Inequality In Life Expectancy in Chicago Neighborhoods: Can Active Transportation and Sustainability Programs Make a Difference?

Judith Singleton, Ph.D. and Euan Hague, Ph.D.

Maps by: Brooke Robinson, Sophie Mimica, Eric Phillips

http://chicagolifeexp.tumblr.com/
CHICAGO, ILLINOIS

Short Distances to Large Gaps in Health

Life expectancy at birth (years)
- Shorter
- Longer

1 mile

Red Line
Green Line
Orange Line

Follow the discussion
#CloseHealthGaps

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# Life Expectancy Rankings by Nation (2015)

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<tr>
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Life Expectancy in the United States

Geography’s Role in the Life Expectancy of the Poor

New Clues in the Mystery of Women’s Lagging Life Expectancy

Black Americans See Gains in Life Expectancy

Death Rates Rising for Middle-Aged White Americans, Study Finds

Drug Overdoses Propel Rise in Mortality Rates of Young Whites

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Social determinants of health are conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. Conditions (e.g., social, economic, and physical) in these various environments and settings (e.g., school, church, workplace, and neighborhood) have been referred to as “place.” In addition to the more material attributes of “place,” the patterns of social engagement and sense of security and well-being are also affected by where people live. Resources that enhance quality of life can have a significant influence on population health outcomes. Examples of these resources include safe and affordable housing, access to education, public safety, availability of healthy foods, local emergency/health services, and environments free of life-threatening toxins.

CDC Healthy People 2020
https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health
Healthy Chicago 2.0

- Coordinated by CDPH
  - Consult 130 organizations
- “Health equity is achieved when every person has the opportunity to attain his or her full health potential” (CDC)
- “When it comes to health, your zip code matters more than your genetic code.” Tony Iton, M.D.

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Healthy Chicago 2.0

• Utilizes a “health in all policies” perspective.

• Understands urban development as critical to improving public health.

• “By addressing both traditional health issues such as chronic disease and the root causes of poor health such as transportation and housing, Healthy Chicago 2.0 aims to ensure that every child raised in Chicago, regardless of neighborhood and background, has the resources and opportunities to live a healthy life.”

  (Rahm Emanuel, Mayor, City of Chicago, emphasis added)
Root Causes

• “The built environment influences health by providing or preventing opportunities for physical activity, adequate transportation and social connectedness. Inadequate infrastructure for active transportation exists in many low-income communities and communities of color, which are more likely to have poorly maintained sidewalks and streets and increased dangers from traffic. Fatalities from traffic crashes disproportionately impact African American communities. In addition, street design neglects the needs of older adults, people with disabilities and children.”

(Healthy Chicago 2.0, p.16)
Healthy Chicago 2.0

- Includes 14 maps
  - Obesity
  - Unemployment
  - Health Insurance
  - Active Transit Use
  - Infant Mortality
  - Asthma

The life expectancy of Chicagoans in areas of high economic hardship is 5 years lower than those living in better economic conditions.
Healthy Chicago 2.0

- Identifies four key areas impacting the social determinants of health:
  - Built environment
  - Economic development
  - Housing
  - Education
Urban Development

• Healthy Chicago 2.0 recognizes health impacts of:
  – Transit choices and urban development
  – Perceptions of accessibility and public safety
• Goal 1: “Improve Chicago’s built environment and transportation so that residents can live and age well in healthy communities”
  – 10% increase of adults who walk, bike or take public transportation to work
  – Prioritize pedestrians in the planning, design, operations and maintenance of the built environment
  – Implement citywide bike plan that includes equity, health and economic development
  – Improve partnerships between bike share and public health providers
Urban Development

• Goal 2: “Realize Chicago’s Vision Zero initiative by eliminating all pedestrian, bicycle and motor vehicle traffic crash fatalities in Chicago”
  – 118 fatal car crashes in 2014
  – Reduce the number of serious injuries resulting from traffic crashes by 10% annually

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Healthy Chicago 2.0 – Goals by 2020

• Increase average life expectancy by 2%
  – From 77.8yrs to 79.4yrs
• Expand Divvy Bike share program throughout Chicago (346,000 trips using Divvy during the month of May)
• Expand Red Line south to 130th
• Make city-owned vacant land available to current property owners
• Encourage and fund development near transit that includes mixed land use
**Sustainable Chicago Action Agenda**

- Increase average daily transit ridership
- Accelerate T-O-D around stations
- Make Chicago the most bike and pedestrian-friendly US city
- Improve freight rail and high speed passenger trains
- Strengthen infrastructure to improve fuel efficiency
- Advance sustainability at airports

