

Place, Space and Life Outcomes Infant Mortality and the Geography of Social Determinants

Presentation to the Ohio Commission on Infant Mortality

October 29, 2015

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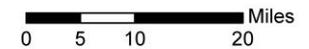
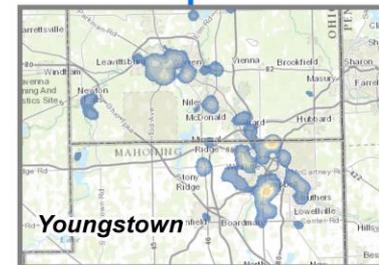
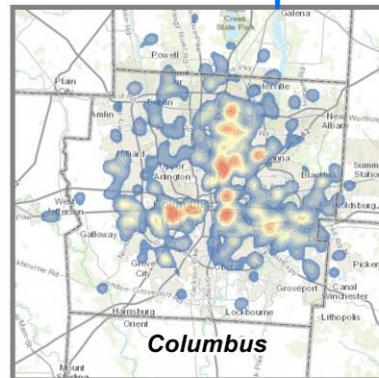
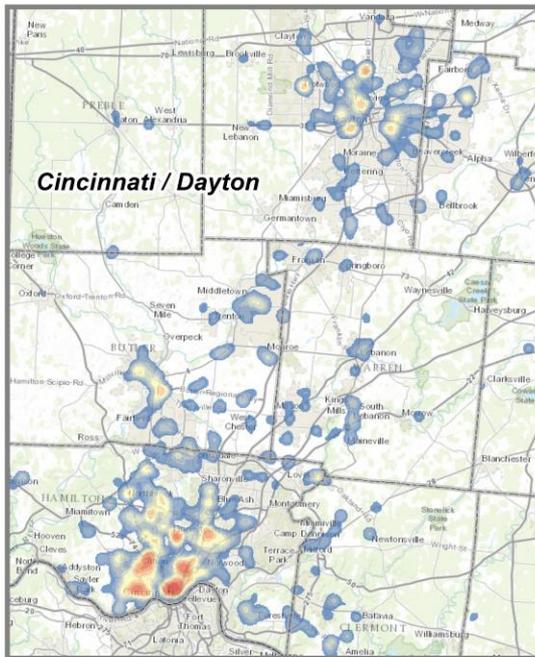
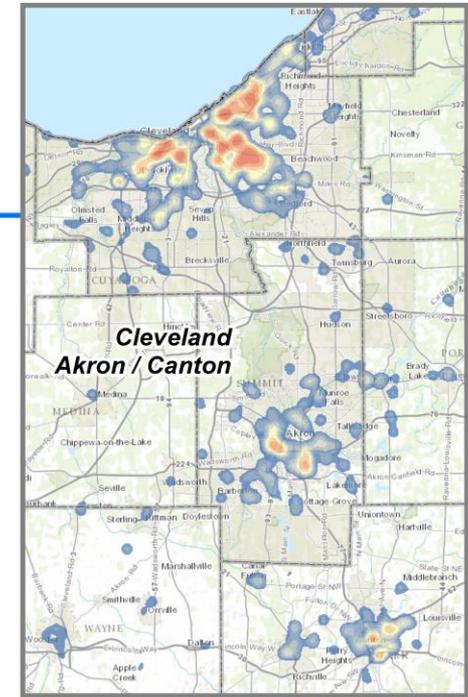
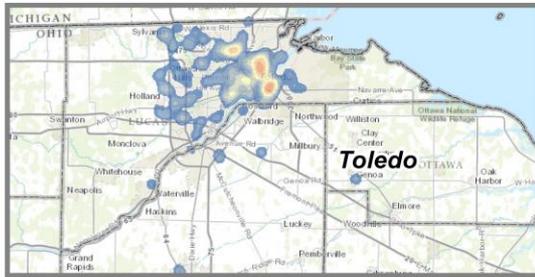
The Kirwan Institute for the Study of Race and Ethnicity, The Ohio State University



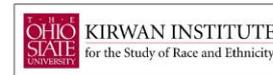
Our time together this afternoon:

- Mapping infant mortality (brief!)
- Social determinants of health: Kirwan's Opportunity Maps
- Correlation between IM and SD
- Implications for policy and practice





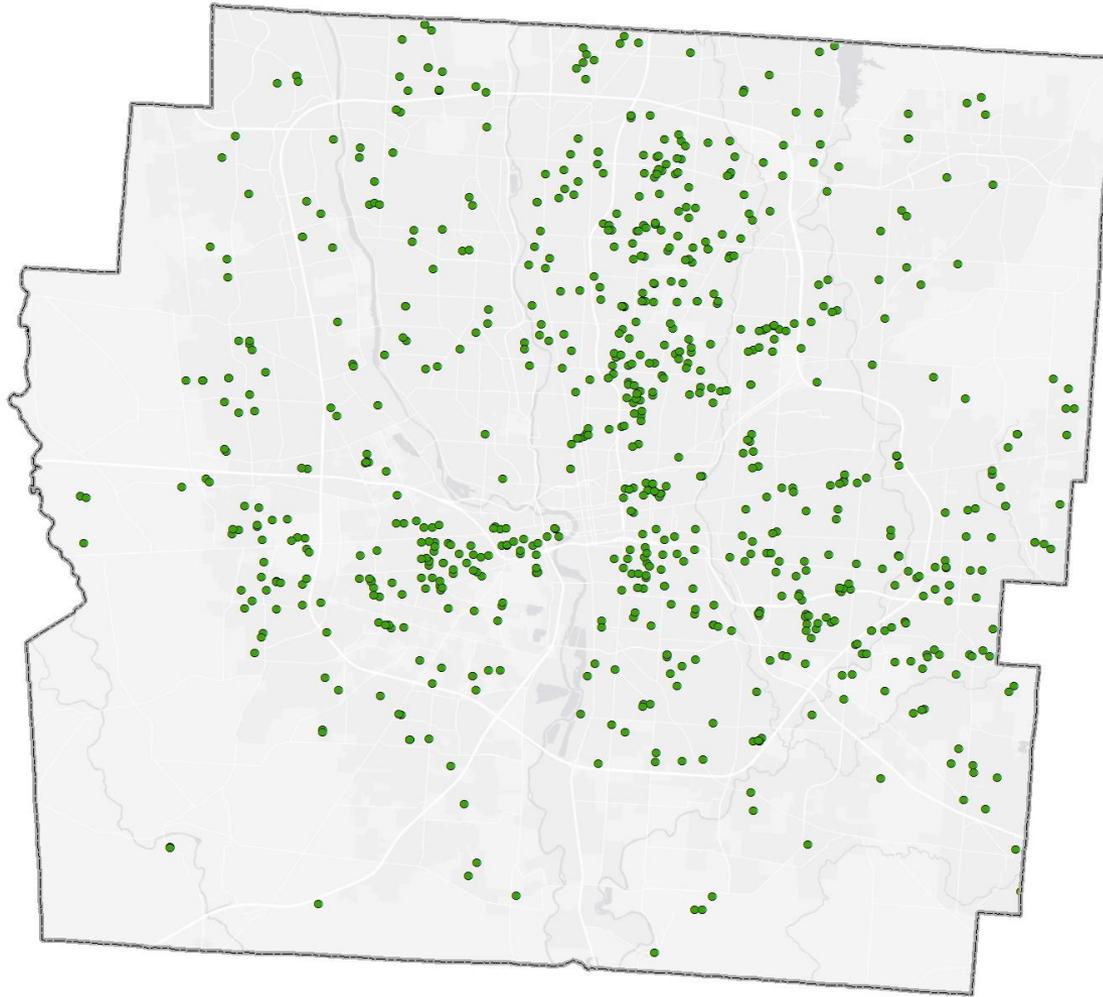
Infant Mortality Hotspots in Ohio, 2007-2011



City maps are drawn to the same geographic scale and use the same hotspot key, so hotspots can be compared across cities.

