

Prescription Opioid Prevalence and Child Welfare

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Summary

- Greater prevalence of Rx opioids predicts higher rates of foster care entries.
 - Effect is strongest in urban areas and areas with historically lower levels of opioids.
- Rx opioid prevalence has ambiguous relationship with reunification rates.
 - Nationally point estimate is positive but small.
 - Areas with higher levels of Rx opioids show a positive effect of opioids on reunification; opposite in areas with lower levels of opioids.

Hypotheses...

- **Rx opioids** → *higher* caseloads and *fewer* reunifications:
 - Opioid misuse and use disorder.
 - Opioid use is associated with disability, mental/behavioral health issues, and use of other substances.
 - Community/agency response is more aggressive in reporting and removals.

OR/AND

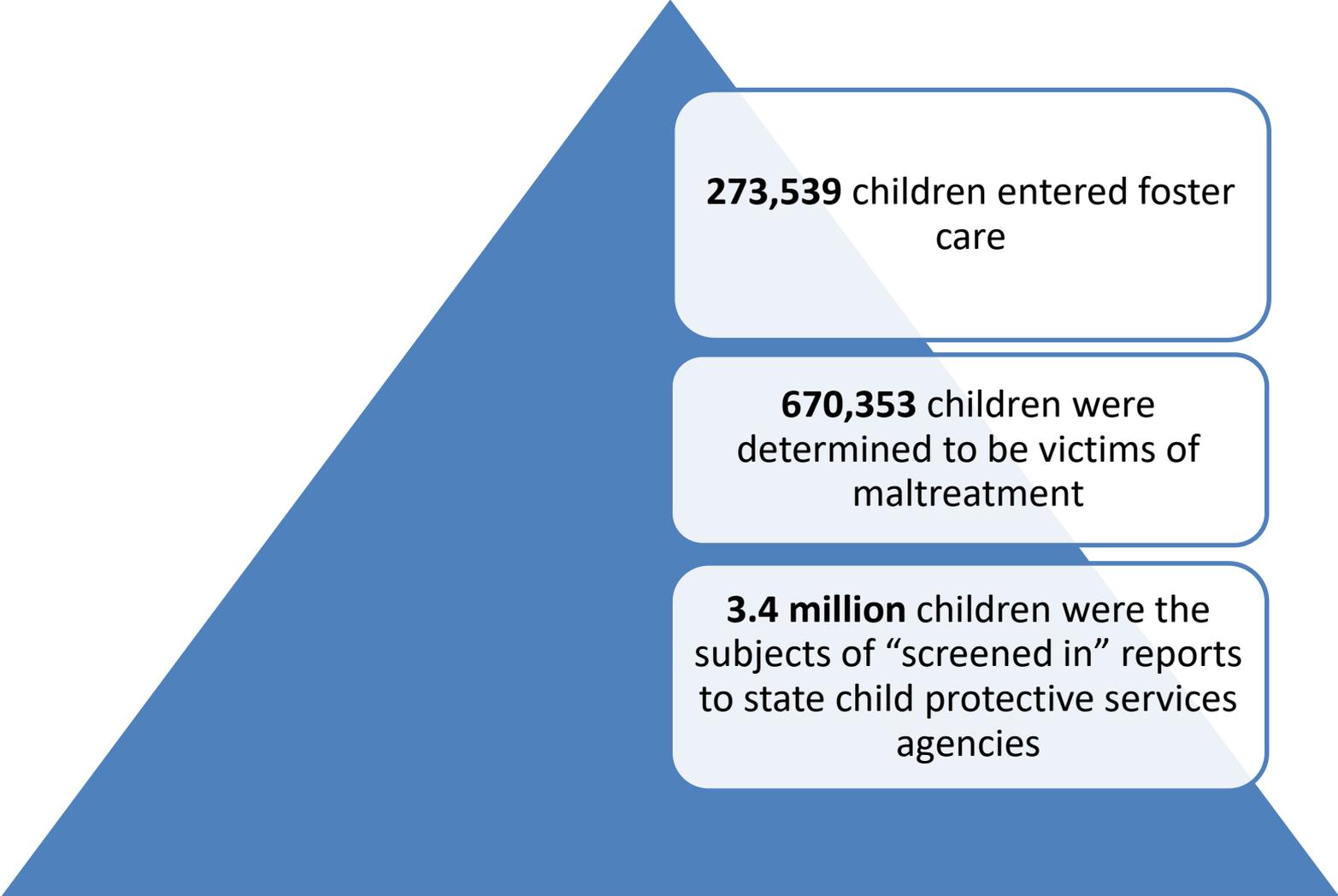
- **Rx opioids** → *lower* caseloads and *more* reunifications:
 - Attenuates disability and other health issues.
 - Community/agency response is overly aggressive in removals, leading to faster reunification of cases not needing removal.
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Related Research Findings

