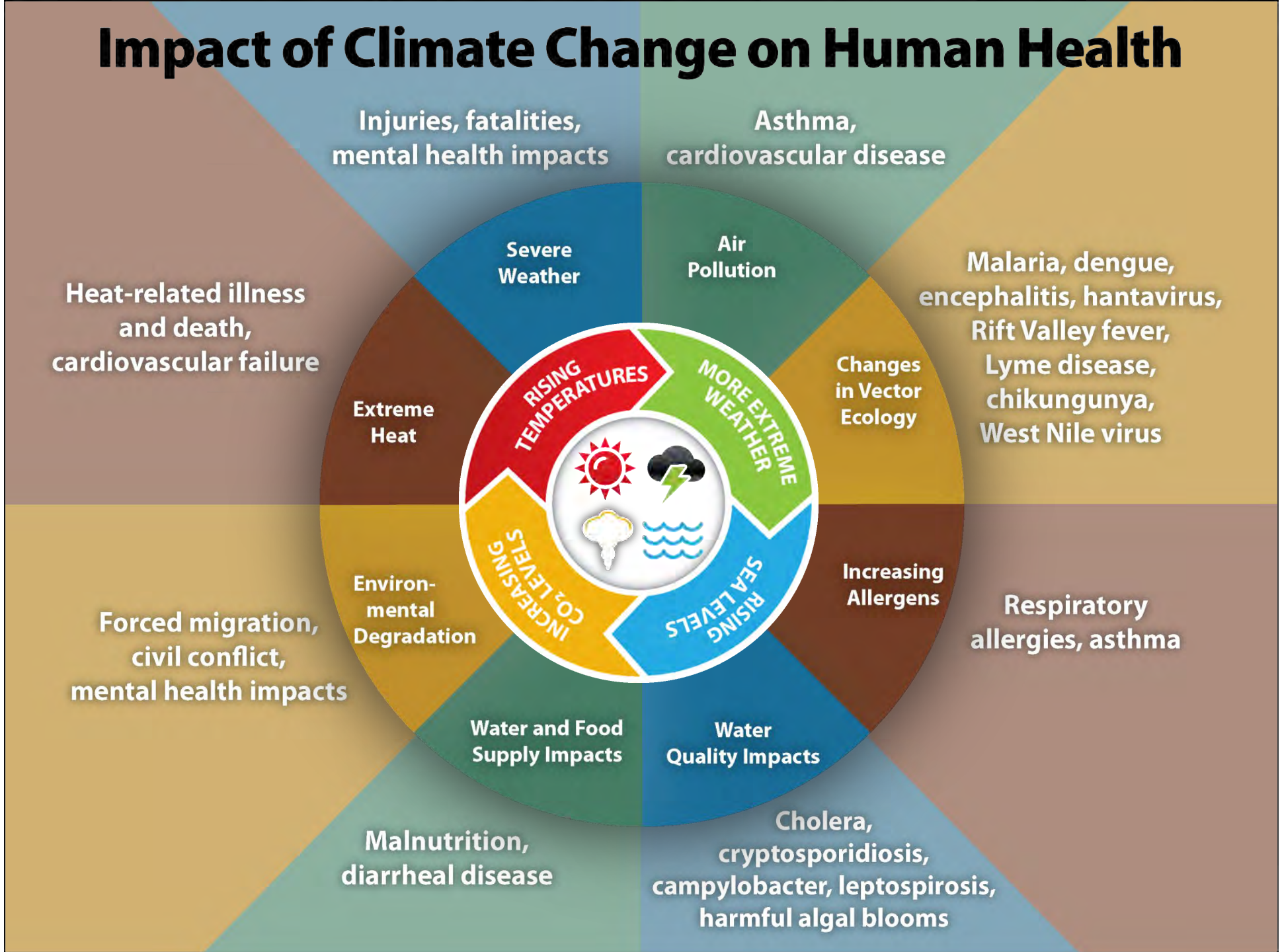
Climate Change, Health, and Environmental Justice: The Climate and Health Institute at UIC SPH

