

## Environmental Impact on Healthspan and Health Disparity

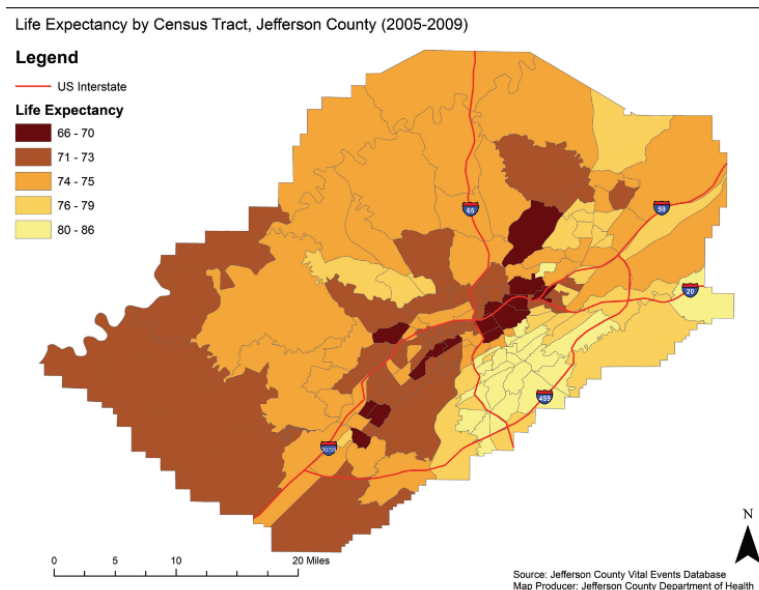
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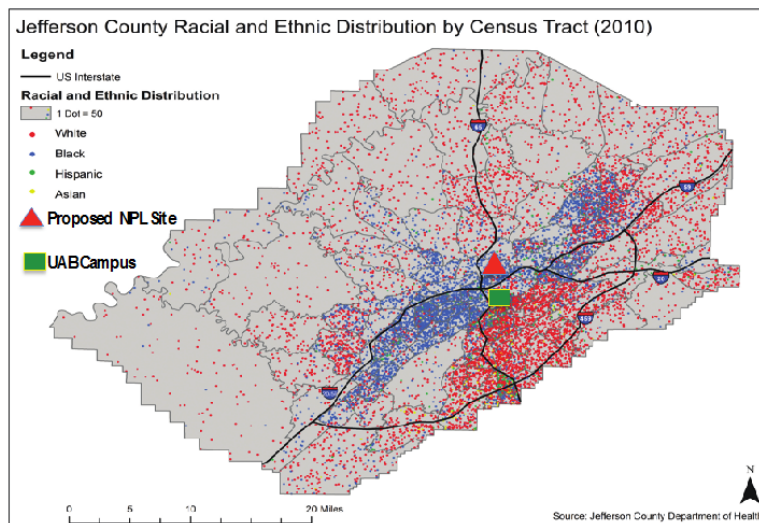
### Description of the problem:

The world is aging at a rapid rate, with the expectation that individuals over the age of 65 will double from about 8.5% to almost 17% of the world's population by 2050 (National Institutes of Health, NIH; [www.nih.gov/news-events](http://www.nih.gov/news-events)). To alleviate the impact of an aging world on socioeconomic conditions and the health of our region, it is critical that we devise innovative programs that extends healthspan and not simply lifespan.

Despite increasing healthspan and lifespan worldwide, Birmingham and certain regions in Alabama and southeast have lagged behind (Figure 1). Regions in which expected lifespan is lowest (66-70) is home to largely African-American populations (Figure 2).



**Figure 1: Life expectancy in Jefferson County, census 2005-2009.** Note the marked disparity between highway 20/59 corridor in North Birmingham and the southern “over the mountain” region, adjacent to highway 459.



**Figure 2: Racial and ethnic distribution in Jefferson County.** Note the striking overlap between life expectancy (Figure 1) and racial/ethnic distribution shown here, as well as the juxtaposition of the UAB medical campus (green square) to proposed National Priorities List (NPL) site (red triangle); red dots: white population, blue dots: African-American population.

The reasons for this disparity in lifespan that adversely affects the African-American community is likely multifactorial, and includes genetic, environmental, and socioeconomic factors. As one example, North Birmingham (Figure 2, **red triangle**) has been designated by the Environmental Protection Agency (EPA) as a National Priorities List (NPL) site, which includes a list of hazardous waste sites in the United States eligible for long-term remedial action financed under the federal Superfund (P42) program of the NIH/NIEHS.

Desired outcomes:

- Improved environmental (air, water, soil) living and working conditions in disadvantaged regions of the state of Alabama, including North Birmingham
- Improved lifespan and healthspan, with the latter measured by specific health outcomes such as incidence/prevalence of chronic heart, lung, kidney diseases, and death rates due to specific chronic diseases such as diabetes, emphysema and congestive heart failure.
- Heightened awareness and prevention of the adverse effects of the environmental on healthspan.
- Engage the undergraduate and graduate schools at UAB in the study of the social, economic, and health effects of the environment on human life.

Conceptualization of the plan of work:

- Conduct pilot studies on the effect of air/water/soil pollution on the health status of citizens living in regions where lifespan/healthspan is at the lowest quintile.
- Seek external funding for studies of the impact of environmental pollution on human health and socioeconomic status; this may include philanthropy, foundations, or federal grant support such as the NIH/NIEHS Superfund (P42) program.
- Bring together a multi-disciplinary team to address these concerns, including the College of Arts and Sciences, School of Public Health, School of Engineering, School of Business, and the School of Medicine.
- Design courses, “in-the-field” studies, and summer programs that educate the next generation on the impact of the environment on all aspects of human life.

List of potential team members:

- Students and faculty at the undergraduate and graduate schools
- Community partnerships, e.g. community leaders in North Birmingham, the Mayor of Birmingham
- Business leaders, e.g. Alabama Power, Spire, and down town businesses that will need today’s unused spaces to further development
- College of Arts and Sciences
- School of Public Health
- School of Engineering
- School of Business
- School of Medicine
- Minority Health and Health Disparities Research Center
- Comprehensive Center for Healthy Aging