

## **Population Health across Urban-Rural County Classifications in the Midwest: Temporal Trends and the Influence of Local Economic Shocks**

### **Research Interest**

Rural-urban health disparities have garnered attention in light of declining health outcomes among rural Americans.<sup>1,2</sup> There has been a call for population health research to move beyond an urban-rural dichotomy and address geographic variation within the category of “rural” places.<sup>3,4</sup> The National Center for Health Statistics Urban-Rural Classification Scheme for Counties designates four subcategories of metropolitan county categories, and two nonmetropolitan categories: micropolitan and noncore. Micropolitan counties are nonmetropolitan counties that contain a population core of 10,000 to 50,000 people. More than half of US nonmetropolitan residents live in micropolitan counties.

After micropolitan areas were first designated in 2003, initial research indicated that these areas occupied a middle ground between metropolitan and noncore areas in terms of socioeconomic characteristics of the population such as educational attainment, occupation, and income.<sup>5</sup> However, recent reports indicate that micropolitan areas may be faring more poorly than both metropolitan and noncore areas with regard to job loss, population loss, and unemployment.<sup>6,7</sup> These reports are of concern for public health given the well-documented links between socioeconomic conditions and population health.<sup>8,9</sup>

A potential contributor to socioeconomic declines in micropolitan communities is the greater incidence of mass layoffs and plant closings in these communities, which often depend on agricultural processing or manufacturing. Mass layoffs and plant closings have previously been linked to population health—including birth outcomes<sup>10</sup> and mental health<sup>11</sup>—and may contribute to declines in population health in micropolitan areas.

This seed funding will support the development of a proposal to examine:

- temporal trends in population health indicators by urban-rural county classification from 2006-2016 in the 12 states in Census Bureau Region 2 (“Midwest”). We chose 2006 because NCHS made changes to the Urban-Rural Classification Scheme in that year.
- the influence of mass layoffs and plant closings on trends in geographic disparities in population health in the Midwest.

Restricted data are essential for this proposal because the research questions require access to data with geographic identifiers. Questions about health outcomes after a layoff or plant closing may require data on the date or month of data collection, which is also restricted.

### **Benefit to the Census**

N/A: data will be from the National Center for Health Statistics, not the Census Bureau.

### **Proposed Research Tasks**

Potential population health outcomes for evaluating these hypotheses include birth outcomes (birth weight, gestational age) and mental health outcomes (depressive symptoms, anxiety symptoms) because infant health and mental health are responsive to short- and long-term changes in socioeconomic conditions. We will select an outcome based on a review of the

*CPRDC Seed Grant Proposal—Nicole L. Novak, PhD*

literature on economic downturns and birth outcomes and/or mental health. We will also compare the following datasets:

- National Vital Statistics System Birth Microdata file (Outcomes: birth weight, gestational age, low birth weight, preterm birth)
- National Health Interview Survey (Outcome: K6 scale for serious psychological distress)
- National Health and Nutrition Examination Survey (Outcome: Patient Health Questionnaire-9)

We will compare the geographic distribution of the sampling design used for the surveys, and will determine whether data on the outcomes of interest and associated covariates (race/ethnicity, nativity) are available consistently over the period of interest.

We also need to gain access to data on mass layoffs and plant closings from the Worker Adjustment and Retraining Notification Act files from 12 state Departments of Labor for the Midwestern region. WARN data is publicly available but data dating back to 2006 may require queries from state agencies and fees to pay for staff to pull the files.

## **References**

1. Erwin, P. C.. Despair in the American Heartland? A Focus on Rural Health. *Am. J. Public Health.* 107(10), 1533–1534 (2017).
2. Singh, G. K., & Siahpush, M.. Widening Rural–Urban Disparities in All-Cause Mortality and Mortality from Major Causes of Death in the USA, 1969–2009. *J. Urban Health.* 91(2), 272–292 (2014).
3. Matthews, K. A. Health-Related Behaviors by Urban-Rural County Classification—United States, 2013. *MMWR. Surveillance Summaries,* 66 (2017).
4. Gilbert, P.A., Laroche, H.H., Wallace, R.B., Parker, E.A. and Curry, S.J.. Extending Work on Rural Health Disparities: A Commentary on Matthews and Colleagues’ Report. *J. Rural Health* 00, 1-3 (2017).
5. Brown, D. L., Cromartie, J. B. & Kulcsar, L. J. Micropolitan Areas and the Measurement of American Urbanization. *Popul. Res. Policy Rev.* 23, 399–418 (2004).
6. Kilen, M. How Iowa’s midsize cities have been left behind. *Des Moines Register* (2017).
7. Peters, D. Iowa Population Trends in 2016. Iowa State University. (2017).
8. Milner, A., Page, A. & LaMontagne, A. D. Cause and Effect in Studies on Unemployment, Mental Health and Suicide: A Meta-Analytic and Conceptual Review. *Psychol. Med.* 44, 909–917 (2014).
9. Paul, K. I. & Moser, K. Unemployment Impairs Mental Health: Meta-Analyses. *J. Vocat. Behav.* 74, 264–282 (2009).
10. Carlson, K. Fear itself: The Effects of Distressing Economic News on Birth Outcomes. *J. Health Economics* 41, 117-132 (2015).
11. Bünnings, C., Kleibrink, J. and Weßling, J. Fear of Unemployment and its Effect on the Mental Health of Spouses. *Health Economics,* 26(1), 104-117 (2017).