

Financial Impact of Racial and Ethnic Health Disparities in Connecticut

Authors: Joshua W. Elder (University of California, Davis); Stephanie M. Poulin and Mehul A. Dalal (Connecticut Department of Public Health)

COMMUNITY, FAMILY HEALTH, & PREVENTION SECTION • December 2018

This analysis quantifies the economic impact of racial and ethnic health disparities using hospital charge data. The authors hypothesize that, compared with Whites, there are excess hospital charges for minority groups even after adjusting for patient and hospital characteristics.

Methods

Data Sources. The 2014 Acute Care Hospital Inpatient Discharge Database (HIDD) of the Connecticut Office of Health Care Access (OHCA) is the data source for patient age, race, ethnicity, and gender; patient diagnosis; services provided and related charges; payer; provider; and length of stay. The analysis excludes non-Connecticut residents and newborn, birth, and pregnancy-related discharges.

The data source for educational attainment, unemployment of individuals (16-64 years old), and median household income for each discharge's residential ZIP Code Tabulation Area (ZCTA) is the Census Bureau's 2011 American Community Survey.

Model. The dependent variable (key variable of interest) is hospital charge. The independent variables are race and ethnicity, age, gender, length of stay, public or private insurance, diagnostic category (e.g. endocrine, neoplasms, respiratory), and estimated educational attainment rates, unemployment rates, and median household income.

Race and ethnicity categories include non-Hispanic White (White) (reference group), non-Hispanic Black or African American (Black), and Hispanic or Latino (Hispanic). There were too few hospital discharges in other specific racial and ethnic groups to produce reliable estimates.

Age and length of hospital stay are continuous variables. Gender categories are male (reference group) and female. The percentages of less than a high school diploma (educational attainment) and unemployed in the past 12 months are categorized as those with percentages in the 75th percentile (less educated or higher unemployment) and those in the other three quartiles (reference group). Median household income is categorized as those with percentages in the 25th percentile (lower annual household income) and those in the other three quartiles (reference group). Payer categories are private (commercial insurance company, Blue Cross, HMO, and PPO), public (Medicare, Medicaid, and other federal program), or other payer (all others). Public payer is the reference group. Major diagnostic groups were included in the model with infectious diseases as the reference group.

General linear modeling, using PROC GLM in SAS 9.4 (SAS Institute Inc., Cary, NC, USA), was used to produce adjusted estimates of the mean charges for each variable controlling for all other variables of this analysis and to generate the difference in overall hospital charges among the three racial and ethnic groups. Comorbidities were calculated according to the Elixhauser Comorbidity Index, an index developed for use with administrative data that defines 30 co-existing medical conditions which could influence patient outcomes.¹

KEY POINT: The estimated excess hospital cost of non-Hispanic Black or African American residents is over \$384 million and of Hispanic or Latino residents is over \$121 million compared with non-Hispanic White residents.

Summary of Financial Impact of Racial and Ethnic Disparities in Connecticut

Multiplying the excess charges by the Hospital Ratio of Cost to Charge (RCC) estimates excess hospital costs. The RCC is the ratio of total operating expense to the total of gross patient charges plus other operating revenue. Connecticut's Office of Health Care Access the RCC annually. The 2014 RCC is 0.32.

Results

Characteristics of Study Population. The total number of hospital discharges was 312,505. The mean age was 60.4 years with a race/ethnicity composition of White (73.2%), Black (12.2%), Hispanic (10.2%), and other (4.4%). The gender and payer-mix was roughly equivalent to rates as estimated by prior Connecticut OHCA reports. The mean charge of hospitalizations in 2014 was \$43,245.

Excess Charges and Costs. The estimated excess charges (compared with White residents) of Black residents was over \$1.2 billion and over \$378 million for Hispanic residents. After applying the 2014 RCC, estimated excess charges of Black residents was over \$384 million and of Hispanic residents was over \$121 million compared with White residents.

Discussion

The results of this analysis show that even after controlling for sociodemographic factors and co-morbidities, race and ethnicity were associated with higher hospital charges. While these results are based on Connecticut-specific data, previous research has also documented the impact that racial and ethnic disparities have on the cost of health care. One widely cited study estimated that eliminating health disparities for minorities would reduce direct medical expenditures by \$230 billion and indirect medical expenditures by more than \$1 trillion from 2003 to 2006 nationally.²

The study provides evidence that Blacks and Hispanics receive a greater volume or intensity of services in the hospital setting. It is critical to note that more healthcare services does not necessarily equate to better or appropriate care. The research suggests that providers have a tendency to rely more on tests and procedures when cultural or linguistic barriers impede the understanding of patients' values, preferences and goals of care.³ The literature also indicates that provider bias towards and beliefs or stereotypes about the behavior or health of minority groups influence the type of care provided.⁴

In addition, it is possible that Blacks and Hispanics, compared to Whites, have disease severity or health risk that is not captured by the control variables accounting for the comparatively higher utilization of services. Our model would not capture subclinical, undiagnosed or undocumented conditions that could differentially effect Blacks and Hispanics. For example, National Health and Nutrition Examination Survey (NHANES) data suggest that nationally Blacks and Hispanics are more likely to have undiagnosed diabetes compared with Whites.⁵ This also indicates that other social determinants of health not captured in this analysis, such as access to healthy food options and neighborhood safety in the case of diabetes, could play a key role in reducing disparate hospital costs. A more socially equitable landscape leads to a healthier population that would ultimately utilize hospital services less.

Conclusions

This analysis suggests that in order to address healthcare costs in Connecticut, there need to be specific strategies to identify and address health and healthcare disparities. For example, clinical quality measures used for performance monitoring and accountability could be stratified by race and ethnicity to identify differential gaps in care and potential unnecessary or harmful care. Institution-wide strategies related to adopting CLAS standards can facilitate better person-centered care for racial and

Summary of Financial Impact of Racial and Ethnic Disparities in Connecticut

ethnic minority groups. Finally, policy and systems interventions targeted to reduce exposure to risk in the communities, homes and workplaces are critical to reduce the overall health risk (and subsequent healthcare costs) of traditionally marginalized groups. Examples of these policies and systems interventions include utilizing community health workers, increasing referrals and access to community-based self-management programs for chronic diseases, providing safe and accessible places for physical activity, and serving nutritious foods and beverages at schools.

References

- ¹ Lix LM, Quail J, Fadahunsi O, Teare GF. Predictive performance of comorbidity measures in administrative databases for diabetes cohorts. *BMC Health Serv Res.* 2013 Aug 17;13:340. doi: 10.1186/1472-6963-13-340.
- ² LaVeist TA, Gaskin DJ, Richard P. The economic burden of health inequalities in the United States. *Int J Health Serv.* 2011;41(2):231-8.
- ³ Flores G. The Impact of Medical Interpreter Services on the Quality of Health Care: A Systematic Review. *Med Care Res Rev.* 2005;62(3):255-259. doi: 10.1177/1077558705275416.
- ⁴ Institute of Medicine (IOM). Unequal Treatment: What Healthcare Providers Need to Know About Racial And Ethnic Disparities in Healthcare. 2002. Available online: <http://www.nationalacademies.org/hmd/~media/Files/Report%20Files/2003/Unequal-Treatment-Confronting-Racial-and-Ethnic-Disparities-in-Health-Care/Disparitieshcproviders8pgFINAL.pdf>.
- ⁵ Centers for Disease Control and Prevention (CDC) Division of Diabetes Translation (DDT). National Diabetes Statistics Report, 2017. CDC: Atlanta, GA. Available online: <https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf>.