County Health
Rankings & Roadmaps

County Health Rankings & Roadmaps

Technical Documentation

Version 3

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BACKGROUND & CONCEPTUAL FOUNDATIONS

About County Health Rankings & Roadmaps

County Health Rankings & Roadmaps (CHR&R), a program of the University of Wisconsin Population Health Institute, draws attention to why there are differences in health within and across communities. The program highlights policies and practices that can help everyone be as healthy as possible. CHR&R aims to grow a shared understanding of health, equity and the power of communities to improve health for all. This work is rooted in a long-term vision where all people and places have what they need to thrive.

CHR&R is committed to creating resources and tools that support community-led efforts to accurately diagnose core problems, understand and account for historical context and implement evidence-informed solutions. CHR&R provides a snapshot of the health of nearly every county in the nation.

History

The University of Wisconsin Population Health Institute (UWPHI) has been supported by the Robert Wood Johnson Foundation (RWJF) since 2008 to develop what is now known as the County Health Rankings & Roadmaps program. Our first national Annual Data Release happened on February 17, 2010.

Goals

CHR&R seeks to foster social solidarity and help build community power for health and equity. The program advocates for a new understanding of data and evidence, and develops methods that can challenge assumptions, explore possibilities and build community power for health and equity.

We aim to:

- Build awareness of how Community Conditions and Societal Rules influence health.
- Provide a reliable, sustainable source of local data and evidence to communities to help them identify opportunities to improve their health.
- Engage and activate local leaders from many sectors in creating sustainable community change.
- Connect community leaders and grow community power to improve health.

The Annual Data Release

The Annual Data Release includes more than 80 measures that help communities understand more about health and opportunities in their communities, how healthy their residents are today (Population Health and Well-being) and what factors are impacting future health (Community Conditions). We update these measures each year using the most recently available data for nearly all United States counties. The Annual Data Release is compiled from a variety of national and state data sources. Select measures, based on the University of Wisconsin Population Health Institute (UWPHI) Model of Health, are standardized and combined using scientifically informed weights to provide nearly all counties with summaries of local Community Conditions and Population Health and Well-being.

The Annual Data Release contains:

- **Select measures:** measures combined using weights according to the UWPHI Model of Health to create overall composites for Population Health and Well-being and Community Conditions for each county. These summaries are used in the calculation of Health Groups.

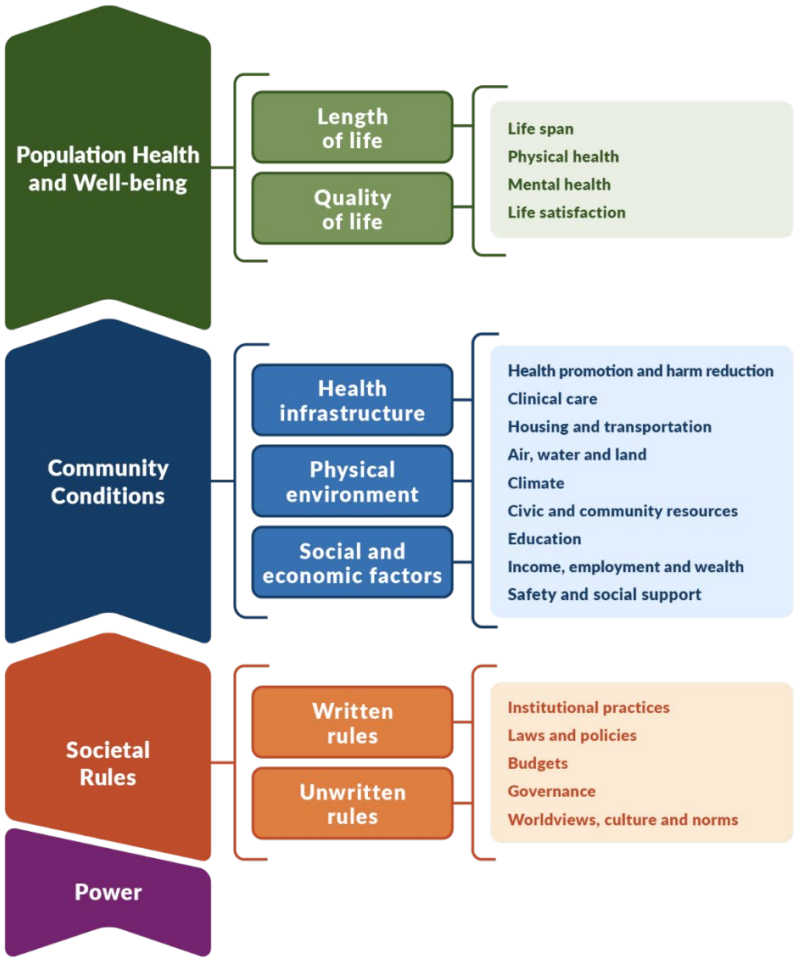
- **Additional measures:** measures which provide helpful community context but are not used in the determination of Population Health and Well-being and Community Conditions summaries, or the calculation of Health Groups. Demographic data are included as additional measures to provide context for the place and its data.
- **Health Groups:** Ten data-informed Health Groups are calculated separately for Population Health and Well-being and for Community Conditions. Each county with sufficient data is assigned to one of ten groups nationally using a data-informed grouping method, which groups counties based on similarity and meaningful gaps in data. Health Groups range from the least healthy to healthiest for counties on a national scale. States may or may not have counties that fall within each of the ten groups positioned across the national range of health.

The Model of Health

The analytics that produce Health Groups are rooted in a conceptual model of the social and structural determinants of health. Health Groups incorporate 29 Select measures that help communities understand how healthy their residents are today (Population Health and Well-being) and what will impact their health in the future (Community Conditions).

The UWPHI Model of Health shows that where we live, learn, work and play influence our health and furthers our understanding of what and who influence the conditions in our communities. The Model of Health portrays the conceptual inputs used to calculate Health Groups.

Figure 1: University of Wisconsin Population Health Institute Model of Health



The Population Health and Well-being summary comprises five Select measures (Premature Death, Poor or Fair Health, Poor Physical Health Days, Poor Mental Health Days, and Low Birthweight) within the topics of Length of life and Quality of life. The Community Conditions summary comprises 24 Select measures (Table 1) within the topics of Health infrastructure, Physical environment, and Social & economic factors. Additional measures are included in Population Health and Well-being and in Community Conditions.

Evaluating New and Existing Measures

The considerations below are used to evaluate new measures and reevaluate additional measures annually. These considerations ensure that the dataset for each Annual Release remains consistent, salient, legitimate, credible, and grounded in equity. Measures may not meet all considerations due to geographic, data source, and time limitations. To operationalize these considerations, we regularly evaluate data sources and methods and seek expert input and review from scholars, practitioners, and external advisors.

