005-2012. Poster session presented at the Keeneland Conference, Lexington, KY; 2015. [Available from: <http://www.ct.gov/dph/healthdisparitiesdata>]

ⁱⁱ David A. Mann MD, PhD. Cost of Disparity Analysis & Using Disparity Data for Policy presented on May 14, 2013 at the Connecticut DPH.

- ⁱⁱⁱ Backus, K, Mueller, LM. State-level Bridged Race Estimates for Connecticut, 2005-2014. Hartford, CT: Connecticut Department of Public Health; 2015. [Available from: <http://www.ct.gov/dph/cwp/view.asp?a=3132&q=388152>]
- ^{iv} National Cancer Institute. Joinpoint Help: Average Annual Percent Change (AAPC). Calverton, MD: National Cancer Institute; 2015.
- ^v Connecticut Department of Public Health (DPH) Office of Health Care Access. Annual Report on the Financial Status of Connecticut's Short Term Acute Care Hospitals for Fiscal Year 2014. Hartford, CT: DPH; 2015. [Available from: <http://www.ct.gov/dph/ohca>]
- ^{vi} Agency for Healthcare Research and Quality (AHRQ). 2015 National Healthcare Quality and Disparities Report and 5th Anniversary Update on the National Quality Strategy. Rockville, MD: AHRQ; 2016. [Available from: <http://www.ahrq.gov/research/findings/nhqrdr/index.html>]