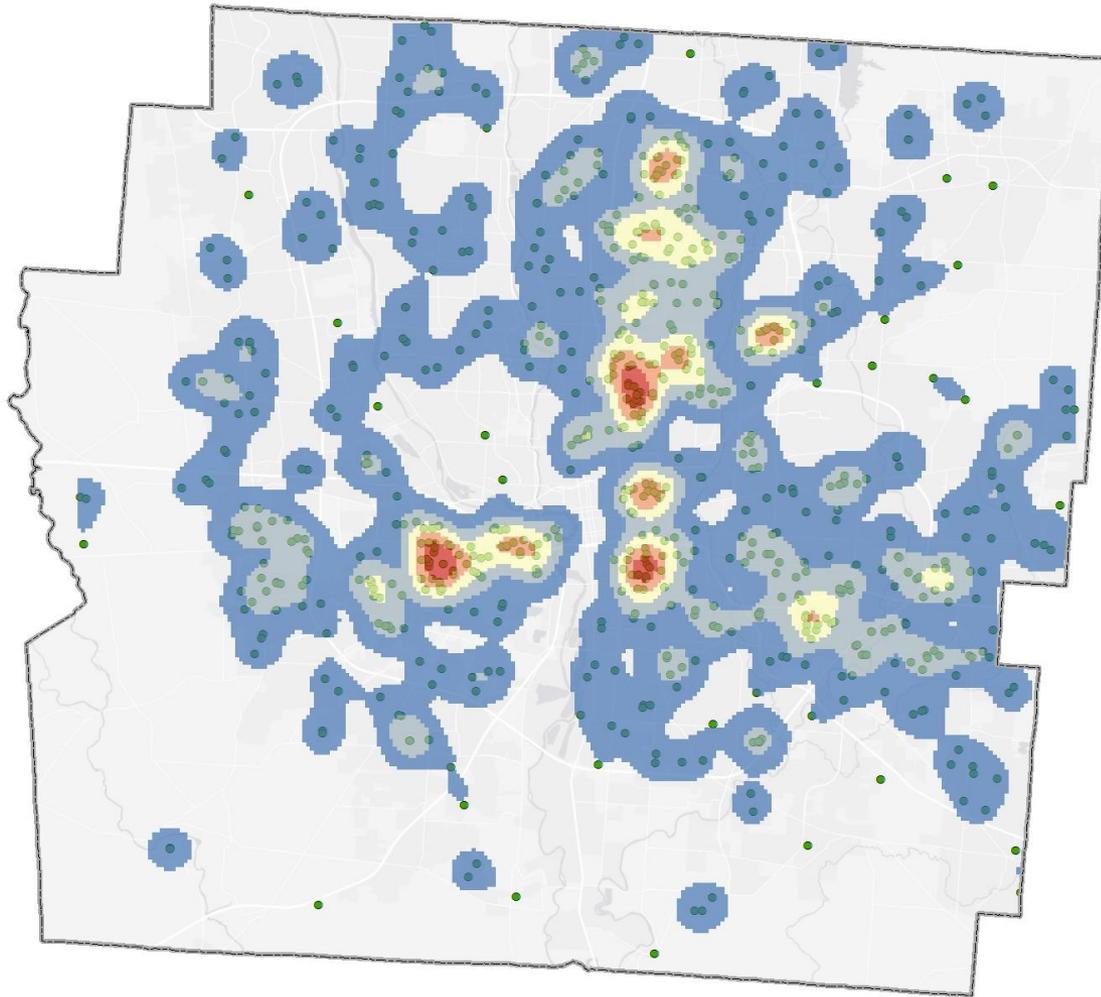
Source: Ohio Department of Health. Mortality Files, 2007-2011. Mapping by the Kirwan Institute.

Hotspotting Technique – Step 1: Plot Infant Deaths on the Map



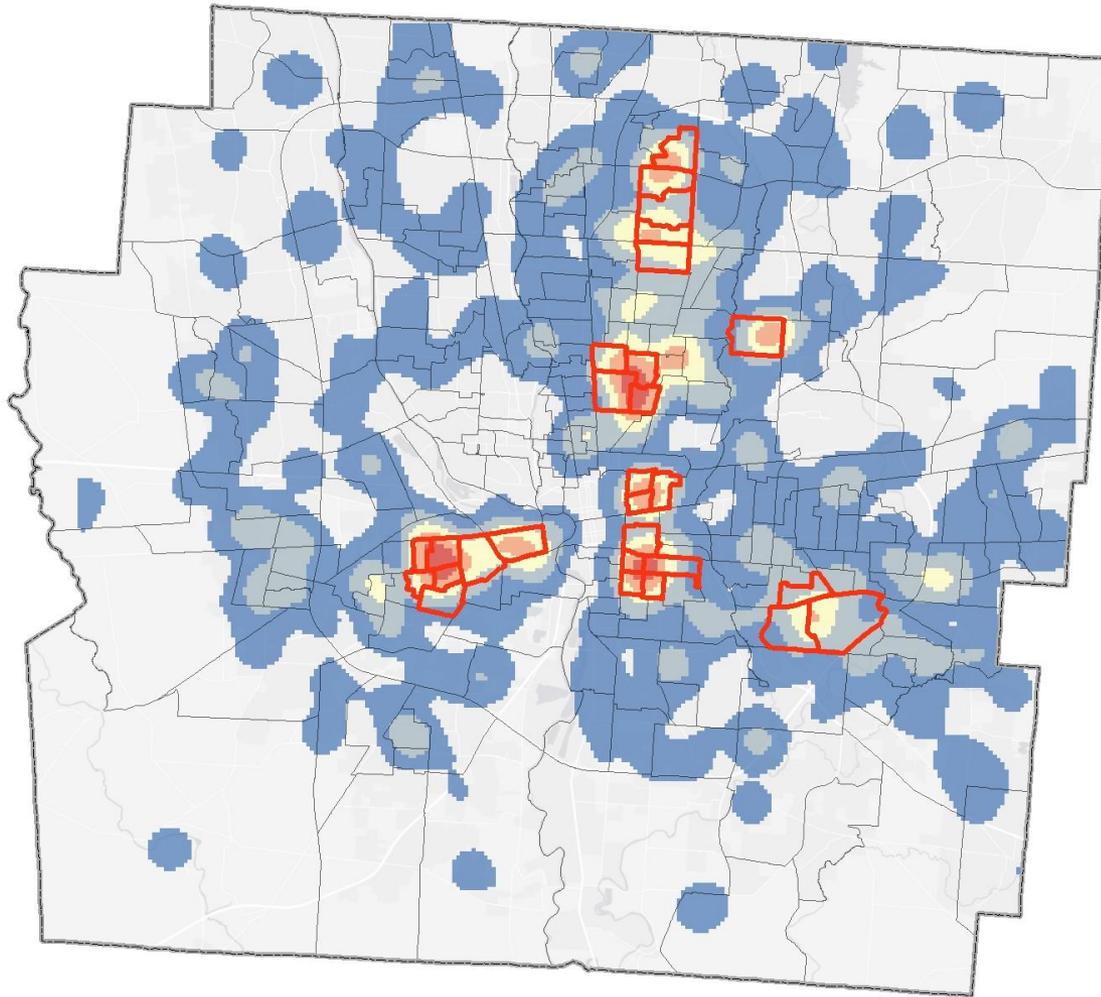
- Death certificate records from ODH, 2007-2011
- Plotted by mother's residence address
- All infant deaths, regardless of cause

Hotspotting Technique – Step 2: Dot-Density Analysis



- Preserves confidentiality
- More accurate than aggregating to census tracts, ZIP Codes
- Works best in urban / high-density areas

Hotspotting Technique – Step 3: Overlay Tracts for Demographics



- Allows alignment with social determinants data
- Some judgment required (art vs science)

Social Determinants: Space, Place, and Life Outcomes

- **Opportunity:** A situation or condition that places individuals in a position to be more likely to succeed or excel
- **Opportunity structures open pathways to success:**

- High-quality education
- Stable housing
- Sustainable employment
- Political empowerment
- Healthy and safe environment
- Options for wealth-building
- Positive social networks