Strategic Considerations

Alignment with CHR&R goals

- The measure speaks to a current or emerging population health issue and increases the value of CHR&R tools.
- The measure reflects aspects of population health that can be influenced through local, state, or national policies, practices, and systems change.
- The measure provides quantitative or qualitative information to explain concepts in our model of health.
- The measure supports data fluency and alignment in the field of data-to-action initiatives (e.g., America's Health Rankings, City Health Dashboard).
- The measure is of interest to community members, leaders, advocates, community health activists, equity champions, and field actors in public health and health care.

Theoretical Considerations

Connection of the measure to health and equity

- The measure and its association with population health are scientifically supported through peer reviewed literature or expert opinion and a strong evidence base.
- CHR&R internal analyses (quantitative and qualitative) support the measure's connection to health.
- The measure clarifies the existence of health disparities and the potential for unfair, unjust differences.
- The measure centers learning from the wealth of knowledge, experiences, and priorities of a socially marginalized group.

Source Considerations

Assessment of data sources and their methodology

- The measure draws from a data source that has transparent methodology and underlying assumptions.
- Source data are available for free or low cost.
- Source methods are valid. Data quality is maintained and updated regularly (within the past 3-5 years), where applicable.

Analytical Considerations

Feasibility of quantitative and qualitative analysis for evaluation and production

- The measure draws from data that are available at, or can be aggregated to, the county level.

- Data can be disaggregated among population groups with an emphasis on groups that have historically or currently experience social disadvantage (e.g., race, ethnicity, gender, sex, education, disability status, family type, neighborhood, income, or wealth).
- The measure and its association with health and health disparities are validated internally and consistent with scholarly literature or expert evidence.
- The measure is numeric, ordinal, or binary to quantify differences that capture advantage or disadvantage between counties.
- The measure uses data that are available for most counties nationwide.
- The measure uses data that are representative locally and comparable across jurisdictions within a state.

Communication Considerations

Ability to meaningfully communicate and apply the measure to improve health and equity

- The measure and its association with health and equity can effectively be communicated.
- The measure is recognized and documented by public health, health care, adjacent fields, or marginalized communities to have the ability to make change or have influence within systems of oppression.
- CHR&R can communicate limitations of the data and methods to audiences who want to interpret and apply the measure.
- The measure reflects a distinct concept and "call to action."

METHODS

Methods Behind the Health Snapshots

The county and state Health Snapshots are populated and refreshed annually with data from a range of sources following these steps:

1. **Calculate measures:** We clean and compile data to calculate measures based on documented methods. A description of the data source(s) and methods used for calculation of each of our measures can be found by selecting the measure of interest and opening the 'Methods' tab.
2. **Evaluate measure validity:** After measure calculation, we evaluate the measure values against expected and historical ranges. We engage data stewards to discuss any unexpected measure values and make sense of our findings within the context of the processes used for data collection and processing as well as national events and trends. Established suppression guidelines are refined as needed to address unreliable measure values.
3. **Assign weights to Select measures:** We weight each Select measure based on our Model of Health in order to calculate Population Health and Well-being and Community Conditions summaries (Table 1; Appendix 5).
4. **Calculate Z-scores and create composite scores:** We standardize Select measures based on a national distribution of counties using a Z-score. We calculate Population Health and Well-being and Community Conditions summaries as weighted sums of the standardized measures, or composite scores.
5. **Assign counties to Health Groups:** Health Groups are calculated separately for Population Health and Well-being and for Community Conditions. After the composite scores are calculated, we apply a cluster analysis approach to partition each set of composite scores into 10 clusters (Health Groups), identifying the optimal grouping of the counties for each possible cluster. Clusters are determined by creating ten random centroids of the data and then assigning each data point to the nearest centroid. The centroid of each cluster is then moved to the average of the data in the cluster and the process is repeated until no data points change groups.
6. **Create supplemental tools:** We provide a collection of tools to help users navigate the extensive dataset provided in each Health Snapshot. These supplemental tools include:
    a. Health Group graphics for Population Health and Well-being and Community Conditions summaries.
    b. Compare Counties: a tool that enables side-by-side comparisons of up to four counties or states for all measures. This tool can be used to compare similar counties according to rurality or urbanicity.
    c. County Descriptions: a custom paragraph introducing context for the data in the County Health Snapshot including history of the place.
    d. Areas of Strength and Areas to Explore: a tool that highlights Select measures that may be meaningfully different than a state or national benchmark.
    e. Trend graphs for a subset of measures to enable comparisons over time.

For more detail on our past methods see some CHR&R key publications:

- Remington PL, Catlin BB, Gennuso KP. The County Health Rankings: rationale and methods. Population Health Metrics. 2015;13(11).
- 2023 CHR&R Technical Document
- 2024 CHR&R Technical Document

For more detail on our current methods see:

- Pollock, E. A., Gangnon, R. E., Gennuso, K. P., & Givens, M. L. (2024). Cluster analysis methods to support population health improvement among U.S. counties. Journal of Public Health Management and Practice

- County Health Rankings & Roadmaps. (2024). County Health Rankings & Roadmaps working paper: Updates to methods and tools for practical application to improve health and equity. University of Wisconsin Population Health Institute.

Weights Assigned to Select Measures

Each Select measure contributes weight to the Population Health and Well-being or Community Conditions composite score. Generally, Select measures and corresponding weights are not changed year-to-year to retain consistency in methods. However, the introduction of the new Model of Health in 2025 necessitated an update to the weighting scheme that particularly impacted the comparability between Community Conditions and what was previously Health Factors.

Table 1: Weights Corresponding to Select measures for Population Health and Well-being and Community Conditions

Population Health and Well-being	
Length of life	
Premature Death	50%
Quality of life	
Poor Physical Health Days	10%
Poor Mental Health Days	10%
Low Birthweight	20%
Poor or Fair Health	10%
Community Conditions	
Health infrastructure	**25%**
Health promotion and harm reduction	
Access to Exercise Opportunities	4%
Flu Vaccinations	4%
Food Environment Index	4%
Clinical care	
Preventable Hospital Stays	4%
Uninsured	4%
Primary Care Physicians	2%
Mammography Screening	1%
Mental Health Providers	1%
Dentists	1%
Physical environment	**25%**
Air, water and land	
Air Pollution: Particulate Matter	8%
Drinking Water Violations	4%
Civic and community resources	
Broadband Access	4%
Library Access	2%
Housing and transportation	
Severe Housing Problems	4%

Driving Alone to Work	2%
Long Commute - Driving Alone	1%
Social & economic factors	**50%**
Education	
High School Completion	8%
Some College	8%
Income, employment and wealth	
Unemployment	8%
Children in Poverty	8%
Income Inequality	8%
Safety & social support	
Child Care Cost Burden	4%
Injury Deaths	4%
Social Associations	2%

Z-score Calculation

Our measures use different types of data as input, and when calculated, the measures themselves are expressed in different metric forms. Some measures are percentages, while others are rates, averages, or other metrics.