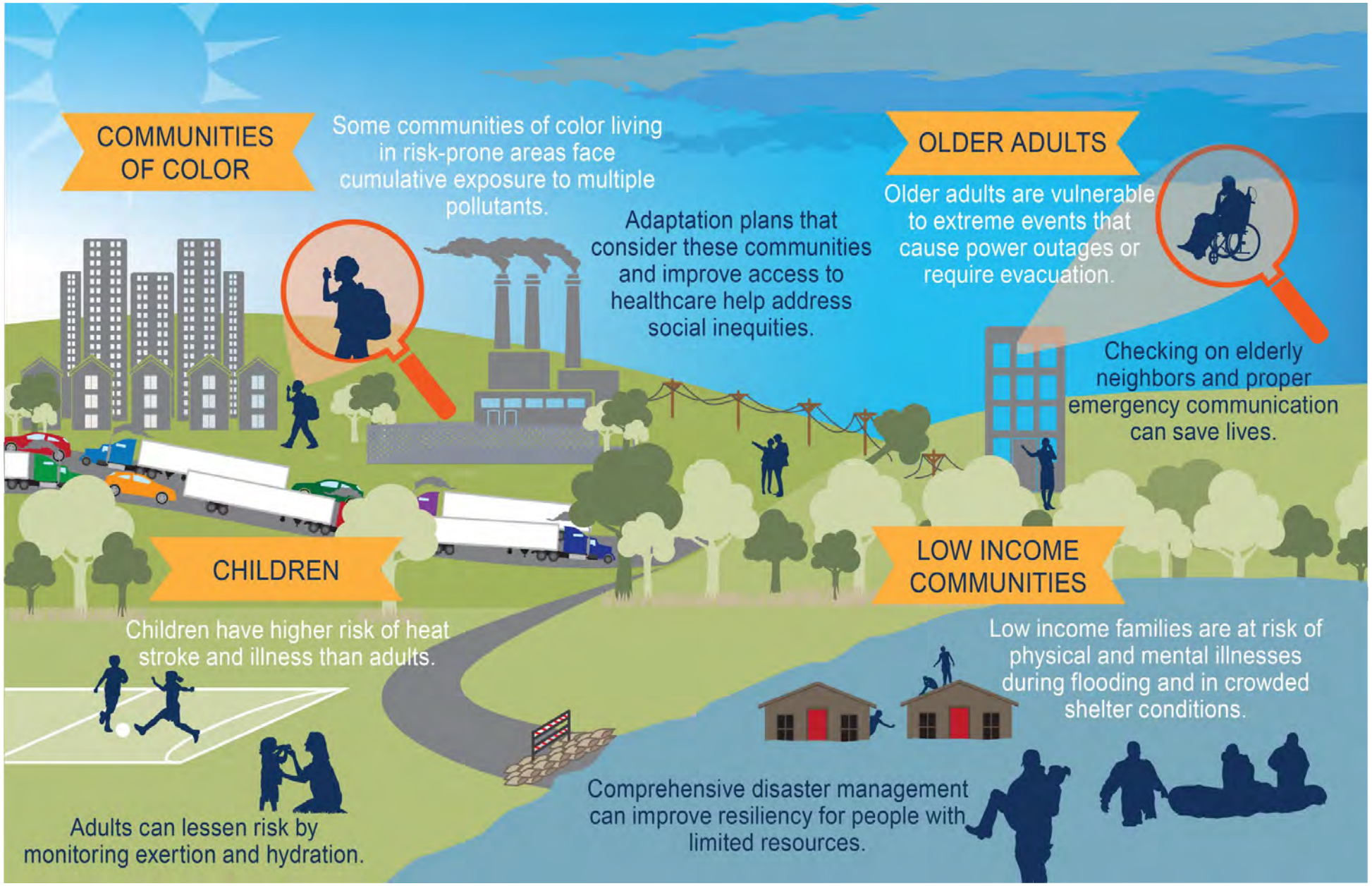
UNIVERSITY OF ILLINOIS CHICAGO

Elena Grossman, MPH

UIC SPH Research Specialist


Impact of Climate Change on Human Health
Injuries, fatalities, mental health impacts
Asthma, cardiovascular disease
Heat-related illness and death, cardiovascular failure
Malaria, dengue, encephalitis, hantavirus, Rift Valley fever, Lyme disease, chikungunya, West Nile virus
Forced migration, civil conflict, mental health impacts
Respiratory allergies, asthma
Malnutrition, diarrheal disease
Cholera, cryptosporidiosis, campylobacter, leptospirosis, harmful algal blooms
Severe Weather
Air Pollution
Extreme Heat
Changes in Vector Ecology
Environ-mental Degradation
Increasing Allergens
Water and Food Supply Impacts
Water Quality Impacts
RISING TEMPERATURES
MORE EXTREME WEATHER
INCREASING CO2 LEVELS
RISING SEA LEVELS

Climate Change, Health, and Environmental Justice



https://nca2018.globalchange.gov/chapter/14/

Where you live affects your health

INFORMATION FOR: Prospective Students | Current Students | Alumni | Faculty & Staff | Friends & Supporters | A to Z index

HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH

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ABOUT | FACULTY & RESEARCH | ADMISSIONS & AID | ACADEMICS | EXECUTIVE/CONTINUING ED | NEWS

Zip code better predictor of health than genetic code

NCBI Resources How To

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed | Advanced

Format: Abstract | Send to

N C Med J. 2014 Nov-Dec;75(6):394-7.

Is health determined by genetic code or zip code? Measuring the health of groups and improving population health.

athenahealth
December 5, 2016

When it comes to health, your ZIP code is as important as your genetic code. https://insight.athenahealth.com/zip-code-might-key-health/

Social determinants of health: how a few miles can be the difference for life expectancy

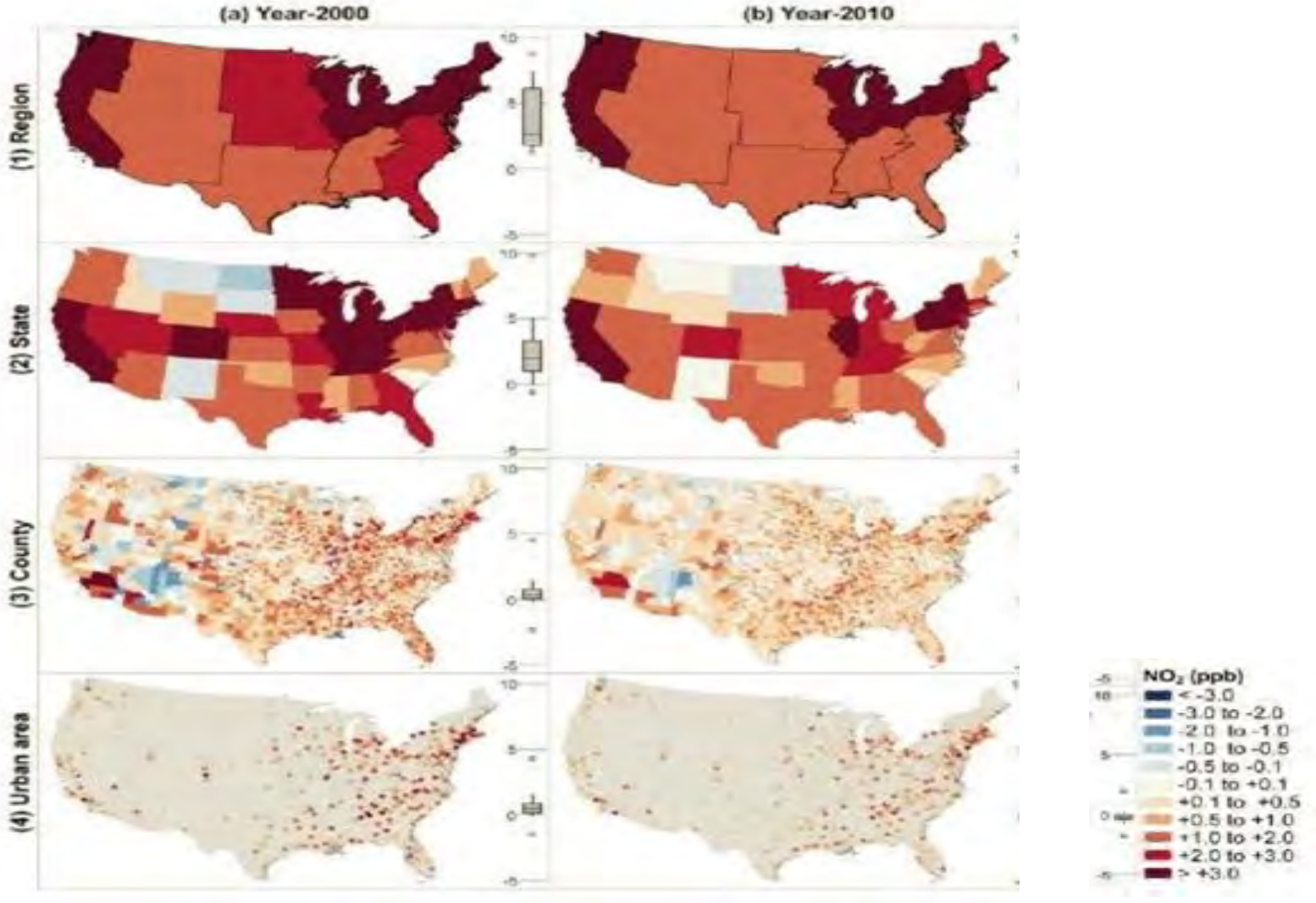
In Chicago, life expectancy can differ by as much as 16 years between just seven stops on the "L," between the Loop and Washington Park. In Philadelphia, the...