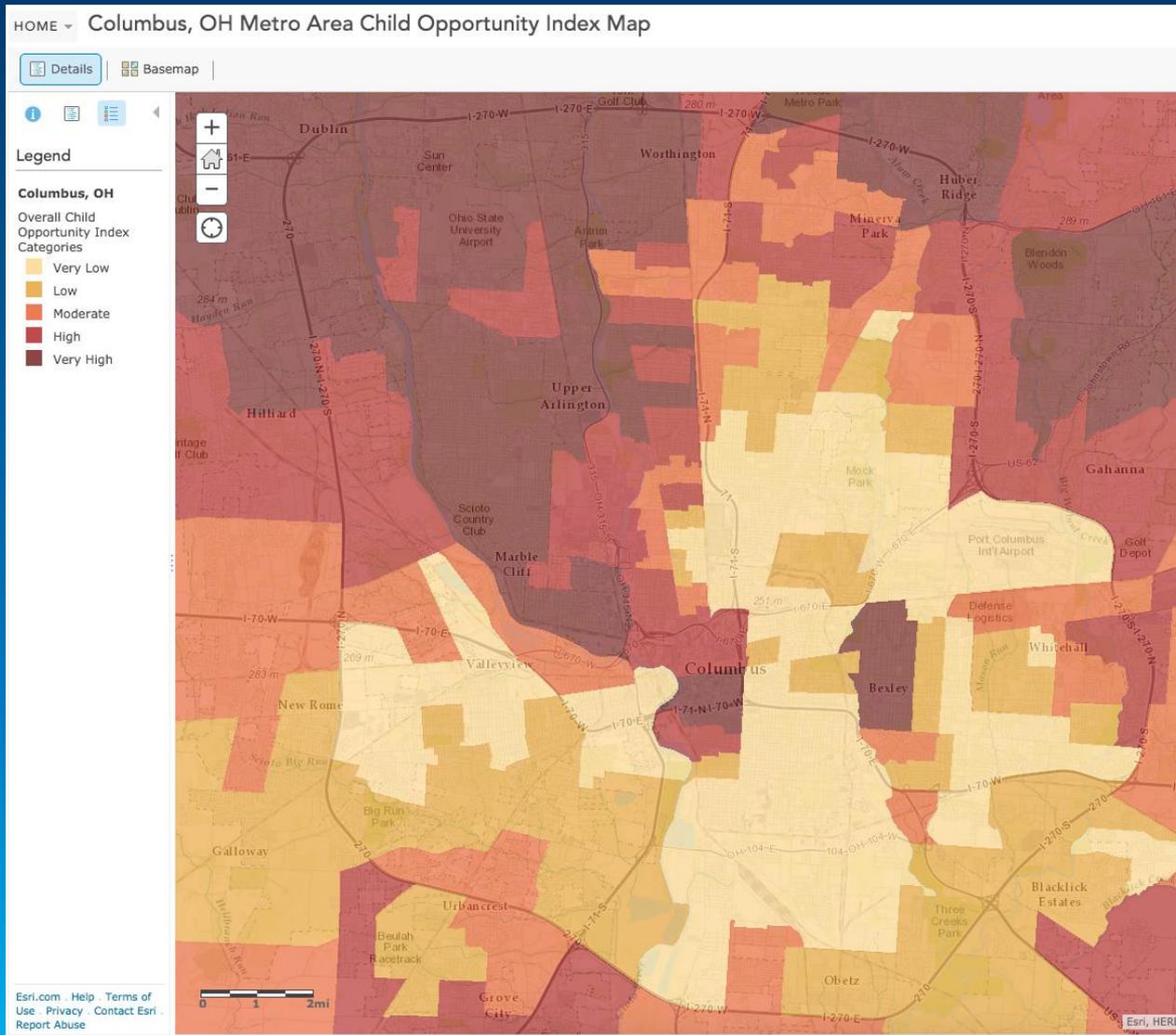
- **For our discussion, OPPORTUNITY = Social Determinants**





Kirwan's Opportunity Index*

Positive and Negative Neighborhood Influences on Well-Being

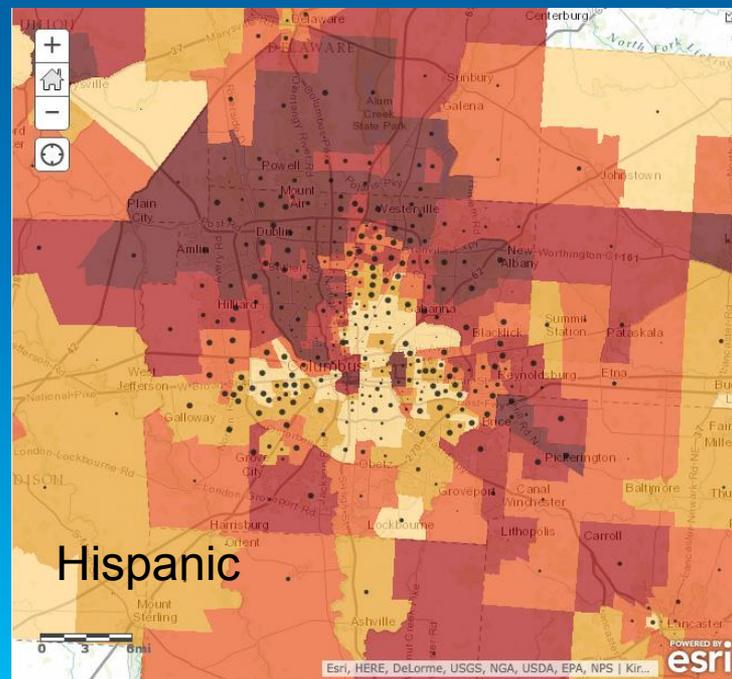
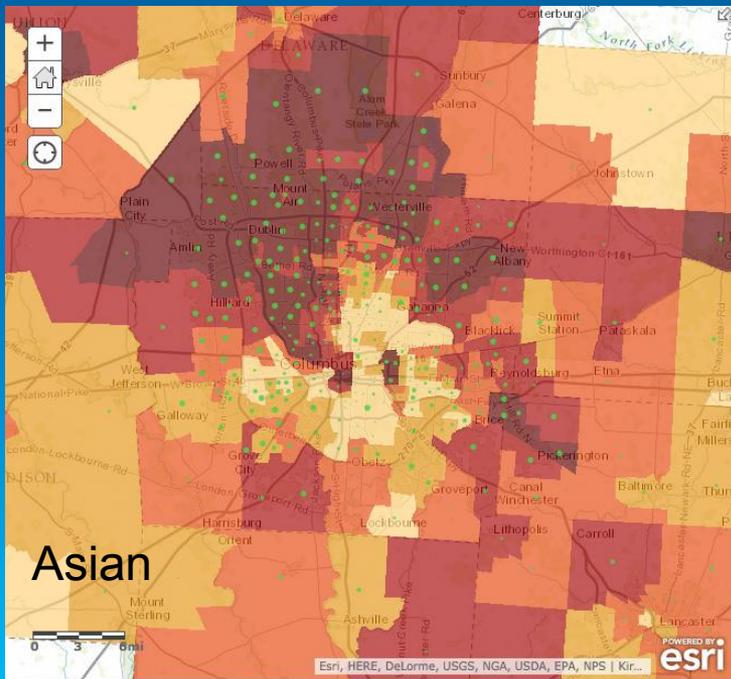
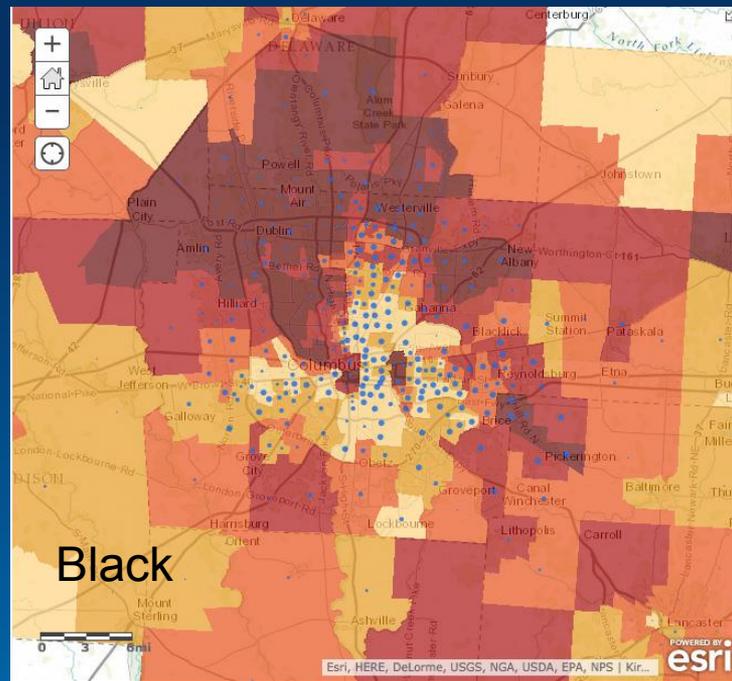
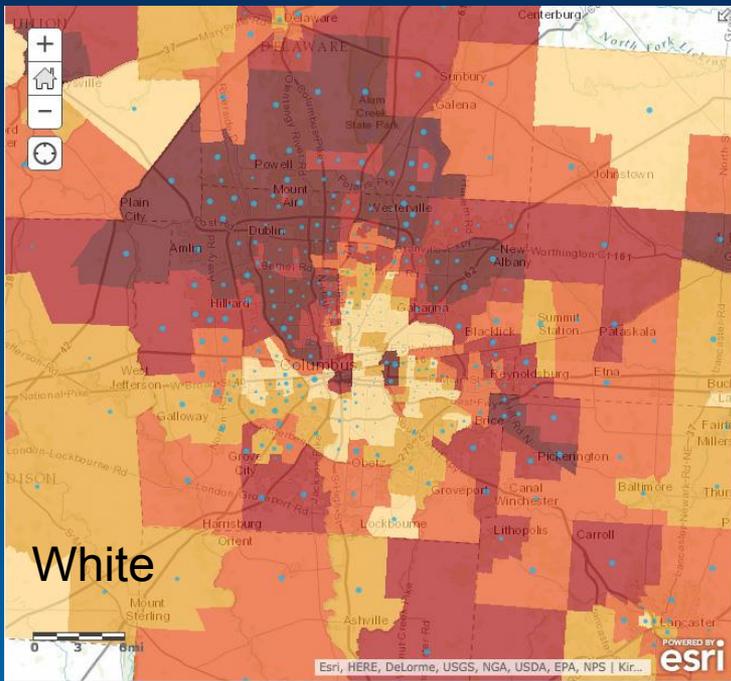