Standardizing each of these measures transforms them to the same metric – a mean (average) value of 0 (zero) and a standard deviation (measure of spread) of 1. We refer to these as Z-scores, where:

$$Z = \frac{\text{(County Value) - (Average of Counties in Nation)}}{\text{(Standard Deviation of Counties in Nation)}}$$

Each Z-score is relative to the other counties in the nation and presented in units of standard deviations. A positive Z-score indicates a count value higher than the average of counties in the U.S.; a negative Z-score indicates a county value lower than the average of counties in the U.S. For example, if a county has a Z-score of 1.2 for a given measure that means the county is 1.2 standard deviations above the national average of counties for that measure. For counties with a population of 20,000 or less, any Z-score less than -3.0 or greater than 3.0 is truncated to -3.0 or 3.0, respectively.

Reverse Coding of Some Measures

For most of our measures, a higher Z-score score indicates poorer health (e.g., Children in Poverty). However, for some of our measures (e.g., High School Completion) a higher Z-score indicates better health. For this second set of measures, we apply reverse coding before computing composite scores by computing the measure Z-score as usual and then multiplying by -1, so that a higher Z-score indicates poorer health for all measures. The following Select measures are reverse coded:

- Access to Exercise Opportunities
- Broadband Access
- Dentists
- Flu Vaccinations
- High School Completion
- Library Access
- Mammography Screening
- Mental Health Providers
- Primary Care Physicians

- Social Associations
- Some College

Composite Scores

The summaries computed for individual counties are weighted composites of the Z-scores where the weights represent perceived relative importance of the constituent components to their respective composite scores. That is, 50% is the perceived relative importance of Social & economic factors to Community Conditions. Weights are assigned in accordance with our Model of Health (Table 1; Appendix 5). A weighted composite is computed by multiplying each Z-score by its assigned weight and then summing all weighted Z-scores. Below is the formula we use for our weighted composite scores:

$$\text{County weighted composite} = \sum w_i Z_i$$

In this formula, the Z_i values are the Z-scores of the Select measures. The w_i values are the measure-specific weights. The $\sum$ sign indicates summation of the resultant values.

All composite scores use the formula above, standardized Z-scores for each measure (reverse coded where necessary) and the weights assigned according to our Model of Health.

Health Groups

To generate Health Groups, a cluster analysis approach is applied separately to the Population Health and Well-being and Community Conditions composite scores. Cluster analysis is a method that groups objects, such as a county, based on similarity, and empirically identifies natural, meaningful gaps in data by using the data to inform the number and size of groups. This method is applied to values of the composite Z-score indexes for every county that receives a Z-score for Population Health and Well-being or Community Conditions. Use of the national distribution of Z-scores has the benefit of more data power with less statistical noise and only one decision on cluster cut-off, which is especially important for states with very few counties or very small populations in counties.

Specifically, we use k-means clustering to partition n observations into k=10 clusters, identifying the optimal grouping of the counties for each possible cluster. Clusters are determined by creating 10 random centroids of the data and then assigning each data point to the nearest centroid. The centroid of each cluster is then moved to the average of the data in the cluster and the process is repeated until no data points change groups. We imposed a cap of 10 clusters, k, based on analyses to assess the potential loss of information in limiting clusters (using the Wasserstein- or earth mover's-distance, a measure of the distance between two probability distributions) and to support ease of communication. We apply this cluster analysis to all counties nationally to generate an updated data-informed approach to comparing counties. Counties are assigned a value (e.g., group 1-10) based on their Z-score rather than an ordinal rank.

Health Groups do not always indicate statistically significant differences between counties; instead, they help facilitate data-informed comparisons and highlight meaningful similarities.

Supplemental Tools

Supplemental Tool: Health Group graphics for Population Health and Well-being and Community Conditions summaries

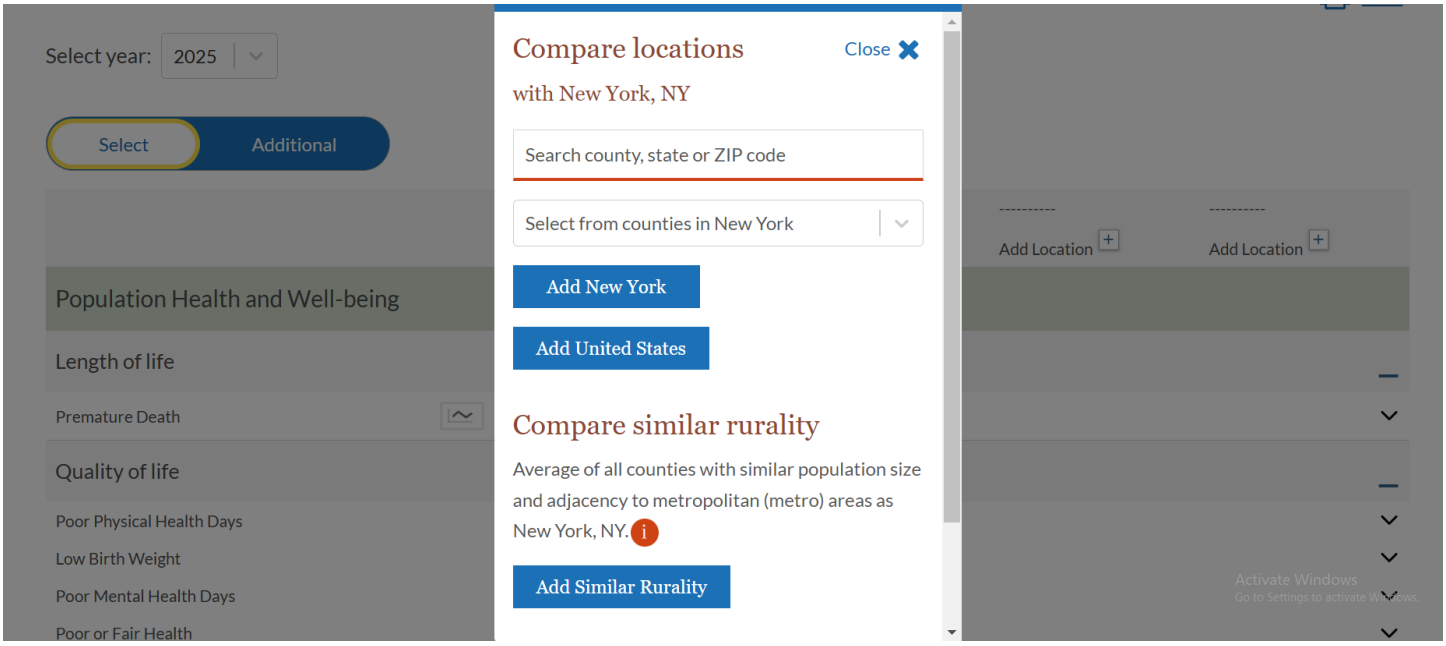
Within each County Health Snapshot there are two graphics displaying summaries for a county's Population Health and Well-being and Community Conditions. Each county within the state is represented by a dot, placed on a continuum from least healthy to healthiest in the nation. The color of each dot represents the ten Health Groups, our data-informed groupings of counties nationwide with similar Population Health and Well-being or Community Conditions. States may or may not have counties that fall within each of the Health Groups across the range of health nationally.

