Connecting Concentrated Disadvantage and Birth Outcomes to Enhance Program Targeting

Amanda Bennett, PhD
CDC Assignee in MCH Epidemiology
IDPH Office of Women’s Health & Family Services
Using Local Level Data for Program Targeting

• Ideally, public health programs would be targeted to communities with high rates of adverse outcomes

• Often, local level data on health outcomes are:
  – **Unavailable** due to limitations of data sources & surveillance systems
  – **Unreliable** due to small sample sizes

• In the absence of local data, programs may rely on state or regional data
Concentrated Disadvantage (CD)

• Individual measures of poverty or income do not capture the synergistic effects of factors that cluster together to create disadvantaged communities

• Concentrated disadvantage (CD) is one of 59 “life course indicators” developed by the Association of Maternal and Child Health Programs (AMCHP)

• CD measures community economic strength by combining data from five census variables
Study Goals

• Calculate CD at the county level for Illinois

• Examine the relationship between county-level CD and birth outcomes to determine whether CD is a reasonable proxy to inform geographical targeting of MCH programs
METHODS
Concentrated Disadvantage (CD)

• Used 2010 Census and 2008-2012 American Community Survey (ACS) data for Illinois counties
  – % individuals 16+ yrs old who were unemployed
  – % individuals living in poverty
  – % individuals living in households receiving public assistance
  – % households that are female-headed
  – % individuals that are under 18 years old
Concentrated Disadvantage (CD)

- State average for each variable determined
- Z-scores calculated for each county for each variable to determine deviation from state average
- Five z-scores in each county averaged to get CD z-score
- County CD z-score divided into four quartiles to indicate level of disadvantage
MCH Indicators

• Data Sources:
  – Birth Certificates (2010)
  – Death Certificates (2009-2011)
  – Census population estimates (2010)

• Indicators:
  – % births that were low birth weight (<2500g)
  – % births that were very low birth weight (<1500g)
  – Infant mortality rate (per 1,000 births)
  – % births to women receiving less than adequate prenatal care
  – Teen birth rate (per 1,000 women 15-19 years old)
RESULTS
The 10 Most Disadvantaged Counties in Illinois:

- Alexander
- Cook
- Kankakee
- Macon
- Marion
- Pulaski
- Saline
- St. Clair
- Vermillion
- Winnebago
CD & Low / Very Low Birth Weight

Level of Disadvantage
(compared to state average)

- Low Disadvantage
- Low-Medium Disadvantage
- Medium-High Disadvantage
- High Disadvantage

**LBW**
- Low Disadvantage: 7.0%
- Low-Medium Disadvantage: 7.4%
- Medium-High Disadvantage: 7.6%
- High Disadvantage: 8.8%

**VLBW**
- Low Disadvantage: 1.1%
- Low-Medium Disadvantage: 1.3%
- Medium-High Disadvantage: 1.4%
- High Disadvantage: 1.6%

IDPH - Illinois Department of Public Health
CD & Infant Mortality

IMR Rate per 1,000 births

Level of Disadvantage
(compared to state average)

- Low Disadvantage
- Low-Medium Disadvantage
- Medium-High Disadvantage
- High Disadvantage
CD & Not Adequate Prenatal Care

% Births

Less Than Adequate PNC

Level of Disadvantage (compared to state average)

- Low Disadvantage
- Low-Medium Disadvantage
- Medium-High Disadvantage
- High Disadvantage

IDPH
ILLINOIS DEPARTMENT OF PUBLIC HEALTH
CD & Teen Birth

Teen Birth Rate

Rate per 1,000 women aged 15-19

Level of Disadvantage
(compared to state average)

Low Disadvantage
Low-Medium Disadvantage
Medium-High Disadvantage
High Disadvantage
Summary of Findings

• In general, the prevalence of the five MCH indicators increased with increasing quartile of county-level CD

• For all five outcomes, the prevalence among high CD counties was significantly higher than low CD counties
CONCLUSIONS & IMPLICATIONS
Conclusions

• High county-level concentrated disadvantage was associated with all five MCH indicators

• CD may be useful for targeting MCH programs in the absence of local data

• Calculating and using CD at the census tract level may help allocate resources and programs within a county or within a city
QUESTIONS?

amanda.c.bennett@illinois.gov