*Child Opportunity Index developed for DiversityDataKids.org

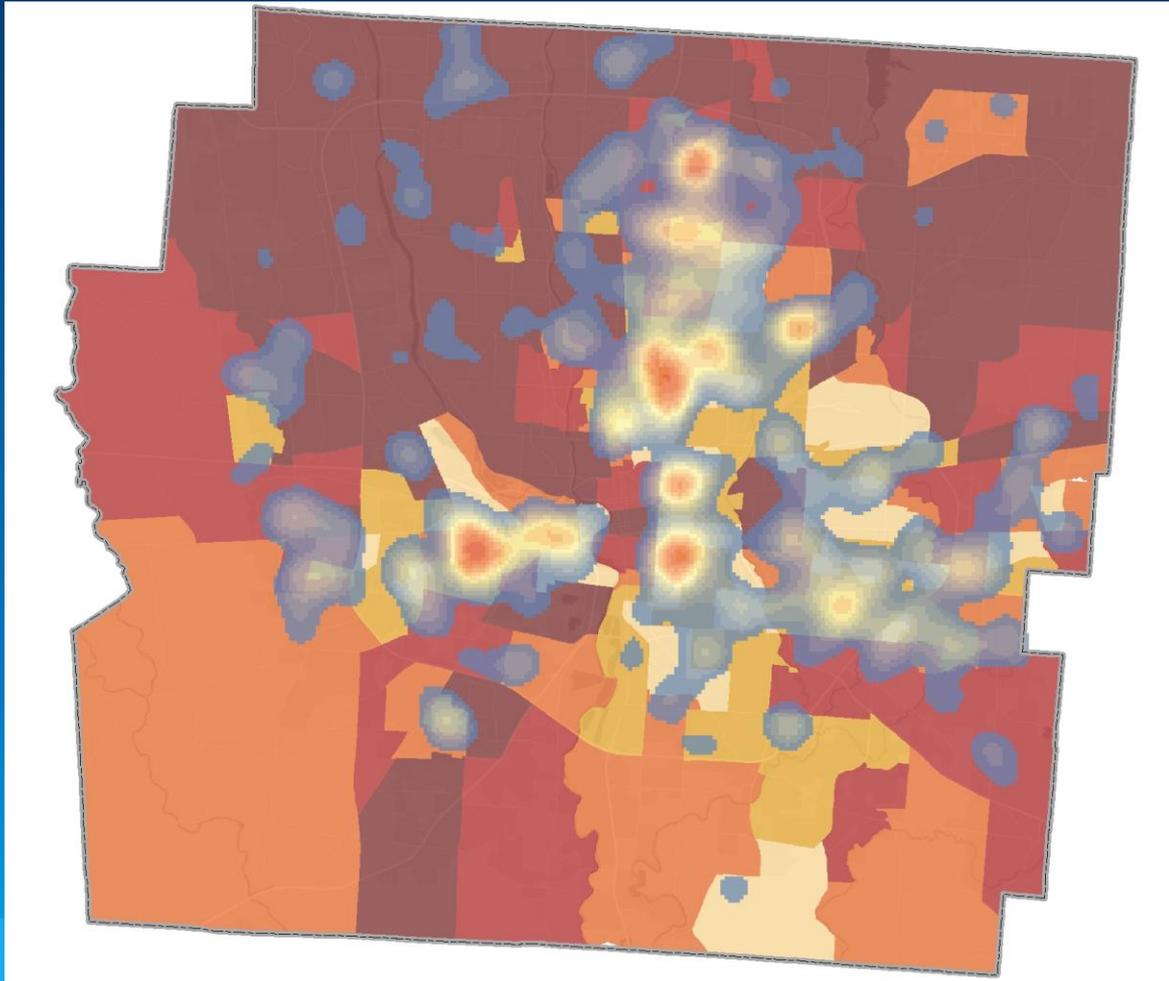
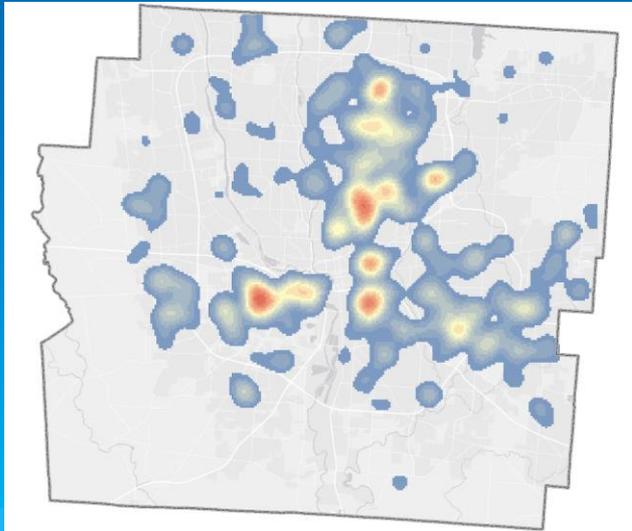
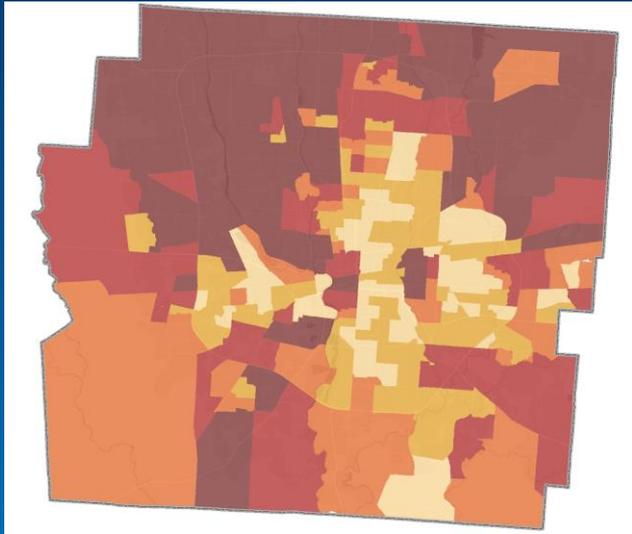
19 Indicators in the (Child) Opportunity Index

