MINORITY HEALTH SOCIAL VULNERABILITY INDEX OVERVIEW

INTRODUCTION

Systemic socioeconomic inequities like poverty, poor housing conditions, and lack of access to quality health care, lead to worse health outcomes among racial and ethnic minority populations in the U.S.[1] Such factors also increase the risk for the ability of racial and ethnic minority populations to anticipate, confront, repair, and recover from the effects of a disaster or public health emergency—also known as social vulnerability.[2] Racial and ethnic minority and other socially vulnerable populations have experienced worse outcomes and increased risk during the COVID-19 pandemic, which has confirmed and exacerbated existing disparities associated with the social determinants of health (SDOH) and underlying health conditions.

Locality-based differences in COVID-19 outcomes across the U.S. for each racial and ethnic group highlight the need to examine data at the local level to see the underlying differences that are often obscured by aggregated data (data combined from several measurements for two or more racial/ethnic groups). In addition, understanding local-level social vulnerability and identifying groups at the highest risk for disproportionate impact are critical for informing and ensuring equitable response and recovery efforts for COVID-19 and other public health emergencies.

The Centers for Disease Control and Prevention (CDC) Agency for Toxic Substances and Disease Registry (ATSDR), and U.S. Department of Health and Human Services (HHS) Office of Minority Health developed the Minority Health Social Vulnerability Index (SVI) to enhance existing resources to support the identification of racial and ethnic minority communities at greatest risk for disproportionate impact and adverse outcomes due to the COVID-19 pandemic. Given the evidence on common factors contributing to social vulnerability, the Minority Health SVI also could potentially be applied to other public health emergencies.

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WHAT IS THE MINORITY HEALTH SOCIAL VULNERABILITY INDEX?

The Minority Health Social Vulnerability Index, or Minority Health SVI, is an extension of the CDC/ATSDR Social Vulnerability Index (CDC/ATSDR SVI), which is a database that helps emergency response planners and public health officials identify, map, and plan support for communities that will most likely need support before, during, and after a public health emergency. Social vulnerability is determined based on selected demographic indicators, which are used to rank counties.

The Minority Health SVI combines the 15 social factors included in the CDC/ATSDR SVI with factors known to be associated with COVID-19 outcomes. The factors are organized into six themes, the first four themes listed below are from the CDC/ATSDR SVI and the last two themes are specific to the Minority Health SVI:

- Socioeconomic Status
- Household Composition and Disability
- Minority Status and Language
- Housing Type and Transportation
- Health Care Infrastructure and Access
- Medical Vulnerability

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[1] https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html
[2] Flanagan BE, Hallisey EJ, Adams E, and Lavery A, 2018. "Measuring community vulnerability to natural and anthropogenic hazards: The centers for disease control and prevention's social vulnerability index." J. Environ. Health 80(10): 34-36.

The Minority Health SVI also expands the Minority Status and Language theme to include statistics for specific race/ethnicity categories and languages. Specifically, data is included for the five racial/ethnic minority groups currently defined by the 1997 OMB Directive 15 and the top five languages spoken by limited English proficient (LEP) populations at the county level.

The Minority Health SVI is derived from publicly available data from the U.S. Census Bureau American Community Survey, CDC, Department of Homeland Security, and Institute for Health Metrics and Evaluation. The full data table includes percentages or counts for each variable along with margins of error where applicable, as well as percentile rankings and theme rankings. Data are available for counties within each state and the District of Columbia, to enable analysis of relative vulnerability within an individual state, across states, and across the U.S. Full documentation for CDC/ATSDR SVI methods is available at: https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html.

HOW DO I USE THE MINORITY HEALTH SVI DASHBOARD?

The Minority Health SVI dashboard is an interactive platform for users to view and map Minority Health SVI variables and index by county. The dashboard is a deployment of Esri ArcGIS Enterprise Operations Dashboard, hosted on the CDC OneMap platform and available at: https://onemap.cdc.gov/Portal/apps/MapSeries/index.html?appid=3384875c46d649ee9b452913fd64e3c4.

Data visualization features of the dashboard include a map of Minority Health SVI percentile rankings by county and a bar chart of mean values for individual variables. Users can control the chart through a drop-down menu and can filter the data by state, county, and Minority Health SVI percentile ranking. For example, if a user selects the poverty rate variable and filters to Virginia counties in the top 20 percent for Medical Vulnerability, the chart updates to display the mean poverty rate in those counties. This interaction makes it possible to look a subset of counties based on different aspects of vulnerability and explore how individual variables change accordingly.

