



# Health Effects of Urban Segregation in D.C.

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### KEYWORDS

**Redlining** The process through which government institutions use housing loans and credit ratings to segregate America's cities

**De facto Segregation** Segregation that arises through indirect means rather than direct laws

**Environmental Racism** The placement of minority communities in proximity of environmentally hazardous environments, such as toxic waste and pollution.

### ABSTRACT AND METHOD

This project reviews the health impacts of urban segregation in D.C., analyzing issues of nutrition, fitness, and environmental quality. Segregation in D.C. was established by redlining beginning in the 1930s.<sup>1</sup> De facto segregation has since deepened the divide between primarily white and primarily non-white neighborhoods.<sup>2</sup>

Our areas of study are Chevy Chase, MD. and Brentwood, MD., both of which are part of the D.C. metro area. We hypothesized that the Brentwood community will have poorer access to food options, gyms and recreational parks, and will have poorer air quality than Chevy Chase.

Nutrition and fitness quality was measured along the basis of food availability & wellness options. Research compared amounts of food service options and availability of gyms and recreational parks in both regions of study. Surveys of community members in both Chevy Chase and Brentwood were also conducted to provide qualitative information.

Environmental quality was measured along the basis of air quality and commonality of waste dumps and industrial centers. Proximity of neighborhoods to industrial centers and waste dumps showed pollution trends through research. Surveys and air quality tests were conducted for qualitative evidence of the effects of air quality and environmental factors on health in both areas.

### BACKGROUND

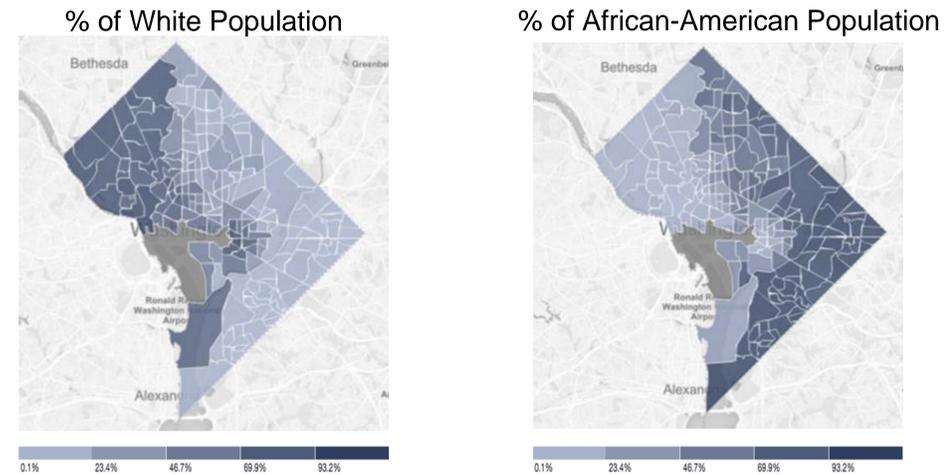
DC is the sixth most segregated city in the nation.<sup>3</sup>

Starting in the 1930s, D.C. began the trend of realtors adjusting property values to isolate black families in specific neighborhoods and the cutting of mortgage opportunities for minorities.<sup>1</sup>

New urban renewals were also severely restricted, with few units available to blacks.<sup>1</sup>

Today, a white family with a household income of \$30,000 will live in neighborhoods with the same quality of life as a black family with a household income of \$100,000.<sup>1</sup>

### MAPS COMPARING DEMOGRAPHIC POPULATION DENSITY<sup>4</sup>



### DC NEIGHBORHOODS (METRICS FOR BRENTWOOD et AL)

	Chevy Chase, Bethesda, MD <sup>5</sup>	Brentwood, MD <sup>6</sup>
Black Population (2010, census tract)	4.8%	21% - 40%
Non White (2010, census tract)	13.3%	61% - 80%
Median per capita income (2014, census tract)	\$86,237	\$32,637
Not overweight or obese (2010, census tract)	35.93% or more	29.92-30.01%

### AIR QUALITY

We conducted six air quality tests, three in each area of study, using simple aerosol samplers. Airborne particles stuck to the exposed surface of the testing sheets placed two meters above ground level. After 1.5 hours of exposure, the testing sheets were examined under a microscope at 30x magnification by choosing five random coordinates for review. The table below displays the average number of airborne particles found in both neighborhoods for each selected coordinate pair.

Coordinate Pair	Chevy Chase	Brentwood
(5,6)	0.5	13
(3,1)	1	12
(5,1)	2	17.5
(2,3)	1	10.5
(3,3)	1.5	14

### SURVEY FINDINGS

We surveyed 30 individuals from each neighborhood. Averages of responses to the eight questions are displayed in the table below.

Question	Chevy Chase	Brentwood
How many people live in your household?	3.2	3.23 ± 2.96
How often do you shop at a grocery store? (per week)	2.4	1.07 ± .87
How many minutes does it take you to get to the grocery store?	6	20.13 ± 13.77
How many times do you utilize recreational parks, gyms, or sport centers weekly?	3	1.03 ± 1.43
How many minutes does it take you to get to these parks/gyms/sports centers?	4	27.94 ± 14.48
How many people in your household suffer from asthma or other breathing ailments?	0.5	0.57 ± .94
How many dumpsters/ industrial waste sites do you perceive to be within one mile of your home?	2.32	2.06 ± .83
Do you feel the proximity of your home to major roads, construction sites, and industrial areas affect your health?	some-what	yes

### RESULTS

We found that the average individual in Brentwood was less likely to access grocery stores and sports centers than the average individual in Chevy Chase. In addition, the average individual in Brentwood took about three and seven times longer to travel grocery stores and sports centers, respectively. Air quality was significantly lower in Brentwood, with almost 11.2 times the amount of air particulate.

### CONCLUSIONS

Environmental racism exists in cities across the country, and affects a wide array of racial minorities, more than any other group. Growing cities should be conscious of creating inclusive structures, using tools like infrastructure, revitalization projects and increased community funds. Healthcare options should be expanded in areas affected by environmental racism to allow for mitigation of its worst effects

### SOURCES

<sup>1</sup> Ta-Nehisi Coates, "The Case for Reparations," *The Atlantic*, June 2014.  
<sup>2</sup> Richard Rothstein, "Modern Segregation," *Economic Policy Institute*, 6 March 2014.  
<sup>3</sup> Aaron Weiner, "D.C. is One of the Most Segregated Cities in America," *Washington City Paper*, 1 May 2015.  
<sup>4</sup> Aaron Blake, "The Remarkable Segregation of D.C. in 1 Map," *The Washington Post*, 19 June 2015.  
<sup>5</sup> "Quick Facts: Chevy Chase CDP, Maryland," *United States Census Bureau*, 2010-2014.  
<sup>6</sup> "Quick Facts: Prince Georges County, Maryland," *United States Census Bureau*, 2010-2014.