ALL Reflect Social Determinants of Health

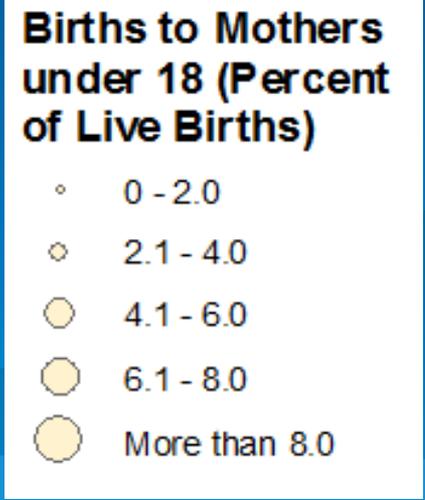
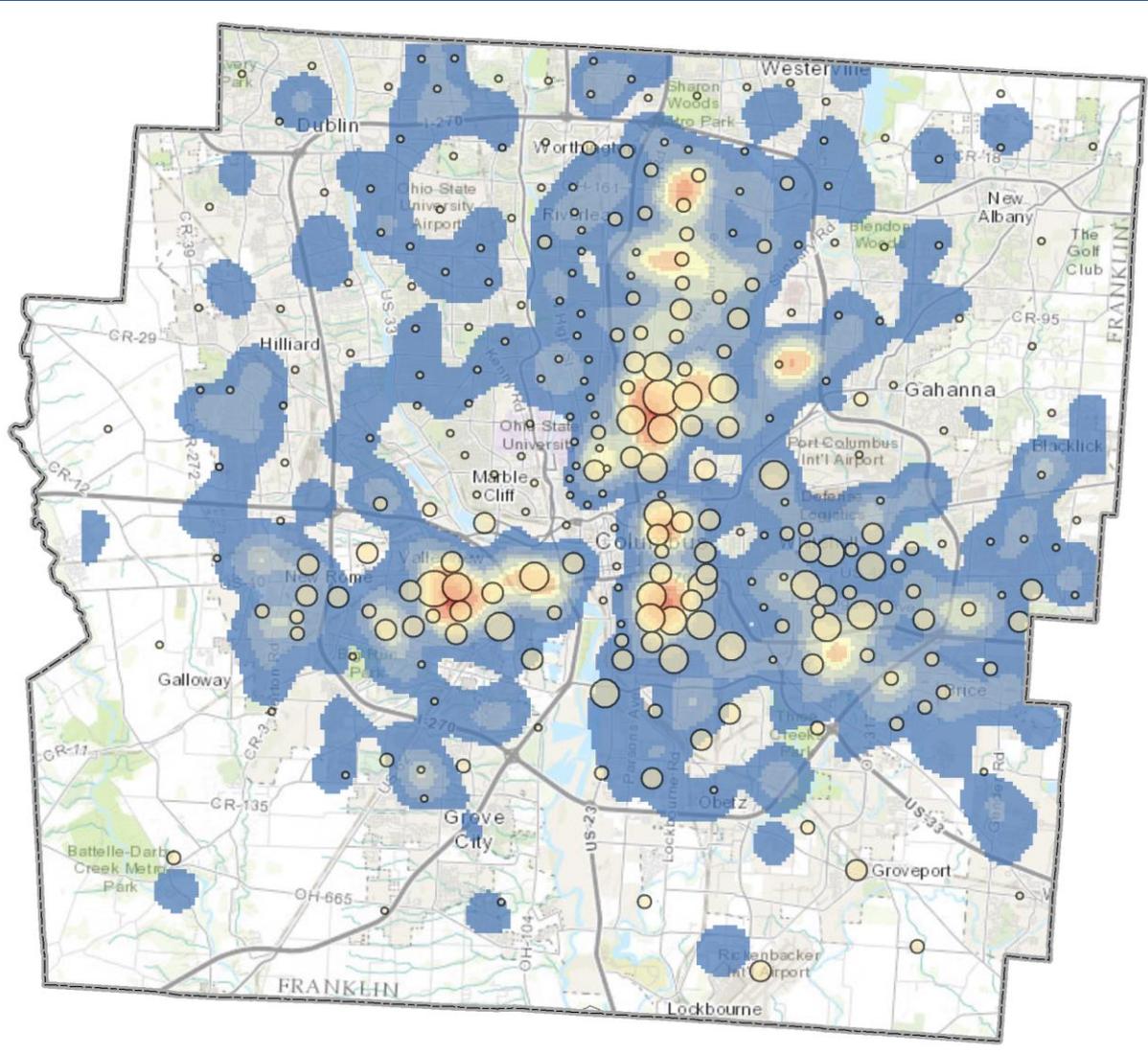
Educational Opportunity
• Student poverty rates in neighborhood schools (Free/Reduced Price Lunch Eligibility)
• Student math/reading proficiency levels
• Early childhood education (ECE) indicators: <ul style="list-style-type: none">• Proximity to licensed ECE centers and high-quality ECE centers• Participation patterns
• High school graduation rates
• Adult educational attainment
Health & Environmental Opportunity
• Proximity to health facilities
• Retail healthy food environment index
• Proximity to toxic waste release sites
• Volume of nearby toxic release
• Proximity to parks and open spaces
• Housing vacancy rates
Social & Economic Opportunity
• Foreclosure rates
• Poverty rates
• Unemployment rates
• Public assistance rates
• Proximity to employment



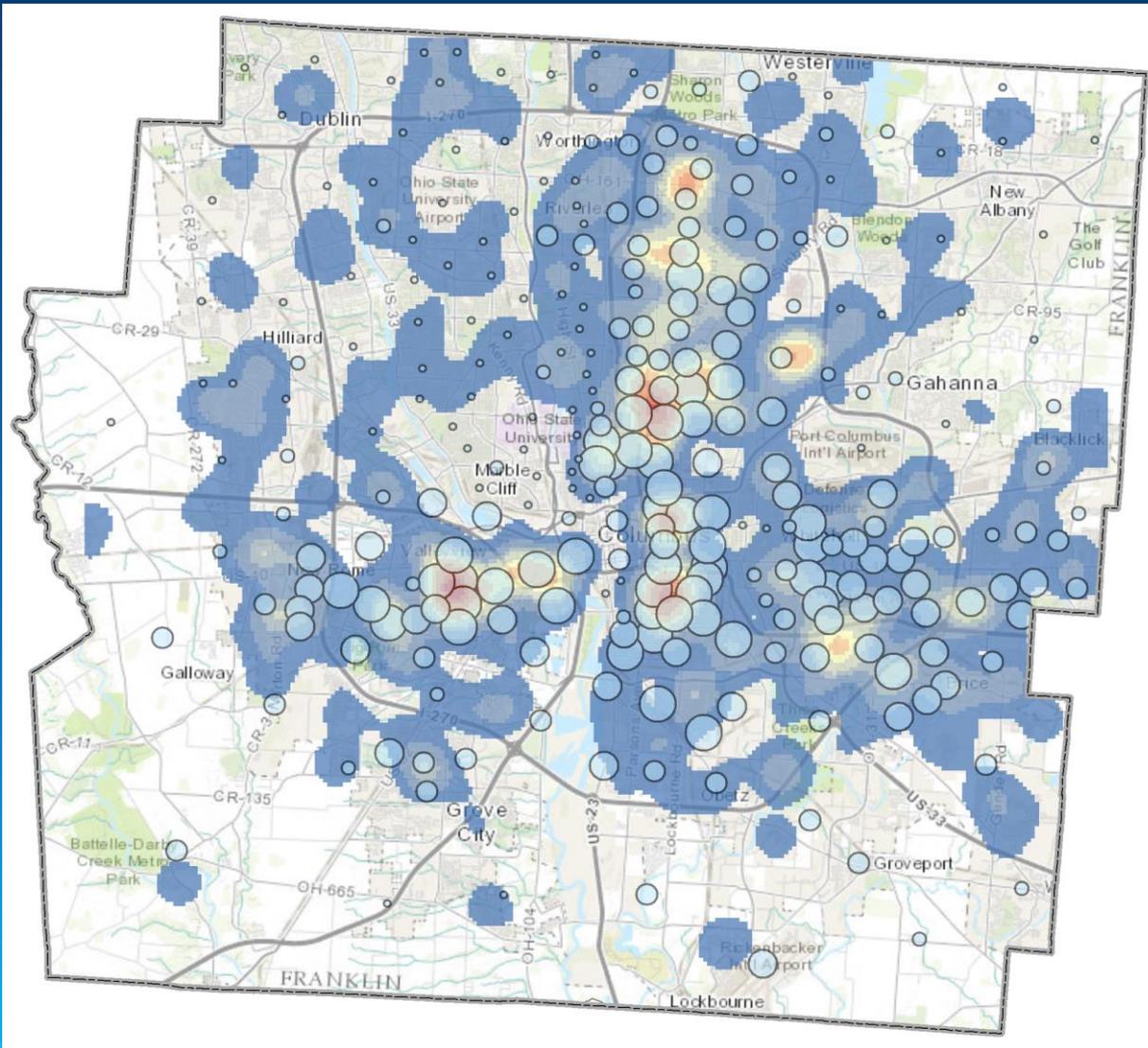
Infant Mortality and Opportunity (Social Determinants)



