Below is a list of sources and variable definitions for the Root Causes dashboards and maps.

Dashboard Citations

[https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2918905/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2918905/).


[https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3535298/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3535298/).


https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3132313/.


https://www.tandfonline.com/doi/abs/10.1080/13691830903387303.


Data Sources & Definitions

Age
Variable: Median Age
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Median age by census tract

Variable: Age Groups
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of census tract population in each age group
Citizenship

**Variable:** U.S. Citizens

**Source:** 2014-2018 American Community Survey Five-Year Files

**Website:** [https://data.census.gov/cedsci/](https://data.census.gov/cedsci/)

**Definition:** Percentage of census tract population that is a U.S. citizen by birth or naturalization

**Variable:** Legal Permanent Residents of the U.S.


**Definition:** Percentage of census tract population that is a non-citizen legal permanent resident of the U.S. All non-citizens who were not identified as immigrants without documentation (see below) are considered legal permanent residents.

**Variable:** Immigrants without Documentation


**Definition:** Percentage of census tract population that is an immigrant without documentation. Note that the American Community Survey contains variables on citizenship but not on whether a person has legal documentation status. CHI developed a method for estimating documentation status based on a Pew Hispanic Center report describing the characteristics of the undocumented immigrant population in the U.S. CHI created a logistic regression model of the likelihood that a non-citizen was an undocumented immigrant based on these characteristics. For example, Pew’s report estimated that 49 percent of undocumented immigrants in the United States are adult men, compared with 44 percent of non-citizens who have legal documentation. Therefore, CHI estimated a non-citizen was 12.5 percent more likely to lack legal documentation if he is an adult male — the difference between 49 percent and 44 percent. The full model was based on age, sex, employment status, and country of origin. Because individual-level data were required to build this model, estimates were developed using the IPUMS public use microdata area files. Census tract estimates were developed by crosswalking these microdata areas using a methodology developed by the University of Missouri.

Crime & Violence

**Variable:** Juvenile Arrest Rate per 1,000 Youth

**Source:** 2018 Colorado Bureau of Investigation; 2014-2018 American Community Survey Five-Year Files

**Website:** [https://www.colorado.gov/pacific/dcj-ors/ors-crimestats](https://www.colorado.gov/pacific/dcj-ors/ors-crimestats)

**Definition:** Number of juvenile arrests by county per 1,000 youth ages 10 to 17 by county. Every census tract within a county was assigned that county’s value.
Variable: Homicide Rate
Website: https://data-cdphe.opendata.arcgis.com/
Definition: Age-adjusted rate of homicide per 100,000 residents per census tract

Variable: Violent Death Rate
Website: https://data-cdphe.opendata.arcgis.com/
Definition: Age-adjusted rate of violent death per 100,000 residents per census tract. Violent deaths include homicides, suicides, and unintentional firearm fatalities

Education & Employment
Variable: High School Diploma or More
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of census tract population age 25 or older with at least a high school diploma or equivalent

Variable: Less Than a High School Diploma
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of census tract population age 25 or older without a high school diploma or equivalent

Variable: Employment Rate
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of census tract civilian labor force age 16 or older that is employed

Variable: Unemployment Rate
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of census tract civilian labor force age 16 or older that is unemployed

Gender / Sex
Variable: Male
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of census tract population that is male
Variable: Female
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of census tract population that is female

Mental Health
Variable: Good Mental Health
Source: 2019 Colorado Health Access Survey
Website: https://www.coloradohealthinstitute.org/research/CHAS
Definition: Percentage of census tract population that reported having seven or fewer days of poor mental health in the past month. The Colorado Health Access Survey does not collect data at the census tract level, so a small-area estimation regression model was used to arrive at these estimates.

Variable: Poor Mental Health
Source: 2019 Colorado Health Access Survey
Website: https://www.coloradohealthinstitute.org/research/CHAS
Definition: Percentage of census tract population that reported having eight or more days of poor mental health in the past month. The Colorado Health Access Survey does not collect data at the census tract level, so a small-area estimation regression model was used to arrive at these estimates.

Health Care
Variable: Insured Rate
Source: 2019 Colorado Health Access Survey
Website: https://www.coloradohealthinstitute.org/research/CHAS
Definition: Percentage of census tract population that reported having health insurance coverage. The Colorado Health Access Survey does not collect data at the census tract level, so a small-area estimation regression model was used to arrive at these estimates.

