
Emily M. Putzer, MA; Rowena Samala, MPH; Delmar Little, MPH; Fern Johnson-Clarke, PhD

**District of Columbia Department of Health**

**BACKGROUND**

The catalyst for this research was participation in a pilot study supported by the Centers for Disease Control and Prevention (CDC) and the Council of State and Territorial Epidemiologists (CSTE) that provided technical assistance in determining small area estimates (SAEs) for life expectancy.

With the myriad health outcome data indicators that describe a population’s health status, life expectancy estimates are one of the more straightforward and comprehensive. Nationwide, and in the District of Columbia, we have seen a positive trend in life expectancy at birth.1 Over the past several years, the District has improved at a faster rate than the U.S. (Figure 1). However, disparities in life expectancy persist, often in communities of color and those experiencing low socioeconomic status. Many times, these communities overlap and are segregated into separate geographical regions.

**OBJECTIVES**

1) To determine life expectancy estimates for the District of Columbia at the neighborhood level.

2) To describe the association between life expectancy estimates and racial/economic segregation.

**METHODS**

For life expectancy estimates, vital records mortality data from years 2009-2013 were geocoded and aggregated at the census tract level while population estimates were gathered from the Census’ American Community Survey. Ninety seven percent of addresses (n = 22,699) were properly geocoded and included in the analysis. Estimates were calculated using the South East Public Health Observatory (SEPHO) life expectancy calculator3, and census tracts were grouped iteratively to reduce standard error to less than or equal to 2.0, resulting in 46 neighborhoods. Census tracts were suppressed if standard errors remained high (usually related to the presence of Universities and other institutions with special populations).

Using ACS 2009-2013 data and the same geographical areas, racial segregation was calculated as percent Black population and economic segregation as percent population living in poverty within the past 12 months. Data were mapped and visualized using ArcMap 10.2.2 and a linear regression analysis was conducted using Microsoft Excel 2010 to determine how much, if at all, racial and/or economic segregation affect life expectancy estimates.

**RESULTS**

Life expectancy at birth estimates for 46 District of Columbia neighborhoods span 22.1 years of expected life. Life expectancy for the District as a whole is 78.1 years; however, residents in the neighborhood with the lowest life expectancy can expect to live only 66.5 years while those living in the highest look forward to 88.6 years.

Figures 2-4 show the geographic distribution by neighborhood of life expectancy estimates, percent below poverty and percent Black population, respectively.

**LIMITATIONS**

• There are multiple factors that could affect life expectancy estimates, only two of which are considered in this study.

• Life expectancy estimates did not account for differences in sex, race, or ethnicity.

• Due to rapidly changing demographics, population characteristics may not be stable over time.

**CONCLUSIONS**

The disparity in life expectancy estimates among District of Columbia neighborhoods is stark, and it is unsurprising that the most segregated parts of the city correspond to lower life expectancy. The model predicts a decrease in life expectancy for increases in both racial and economic segregation.

**FUTURE RECOMMENDATIONS**

Not only where you live, but with whom and how you live can affect how long you live. Policies and programs to alleviate segregation and bolster communities disproportionately affected by poverty could improve the large differences observed in life expectancy. Thoughtful and inclusive development without forced displacement is key in improving life expectancies of all District residents.

Future research can include contributions to life expectancy estimates by spatial factors and other important social determinants of health such as educational attainment, housing status, and access to community resources.

Breaking life expectancy estimates down by region as well as by race/ethnicity will allow researchers to better understand the nuances among segregated, integrated, and isolated communities of color.

Finally, these data can be used to further analyze outliers and help point to strategies that can improve life expectancy for those disproportionately affected.

**REFERENCES/DATA SOURCES**


2. District of Columbia Department of Health, Center for Policy, Planning and Evaluation.