These graphics indicate how a county fares relative to other counties in the state and the nation. They also allow you to see how counties in a state fare on a national continuum of health. These graphics illustrate the relative similarities in county health among Health Groups on a national scale. Health Groups support data-informed comparisons and a focus on meaningful similarities that can support action but do not necessarily represent statistically significant differences in county health.

Sensemaking statements support interpretation of these graphics, comparing the position of the county's Health Group to the state average and the rest of the nation. These sensemaking statements indicate if the county Population Health and Well-being or Community Conditions composite score is in a higher, lower or the same cluster as the national average of Z-scores (for the national comparison) and as the average of state Z-scores (for the state average comparison).

Supplemental Tool: Compare Counties

Use the Compare Counties Tool to compare individual counties or to compare a county to all other counties in the state, nation, or with similar rural or urban characteristics. The methods used to summarize state values, national values and similar rurality are described on our website.



The Compare Counties Tool search function on countyhealthrankings.org

Supplemental Tool: County Descriptions

The County Descriptions appear at the top of the County Health Snapshot. The County Descriptions provide important context for the Health Snapshot data and include a link to Native Lands Digital which identifies Indigenous nations native to the place, an indication of neighborhoods that have experienced intentional disinvestment through redlining, and characterization of the population density and connection to larger cities and state capitals. The data sources for each element are listed below.

Metropolitan/Micropolitan classification: Data come from the July 2023 Office of Management and Budget core based statistical areas (CBSAs) delineation file downloaded from census.gov. If a county is not delineated as Metropolitan or Micropolitan, it is classified as Rural in the county description. The CBSAs delineations are not an urban rural

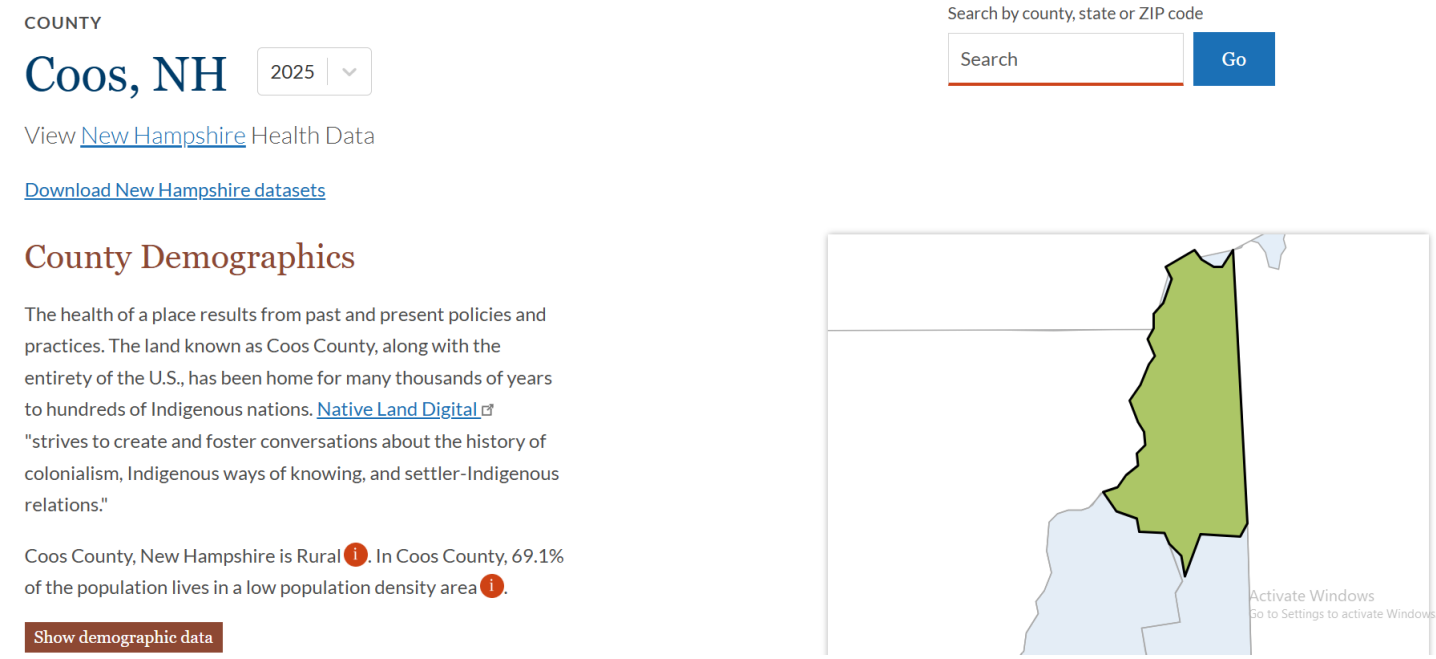
classification, though they are commonly used in that way. A Metropolitan or Micropolitan county may contain both urban and rural areas.

Large cities: Data are provided by City Health Dashboard. A list of cities with greater than 50,000 population was requested from City Health Dashboard and reflects population counts from American Community Survey 2020 5-year estimates Table DP05. City Health Dashboard data are available for download on their website after filling out a short survey. All cities included are either county subdivisions or incorporated places and data on city boundaries are from the U.S. Census Bureau's Master Address File (MAF)/Topologically Integrated Geographic Encoding and Referencing (TIGER) System. The names of the four largest cities, or the names of the state capital and the three largest cities, that intersect with a county are listed in the County Description. The total number of large cities that intersect with a county intersects are also included in the description.

State capitals: Data on state capital boundaries come from the ArcGIS Living Atlas of the World USA Major Cities dataset. The name of the state capital is included in the County Description for any county that intersects with the boundary of the capital.

Percent population in low population density areas: Data come from the 2020 decennial census table P2: Urban and Rural 2020: Demographic and Housing Characteristics and match the % Rural measure that is available in the demographic measures section of each County Health Snapshot (select 'Show demographic data' below the County Description).

Neighborhoods that experienced intentional disinvestment: Data come from the American Panorama Mapping Inequality: Redlining in New Deal America interactive map. Counties that contain neighborhoods recorded as "declining" or "hazardous" investment opportunities through Federal HOLC redlining maps between 1935 and 1940 are identified in the County Descriptions.