- Ghertner et al. (Forthcoming): Strong relationship between substance use and child welfare caseloads, nationally, 2011-2016.
- Wolf et al. (2016): County-level positive association between hospital discharges involving Rx opioid overdose and those related to child maltreatment/injury in California, 2001-2011.
- Quast, Storch & Yampolskaya (2018): County-level opioid prescriptions correlated with foster care entries in Florida, 2012-2015.
- Lynch et al. (2018): Neonatal Abstinence Syndrome likely led to higher caseloads in select states.

DESCRIPTIVE STATS

The Child Welfare System, FY 2016



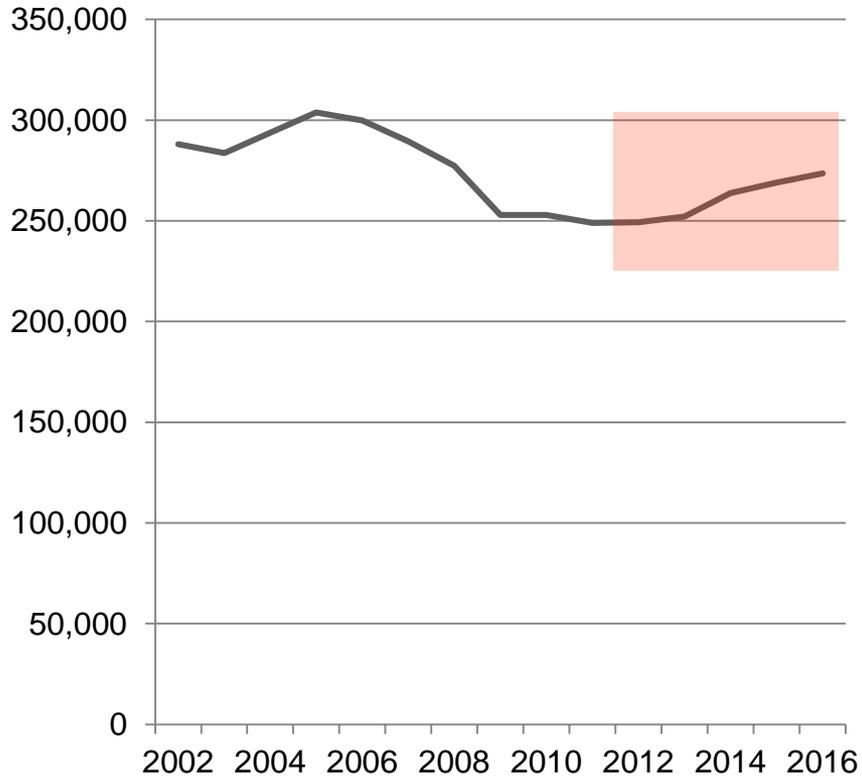
273,539 children entered foster care

670,353 children were determined to be victims of maltreatment

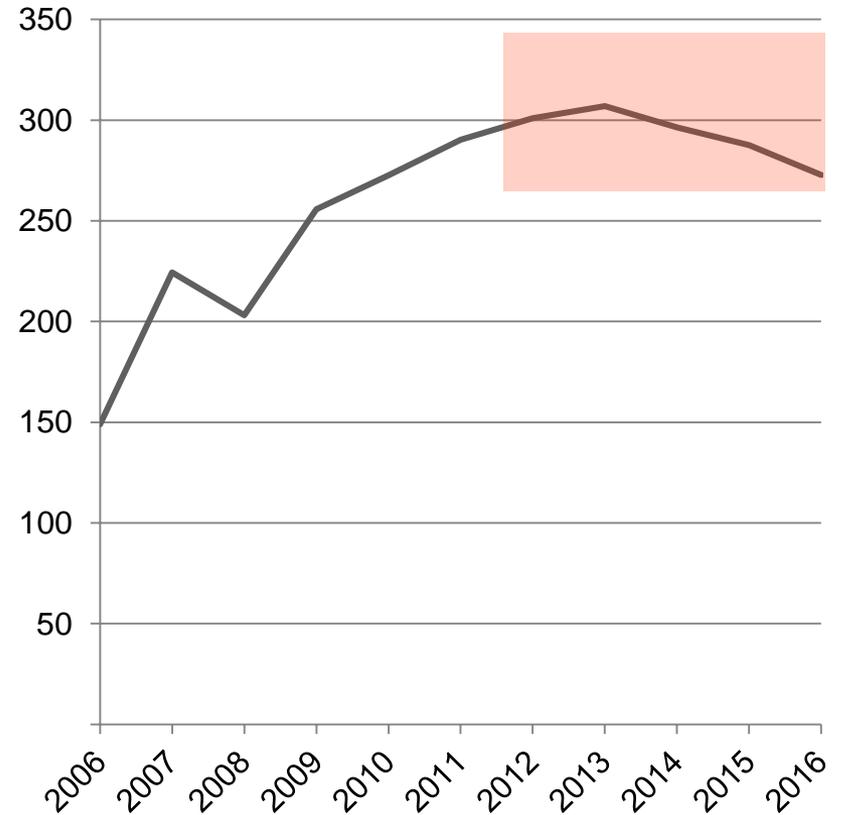
3.4 million children were the subjects of “screened in” reports to state child protective services agencies