INSIGHT.ATHENAHEALTH.COM

Life expectancy based on where you live

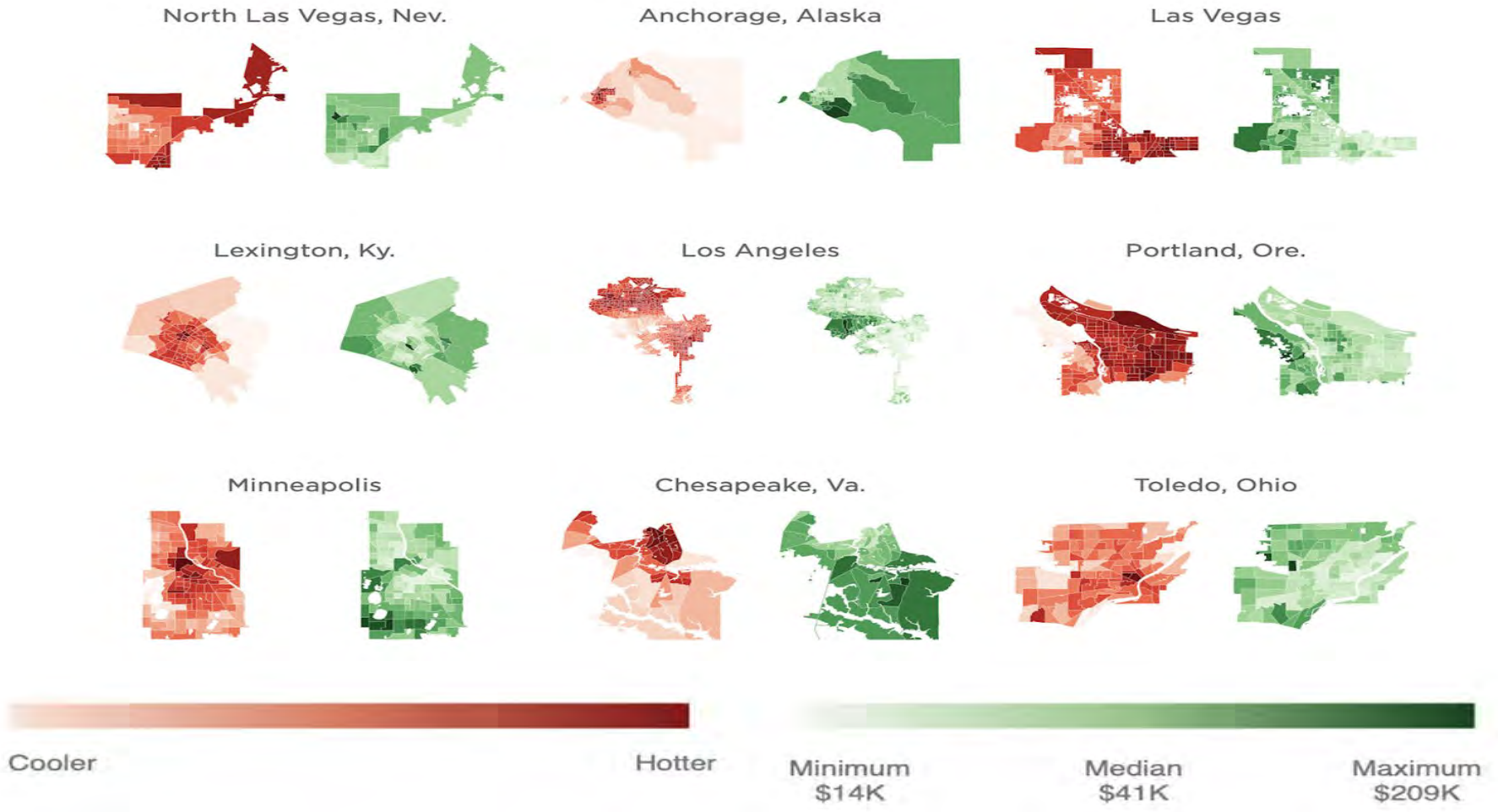
Virginia Commonwealth University's Center on Society and Health: Mapping Life Expectancy

People of color exposed to more pollution from cars, trucks, power plants over 10 yrs



Lara P. Clark, Dylan B. Millet, and Julian D. Marshall. Changes in Transportation-Related Air Pollution Exposures by Race-Ethnicity and Socioeconomic Status: Outdoor Nitrogen Dioxide in the United States in 2000 and 2010. *EHP*, 2017

