



Racial/Ethnic Disparities in COVID-19 Patient Outcomes

MIT Datathon - Track c, Team 7

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Prior Research & Data Sources

Prior Research:

- Disparities in health conditions by race, gender, age, disability, and income.
 - Particularly acute in counties with many Black residents
~ 60% of **COVID-19 deaths** (CNN 2020)

Data Sources

- [COVID Racial Data Tracker](#)
- [CDC Death Distributions among Minorities](#)
- [COVID-19 Community Vulnerability Index \(CCVI\)](#)
- [Johns Hopkins Racial Data Transparency](#)



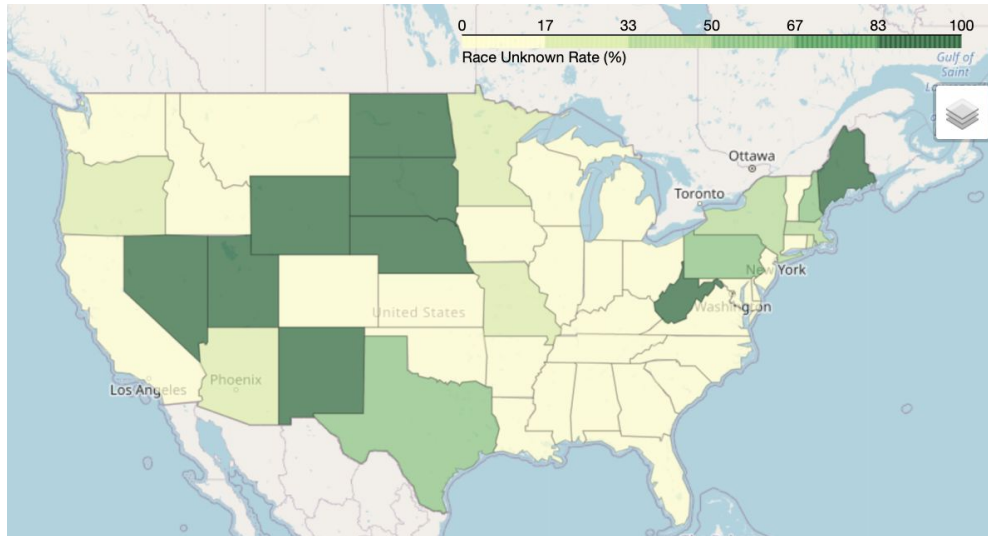
Research Questions:

How **complete** is COVID-19 mortality data **by race** in the USA?

How **great** is the disparity, and **what factors** might be contributing?

Major Coverage Gaps, Even When Race is Reported

% “Unknown” Race Reported for Covid Mortality



Data source: www.covidracetracker.com

Highest “Unknown”

Lowest “Unknown”

WV	94 %	TN	3 %
TX	66 %	ID	3 %
NH	56 %	GA	2 %
PA	52 %	AL	2 %
MA	46 %	WI	1 %
NY	35 %	IL	1 %
MN	23 %	MT	0 %
RI	20 %	VT	0 %
OR	20 %	KS	0 %
MO	19 %	MS	0 %