National Trends

Foster Care Entries

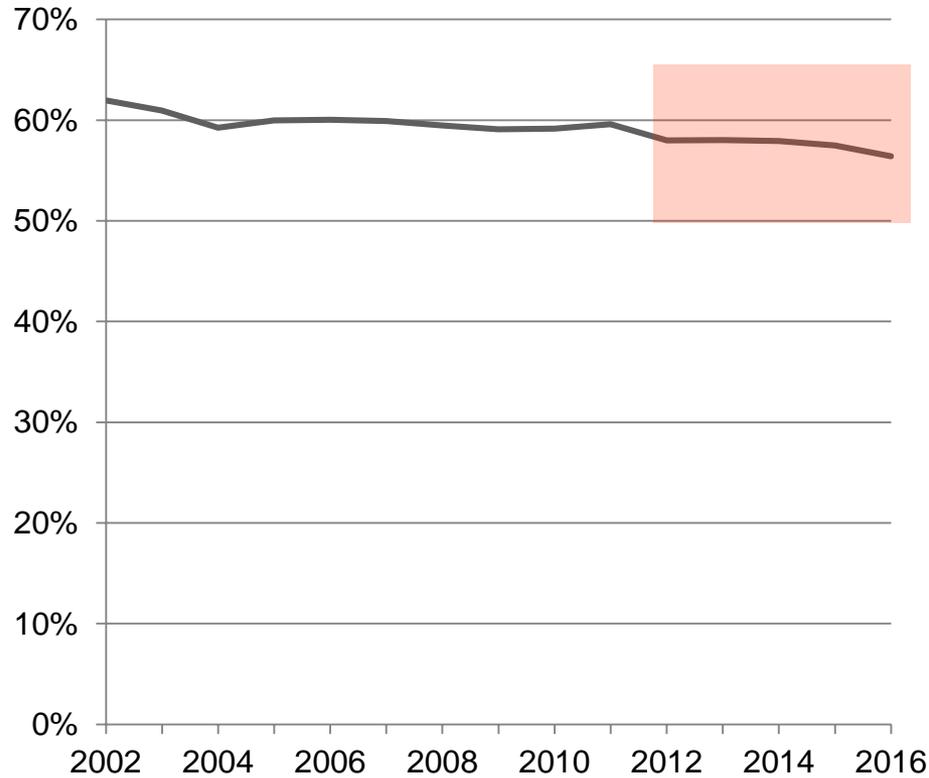


Rx Opioid Sales (in Thousands KG Morphine Equivalents)