Hottest areas tend to be the poorest and communities of color



Source: NASA/U.S. Geological Survey, Census Bureau
Credit: Sean McMinn/NPR

Note: Income measured as median household income per census tract

Low-income communities have less tree canopy and more impervious surface

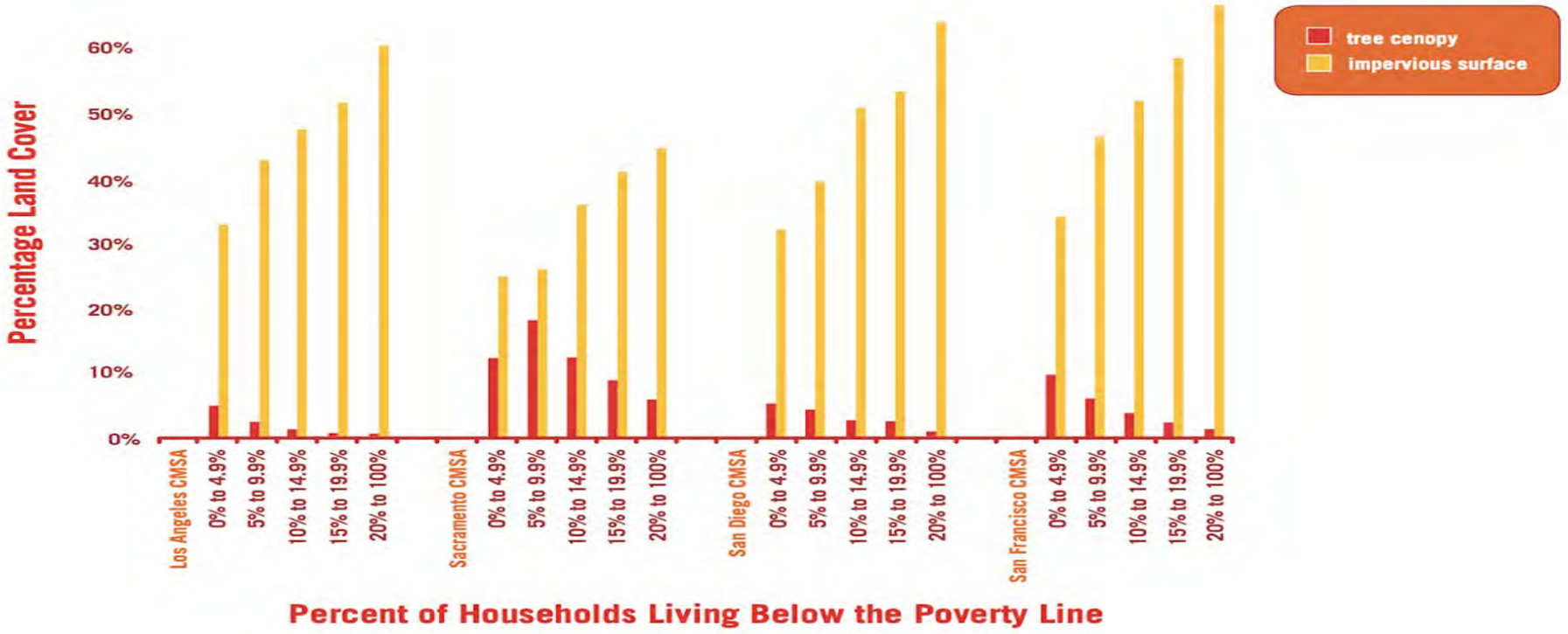


Figure 3. Land cover characteristics by percent of households living below the poverty line (Los Angeles, Sacramento, San Diego, San Francisco metro areas). Adapted from: Morello-Frosch and Jesdale 2008.

https://dornsife.usc.edu/assets/sites/242/docs/ClimateGapReport_full_report_web.pdf