COVID-19 Racial Disparities May Be Much Worse

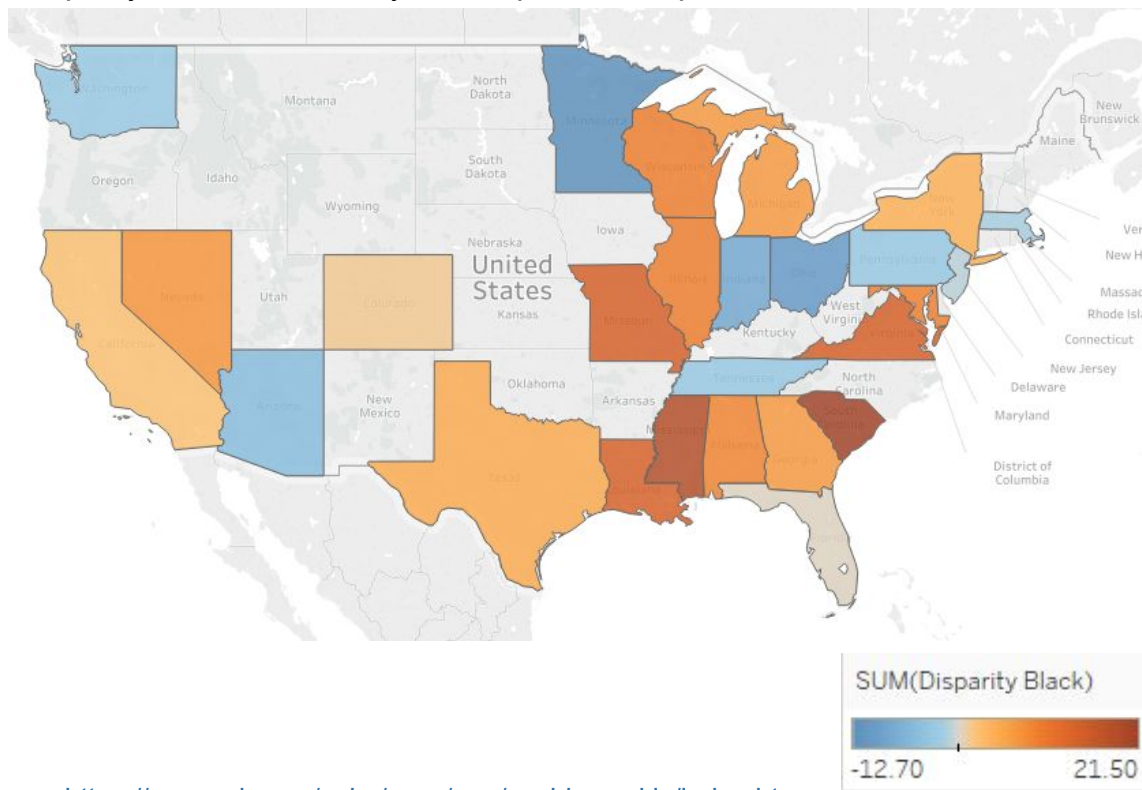
- 15% the 40 states reporting race data have > 30% race “**unknown**”.
- Lack of visibility into **testing availability** for minority populations.
- Few states released **zip code data**. Making it difficult to understand specific reasons why the virus is hitting some areas harder than others.

Disparity Score Calculation

Disparity Score =
% COVID-19 deaths - % population

- **South Carolina**
53.5% of COVID-19 deaths
30% of population
- **Tennessee**
28.2% of COVID-19 deaths
33.2% of population

Disparity Between Mortality and Population Representation for **Black Patients**



Data source: https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm

What is Causing these Disparities?