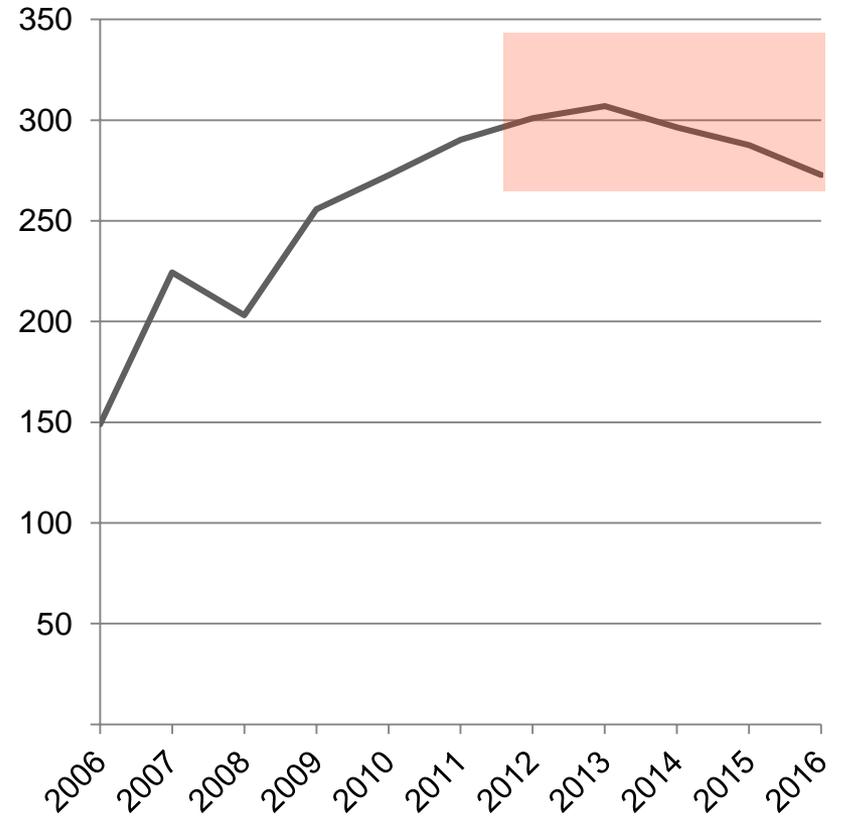


National Trends

Reunifications

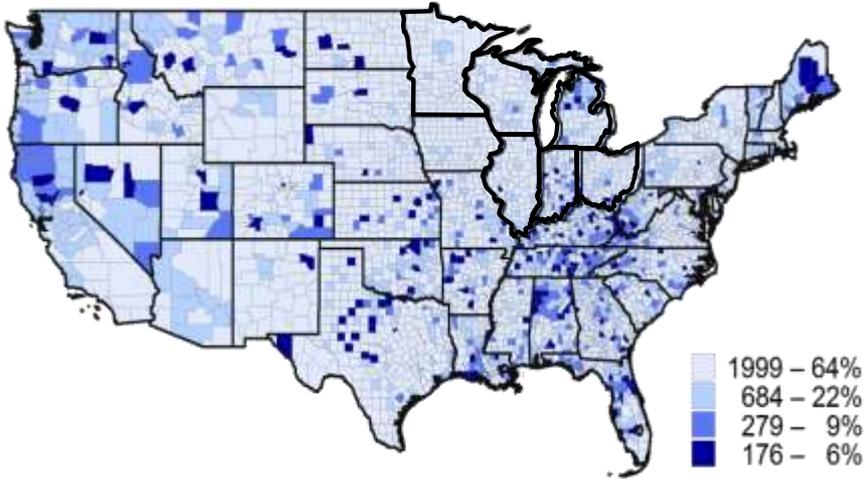


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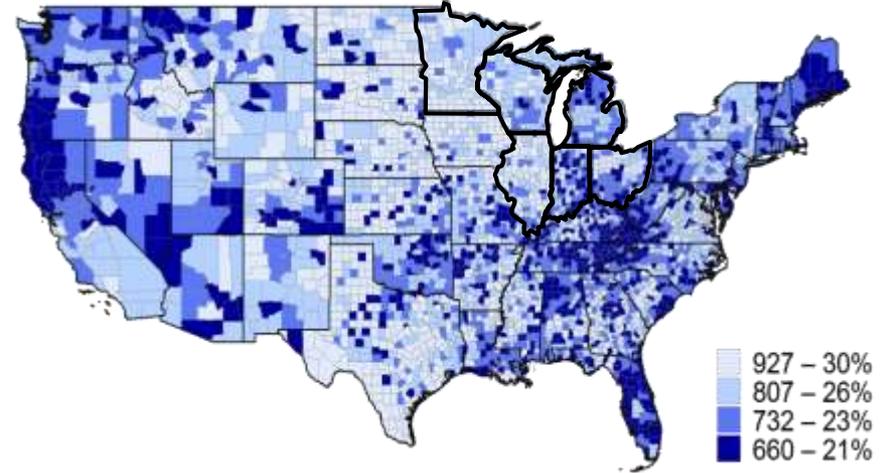