Infant Mortality and Other Birth Outcomes: Teen Births



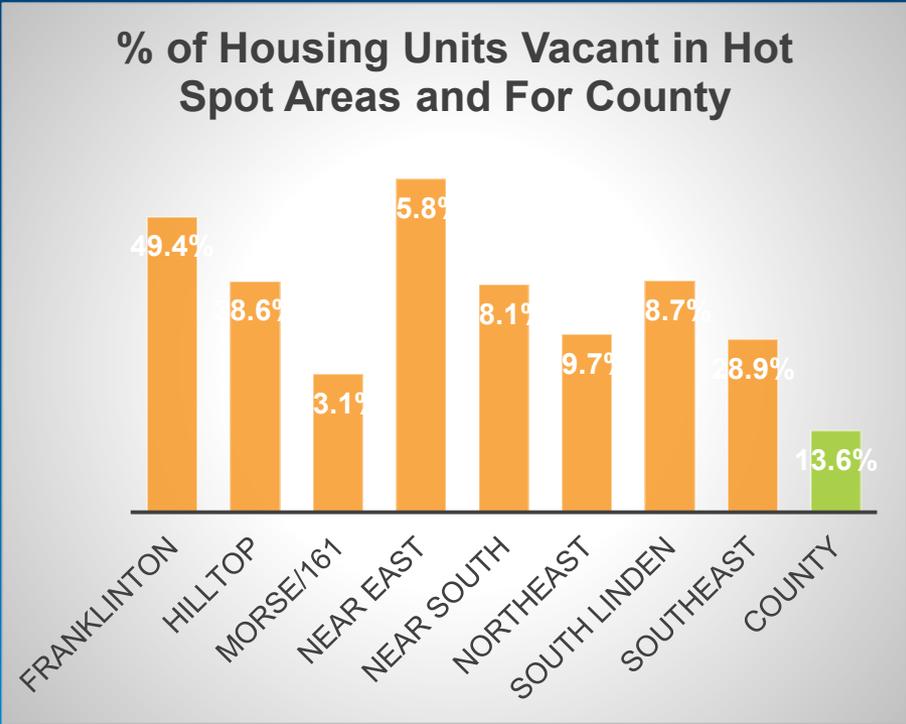
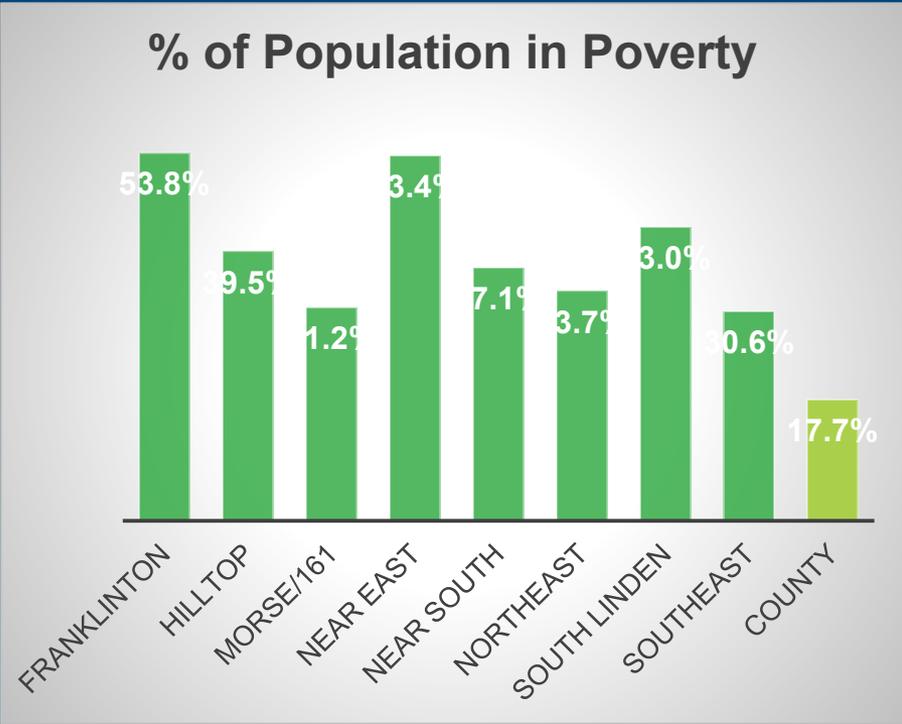
Infant Mortality and Policy: Medicaid Births



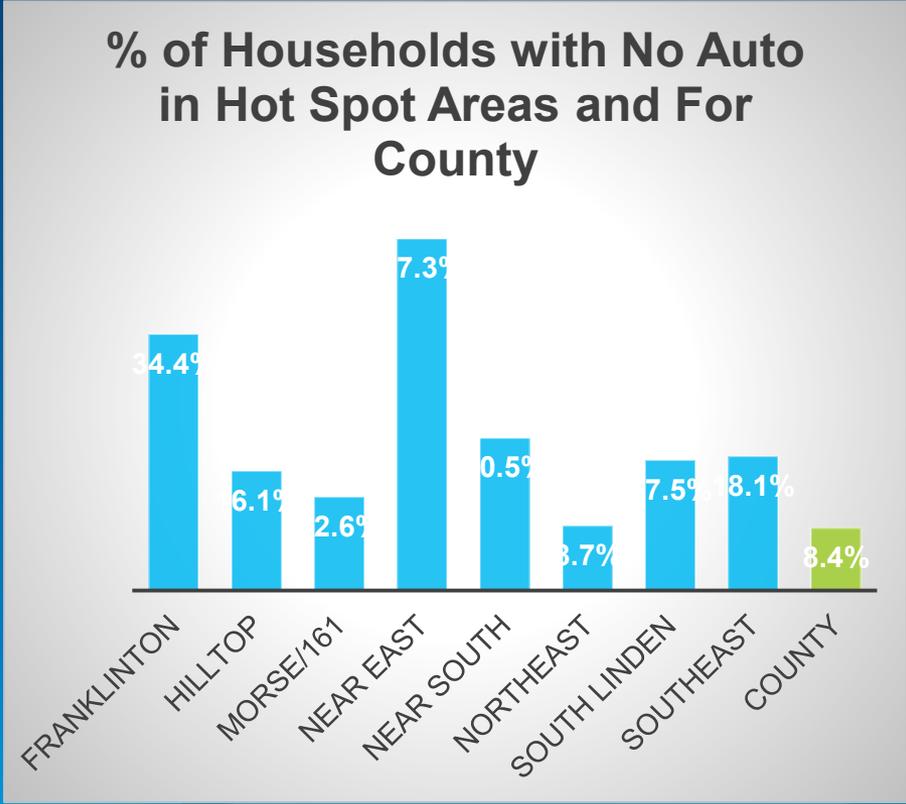
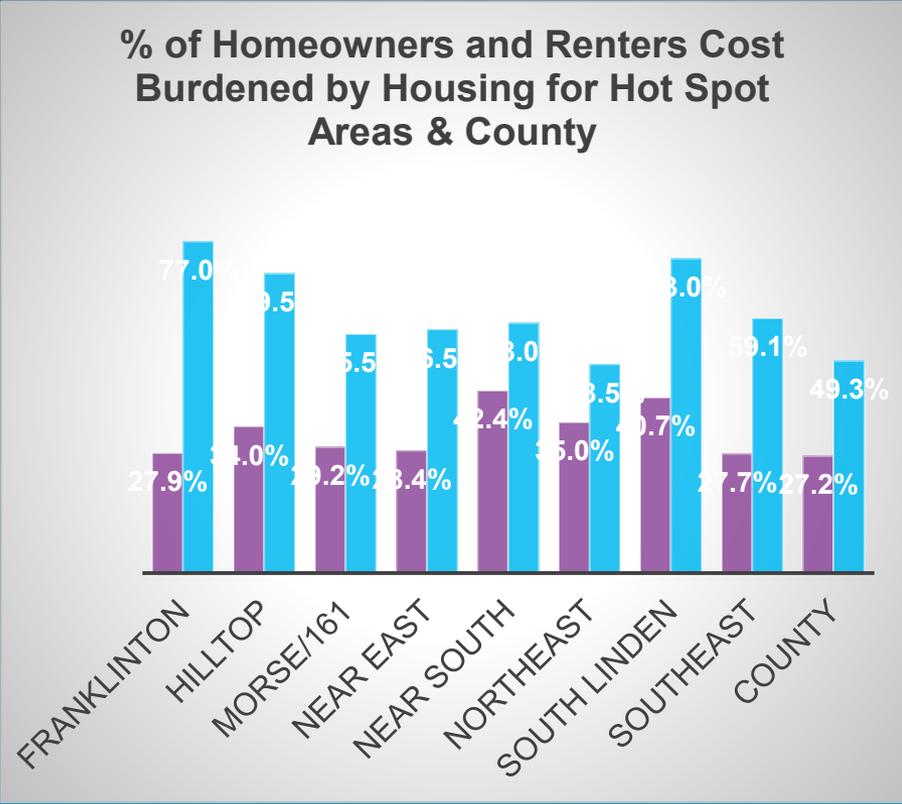
Births Paid by Medicaid (Percent of Live Births)

- 0 - 20.0
- 20.1 - 35.0
- 35.1 - 50.0
- 50.1 - 65.0
- Greater than 65

Hotspot Areas: Socioeconomics (Social Determinants)

