

Name: Life Expectancy

Short Description: Estimate of life expectancy at birth.

Data Source(s):

- Census Tract Level (not race stratified):
 - **Name:** Centers for Disease Control and Prevention (CDC) U.S. Small-area Life Expectancy Estimates Project (USALEEP)
 - **Link to Source:** <https://www.cdc.gov/nchs/nvss/usaleep/usaleep.html>
- County Level (race stratified)
 - **Name:** County Health Rankings – Life Expectancy calculated from National Vital Statistics System (NVSS) mortality data
 - **Link to Source:** <https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation>

Year(s): 2010-2015 (CDC USALEEP), 2017-2019 NVSS data (2021 County Health Rankings)

Source Geographic Level: Census Tract (not race stratified), County (race stratified)

Stratification: Extrapolated stratification for Black populations

Selection Rationale: Life expectancy can be used as a measure of the general health status of a population and to identify disparities between geographic areas and population groups. Additionally, people with severe mental disorders on average experience premature mortality more frequently than the general population.¹

Strengths and Limitations:

- **Strengths:**
 - [*Importance*] Life expectancy is impacted by various determinants of health including access to care, neighborhood amenities and physical environment, employment opportunities and income, and health status. In addition, people with mental illnesses tend to have reduced life expectancy due to a variety of comorbidities, including cardiovascular disease, suicide, and substance use.^{2,3} Measuring life expectancy helps to capture indicators contributing to life expectancy that we could not otherwise directly measure.

¹ World Health Organization. *Premature death among people with severe mental disorders* [Fact Sheet].

https://www.who.int/mental_health/management/info_sheet.pdf

² Ilyas, A., Chesney, E., & Patel, R. (2017). Improving life expectancy in people with serious mental illness: should we place more emphasis on primary prevention? *British Journal of Psychiatry*, 211(4), 194–197.

<https://doi.org/10.1192/bjp.bp.117.203240>

³ Rans, C. (2019). US life expectancy: the mental health perspective. *Psychiatric Times*, 36(2).

<https://www.psychiatrictimes.com/view/us-life-expectancy-mental-health-perspective>

- [Scientific Soundness] The USALEEP data have been tailored to directly address small-area estimation challenges, such as small numbers of deaths, missing age-specific death counts, and small population sizes.⁴
- [Feasibility] Data are easily accessible and downloadable at the census tract level from the CDC USALEEP page.⁵
- **Limitations:**
 - [Relevance and Usability] Identifying the reasons for differences in life expectancy can be challenging because many factors contribute to mortality, which may make it difficult to determine how to improve life expectancy.
 - [Feasibility] It is not clear how frequently the CDC USALEEP data will be updated.

Calculation:

Overall Population:

$$Life\ expectancy_{Overall,CT} = estimate\ of\ life\ expectancy\ at\ birth\ for\ total\ population_{CT}$$

* CT designates census tract level data from USALEEP

Black Populations:

Race-stratified life expectancy data were not available at the census tract level. However, race-stratified approximations were calculated by scaling the census tract estimate by the ratio of life expectancy between Black populations and the total population at the county level.

$$Life\ expectancy_{Black,CT} = estimate\ of\ LE\ at\ birth\ for\ total\ population_{CT} * \left(\frac{estimate\ of\ LE\ at\ birth\ for\ Black\ populations_{county}}{estimate\ of\ LE\ at\ birth\ for\ total\ population_{county}} \right)$$

* CT designates census tract level data from USALEEP

* county designates county level data from County Health Rankings

⁴ Arias, E., Escobedo, L.A., Kennedy, J., Fu, C., & Cisewski, J. (2018). U.S. small-area life expectancy estimates project: Methodology and results summary. *National Center for Health Statistics Vital Health Statistics, Series 2*(181). https://www.cdc.gov/nchs/data/series/sr_02/sr02_181.pdf

⁵ National Center for Health Statistics. (2020). *United States Small-Area Life Expectancy Estimates Project USALEEP*. National Vital Statistics System. <https://www.cdc.gov/nchs/nvss/usaleep/usaleep.html>