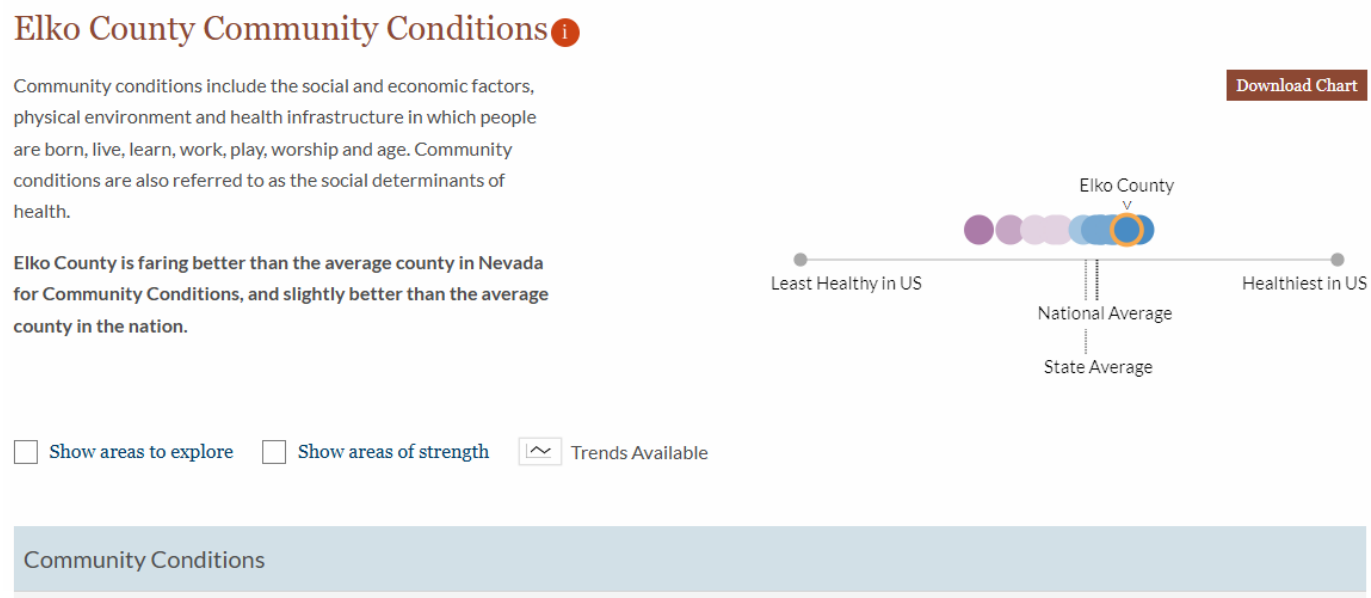
County Description for Coos, New Hampshire from countyhealthrankings.org.

Supplemental Tool: Areas of Strength and Areas to Explore

The Areas of Strength and Areas to Explore tool can be found just above the measure table on a County Health Snapshot. Measures where your county is doing meaningfully better than the state and national values are highlighted as Areas of Strength. Measures where your county is doing meaningfully worse than the state and national values are highlighted as Areas to Explore.

Areas of Strength and Areas to Explore are calculated for Select Community Conditions measures to compare a county's measure values to achievable benchmarks. Areas of Strength and Areas to Explore are intended to serve as a ***starting point*** for identifying areas of strength or improvement in your county.

We define Areas of Strength and Areas to Explore by comparing your county to your state and the nation (median of counties) for each Select Community Conditions measure using Z-scores. Each Select Community Conditions measure is weighted according to our Model of Health, so that areas weighted more heavily in calculating Community Conditions Health Groups are also more likely to appear as an Area of Strength or Area to Explore. Each county is assigned at least three Areas of Strength, and there is no minimum number of Areas to Explore.



County Health Snapshot from countyhealthrankings.org showing the location of the Areas of Strength and Areas to Explore tool.

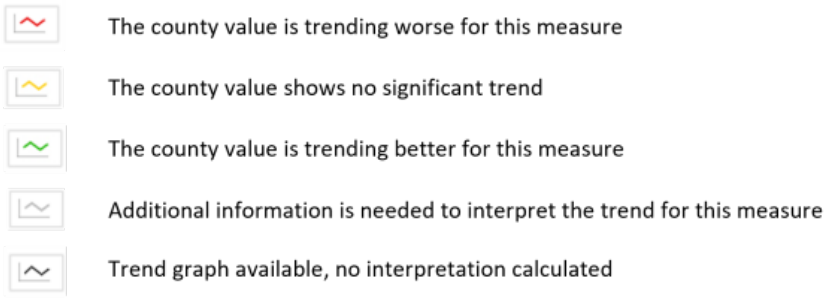
Supplemental Tool: Trend Graphs

Within each Health Snapshot, measures have trend graphs available where possible and meaningful. Examining changes in Population Health and Well-being over time can show community progress toward better health. Trends in Community Conditions can inform specific health programs and may reflect the impact of local efforts.

We conduct linear regressions using all years of data shown in the trend graph to calculate whether a trend is decreasing, increasing, or stable. For each measure with trend data available, a detailed trend graph can be viewed by clicking on the graph icons in the County Health Snapshot.

Each graph icon is color-coded to communicate the direction of the trend:

- Red - The county value is trending worse for this measure
- Yellow - The county value shows no significant trend
- Green - The county value is trending better for this measure
- Grey - Additional information is needed to interpret the trend for this measure
- Black - Trend graph is available, but no interpretation has been provided



County Health Snapshot key to trend icons.

Trend data are available for:

- Twelve Select measures: Premature Death, Alcohol-Impaired Driving Deaths, Sexually Transmitted Infections, Uninsured, Primary Care Physicians, Dentists, Preventable Hospital Stays, Mammography Screening, Flu Vaccinations, Unemployment, Children in Poverty, Air Pollution; and
- Three Additional measures: Uninsured Adults, Uninsured Children, and School Funding Adequacy.

Our linear regression includes at least eight years of data and is conducted using a significance test with 80% confidence. The regression analyses are used to determine whether there is a decreasing, increasing, or stable trend over the entire time period. A similar regression is performed on the most recent four years of data to determine short-term trends. The color of the graph icons reflects the long-term trend designations, and a note appears in the trend statements on the graphs when the short-term trend is different than the long-term trend for that county and measure.

Trend datasets and accompanying documentation are available for download in .csv and .sas format on our Data & Documentation webpage.

Responsible Data Use

CHR&R aims to generate Health Groups for all counties or county equivalents that have a Federal Information Processing Standard (FIPS) code. Data limitations such as missing data can lead to special considerations for analytic methods.

Limitations of Data Comparability Across States

CHR&R uses data from many sources, each with different methods for collection and processing data. For most of our measures, county data is comparable between counties within states and also comparable across state lines. For a few of our measures, caution must be exercised when making comparisons between counties in different states. Find a list of measures which should be compared with caution across states on our Data & Documentation webpage.

Addressing Missing Data in Health Group Calculations

If a county has sufficient data to be assigned a Health Group, but is missing data for a given select measure, we assign the average of state Z-scores from counties in that state that have data for that measure value to calculate the county's Health Group.

Counties Not Assigned to Health Groups

Some counties in the nation are too small to have reliable measurements for Population Health and Well-being measures. These counties are not assigned to Health Groups for Population Health and Well-being nor Community Conditions.

Counties are not assigned to Health Groups if any of the following is true:

1. County had a missing value for Premature Death (i.e., there are less than 20 deaths during the time period and data are suppressed for privacy reasons).
2. County had an unreliable value for Premature Death and no other measures of morbidity were available.
3. County had an unreliable Premature Death value, an unreliable Low Birthweight value, and no other morbidity measures.