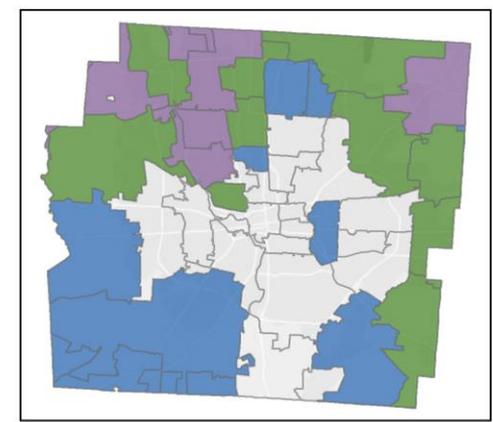
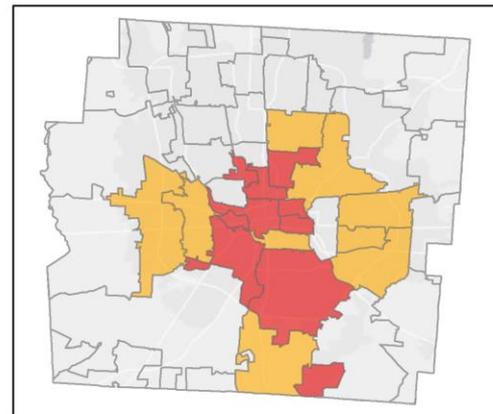
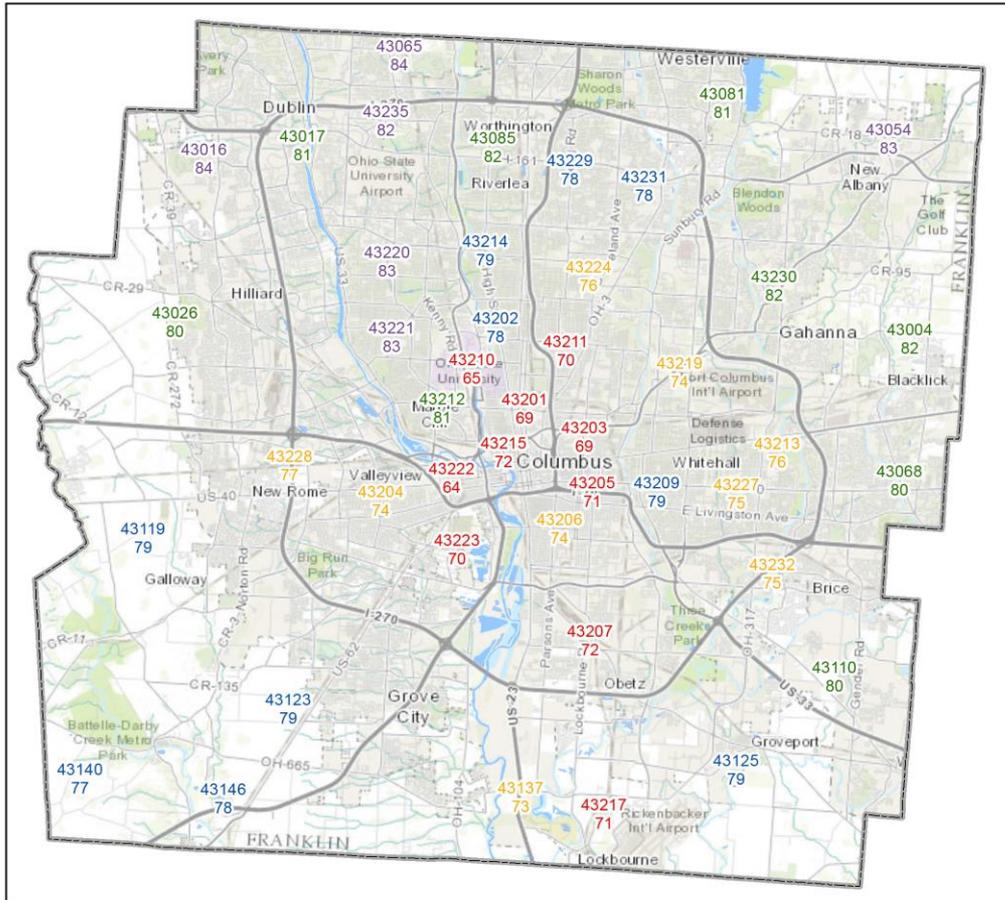


Hotspot Areas: Socioeconomics (Social Determinants)



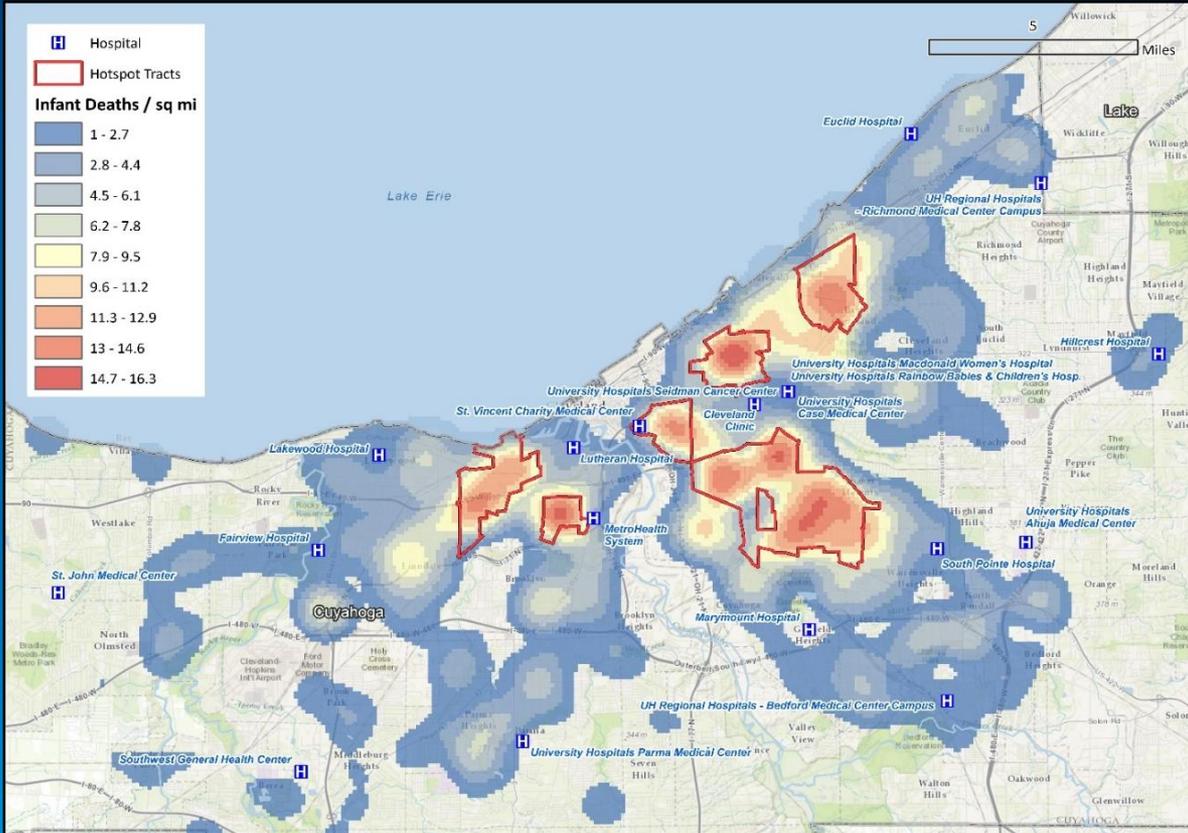
Life Expectancy: The Other End of the Life Course

Life Expectancy at Birth in Franklin County, by ZIP Code

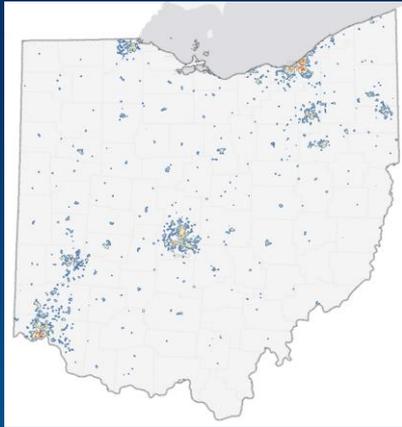


Source: Ohio Department of Health Vital Statistics, 2007-2011. Life expectancy calculations by The Kirwan institute.

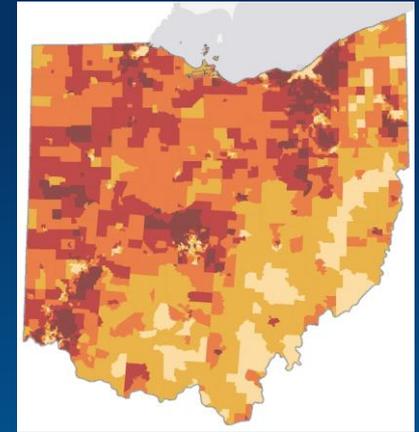
Cleveland - Areas with High Infant Mortality Also Exhibit:



- Higher rates of lead exposure
- Higher exposure to toxic waste release
- Higher poverty rates
- Higher vacant property rates
- Higher residential subprime loan rates
- Higher percentages of African Americans
- Lower life expectancy

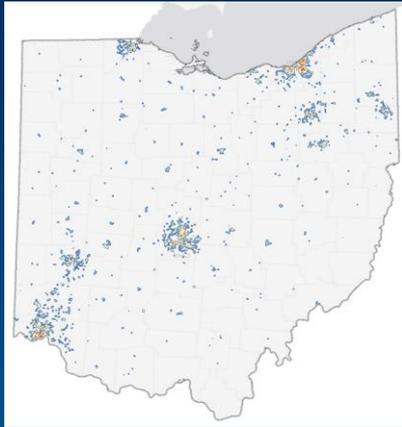


Why Is the Geography of Social Determinants Relevant?