Variable: Uninsured Rate
Source: 2019 Colorado Health Access Survey
Website: https://www.coloradohealthinstitute.org/research/CHAS
Definition: Percentage of census tract population that reported not having health insurance coverage. The Colorado Health Access Survey does not collect data at the census tract level, so a small-area estimation regression model was used to arrive at these estimates.

Variable: Physicians per 1,000 Residents
Source: Colorado Department of Regulatory Agencies 2019 roster; 2014-2018 American Community Survey Five-Year Files
Website: https://apps.colorado.gov/dora/licensing/Lookup/GenerateRoster.aspx
Definition: Number of actively-licensed physicians in a county per 1,000 county residents. Every census tract within a county was assigned that county’s value.
Variable: Mental Health Providers per 1,000 Residents
Source: Colorado Department of Regulatory Agencies 2019 roster; 2014-2018 American Community Survey Five-Year Files
Website: https://apps.colorado.gov/dora/licensing/Lookup/GenerateRoster.aspx
Definition: Number of actively-licensed mental health providers in a county per 1,000 county residents. Mental health providers include licensed clinical social workers, licensed social workers, certified addiction counselors, licensed addiction counselors, registered psychotherapists, and licensed psychologists. Every census tract within a county was assigned that county’s value.

Housing & Environment
Variable: Housing Stable
Source: 2019 Colorado Health Access Survey
Website: https://www.coloradohealthinstitute.org/research/CHAS
Definition: Percentage of census tract population that reported that they are not concerned about having a place to live over the next two months. The Colorado Health Access Survey does not collect data at the census tract level, so a small-area estimation regression model was used to arrive at these estimates.

Variable: Not Housing Stable
Source: 2019 Colorado Health Access Survey
Website: https://www.coloradohealthinstitute.org/research/CHAS
Definition: Percentage of census tract population that reported that they are concerned about having a place to live over the next two months. The Colorado Health Access Survey does not collect data at the census tract level, so a small-area estimation regression model was used to arrive at these estimates.

Variable: Homeownership
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of occupied housing units in each census tract that are owned by the occupant

Variable: Renting
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of occupied housing units in each census tract that are rented or occupied without payment by the occupant

Variable: Median Monthly Housing Cost
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Median cost of housing by census tract. Includes rent, mortgages, and utilities.
Variable: Median Home Value  
Source: December 2019 Zillow ZTRAX  
Website: https://www.zillow.com/research/ztrax/  
Definition: Median home value by census tract. Zillow reports home values at the ZIP code, not census tract, level. A crosswalk was done to arrive at census tract estimates.

Variable: Living Alone  
Source: 2014-2018 American Community Survey Five-Year Files  
Website: https://data.census.gov/cedsci/  
Definition: Percentage of census tract population that lives alone

Variable: Not Living Alone  
Source: 2014-2018 American Community Survey Five-Year Files  
Website: https://data.census.gov/cedsci/  
Definition: Percentage of census tract population that does not live alone

Variable: Living in Overcrowded Homes  
Source: 2014-2018 American Community Survey Five-Year Files  
Website: https://data.census.gov/cedsci/  
Definition: Percentage of households in a census tract that have more than one occupant per room

Variable: Not Living in Overcrowded Homes  
Source: 2014-2018 American Community Survey Five-Year Files  
Website: https://data.census.gov/cedsci/  
Definition: Percentage of households in a census tract that have one occupant per room or less

Variable: Internet Access  
Source: 2014-2018 American Community Survey Five-Year Files  
Website: https://data.census.gov/cedsci/  
Definition: Percentage of households by census tract that have internet access

Variable: No Internet Access  
Source: 2014-2018 American Community Survey Five-Year Files  
Website: https://data.census.gov/cedsci/  
Definition: Percentage of households by census tract that do not have internet access

Variable: Air Quality Index  
Source: 2019 Environmental Protection Agency Air Quality Index Report  
Website: https://aqs.epa.gov/aqsweb/airdata/download_files.html#eighthour  
Definition: Median Air Quality Index by county. The index measures air quality across five metrics: ground-level ozone, particle pollution, carbon monoxide, sulfur dioxide, and nitrogen dioxide. While data are available by census tract, the county-level values are generally considered more reliable.
Income

Variable: Median Income
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Median household income by census tract

Variable: At or Below Federal Poverty Level
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of households by census tract with incomes at or below 100 percent of the federal poverty level

Variable: Above Federal Poverty Level
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of households by census tract with incomes above 100 percent of the federal poverty level

Variable: At or Below 200 Percent of Federal Poverty Level
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of households by census tract with incomes at or below 200 percent of the federal poverty level

Variable: Above 200 Percent of Federal Poverty Level
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: Percentage of households by census tract with incomes above 200 percent of the federal poverty level

Variable: Gini Index of Income Inequality
Source: 2014-2018 American Community Survey Five-Year Files
Website: https://data.census.gov/cedsci/
Definition: A statistical measure of income inequity where 0 represents perfect equality and 1 represents perfect inequality.

