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.

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**

<table>
<thead>
<tr>
<th>Educational Opportunity</th>
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<tbody>
<tr>
<td>• Student poverty rates in neighborhood schools (Free/Reduced Price Lunch Eligibility)</td>
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<tr>
<td>• Student math/reading proficiency levels</td>
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<td>• Early childhood education (ECE) indicators:</td>
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<td>• Proximity to licensed ECE centers and high-quality ECE centers</td>
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<tr>
<td>• Participation patterns</td>
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<td>• High school graduation rates</td>
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<td>• Adult educational attainment</td>
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<th>Health &amp; Environmental Opportunity</th>
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<tr>
<td>• Proximity to health facilities</td>
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<tr>
<td>• Retail healthy food environment index</td>
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<tr>
<td>• Proximity to toxic waste release sites</td>
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<tr>
<td>• Volume of nearby toxic release</td>
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<tr>
<td>• Proximity to parks and open spaces</td>
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<td>• Housing vacancy rates</td>
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<th>Social &amp; Economic Opportunity</th>
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<tbody>
<tr>
<td>• Foreclosure rates</td>
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<td>• Poverty rates</td>
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<tr>
<td>• Unemployment rates</td>
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<tr>
<td>• Public assistance rates</td>
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<tr>
<td>• Proximity to employment</td>
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Infant Mortality and Opportunity (Social Determinants)
Infant Mortality and Other Birth Outcomes: Teen Births
Infant Mortality and Policy: Medicaid Births
Hotspot Areas: Socioeconomics (Social Determinants)

% of Population in Poverty

- Franklin: 53.8%
- Hilltop: 39.5%
- Morse/161: 1.2%
- Near East: 7.1%
- Near South: 3.7%
- South Linden: 5.6%
- Southeast: 17.7%
- County: 30.6%

% of Housing Units Vacant in Hot Spot Areas and For County

- Franklin: 49.4%
- Hilltop: 8.6%
- Morse/161: 3.1%
- Near East: 8.1%
- Near South: 9.7%
- Northeast: 8.7%
- South Linden: 8.9%
- Southeast: 13.6%
- County: 17.7%
Hotspot Areas: Socioeconomics (Social Determinants)

% of Homeowners and Renters Cost Burdened by Housing for Hot Spot Areas & County

% of Households with No Auto in Hot Spot Areas and For County

KIRWAN INSTITUTE for the Study of Race and Ethnicity
Life Expectancy: The Other End of the Life Course

Life Expectancy at Birth in Franklin County, by ZIP Code

Ages

Toledo - Infant Mortality, Housing Quality, and Risk of Lead Poisoning

Opportunity (Social Determinants)

Assessed Value

Children Lead-Poisoned (ODH Est.)
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)
Why Is the Geography of Social Determinants Relevant?

**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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