Change in Prescription Opioid Sales: 2006-2016

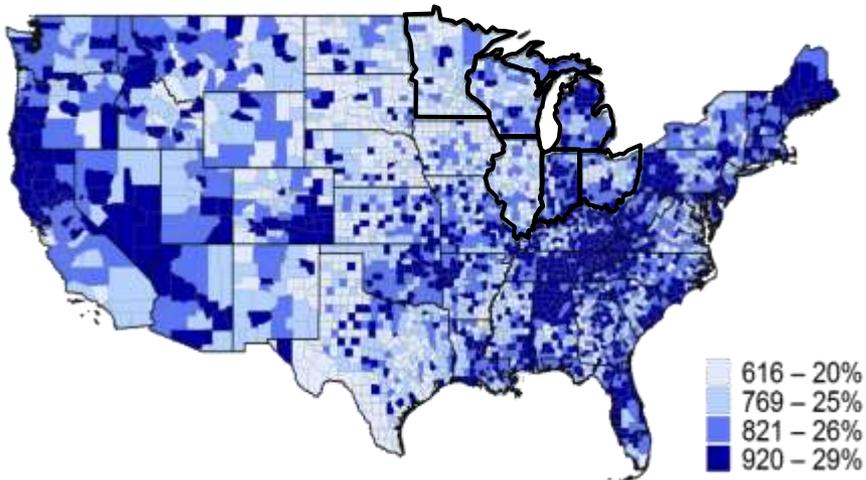
2006



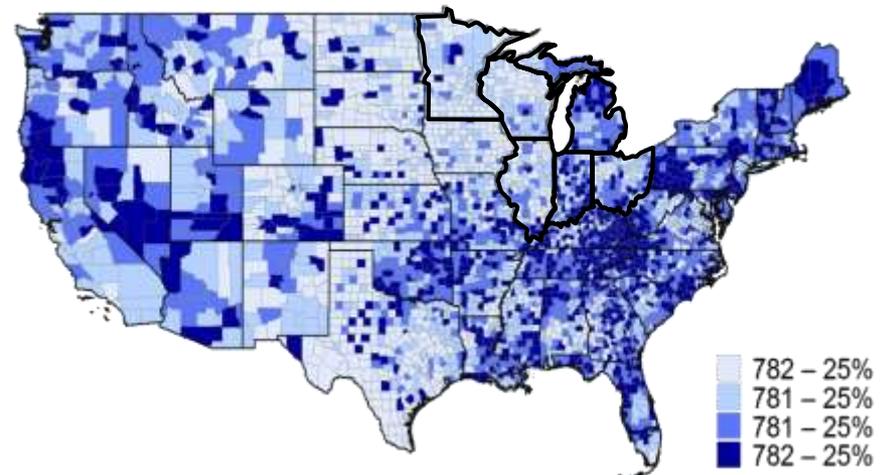
2009



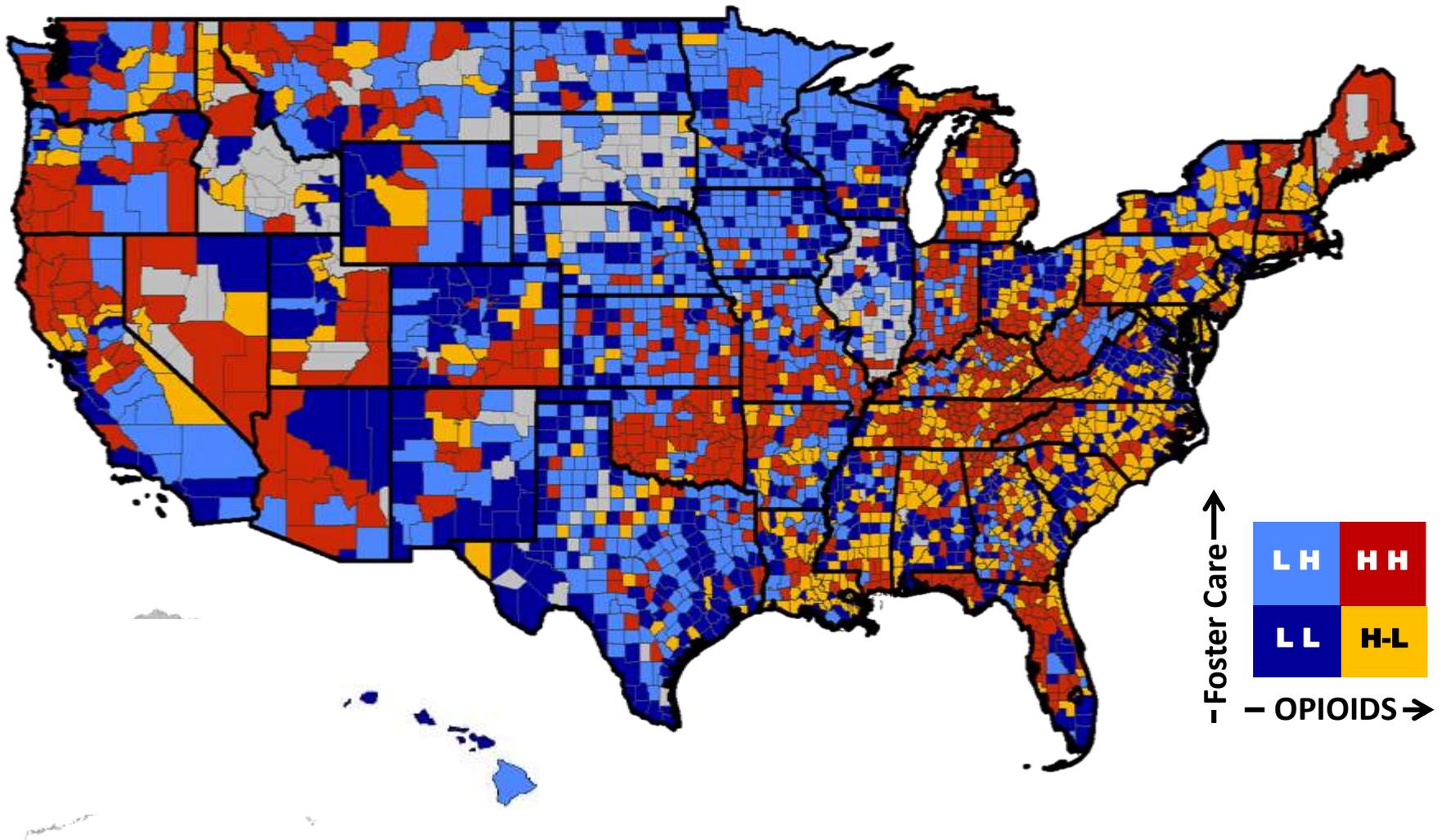
2012



2016

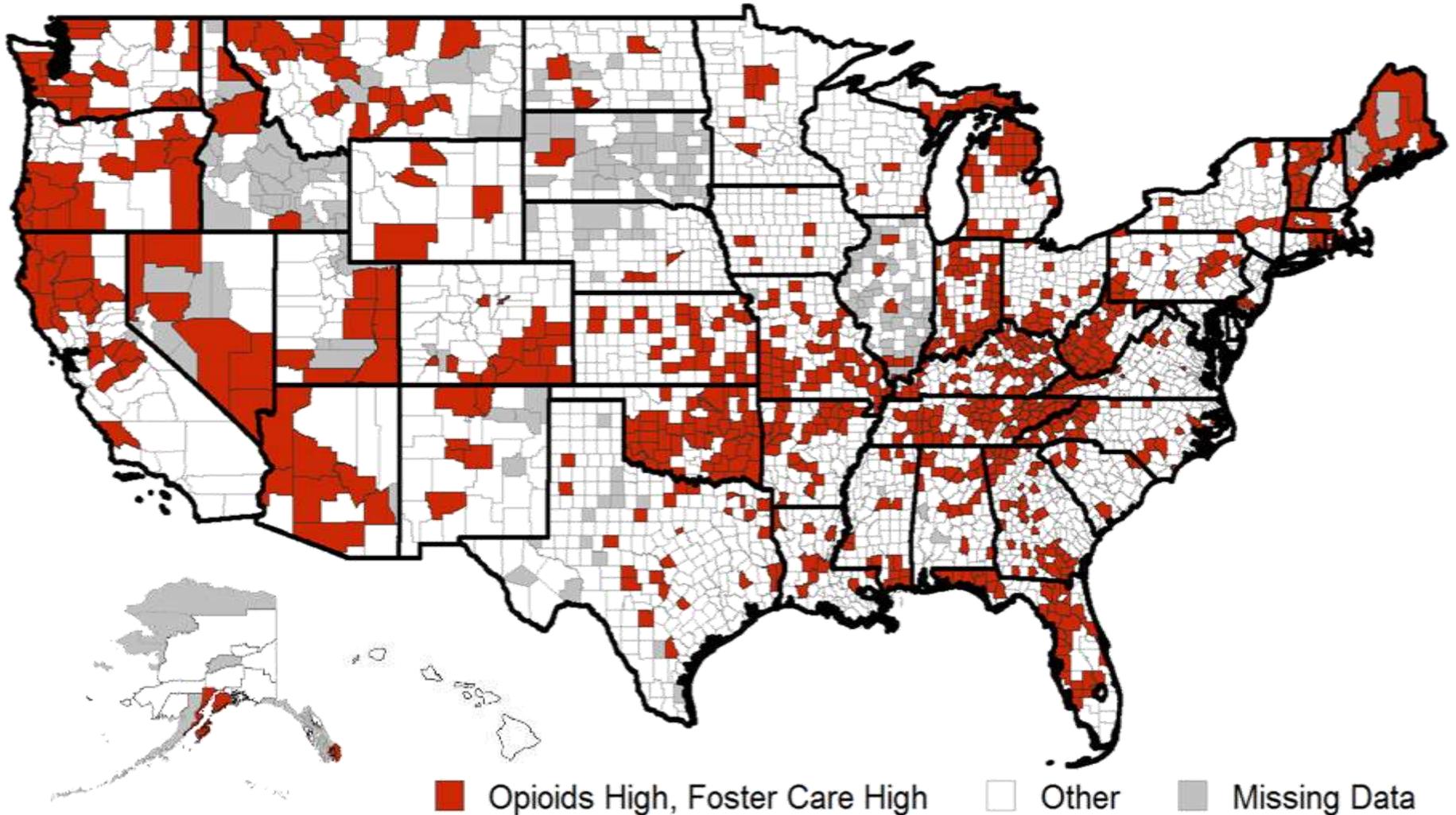


Rx Opioid Sales and Foster Care, 2016



Note: “Opioids high” refers to a rate above the median of 76; “Foster Care high” (AFCARS) refers to a rate above the median of 978.

Rx Opioid Sales and Foster Care, 2016



DATA AND METHODS

Data

- County-level, annual data from 2011-2016
 - Includes \approx 2,800 counties
 - Removed where Rx Opioids==0, Foster Care Entries==0
- Child Welfare: ACF AFCARS
 - Foster care entries per 100,000 kids
