Opioids and Child Maltreatment: Neighborhood Factors To Protect Families

Bridget Freisthler, Ph.D.
College of Social Work
The Ohio State University

Nichole Michaels, Ph.D.
Center for Injury Research and Policy
Abigail Wexner Research Institute
Nationwide Children’s Hospital
1 in 4 children in Ohio placed in foster care due to opioid misuse (PCSAO, 2017)

For children < 1, 70% placed in foster care due to opioid misuse (PCSAO, 2017)

Parents with heroin use have lower rates of reunification (Grella et al., 2009)

Parents who misuse heroin have longer stays in out of home care (Green et al., 2007)
Opioids and Child Maltreatment

- Counties with higher levels of opioid prescriptions have
  - higher rates of substantiated maltreatment in Tennessee (Morris et al., 2019)
  - higher rate of placements in foster care for child neglect in Florida (Quast, 2018)

- Results were not consistent when examining this relationship by county across all 50 states (Quast, 2018)

- In California, opioid overdoses were associated with
  - 2.06% increase in child maltreatment hospital discharges
  - 1.27% increase in discharges for child injury (Price Wolf et al., 2016)
Rate of Naloxone Administration per 1,000 People by Block Group
Fairfield and Pickaway County

Data provided by Ohio Department of Public Safety, Division of Emergency Medical Services, EMS Incident Reporting System
Comparison of Rates of Child Abuse and Naloxone Administration
Census Block Groups in Fairfield and Pickaway County

Data provided by Ohio Department of Public Safety, Division of Emergency Medical Services, EMS Incident Reporting System and Ohio Department of Family and Jobs Statewide Automated Reporting System

Child Abuse Rates 2015

\[ r = 0.080, \ p = 0.389 \]

Naloxone Administration Rates 2015
Comparison of Rates of Child Abuse and Naloxone Administration Census Block Groups in Fairfield and Pickaway County

Data provided by Ohio Department of Public Safety, Division of Emergency Medical Services, EMS Incident Reporting System and Ohio Department of Family and Jobs Statewide Automated Reporting System

Child Abuse Rates 2015

Naloxone Administration Rates 2014

$r = .173, p = .065$
ACEs are potentially traumatic events that occur during childhood.

ACEs can impact lifelong health as well as future violence victimization and perpetration.

Examples:
- Physical, emotional, or sexual abuse
- Physical or emotional neglect
- Household mental illness, incarceration, domestic violence, substance abuse, or divorce.
Comparison of ACES Scores among General Population and Child Welfare Samples

- **OhioStart**
  - 0: 9.28
  - 1: 15.12
  - 2: 10.65
  - 3: 7.9
  - 4+: 15.3

- **General Population**
  - 0: 36.6
  - 1: 24.5
  - 2: 14.2
  - 3: 9.4
  - 4+: 57.04

- Comparison suggests higher ACES scores in the Child Welfare Samples compared to the General Population.
How are opioid overdoses related to rates of child maltreatment at the neighborhood level?

Does county type (e.g., rural, urban, suburban, or Appalachian) moderate the relationship between rates of overdoses and child maltreatment?
Motivation for the Current Study

- Scientific concerns related to spatial
- Pragmatic concerns related Ohio’s diverse types of counties and their different experiences during the opioid crisis
Ohio is the 7th most populous state.

Race/Ethnicity

- ~78% of population is white
- ~13% of populations is African American

Economic Indicators

- ~14% living in poverty
- Median household income ~$54,000

Opioid Crisis

- Consistently in top 3 of states with opioid overdoses
- Increases in neonatal abstinence syndrome
Study Design

- 9231 Census block groups across the state of Ohio
- Continuum of child maltreatment (DV)
  - Referrals → Substantiations
- Rate of naloxone administration (IV), as a proxy for opioid overdoses
Study Design

› Social Disorganization
  – Concentrated Disadvantage
  – Residential Instability
  – Racial/Ethnic Heterogeneity
  – Child Care Burden (for studies of child maltreatment)
Bayesian space-time models

\[ y_{ik} \sim \text{Poisson}(\theta_{ik}) \]

\[ \log(\theta_{ik}) = \log(e_{ik}) + \alpha + u_i + \beta * k \]

\( \theta_{ik} \) = Number of children referred for maltreatment
\( e_{ik} \) = Number of children in the Census tract
\( u_i \) = spatial heterogeneity (spatial autocorrelation)
# Findings

<table>
<thead>
<tr>
<th></th>
<th>Referrals per # of Children</th>
<th>Substantiations per # of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone Rate</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Urban (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural * Naloxone Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appalachian * Naloxone Rate</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Suburban * Naloxone Rate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Findings

› Concentrated Disadvantage

› Residential Instability

› Ethnic Heterogeneity

› Child Care Burden
Findings (Note)

- County-level findings in Ohio differed

- Past year overdoses were more important than current year
## Findings

<table>
<thead>
<tr>
<th></th>
<th>Referrals per # of Children</th>
<th>Substantiations per # of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Naloxone Rate</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spatial Lag ($S_{-1}$)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Time Lag ($T_{1}$)</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Space-Time Lag ($T_{-1}S_{-1}$)</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Naloxone Rates and Substantiations

Time 1
A
B
C
D

Time 2
E
C
D

T_{-1}S_{-1}
T_{-1}
Conclusions and Implications

› Overdoses at the neighborhood-level are related to involvement in the child welfare system

› But, in some neighborhoods, it matters more (e.g., those in our Appalachian counties)

› Use of epidemiology data might provide insight in how to respond quickly to overdose clusters
Conclusions and Implications

› Neighborhood and county results differ
  – Geography and modifiable areal unit problem
  – Change of support

› Might be some implications related to timing
How might COVID-19 factor in these results?

› Change in family visits

› Drug courts changing procedures

› Recovery progress lost

› Less contact with mandated reporters
Next Steps

› Looking at neighborhoods over space and time

› Identifying high and low risk areas

  – What are the differences in neighborhoods that are doing better than statistical models predict?

  – What about those doing worse than expected?
Opioids and Child Maltreatment: Neighborhood Factors To Protect Families

Bridget Freisthler, Ph.D.
freisthler.19@osu.edu

Nichole Michaels, Ph.D.
Nichole.Michaels@nationwidechildrens.org