Communities of color have less tree canopy and more impervious surface

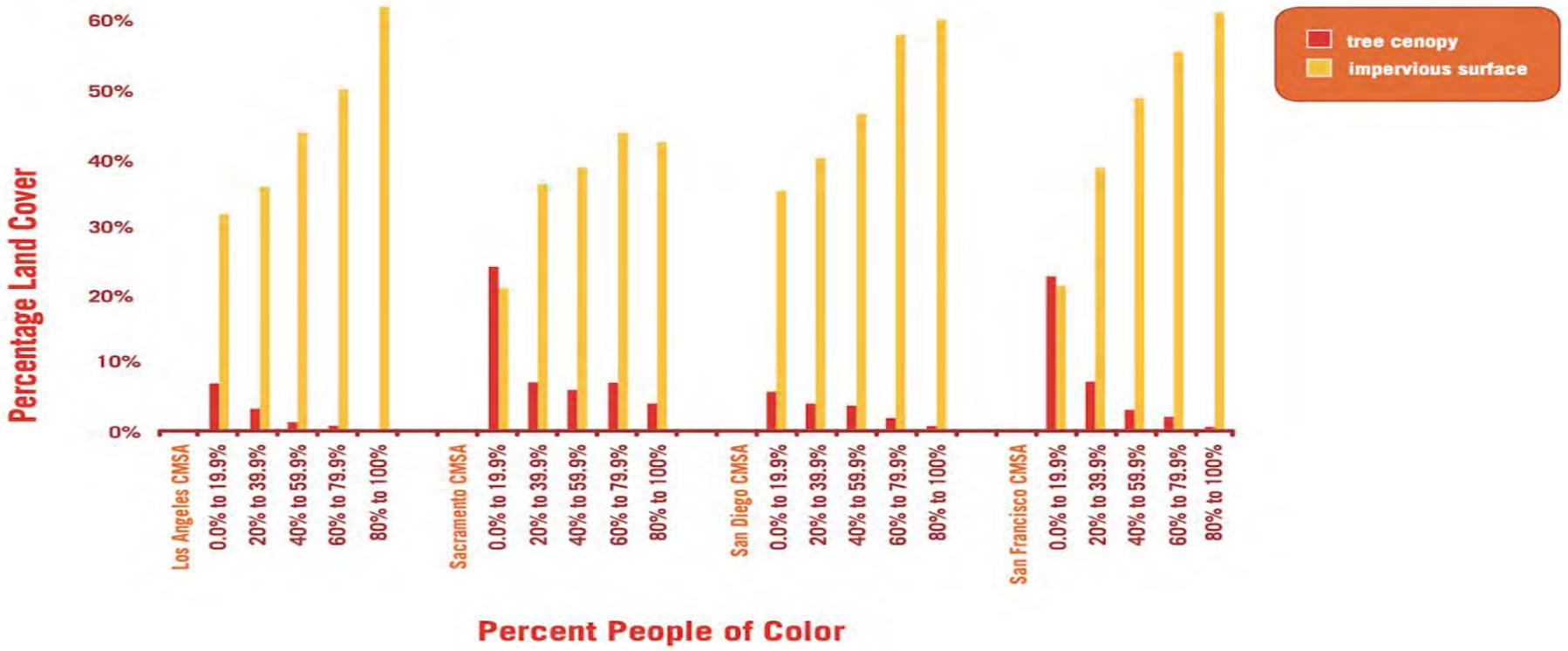
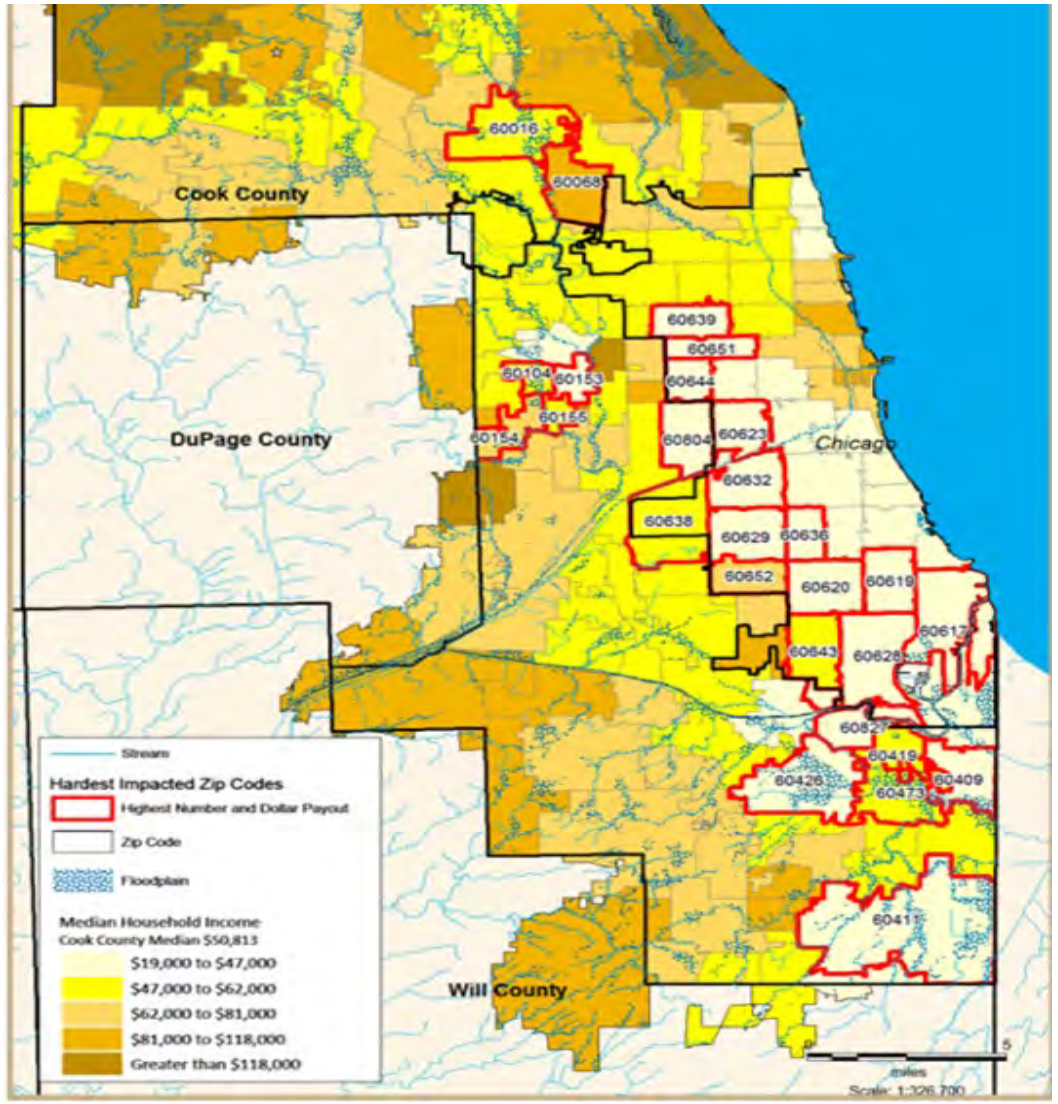


Figure 4. Land cover characteristics by percent of residents of color living in the neighborhood (Los Angeles, Sacramento, San Diego, San Francisco metro areas
Adapted from: Morello-Frosch and Jesdale 2008.

https://dornsife.usc.edu/assets/sites/242/docs/ClimateGapReport_full_report_web.pdf

