



Health Equity Analysis: Methodological Notes

Spring 2023

Overview

Historically, attempts to improve U.S. health care have focused on the health care system as a critical driver of health and health outcomes. In recent years, there has been a heightened awareness and recognition that improving health and decreasing health inequity depend on addressing other social, racial, economic, and environmental needs that influence health and access to health care.

The [Health Equity Analysis dashboard](#) provides an opportunity to explore the relationship between health care measures and the socioeconomic conditions that can impact health outcomes for residents living in Colorado's neighborhoods. For this analysis, health care measures were selected from the Center for Improving Value in Health Care (CIVHC) [Community Dashboard](#). Based on claims from the [Colorado All Payer Claims Database \(CO APCD\)](#), the Community Dashboard is an interactive report that provides data to understand how different aspects of health care – cost, utilization of services, access to care, use of preventive services and treatment for chronic conditions – vary across Colorado.

Key Considerations

- The health care measures in this analysis includes all public and private health insurance payers submitting data to the CO APCD, which represents the majority of covered lives (70% of medically insured) in the state. The CO APCD does not include roughly half of the self-insured employer covered lives and does not include federal programs such as Tricare, Indian Health Services and the VA.
- Maps displayed in the report use the 2019 Census tract definitions. See below for more information.

Key Definitions

- **Social Determinants of Health (SDOH):** As defined by the [Centers for Disease Control and Prevention](#), are the "nonmedical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies, racism, climate change, and political systems".
- **Social Vulnerability:** Refers to the resilience of communities (the ability to survive and thrive) when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks.
- **Census Tract:** This report displays data by census tracts, also referred to as *neighborhoods*. The census tract is a geographic division constructed by the Census Bureau to conduct population surveys. Census tracts are small, relatively permanent statistical subdivisions of a county¹. They average about 4,000 inhabitants, 1,200 (minimum population) to 8,000 (maximum population), and usually cover a contiguous area.

