



The Analytics for Equity Initiative

The impact of climate change on Disproportionate Share Hospitals

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Research Theme: Health Equity in the Wake of Climate Change.

Research Questions: What are the impacts of heatwave events on the ability of DSH hospitals to provide care in the USA? Do these impacts financially burden DSH hospitals and if so, should environmental factors, like heatwaves, be included in DSH funding calculations?

Data: This project aggregates temperature data from NOAA, Census MSA, and MEDPAR Limited Data set, in addition to the diagnostic codes in MS-DRG, and ICD-9.

Abstract:

Climate change has a significant impact on the health of low-income communities across the United States who receive care from CMS (Center for Medicare Medicaid Services) Disproportionate Share Hospitals (DSH). DSH hospitals can easily be financially strained as they work to provide care to uninsured or underinsured patients, placing them at higher risk of experiencing severe or unpredictable financial impacts due to climate change. In this project, we explore the direct and indirect impacts of heatwave events, which generate an influx of patients with heat-related illnesses, on DSH hospitals. Specifically, we aim to determine if environmental factors should be included in the DSH funding calculations to ensure hospitals can continue to offer accessible healthcare. To generate the data required to answer this research question, we engage in a multi-step data merge process involving data from weather stations, DSH hospital identification, inpatient data files from the Center for Medicare and Medicaid (CMS), and diagnostic codes associated with heat-related conditions. Our exploratory data analysis will concentrate on the association between weather events and outcome variables including, but not limited to the number of admitted patients, the length of stay, and the severity of their condition. Finally, we will compare how the current risk adjustment model, which determines DSH funding via Ordinary Least Square (OLS) regression may be improved by the inclusion of environmental factors. We hope that by accurately determining the necessary funds for DSH hospitals, we will enable them to continue providing high-quality healthcare to climate-vulnerable communities.