Interaction with the map can begin either with search criteria or with a geographic area of interest. When the user selects a subset of counties with the filter function, the map updates to show only those counties. In the example above, the user would be able to identify which counties in Virginia are ranked highest for Medical Vulnerability. Conversely, if the user adjusts the map to focus on a geographic region, the chart will update to show the statistics for counties currently visible on the map.

Here are some specific examples of questions users can explore with the Minority Health SVI dashboard:

- Which counties in California are above the 90th percentile for Socioeconomic Status Vulnerability?
- What is the mean cardiovascular disease mortality in the area surrounding Washington, D.C.?
- For counties with the lowest access to health care infrastructure, what percent of the population, on average, speaks Spanish?

HOW CAN THE MINORITY HEALTH SVI BE USED?

The Minority Health SVI can be used to apply a health equity lens to research, strategic planning, program design, and evaluation related to response and recovery for COVID-19 and other public health emergencies.

The Minority Health SVI databases and dashboard can be used to:

- Plan targeted and equitable COVID-19 testing, vaccine and treatment distribution and administration efforts.
- Identify communities with limited English proficient individuals (and the languages spoken) who will need language assistance for outreach efforts and services.
- Support program planning and evaluation efforts, including those that may link Minority Health SVI with other databases.
- Identify medically under-resourced communities for which strategic efforts are needed to improve health care infrastructure and access.
- Plan community-level efforts to address systemic factors related to the social determinants of health.
- Help decide how many public health and emergency personnel are required to assist people in case of emergencies at the county level.
- Foster multi-sector collaboration at the community level by offering a tool that is inclusive of a diverse range of place-based factors.
- Inform the design of targeted programs and services to address chronic disease disparities.
- Inform research examining the correlation between socioeconomic, healthcare infrastructure and demographic characteristics of an area.

WHAT ARE THE DATA SOURCES AND TECHNICAL NOTES FOR THE MINORITY HEALTH SVI?

The Minority Health SVI includes demographic data from the U.S. Census Bureau American Community Survey (ACS) 5-Year Estimates. Because the ACS is a survey, these estimates are subject to sampling error. The Minority Health SVI dataset includes margins of error for each applicable variable based on a 90 percent confidence interval. More information on ACS methods is available here: https://www.census.gov/programs-surveys/acs/guidance/handbooks/general.html.

In addition, the Minority Health SVI treats vulnerability as a characteristic of a community, associated with a geographic district (counties). As is always the case when data are aggregated to an area unit, there may be significant spatial variation in vulnerability within a given county. Further, county-level measures of vulnerability do not necessarily reflect the experiences of all individuals living in the county.

COMPARISON BETWEEN CDC/ATSDR SVI AND MINORITY HEALTH SVI

Overall Vulnerability	CDC/ATSDR Social Vulnerability Index	Minority Health Social Vulnerability Index
Socioeconomic Status	Below Poverty	Below Poverty
	Unemployed	Unemployed
	Income	Income
	No High School Diplomas	No High School Diplomas
Household Composition & Disability	Aged 65 or Older	Aged 65 or Older
	Aged 17 or Younger	Aged 17 or Younger
	Older than Age 5 with a Disability	Older than Age 5 with a Disability
	Single Parent Households	Single Parent Households
Minority Status & Language	Minority	American Indian/Alaska Native
		Asian
		African American
		Native Hawaiian/Pacific Islander
		Hispanic or Latinx
		Some Other Race
	Speak English Less than "Very Well"	Spanish speakers*
		Chinese speakers*
		Vietnamese speakers*
		Korean speakers*
		Russian speakers*
Housing Type & Transportation	Multi-Unit Structures	Multi-Unit Structures
	Mobile Homes	Mobile Homes
	Crowding	Crowding
	No Vehicle	No Vehicle
	Group Quarters	Group Quarters
Health Care Infrastructure & Access		Hospitals
		Urgent Care Clinics
		Pharmacies
		Primary Care Physicians
		Health Insurance
Medical Vulnerability		Cardiovascular Disease
		Chronic Respiratory Disease
		Obesity
		Diabetes
		Internet Access

*Those who speak English less than "very well"