¹ https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_13

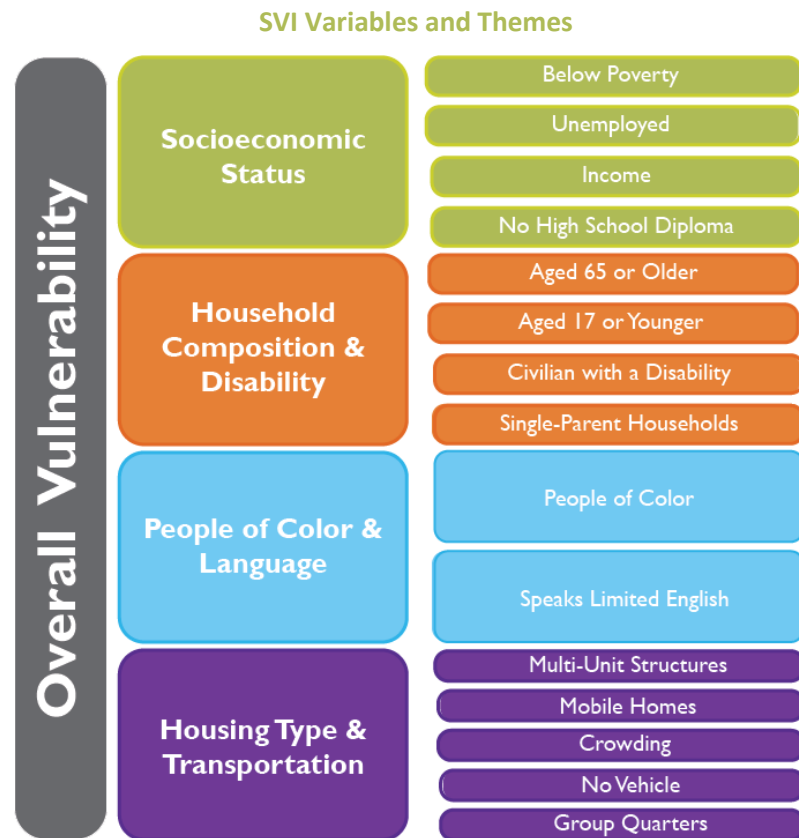
Measurements and Methods

Social Determinants of Health Measures

The following section provides definitions for each of the SDoH measures in the report, the time frame for the measure calculations, and their data sources. While only a single data point is available for each measure, some measures were derived from combining three or five years of data, with 2019 as the most recent year. 2019 was selected because it represents the most recent year of data before the COVID-19 pandemic. The pandemic drove substantial shifts in health care utilization and access nationally and locally. Three of these measures were derived from the U.S. Census Bureau's [American Community Survey](#) (ACS), while two were derived from the Centers for Disease Control and Prevention's (CDC) [Social Vulnerability Index](#) themes.

Social Vulnerability Index²

The CDC's Social Vulnerability Index (SVI) was created to help public health officials and emergency response planners identify and map the communities that will most likely need support before, during, and after a natural disaster, disease outbreak, or an anthropogenic event. SVI indicates the vulnerability of the population in every U.S. Census tract, relative to all the other U.S. Census tracts or relative to the Census tracts of a particular state (Note: this dashboard presents statistics relative to the Census tracts in Colorado). SVI ranks the tracts on 15 social factors, including unemployment, minority status, and disability, and further groups them into four related themes. Thus, each tract receives a ranking for each of the individual factors (sourced from Census Bureau's ACS statistics), for each of the four themes, and lastly for an overall vulnerability rank.



² https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2018.html

Income: Percent Below Poverty Line (lower is better)

Definition: Percentage of individuals of all ages who live in families/households with incomes below 100% of the federal poverty threshold out of the total number of individuals of all ages for whom poverty status could be determined.

- **Source:** U.S. Census Bureau, American Community Survey, five-year estimates, 2015-2019 (derived from Table B17000)

Education: Percent Without High School Diploma (lower is better)

Definition: Percentage of adults ages 25 years or older who have less than a high school diploma out of the total number of adults ages 25 years and older.

- **Source:** U.S. Census Bureau, American Community Survey, five-year estimates, 2015-2019 (derived from Table B15002)

Employment: Percent Unemployed (lower is better)

Definition: Percentage of individuals ages 16-64 years who are in the labor force (excluding the armed services) and unemployed out of the total number of individuals ages 16-64 years who are in the labor force (excluding the armed services).

- **Source:** U.S. Census Bureau, American Community Survey, five-year estimates, 2015-2019 (derived from Table B23001)

Housing/Transportation: Crowded Housing and/or With No Vehicle (percentile ranking) (lower is better)

Definition: Percentile ranking of Colorado’s census tracts on a scale of 0 to 1 for the “Housing Type & Transportation” theme of the Social Vulnerability Index. This theme combines statistics on multi-unit structures, mobile homes, crowding, no vehicle, and group quarters. **Score values can be interpreted using the following scale for vulnerability: Very Low (0.0-0.19), Low (0.20-0.39); Moderate (0.40-0.59); High (0.60-0.79); Very High (0.80-1.0).**

- **Source:** Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry, Social Vulnerability Index 2018 (derived based on selected statistics from the American Community Survey, five-year estimates, 2014-2018)

Race/Ethnicity/Language: People of Color and/or limited English (percentile ranking)

Definition: Percentile ranking of Colorado’s census tracts on a scale of 0 to 1 for the “People of Color & Language” theme of the Social Vulnerability Index. This theme combines statistics on minority population and on the population speaking limited English. **Score values can be interpreted using the following scale for vulnerability: Very Low (0.0-0.19), Low (0.20-0.39); Moderate (0.40-0.59); High (0.60-0.79); Very High (0.80-1.0).**

- **Source:** Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry, Social Vulnerability Index 2018 (derived based on selected statistics from the American Community Survey, five-year estimates, 2014-2018)

Health Care Measures

The measures selected for this report were created based on measures developed for the Community Dashboard. Aside from the measure definitions presented below, please refer to the [Community Dashboard](#) methodology for more details.