 - Reunifications per 100,000 exits
- Opioids: DEA ARCOS; Medicare Part D Opioid Rx
 - Volume inventories per 100,000, in KG Morphine Equivalent

Measurement Error in ARCOS

- Likely has substantial measurement error:
 - Geographic coverage: Zip3 data converted to counties
 - Not all misused opioids included
 - Issues in timing of reports
 - Data collected for compliance purposes, not statistical purposes
- Instrumental variables method to account for measurement error (not causality)

Methods

- Fixed effects, instrumental variable models, robust standard errors
 - Log-linear foster care entries: coefficient=% change in foster care rates for % change in Rx opioids
 - Negative binomial for reunification rates (bootstrapped SE): coefficient is incident rate ratio
 - Population weighted
 - Falsification test to assess exclusion restriction
 - False discovery rate to adjust for multiple testing (Benjamini and Hochberg, 1995)
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Control Variables

- Overdose death rates for any substance (CDC)
- Population, Race/ethnicity, Age profile (ACS)
- Median income (SAIPE)
- Unemployment (BLS)
- Uninsurance rates (SAHIE)
- Medicare recipients, disabled and aged (CMS)
- State child welfare expenditures (ACF)
- Prescription drug monitoring program, “pill mill” legislation (Mallatt, 2017)
- Total foster care entries (for reunification models)
- Year effects