Other Health Outcomes

Variable: Life Expectancy
Source: 2015 U.S. Small-area Life Expectancy Estimates Project (USALEEP), Centers for Disease Control
Website: https://www.cdc.gov/nchs/nyss/usaleep/usaleep.html
Definition: Life expectancy in years by census tract
Variable: Fertility Rate per 1,000  
Website: https://www.colorado.gov/cdphe  
Definition: Number of births per 1,000 females by census tract

Variable: Teen Birth Rate per 1,000  
Website: https://www.colorado.gov/cdphe  
Definition: Number of births to teens ages 15 to 19 per 1,000 females ages 15 to 19 by census tract

Variable: Low Birthweight Rate  
Website: https://data-cdphe.opendata.arcgis.com/  
Definition: Number of low birthweight singleton births as a percentage of all singleton births. Low birthweight births are those where the baby weighs less than 2,500 grams (5 pounds, 8 ounces).

Variable: Overall Mortality Rate  
Website: https://data-cdphe.opendata.arcgis.com/  
Definition: Age-adjusted rate of death from any cause per 100,000 residents per census tract

Variable: Suicide Rate  
Website: https://data-cdphe.opendata.arcgis.com/  
Definition: Age-adjusted rate of suicide per 100,000 residents per census tract

Variable: Firearm Mortality Rate  
Website: https://data-cdphe.opendata.arcgis.com/  
Definition: Age-adjusted rate of firearm death per 100,000 residents per census tract. Includes both intentional firearm deaths (suicides and homicides) as well as unintentional deaths

Race, Ethnicity, and Language  
Variable: Race / Ethnicity Groups  
Source: 2014-2018 American Community Survey Five-Year Files  
Website: https://data.census.gov/cedsci/  
Definition: Percentage of census tract population in each race/ethnicity group
**Variable:** Racial Segregation Index  
**Source:** Robert Wood Johnson Foundation County Health Rankings  
**Website:** [https://www.countyhealthrankings.org/](https://www.countyhealthrankings.org/)  
**Definition:** Index ranging from 0 (complete integration) to 100 (complete segregation). The index is based on the percentage of white or non-white residents who would need to move to different census tracts in order for all census tracts to have racial distributions matching that of the entire county. By nature of the definition, these data must be reported at the county level. Every census tract within a county was assigned that county’s value.

**Variable:** Speaks English at Home  
**Source:** 2014-2018 American Community Survey Five-Year Files  
**Website:** [https://data.census.gov/cedsci/](https://data.census.gov/cedsci/)  
**Definition:** Percentage of census tract population speaking English at home

**Variable:** Does not Speak English at Home  
**Source:** 2014-2018 American Community Survey Five-Year Files  
**Website:** [https://data.census.gov/cedsci/](https://data.census.gov/cedsci/)  
**Definition:** Percentage of census tract population not speaking English at home

**Substance Availability**

**Variable:** Marijuana Retailers per 1,000 Residents  
**Source:** Colorado Department of Regulatory Agencies  
**Website:** [https://www.colorado.gov/pacific/enforcement/med-licensed-facilities](https://www.colorado.gov/pacific/enforcement/med-licensed-facilities)  
**Definition:** Number of licensed marijuana retailers (medicinal or recreational) per 1,000 census tract residents

**Variable:** Alcohol Retailers per 1,000 Residents  
**Source:** Colorado Department of Regulatory Agencies  
**Website:** [https://www.colorado.gov/pacific/enforcement/licor-license-lists](https://www.colorado.gov/pacific/enforcement/licor-license-lists)  
**Definition:** Number of licensed alcohol retailers per 1,000 census tract residents

**Variable:** Tobacco Retailers per 1,000 Residents  
**Source:** Colorado Department of Regulatory Agencies  
**Website:** [https://trac-cdphe.opendata.arcgis.com/](https://trac-cdphe.opendata.arcgis.com/)  
**Definition:** Number of licensed tobacco retailers per 1,000 census tract residents