   NOTE: Values for Premature Death are considered unreliable when the standard error of the estimate is more than 20% of the estimate value and the measure value is outside the previous year's confidence interval. Both missing and unreliable values for Premature Death show up as blank in a County Health Snapshot. However, users may visit our analytic files to understand if specific data is missing or unreliable. Values for Low Birthweight are considered unreliable when the standard error of the estimate is greater than 20% of the estimate value.

CHR&R methods increase the number of counties assigned to Health Groups by:

Careful data selection: Select measures are based on data which are available for the greatest number of counties.

Aggregation: In some cases, data are combined over multiple years of data. For several measures, CHR&R averages multiple years of data, giving equal weight to each observation year. This approach increases the number of small, sparsely populated counties with reliable data estimates.

Use of modeled data: Some measures, including Adult Smoking, Adult Obesity, and Children in Poverty, are based not only on survey response, but depend on statistical modeling techniques that improve the precision of the estimates.

DATA USE

Guide to Files

The Annual Data Release dataset may be downloaded in .csv and .sas format for analytic use. You can find the files in two places on our website:

- National files are available from download on our Data & Documentation webpage.
- State-specific files are available for download from the respective State Health Snapshot.

Data Sharing

CHR&R data sharing is dependent on the data use regulations of the source data. We annually archive the raw data used to calculate our measures where possible and in compliance with the terms of use for each data source. If you are interested in making a data request, please use the Contact Us form available on the website. Please include details of your request including any specifications. A member of our team will follow up and notify you if we are able to fulfill the data request and if so, establish a timeline. Institutional Review Board (IRB) approval may be requested if applicable.

CHR&R has provided a suggested citation for our data on our FAQ page. For more information, review CHR&R's Terms of Use.

Missing Data

If a value is displayed as missing (.) or blank that means data is unavailable for that county or race/ethnicity group. This could mean data are unavailable, unreliable, or has been suppressed due to small numbers and resulting privacy concerns. Data suppression guidelines are generally established by data sources.

Data Operations

Age-adjustment of Measures

Age-adjustment is a strategy used to increase the comparability of measure values between counties that have different age structures, or within-county comparisons over time if the age structure of the county has changed. Age-adjustment is especially important for measures related to age. We adjust county values for measures known to differ by age so all counties reflect a standard age distribution and comparisons will be meaningful.

Age-adjustment can mask the absolute burden of a health need in a county – especially in counties with many residents of the ages at highest risk. Measure data tables are available on the County Health Snapshots to communicate the absolute number of events occurring for many measures where the county value has been age-adjusted. CHR&R follows best practice to determine which measures are age-adjusted.

Table 2: Age-Adjusted County Health Rankings Measures

Measure	Select/ Additional	Population Health and Well-being/ Community Conditions
Premature Death (YPLL)	Select	Population Health and Well-being
Poor or Fair Health	Select	Population Health and Well-being
Poor Physical Health Days	Select	Population Health and Well-being
Poor Mental Health Days	Select	Population Health and Well-being
Flu Vaccinations	Select	Community Conditions
Preventable Hospital Stays	Select	Community Conditions
Premature Age-Adjusted Mortality	Additional	Population Health and Well-being
Life Expectancy	Additional	Population Health and Well-being
Diabetes Prevalence	Additional	Population Health and Well-being

Frequent Physical Distress	Additional	Population Health and Well-being
Frequent Mental Distress	Additional	Population Health and Well-being
Insufficient Sleep	Additional	Community Conditions
Suicides	Additional	Community Conditions
Adult Smoking	Additional	Community Conditions
Excessive Drinking	Additional	Community Conditions
Adult Obesity	Additional	Community Conditions
Physical Inactivity	Additional	Community Conditions

Data Disaggregated by Race Categories

Measure values of Population Health and Well-being and Community Conditions can differ by age, gender, race, ethnicity, ability, and sexual orientation, among many other characteristics within counties. Variation may also exist between neighborhoods or ZIP codes. Disaggregation means breaking data down into smaller, meaningful subgroups. Disaggregated data are often broken down by characteristics of people or where they live. Disaggregated data can reveal inequalities that are otherwise hidden.

Determination of race categories happens before data reach CHR&R. Methods for defining and grouping race and ethnicity categories can differ between data sources and within data sources over time. To retain as much specificity as possible in our summaries, CHR&R race and ethnicity categories vary by data source. Learn more about how CHR&R shares available data to understand the health of racialized groups of people on our website.

Table 3: Measures Disaggregated by Race in the Annual Data Release

Measure	**Select/ Additional**	**Population Health and Well-being/ Community Conditions**	**Data Source**
Premature Death	Select	Population Health and Well-being	National Center for Health Statistics
Low Birthweight	Select	Population Health and Well-being	National Center for Health Statistics
Teen Births	Additional	Community Conditions	National Center for Health Statistics
Preventable Hospital Stays	Select	Community Conditions	Center for Medicare and Medicaid Services
Mammography Screening	Select	Community Conditions	Center for Medicare and Medicaid Services
Flu Vaccinations	Select	Community Conditions	Center for Medicare and Medicaid Services
Children in Poverty	Select	Community Conditions	American Community Survey five-year estimates; Small Area Income and Poverty Estimates
Injury Deaths	Select	Community Conditions	National Center for Health Statistics
Driving Alone to Work	Select	Community Conditions	American Community Survey five-year estimates
Infant Mortality	Additional	Population Health and Well-being	National Center for Health Statistics
Child Mortality	Additional	Population Health and Well-being	National Center for Health Statistics
Premature Age-Adjusted Mortality	Additional	Population Health and Well-being	National Center for Health Statistics

Life Expectancy	Additional	Population Health and Well-being	National Center for Health Statistics
Median Household Income	Additional	Community Conditions	American Community Survey five-year estimates; Small Area Income and Poverty Estimates
Suicides	Additional	Community Conditions	National Center for Health Statistics
Homicides	Additional	Community Conditions	National Center for Health Statistics
Firearm Fatalities	Additional	Community Conditions	National Center for Health Statistics
Drug Overdose Deaths	Additional	Community Conditions	National Center for Health Statistics
Motor Vehicle Crash Deaths	Additional	Community Conditions	National Center for Health Statistics
Reading Scores	Additional	Community Conditions	Stanford Education Data Archive
Math Scores	Additional	Community Conditions	Stanford Education Data Archive

APPENDICES

Appendix 1: FIPS code changes

During the last decade, several county definitions have changed due to mergers with another county, being dissolved and distributed into other counties, or undergoing a name change. In the descriptions of the county changes below former counties are italicized, while current counties that are now included in the Annual Data Release are bolded.