Same communities affected by flooding

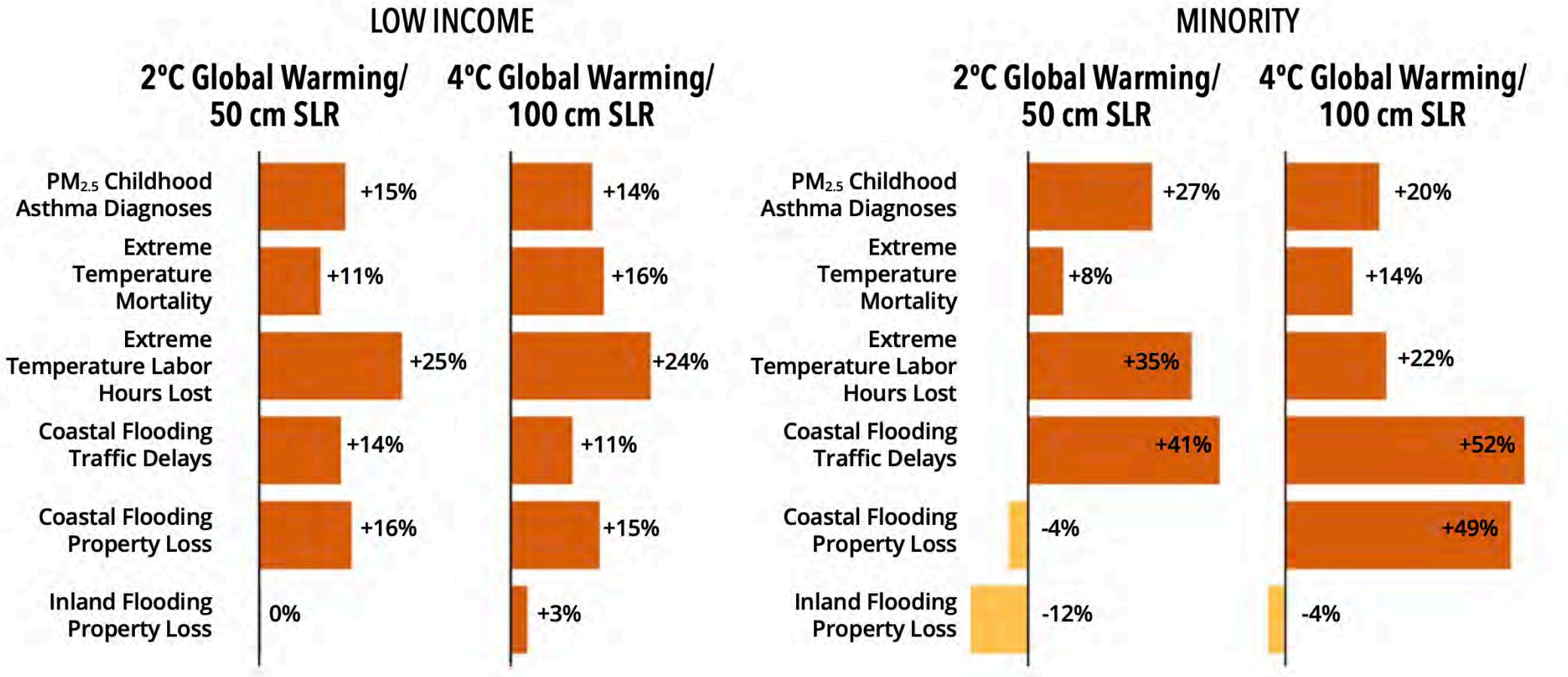
Median Household Income in ZIP Codes with Largest Total Claims (Number and Dollar Payout), 2007–11



The Prevalence and Cost of Urban Flooding: A Case Study of Cook County, IL. Center for Neighborhood Technologies, May 2014

US EPA Report: Climate Change and Social Vulnerability in the United States A Focus on Six Impacts

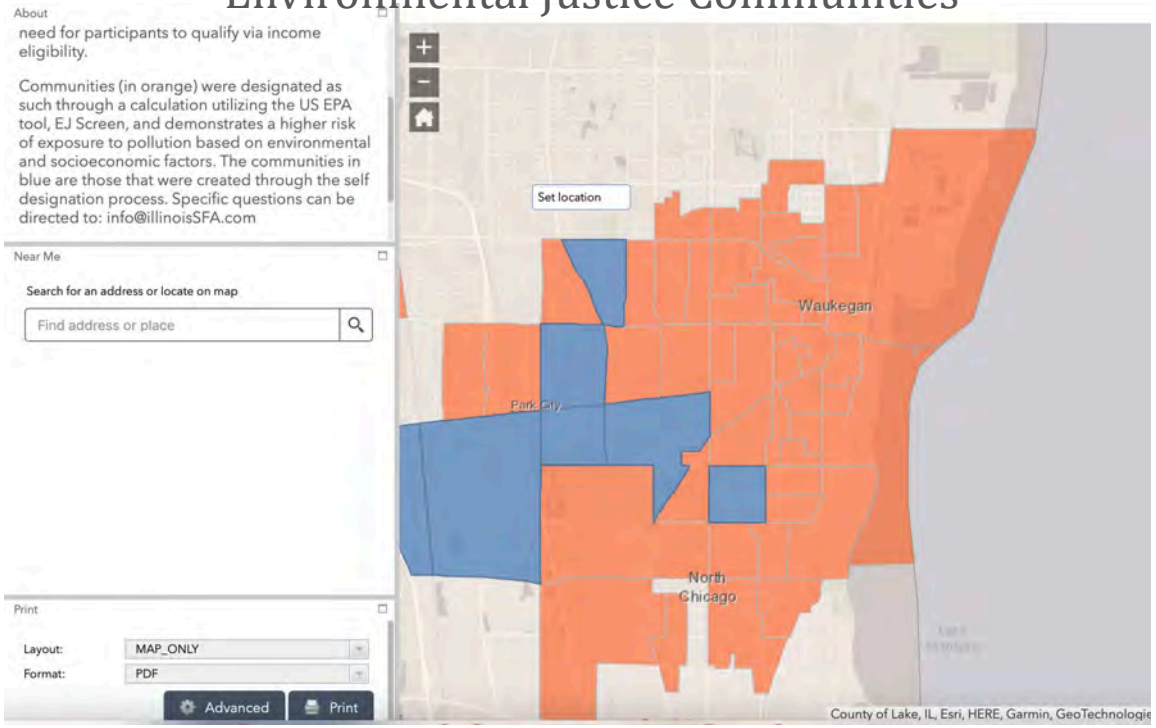
Likelihood that Those in Socially Vulnerable Groups Currently Live in Areas with the Highest Projected Impacts Relative to their Reference Populations



https://www.epa.gov/system/files/documents/2021-09/climate-vulnerability_september-2021_508.pdf