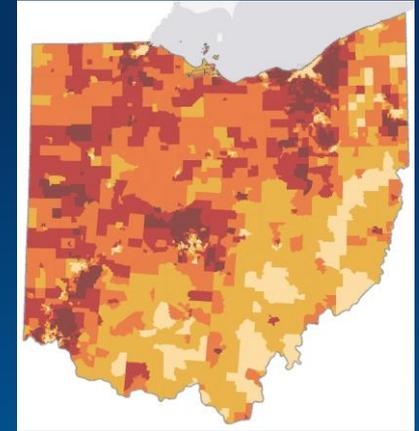


Implications: Upstream (Policy)

- Recognize policy's explicit role in shaping the health equity landscape
 - Policy must be a tool to revitalize communities
- Relationship between health outcomes and broader policy initiatives
 - **Extend the conversation beyond health interventions**
- Restorative investment in communities (policy-driven)



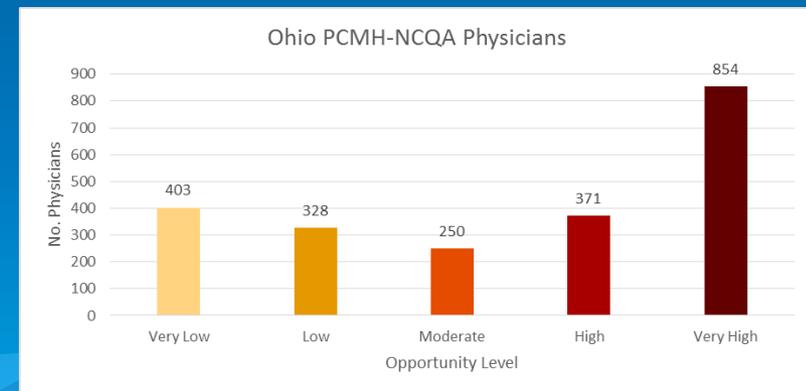
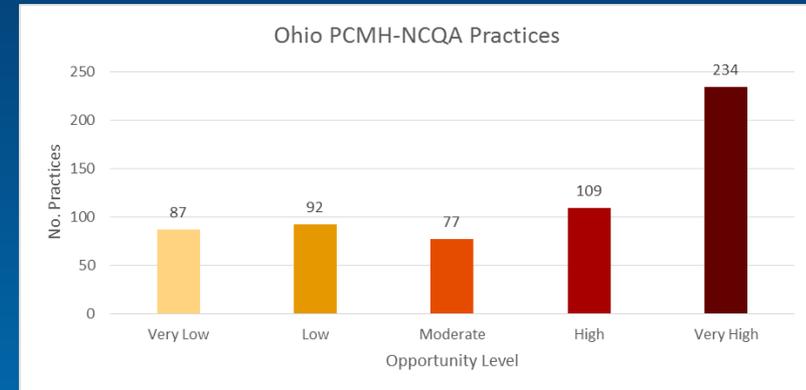
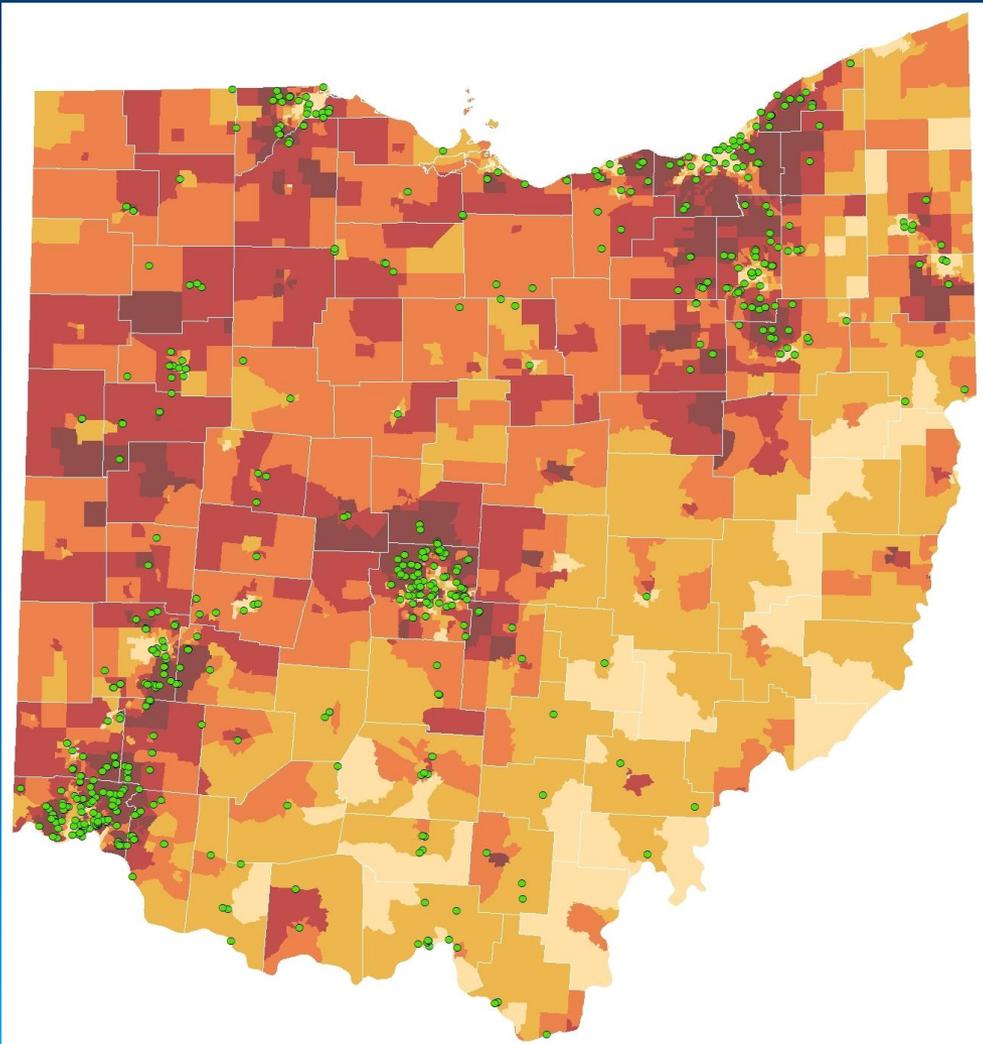
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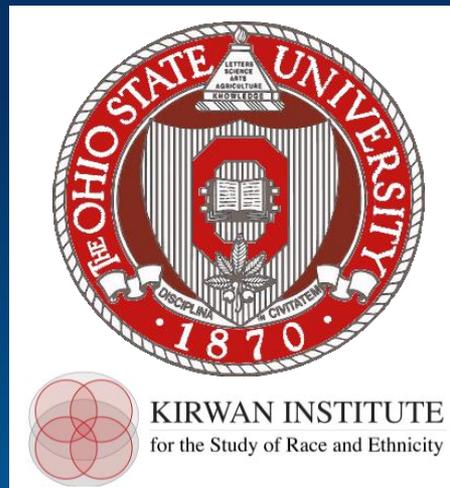


Implications: Downstream (Implementation)

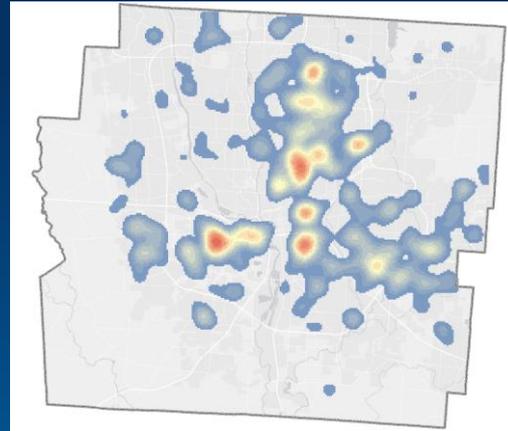
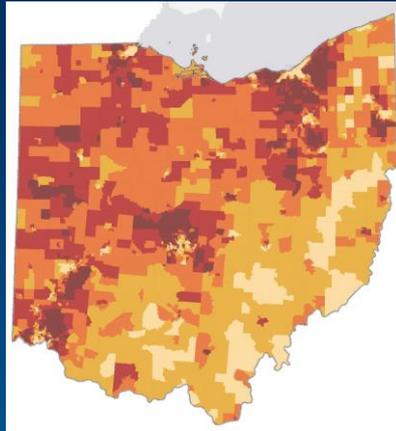
- Restorative investment in communities
- Tailoring interventions to a community's unique needs and culture
- Understanding a community's apprehension to interventions
- Context for the longevity of the health-equity challenges communities face

Example - Policy and Practice: Patient-Centered Medical Home Practices & Physicians





- **Jason Reece**
- **Mikyung Baek, PhD**
- **Matt Martin**
- **Yumi Choi**
- **So-young Lee**
- **Rory Weier**
- **Kelsey Mailman**
- **Many, many other students and GRAs!**



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