In Alaska:

- *Prince of Wales – Outer Ketchikan Census Area* was dissolved and distributed into other counties including **Ketchikan Gateway Borough, Prince of Wales-Hyder Census Area,** and **Wrangell City and Borough**
- *Skagway-Hoonah-Angoon Census Area* was split into **Hoonah-Angoon Census Area** and **Skagway Municipality**
- *Wrangell-Petersburg Census Area* was split into **Hoonah-Angoon Census Area, Petersburg Borough,** and **Skagway Municipality**
- *Wade Hampton Census Area* was renamed **Kusilvak Census Area**

In South Dakota:

- *Shannon County* was renamed **Oglala Lakota County**

In Virginia:

- *Bedford City* was absorbed into **Bedford County**. The new Bedford County has the same name as when these counties were separate; however, measures over time may not be consistent since the county composition has changed.

These changes mean that data for these former counties are no longer displayed on our website; therefore, if a county was ranked prior to 2017, there may appear to be a gap in ranks for that year on our website. However, data for these former counties will continue to be available in the files available for download for the years these counties existed. For more detailed information on the county changes (and/or FIPS code changes) listed above, please see https://www.census.gov/programs-surveys/geography/technical-documentation/county-changes.html.

In Connecticut:

Connecticut's eight counties ceased administrative functioning in 1960. In place of the former counties, Connecticut has nine planning regions that act comparably to counties in other states. Connecticut's planning regions do not map directly to the former counties.

In 2019, the Connecticut Office of Planning and Management petitioned the U.S. Census Bureau to adopt the nine planning regions for the purposes of federal data collection and reporting. The Census Bureau made this change internally in 2022 and shifted all Census Bureau products to organize data according to the nine planning regions by 2024.

County Health Rankings & Roadmaps has provided data for Connecticut's eight counties since the first CHR&R national data release in 2011. Beginning with the 2025 CHR&R Annual Data Release, new County Health Snapshots will be available both for Connecticut's nine planning regions and eight counties. New snapshots will be labeled with planning region names and will share all data available for the planning regions. CHR&R data come from many different sources with varied practices used to collect and summarize data. Some of our data sources have not yet adopted the Connecticut planning regions and measures using these data sources will continue to be updated in the snapshots

representing Connecticut's eight former counties. Measures available for the planning regions will not be available for the eight former counties and eventually the snapshots for the former counties will no longer be updated.

County Health Snapshot names and available measures for Connecticut (CHR&R 2025)

Planning regions	
Name	FIPS code
Capitol	09110
Naugatuck Valley	09140
Northeastern Connecticut	09150
Northwest Hills	09160
South Central Connecticut	09170
Western Connecticut	09190
Southeastern Connecticut	09180
Greater Bridgeport	09120
Lower Connecticut River Valley	09130
CHR&R measures available for planning regions in the 2025 Annual Data Release: Poor or Fair Health; Uninsured Adults; Adult Smoking; Adult Obesity; Homicides; Children in Poverty; Poor Physical Health Days; Motor Vehicle Crash Deaths; Poor Mental Health Days; Income Inequality; Excessive Drinking; Population; % Below 18 Years of Age; % 65 and Older; % Non-Hispanic Black; % American Indian or Alaska Native; % Hispanic; % Female; % Rural; % Not Proficient in English; Diabetes Prevalence; HIV Prevalence; Mental Health Providers; Median Household Income; Children Eligible for Free or Reduced Price Lunch; Driving Alone to Work; Some College; Physical Inactivity; % Native Hawaiian or Other Pacific Islander; % Asian; Children in Single-Parent Households; Uninsured; Uninsured Children; Drinking Water Violations; % Non-Hispanic White; Child Mortality; Other Primary Care Providers; Access to Exercise Opportunities; Severe Housing Problems; Long Commute - Driving Alone; Drug Overdose Deaths; Food Insecurity; Social Associations; Residential Segregation - Black/White; Insufficient Sleep; Frequent Physical Distress; Frequent Mental Distress; Firearm Fatalities; Disconnected Youth; Gender Pay Gap; Homeownership; Severe Housing Cost Burden; Broadband Access; School Segregation; High School Completion; Access to Parks; % Disability - Functional Limitations; Library Access; Feelings of Loneliness; Lack of Social and Emotional Support	

Former counties	
Name	FIPS code
Fairfield	09001
Hartford	09003
Litchfield	09005
Middlesex	09007
New Haven	09009
New London	09011
Tolland	09013
Windham	09015

CHR&R measures available for former counties in the 2025 Annual Data Release:

Premature Death; Preventable Hospital Stays; Teen Births; High School Graduation; Unemployment; Low Birthweight; Mammography Screening; Air Pollution - Particulate Matter; Premature Age-Adjusted Mortality; Infant Mortality; Alcohol-Impaired Driving Deaths; Injury Deaths; Life Expectancy; Flu Vaccinations; Reading Scores; Math Scores; Suicides; School Funding Adequacy; Living Wage; Child Care Cost Burden; Primary Care Physicians; Dentists; Limited Access to Healthy Foods; Traffic Volume; Child Care Centers; Voter Turnout; Census Participation; Adverse Climate Events

Appendix 2: 2025 Annual Data Release measures

2025 Select Measures and Data Sources

	Measure	Weight	Data Source	Years of Data
POPULATION HEALTH AND WELL-BEING				
LENGTH OF LIFE				
Life span	Premature Death*	50%	National Center for Health Statistics - Natality and Mortality Files; Census Population Estimates Program	2020-2022
QUALITY OF LIFE				
Physical health	Poor Physical Health Days	10%	Behavioral Risk Factor Surveillance System	2022
	Low Birth Weight*	20%	National Center for Health Statistics - Natality Files	2017-2023
Mental health	Poor Mental Health Days	10%	Behavioral Risk Factor Surveillance System	2022
Life satisfaction	Poor or Fair Health	10%	Behavioral Risk Factor Surveillance System	2022
COMMUNITY CONDITIONS				
HEALTH INFRASTRUCTURE				
Health promotion and harm reduction	Flu Vaccinations*	4%	Mapping Medicare Disparities Tool	2022
	Access to Exercise Opportunities	4%	ArcGIS Business Analyst and ArcGIS Online; YMCA; US Census TIGER/Line Shapefiles	2024, 2022 & 2020
	Food Environment Index+	4%	USDA Food Environment Atlas; Map the Meal Gap from Feeding America	2019 & 2022
Clinical care	Primary Care Physicians	2%	Area Health Resource File/American Medical Association	2021
	Mental Health Providers	1%	CMS, National Provider Identification	2024
	Dentists	1%	Area Health Resource File/National Provider Identifier Downloadable File	2022
	Preventable Hospital Stays*	4%	Mapping Medicare Disparities Tool	2022
	Mammography Screening*	1%	Mapping Medicare Disparities Tool	2022
	Uninsured	4%	Small Area Health Insurance Estimates	2022
PHYSICAL ENVIRONMENT				
Housing and transportation	Severe Housing Problems	4%	Comprehensive Housing Affordability Strategy (CHAS) data	2017-2021
	Driving Alone to Work*	2%	American Community Survey, five-year estimates	2019-2023
	Long Commute - Driving Alone	1%	American Community Survey, five-year estimates	2019-2023
Air, water and land	Air Pollution: Particulate Matter	8%	Environmental Public Health Tracking Network	2020