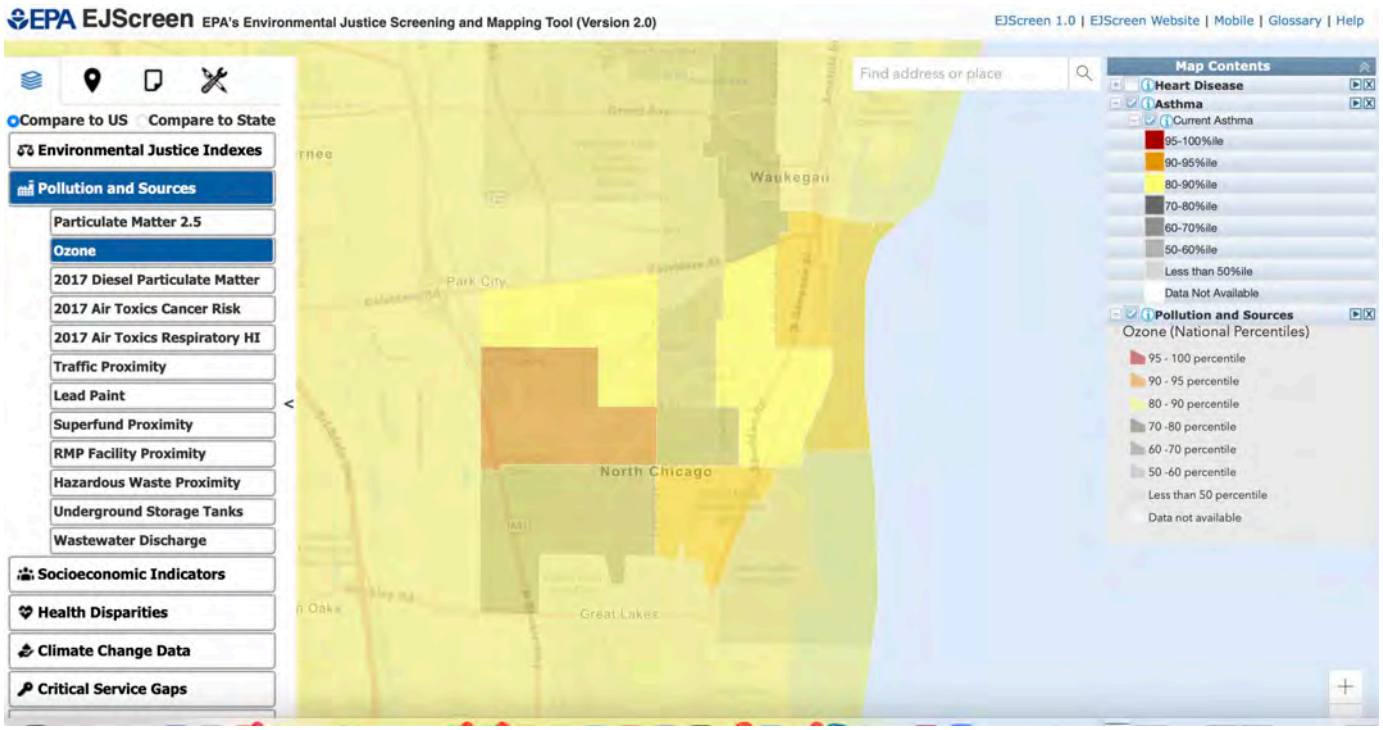
Environmental Justice Communities and Tools

Illinois Power Agency's Illinois Solar for All Environmental Justice Communities



https://www.illinoissfa.com/environmental-justice-communities/

EPA's Environmental Justice Screening and Mapping Tool



https://ejscreen.epa.gov/mapper/

Baseline health indicators without climate change exacerbating them

Chicago Heights

- Medically underserved area
- Health professional shortage area
- High cardiovascular disease mortality: 372.4/100,000 (Cook County= 275.6/100,000)

https://cookcountypublichealth.org/wp-content/uploads/2020/02/2017_Death_All_Sections_b.pdf

Waukegan

- High hypertension hospitalization rate of 14.1/10,000 (IL = 5.4)
- High ER rate due to diabetes of 35.5/10,000 (Northern Lake Co =14)
- 2nd highest ER rate for mental health in Lake County of 109/10,000 (Lake = 68.6)

https://www.hfnlc.org/wp-content/uploads/2019/04/Community-Needs-Assessment.pdf

Aurora

- Asthma prevalence among adults is 9.2 (IL = 8.8)
- No health insurance is 18.6% (IL – 8%)
- Physical health not good for 14 days is 12.3% (IL = 11%)
- Mental health not good for 14 days = 12.3% (IL = 11%)

https://www.cdc.gov/places/about/500-cities-2016-2019/index.html

Hanover Park

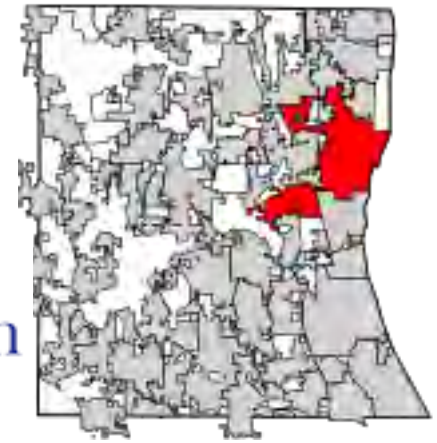
- No health insurance is 13% (IL – 8%)

https://www.census.gov/quickfacts/hanoverparkvillageillinois

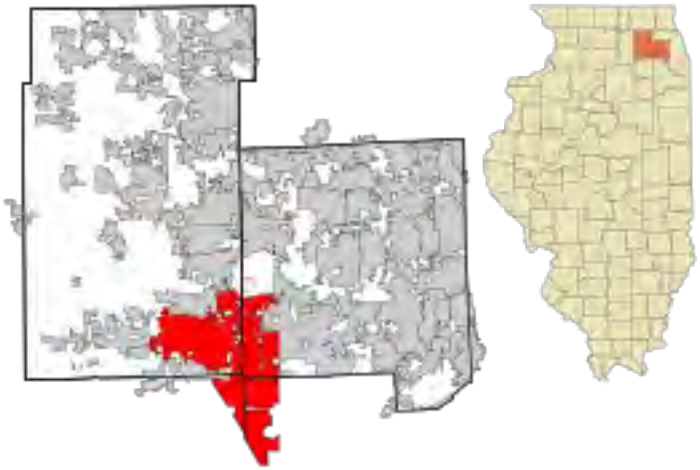
Climate and Health Institute (CHI) at the UIC School of Public Health