Instrumental Variables Model

Instrument=Medicare Part D Opioid Rx MME Rate

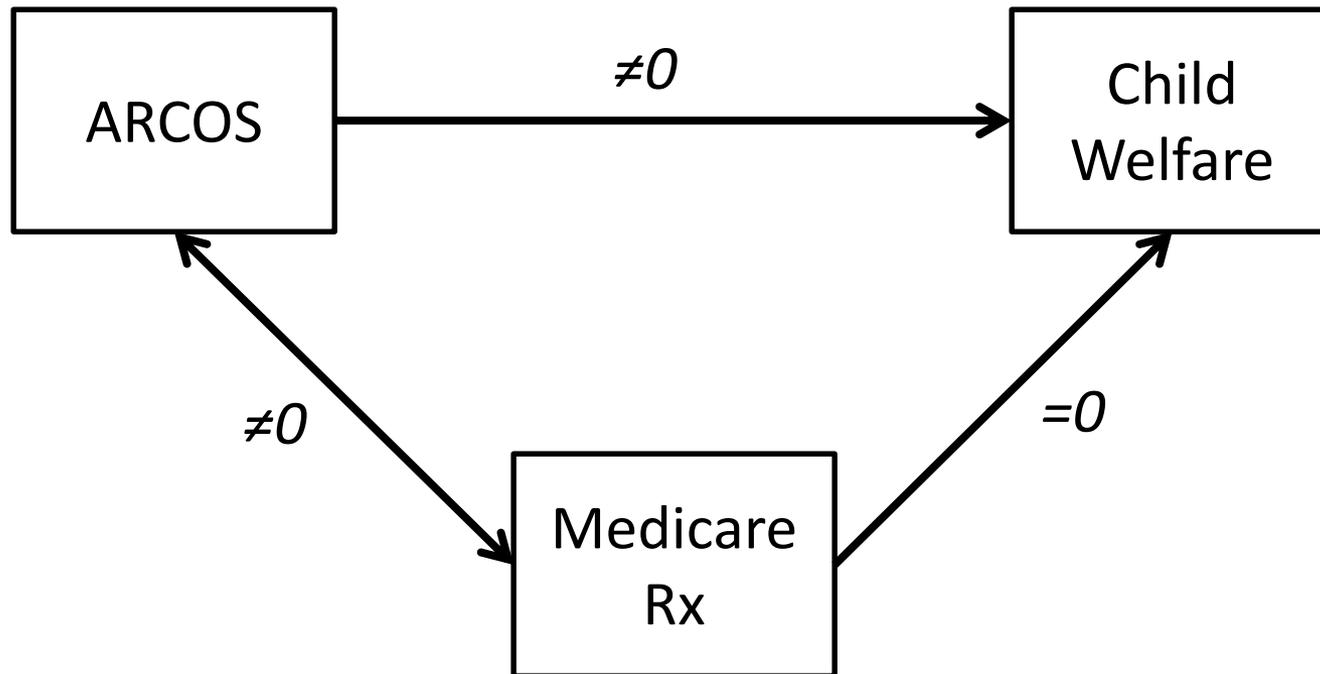
Equation 1: $arcos = \alpha Medicare + X\gamma_1 + \lambda$

Equation 2: $child\ welfare = \beta \widehat{arcos} + X\gamma_2 + \epsilon$

IV Requirements:

- $Cov(Medicare, arcos) \neq 0$ (and is strong)
 - Exclusion restriction: $cov(Medicare, \epsilon) = 0$
-

Instrumental Variables Model



Instrumental Variables Stats

- First stage coefficient: 0.496 ($p=0.000$)
- Falsification test:
 - Alternate outcome = Incarceration rates
 - Medicare coefficient=0.14, 95% CI=(-0.05, 0.34), $p=0.153$

RESULTS

Rx Opioids and Foster Care Entry Rates

	All Counties	Low Opioids ^a	High Opioids ^a	Urban	Rural
OLS	-0.05 (0.05)	-0.05 (0.06)	-0.05 (0.07)	-0.06 (0.05)	-0.01 (0.08)
IV	0.52* (0.01)	0.94* (0.02)	0.08* (0.02)	0.54* (0.01)	0.26* (0.04)
N	13,781	7,089	6,692	5,334	8,447

* $p < 0.001$

^a Low/High is Below/Above National Median in 2011

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Reunification Rates

Predicted effect of 10% increase in Rx Opioid Inventories Per Capita on foster care reunification rates

	All Counties	Low Opioids ^a	High Opioids ^a
Negative binomial estimates	-0.7%***	-0.5% ***	-0.5% ***
IV Estimates	-0.5% ***	-2.6% ***	2.9% ***
N	12,458	6,591	5,867

* $p < 0.001$

^a Low/High is Below/Above National Median in 2011

Limitations

- Lack of case-level data of substance use and child maltreatment.
 - Many factors influence foster care placement and reunification, not all can be accounted for in a model.
 - IV estimates remove measurement error but I am not confident they can be interpreted causally.
 - Specific mechanisms are not well understood and may be differ by geography.
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Discussion

- Rx opioids show the expected relationship with caseloads.
 - High Rx areas and Rural areas show weaker effect.
- Unexpected relationship with reunification rates. Why would areas with historically high opioids see shorter reunification rates when opioids decreased?

More work to be done...

- Case-level foster care data to tease apart case characteristics:
 - Age of children
 - Length of stay
 - Termination of parental rights

Thank You!

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