Lack of Access to Care: Children and Adolescents (lower is better)

Definition: Calculated as the percentage of patients 12 months to 19 years of age who did not have any visits with a Primary Care Practitioner (PCP) over a slightly different time frame depending on age group, as follows:

- Children 12 to 24 months and 25 months to 6 years who did not have any visits with a PCP during the measurement year. To be included, children must have medical insurance coverage for at least 11 months during the measurement year.
- Children 7 to 11 years and adolescents 12 to 19 years who did not have any visits with a PCP during the measurement year or the year prior to the measurement year. To be included, children must have medical insurance coverage for at least 11 months during the measurement year and also during the prior year.
- **Source:** Colorado All Payer Claims Database, 2019

Lack of Access to Care: Adults (lower is better)

Definition: Calculated as the percentage of patients 20 years and older who did not have any ambulatory or preventive care visits during the measurement year for Coloradans covered by Medicaid and Medicare, or during the measurement year and the two years prior to the measurement year for the commercially insured. To be included, patients with Medicaid or Medicare insurance must have medical insurance coverage for at least 11 months during the measurement year, and for those with commercial insurance—medical insurance coverage for at least 11 months during the measurement year and also during each of the prior two years.

- **Source:** Colorado All Payer Claims Database, 2019

Quality: No Follow Up After Emergency Department (ED) Visit for Mental Health Within 30 Days (lower is better)

Definition: Calculated as the percentage of ED visits for people ages 6 or older with a principal diagnosis of mental illness or intentional self-harm which did not have any follow-up visits for mental illness within 30 days of the ED visit.

- **Source:** Colorado All Payer Claims Database, 2017-2019 (combined)

Cost: Cost of Care Per Person Per Year (lower is better)

Definition: Reflects the risk-adjusted Per Person Per Year (PPPY) payments made by health insurance payers and insured individuals for medical services and prescriptions filled for Colorado residents. The PPPY measure is calculated by summing all dollars spent on medical and pharmacy services divided by the total number of insured-years. The total dollars spent on medical and pharmacy services are based on insurance claims submitted to the CO APCD by health insurance plans. Insured-years are calculated by summing the months of insurance eligibility for all people with at least one month of eligibility in the reporting period, then dividing the result by 12. The PPPY value is displayed as a dollar amount.

- **Source:** Colorado All Payer Claims Database, 2019

Utilization: All Emergency Department (ED) Visits (lower is better)

Definition: Calculated as the rate per 1,000 insured people of outpatient visits with an emergency department revenue code, procedure code, or place of service code, regardless of reason of the visits defined by primary diagnosis.

- **Source:** Colorado All Payer Claims Database, 2019

Utilization: Potentially Preventable Emergency Department (ED) Visits (lower is better)

Definition: Calculated as the rate per 1,000 insured people of outpatient visits with an emergency department revenue code, procedure code, or place of service code and with had a primary diagnosis code for which the Patched New York University Emergency Department (ED) visit algorithm³ indicated that there was at least a 50% combined probability that the ED care need fell into one of the three preventable categories:

1. Potentially Preventable, Nonemergent
2. Potentially Preventable, Emergent but Primary Care Treatable
3. Potentially Preventable, Emergent, ER Care Needed but Avoidable

- **Source:** Colorado All Payer Claims Database, 2019

Race and Ethnicity Population Statistics

Race and ethnicity statistics are based on the U.S. Census Bureau's American Community Survey five-year estimates, 2015-2019 (derived from Table B03002). The Census Bureau defines race as a person's self-identification with one or more racial groups. Population statistics are available for the following categories: White, Black or African American, Asian, American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, or some other race. Survey respondents may report multiple races. **The dashboard groups the race and ethnicity categories into the following: Hispanic, Non-Hispanic Black, Non-Hispanic White, and Non-Hispanic of Other Races.**

Limitations

Data points presented on this dashboard are less accurate for areas with small populations and should be interpreted with caution. This is more prominent for survey-based data points used for the social determinants of health than for the health care measures calculated from the CO APCD.

Data Vintage

This report is based on claims data in the CO APCD data warehouse as of the November 14, 2022 release. For more information about number of claims in the CO APCD during a particular reporting year and data discovery information regarding payer submissions, please visit our website at civhc.org.

For more information or additional questions, contact us at info@civhc.org.

³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5517669/>