	Drinking Water Violations+	4%	Safe Drinking Water Information System	2023
Civic and community resources	Broadband Access	4%	American Community Survey, five-year estimates	2019-2023
	Library Access	2%	Institute of Museum and Library Services	2022
SOCIAL AND ECONOMIC FACTORS				
Education	Some College	8%	American Community Survey, five-year estimates	2019-2023
	High School Completion	8%	American Community Survey, five-year estimates	2019-2023
Income, employment and wealth	Unemployment	8%	Bureau of Labor Statistics	2023
	Income Inequality	8%	American Community Survey, five-year estimates	2019-2023
	Children in Poverty*	8%	Small Area Income and Poverty Estimates; American Community Survey, five-year estimates	2023 & 2019-2023
Safety and social support	Injury Deaths*	4%	National Center for Health Statistics - Mortality Files; Census Population Estimates Program	2018-2022
	Social Associations	2%	County Business Patterns	2022
	Child Care Cost Burden	4%	The Living Wage Institute; Small Area Income and Poverty Estimates	2024 & 2023

*Subgroup data available by race and ethnicity; +Data availability or recency varies by state

2025 Additional and Demographic Measures and Data Sources

	Measure	Data Source	Years of Data
POPULATION HEALTH AND WELL-BEING			
LENGTH OF LIFE			
Life span	Life Expectancy*	National Center for Health Statistics - Natality and Mortality Files; Census Population Estimates Program	2020-2022
	Premature Age-Adjusted Mortality*	National Center for Health Statistics - Natality and Mortality Files; Census Population Estimates Program	2020-2022
	Child Mortality*	National Center for Health Statistics - Mortality Files; Census Population Estimates Program	2019-2022
	Infant Mortality*	National Center for Health Statistics - Natality and Mortality Files	2016-2022
QUALITY OF LIFE			
Physical health	Frequent Physical Distress	Behavioral Risk Factor Surveillance System	2022
	Diabetes Prevalence	Behavioral Risk Factor Surveillance System	2022
	HIV Prevalence+	National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention	2022
	Adult Obesity	Behavioral Risk Factor Surveillance System	2022
Mental health	Frequent Mental Distress	Behavioral Risk Factor Surveillance System	2022
	Suicides*	National Center for Health Statistics - Mortality Files; Census Population Estimates Program	2018-2022
Life satisfaction	Feelings of Loneliness+	Behavioral Risk Factor Surveillance System	2022
COMMUNITY CONDITIONS			
HEALTH INFRASTRUCTURE			
Health promotion and harm reduction	Limited Access to Healthy Foods	USDA Food Environment Atlas	2019
	Food Insecurity	Map the Meal Gap	2022
	Insufficient Sleep	Behavioral Risk Factor Surveillance System	2022
	Teen Births*	National Center for Health Statistics - Natality Files; Census Population Estimates Program	2017-2023

	Sexually Transmitted Infections+	National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention	2022
	Excessive Drinking	Behavioral Risk Factor Surveillance System	2022
	Alcohol-Impaired Driving Deaths	Fatality Analysis Reporting System	2018-2022
	Drug Overdose Deaths*	National Center for Health Statistics - Mortality Files; Census Population Estimates Program	2020-2022
	Adult Smoking	Behavioral Risk Factor Surveillance System	2022
	Physical Inactivity	Behavioral Risk Factor Surveillance System	2022
Clinical care	Uninsured Adults	Small Area Health Insurance Estimates	2022
	Uninsured Children	Small Area Health Insurance Estimates	2022
	Other Primary Care Providers	CMS, National Provider Identification	2024
PHYSICAL ENVIRONMENT			
Housing and transportation	Traffic Volume	EJSCREEN: Environmental Justice Screening and Mapping Tool	2020
	Homeownership	American Community Survey, five-year estimates	2019-2023
	Severe Housing Cost Burden	American Community Survey, five-year estimates	2019-2023
Air, water and land	Access to Parks	ArcGIS Online; US Census TIGER/Line Shapefiles	2024 & 2020
Climate	Adverse Climate Events	Environmental Public Health Tracking (EPHT) Network; U.S. Drought Monitor (USDM); OPEN FEMA Disaster Declaration Summaries	2019-2023
Civic and community resources	Census Participation	Census Operational Quality Metrics	2020
	Voter Turnout+	MIT Election Data and Science Lab; American Community Survey, five-year estimates	2020 & 2016-2020
SOCIAL AND ECONOMIC FACTORS			
Education	High School Graduation+	State-specific sources & EDFacts	Varies
	Reading Scores*+	Stanford Education Data Archive	2019
	Math Scores*+	Stanford Education Data Archive	2019
	School Segregation	National Center for Education Statistics	2023-2024
	School Funding Adequacy+	School Finance Indicators Database	2022
Income, employment and wealth	Children Eligible for Free or Reduced Price Lunch+	National Center for Education Statistics	2022-2023
	Gender Pay Gap	American Community Survey, five-year estimates	2019-2023
	Median Household Income*	Small Area Income and Poverty Estimates; American Community Survey, five-year estimates	2023 & 2019-2023
	Living Wage	The Living Wage Institute	2024
Safety and social support	Child Care Centers	Homeland Infrastructure Foundation-Level Data (HIFLD)	2010-2022
	Residential Segregation - Black/White	American Community Survey, five-year estimates	2019-2023
	Homicides*	National Center for Health Statistics - Mortality Files; Census Population Estimates Program	2016-2022
	Motor Vehicle Crash Deaths*	National Center for Health Statistics - Mortality Files; Census Population Estimates Program	2016-2022
	Firearm Fatalities*	National Center for Health Statistics - Mortality Files; Census Population Estimates Program	2018-2022
	Disconnected Youth	American Community Survey, five-year estimates	2019-2023
	Lack of Social and Emotional Support+	Behavioral Risk Factor Surveillance System	2022
DEMOGRAPHICS			
	% Below 18 Years of Age	Census Population Estimates Program	2023
	% 65 and Older	Census Population Estimates Program	2023
	% Female	Census Population Estimates Program	2023

% American Indian or Alaska Native	Census Population Estimates Program	2023
% Asian	Census Population Estimates Program	2023
% Hispanic	Census Population Estimates Program	2023
% Native Hawaiian or Other Pacific Islander	Census Population Estimates Program	2023
% Non-Hispanic Black	Census Population Estimates Program	2023
% Non-Hispanic White	Census Population Estimates Program	2023
% Disability: Functional Limitations	Behavioral Risk Factor Surveillance System	2022
% Not Proficient in English	American Community Survey, five-year estimates	2019-2023
Children in Single-Parent Households	American Community Survey, five-year estimates	2019-2023
% Rural	Decennial Census Demographic and Housing Characteristics File	2020
Population	Census Population Estimates Program	2023

*Subgroup data available by race and ethnicity; [+]Data availability or recency varies by state