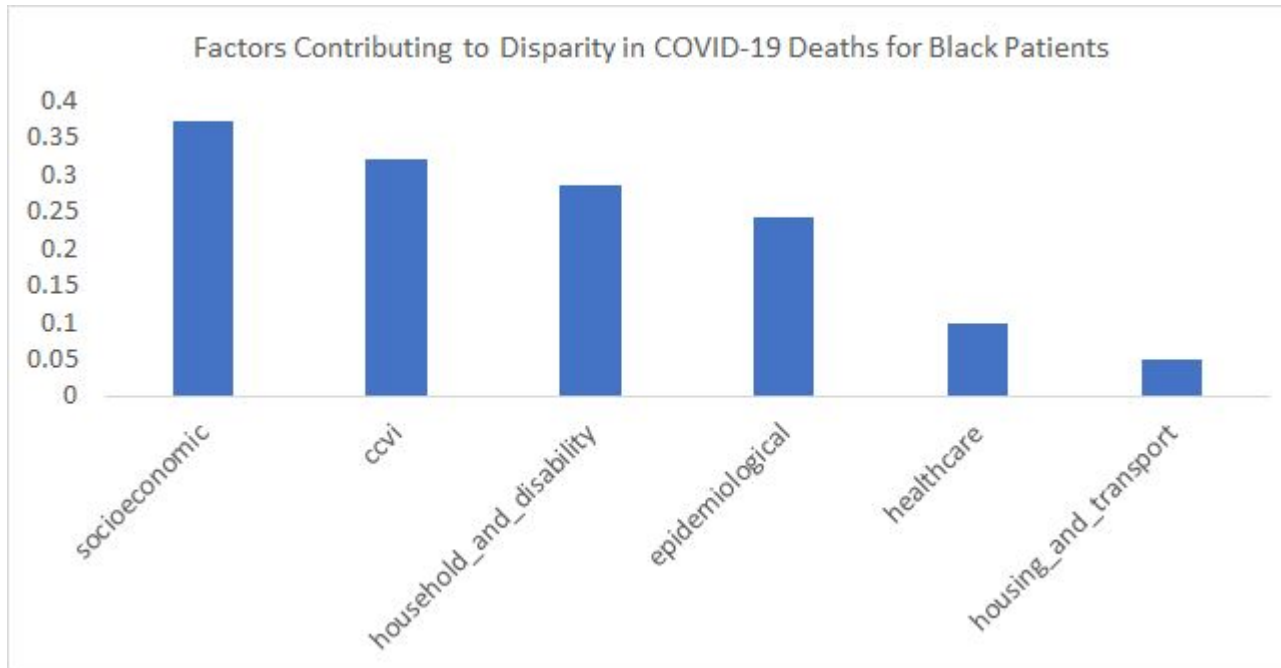


Social Vulnerability Index Scores (pre-COVID)

Factors:

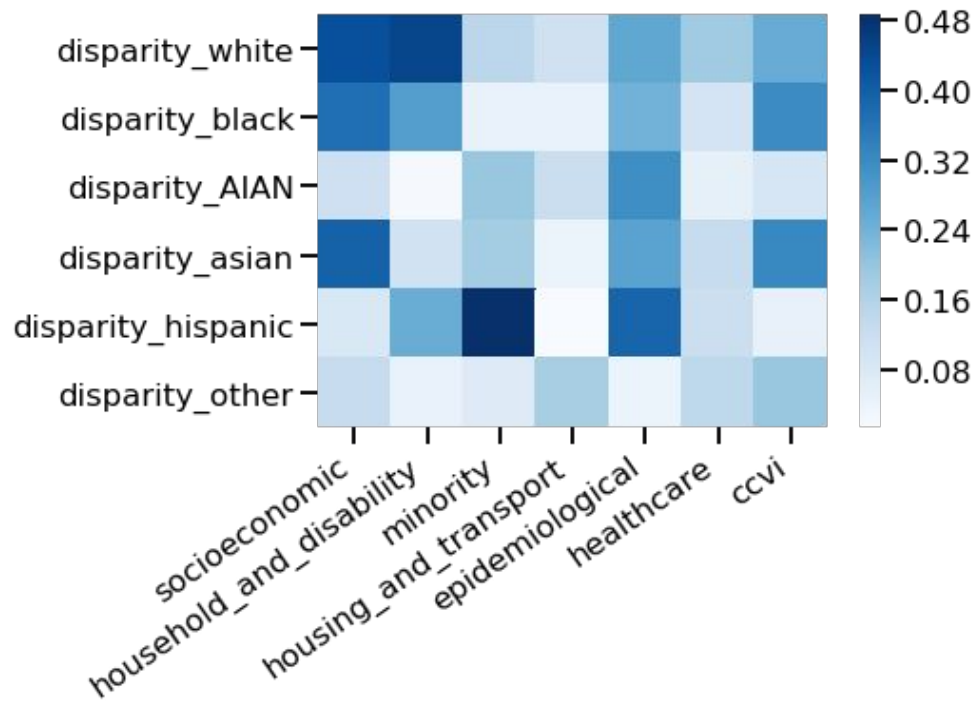
- Socioeconomic
- Household Composition & disability
- Minority Status & Language
- Housing Type & Transportation
- Epidemiologic
- Healthcare System

Highest Correlation is Socioeconomic Factors



Each Race is Impacted Differently by Demographic Factors

Black - Socioeconomic
American Indian and Alaska Native - Epidemiological
Asian - Socioeconomic
Hispanic - Minority, Epidemiological
Other - Housing and transport





Conclusions & Suggestions

- A “one-size-fits-all” approach would be **ineffective**. Tailor solutions **uniquely** to target patient populations.
- Talk to humans, too! **Include** minority populations in the analysis, discussion & ideation of policy solutions.
- States need **more complete** racial (and other) COVID-19 data.



Thank you!

https://github.com/kmussar/covid19_datathon



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