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Increase average daily transit ridership

- Reconstruct and renew to create “safe, dry and bright” stations
- Install network-wide bus and train tracker signs
- Buy new buses, add Bus Rapid Transit routes

COMPLETE STREETS GUIDELINES CREATE A SAFE AND CONVENIENT TRANSPORTATION SYSTEM FOR ALL PEOPLE

**TRANSIT USER**
Bus Rapid Transit, Real time bus arrival signs, Traffic Signal Priority improve rush hour travel.

**PEOPLE BIKING**
Protected and buffered bikeways increase bicyclist safety.

**PEOPLE IN CARS**
Improved signal timing for smoother traffic flow makes travel time more predictable.

**NATURAL FEATURES**
Tree canopies reduce the urban heat island effect and create a healthier environment.

**PEOPLE WALKING**
Countdown signals, mid-block crossings, signs, refuge islands and crosswalks reduce pedestrian crash injuries and fatalities.

**TRUCK/FREIGHT**
More efficient loading/unloading time and zones reduce traffic delays.

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1. American Journal of Preventive Medicine, September 2008
Mapping Chicago’s Health

Average Life Expectancy

Legend:
- Red: 67 - 72 years
- Orange: 72 - 75 years
- Yellow: 75 - 78 years
- Green: 78 - 81 years
- Light Green: 81 - 84 years
What Areas in Chicago would Benefit from a Divvy Station?
Ryan Adriatico, 2014

*Suitability is based on poverty levels (>25% of population below poverty line) and walkability to existing public transit (>1/2 mile away from transit stops).

Legend
- Regions in Need of Low Cost Public Transit Options
- Divvy Station
- CTA Bus Stops
- CTA Rail Stations

Sources:
- Divvy Station Locations: City of Chicago Data Portal (2014)
Breast Cancer

Legend

- 0.00 - 17.00
- 17.01 - 23.40
- 23.41 - 30.70
- 30.71 - 41.40
- 41.41 - 51.50

Adjusted death rates per 100,000 residents from breast cancer in females by Chicago community area from 2006 - 2010

Source: Chicago Department of Public Health

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Pilsen and Washington Park

• Similar hardship indices
• 12 year difference in life expectancy
  – Pilsen = 81.4 years
  – Washington Park = 68.9 years
• Different economic development profiles
  – Pilsen: gentrification, real estate

http://chicagolifeexp.tumblr.com/
Selection of six socioeconomic indicators of public health significance and a “hardship index,” by Chicago community area, for the years 2008 - 2012. The indicators are the percent of occupied housing units with more than one person per room (i.e., crowded housing); the percent of households living below the federal poverty level; the percent of persons in the labor force over the age of 16 years that are unemployed; the percent of persons over the age of 25 years without a high school diploma; the percent of the population under 18 or over 64 years of age (i.e., dependency); and per capita income.

Source: Chicago Data Portal

http://chicagolifeexp.tumblr.com/
Unemployment (2010)

Washington Park, Chicago: Unemployment, 2010

Pilsen, Chicago: Unemployment, 2010

Data Source: American Fact Finder
Map created by: Brooke Robinson
Pilsen
Pilsen
The South Side is an historic community with vibrant institutions like the DuSable Museum and Museum of Science and Industry, strong faith communities, successful business leaders, and important community-based organizations. These surroundings make Jackson Park the ideal home for the Obama Presidential Center.

When first planned, the area including today’s Jackson Park was known simply as South Park. It included today’s Jackson and Washington Parks, located just a few miles from each other and connected by the Midway Plaisance. The famed landscape architects Frederick Law Olmsted and Calvert Vaux published a design for South Park in 1871, during an era when the residents of the South Side of Chicago dwelled in everything from stately mansions to overcrowded tenements. Olmsted’s vision was to revitalize communities and enrich people’s lives.

Architect Daniel H. Burnham spurred the development of Jackson Park when he suggested it as the site for the 1893 World’s Fair: Columbian Exposition. Today, Jackson Park still has a number of its World’s Fair legacy assets and...
Conclusions

• Central role of transit and urban development in *Healthy Chicago 2.0* plan
  – Utilizes a “health in all policies” perspective.

• Growing importance of GIS/geospatial data for explaining health and urban inequalities

• Next step – neighborhood-specific research, including qualitative data and analysis

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Chicago Life Expectancy

GIS spatial and statistical analysis of average life expectancy across Chicago neighborhoods.

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