Evaluating the Quality of Community Level Studies and Other Miscellaneous Topics

Arleen F. Brown, MD, PhD
UCLA Division of GIM & HSR

Comparative Effectiveness Research
CTSI Clinical Research Development Seminars
January 23, 2013
I have not conflicts of interest to disclose.
Session Objectives

- What to consider in evaluating an analysis of neighborhoods and health
- Review of MTO Study
- Sample listing of databases that have geocoded data
What to Consider in Evaluating an Analysis of Neighborhoods and Health

- Is the study hypothesis driven? Are the mechanisms plausible?
- How is neighborhood defined?
  - Aggregate versus individual census measures
  - Spatial/Physical characteristics (e.g. # of parks; walkability measured by alpha/gamma indices; etc.) – observed (insider/outsider) versus
- Is the spatial scale appropriate (e.g. MSAs for clinical or segregation characteristics)
- Is the dependent variable appropriately measured?
- Cumulative and Lagged effects
  - Cross-sectional (common) vs. longitudinal vs. expt’l (rare)
  - Data on neighborhood change / participant mobility
- Causal inference
  - Propensity scores / Instrumental variables
Moving to Opportunity and Tranquility (MTO): A Randomized Social Experiment of Neighborhoods and Diabetes

BACKGROUND:
- Hypothesized from the observational data that neighborhood characteristics might influence health
  - Built environment, health care providers, safety, social norms may all contribute to prevention and management of chronic conditions
- Housing and Urban Development (HUD) demonstration project to understand the social and health outcomes on families of leaving poverty areas.
- “Poverty area” is proxy for large number of neighborhood attributes

Ludwig et al., NEJM, 2012
Moving to Opportunity and Tranquility (MTO): A Randomized Social Experiment of Neighborhoods and Diabetes

SETTING: Randomized housing mobility experiment
- Residents of public housing projects (>40% poverty) in 5 cities (Baltimore, Boston, Chicago, Los Angeles, New York City)

INTERVENTION:
- 3 Conditions:
  - Experimental - voucher only valid in low poverty areas
  - Section 8 - voucher without geographic restriction
  - Control - No vouchers
- >12-year follow-up of 4498 families
- 85% African American or Latina women with children

RESULTS: Experimental group:
- less likely to reside in high poverty areas
- had 13% lower rate of obesity (BMI>35)
- had 22% lower rate of diabetes

Ludwig et al., NEJM, 2012
Moving to Opportunity and Tranquility (MTO):

SETTING:
- Residents of public housing projects (>40% poverty) in 5 cities (Baltimore, Boston, Chicago, Los Angeles, New York City)

INTERVENTION:
- Randomization to one of three conditions:
  - Experimental - voucher only valid in low (<10%) poverty areas in 1990 + short term counseling on housing search
  - Section 8 - voucher without geographic restriction
  - Control - No vouchers
- >12-year follow-up of 4498 families
- 85% African American or Latina women with children

Ludwig et al., NEJM, 2012
Moving to Opportunity and Tranquility (MTO):

MEASUREMENTS AND ANALYSES:
- Baseline (1994-1998) and follow up (2008-2010) surveys
- One adult from each family that received low-poverty vouchers and the control group and a randomly selected two thirds of the families in the Section 8 group.
- BMI assessed by measured height and weight
- Diabetes assessed with blood spot analysis to measure A1c

Ludwig et al., NEJM, 2012
Moving to Opportunity and Tranquility (MTO):

RESULTS:

- At 10-15 years follow up, the Experimental group:
  - less likely than the control group to reside in high poverty areas (though this difference decreased over time)
  - had 13% lower rate of obesity (BMI>35) – 31.1% vs. 35.5%
  - had 22% lower rate of diabetes (A1c>6.5) – 14.4% vs. 17.7%

- Possible mechanisms:
  - Higher reported collective efficacy
  - Higher rates of feeling safe
  - Higher rates of having a friend who graduated from college
  - No difference in access to local health care services

Ludwig et al., NEJM, 2012
LIMITATIONS:
- Volunteers to study may not have been representative of populations of these cities
- Loss to follow up
- A1c measurement – did not include those with diabetes who may have been successfully treated
- Limited health information at baseline

CONCLUSIONS
- Clinical, public health, and policy implications for obesity and diabetes prevention and potentially management

CONCERN
- What about people who did not / could not leave the high poverty neighborhoods

Ludwig et al., NEJM, 2012
Moving to Opportunity and Tranquility (MTO): A Randomized Social Experiment of Neighborhoods and Diabetes

**SETTING:** Randomized housing mobility experiment
- Residents of public housing projects (>40% poverty) in 5 cities (Baltimore, Boston, Chicago, Los Angeles, New York City)

**INTERVENTION:**
- 3 Conditions:
  - Experimental - voucher only valid in low poverty areas
  - Section 8 - voucher without geographic restriction
  - Control - No vouchers
- >12-year follow-up of 4498 families
- 85% African American or Latina women with children

**RESULTS:** Experimental group:
- less likely to reside in high poverty areas
- had 13% lower rate of obesity (BMI>35 )
- had 22% lower rate of diabetes

Ludwig et al., *NEJM*, 2012
Datasets with Geocoded Elements

- Atherosclerotic Risk in Communities (ARIC)
- California Health Interview Study (CHIS)
- Cardiovascular Health Study (CHS)
- Hispanic Community Health Study- Study of Latinos (HCHS- SOL)
- Jackson Heart Study (JHS)
- Look AHEAD (Action for Health in Diabetes)
- MultiEthnic Study of Atherosclerosis (MESA)
- National Health and Nutrition Examination Study (NHANES)
- Translating Research into Action for Diabetes (TRIAD)
- Some VA data
- Geocoding your own data
Thank You!