Metropolitan Mayors Caucus

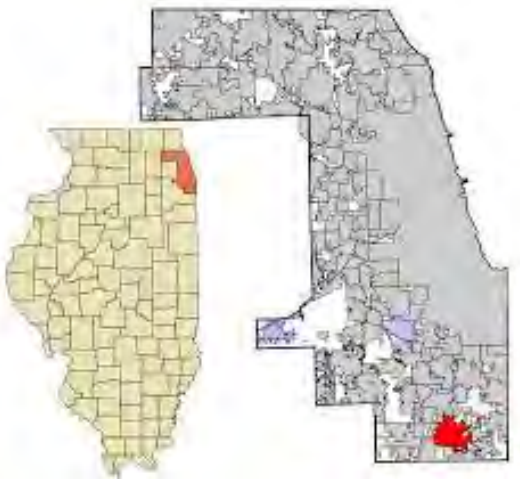
Waukegan



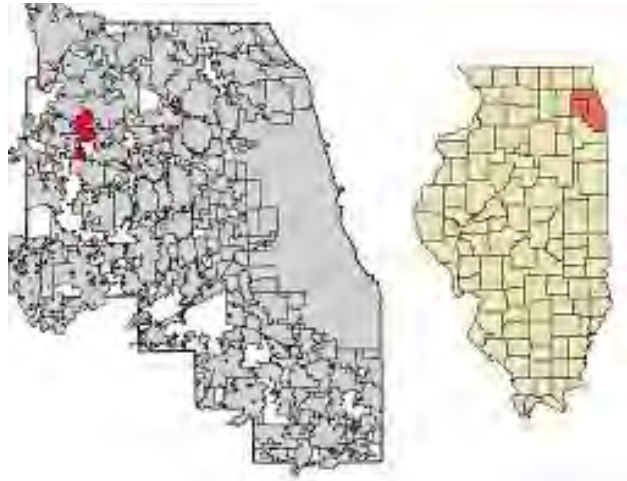
Aurora



Chicago Heights



Hanover Park



CHI Description and Outline

Year 1

- Select 10 students
  - Undergraduate and Graduate
- Select up to 30 community members
- Deliver 8 trainings on climate change and health
  - Academicians and Practitioners
- Match a pair of students with a municipality/MMC
- Evaluate

Year 2

- 5 pairs of students develop a project with an educational component for a municipality/MMC
  - Ie: ArcGIS StoryMap, heat or flooding maps of most susceptible neighborhoods, develop outreach plans, organize an event
- Disseminate the final project
  - Participating community members assist
- Share final products with cohort
- Evaluate

MORE
TO
COME
STAY
TUNED

THANK YOU!

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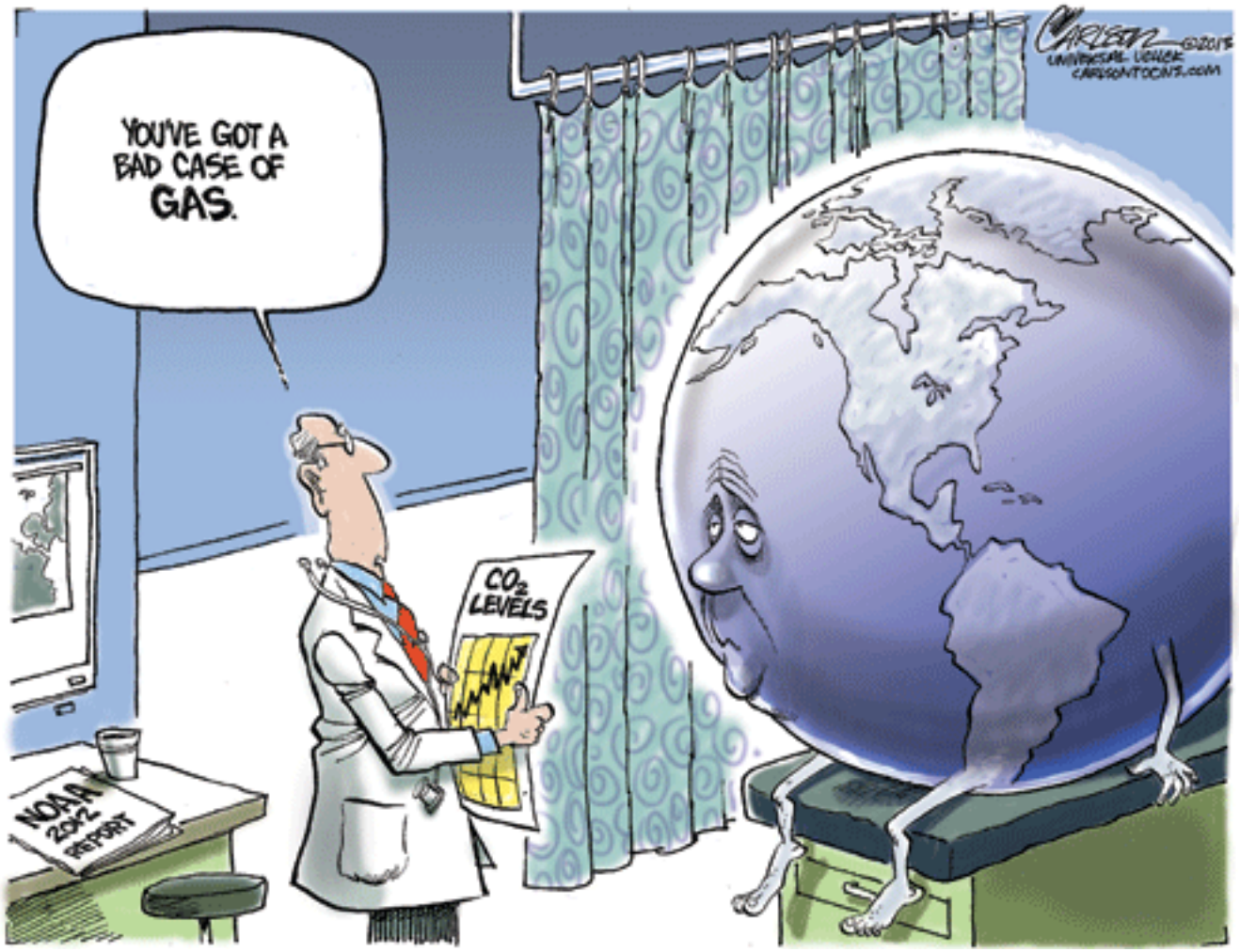

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