

# Statewide Incidence of Pediatric Firearm-Related Hospital Encounters by Childhood Opportunity Index Level in California

Gwyneth A. Sullivan; John Sincavage; Yao Tian; Suhail Zeineddin; Susheel Reddy; Rashmi Kabre; Mehul V. Raval; Anne M. Stey

Department of Surgery, Northwestern University Feinberg School of Medicine, Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL, USA

## BACKGROUND

- Firearm injury are the leading cause of death in children and adolescents
- Neighborhood social determinants of health impact access to care and clinical outcomes

## RESEARCH OBJECTIVES

To determine the relationship between Childhood Opportunity Index and pediatric firearm injury

## METHODS

### Data sources:

- California Office of Statewide Health Planning and Development Patient Discharge and Emergency Department data, 2015-2018
- ZIP Code Childhood Opportunity Index

### Population:

- Children ages 0-17 who presented following firearm injury

### Study variables:

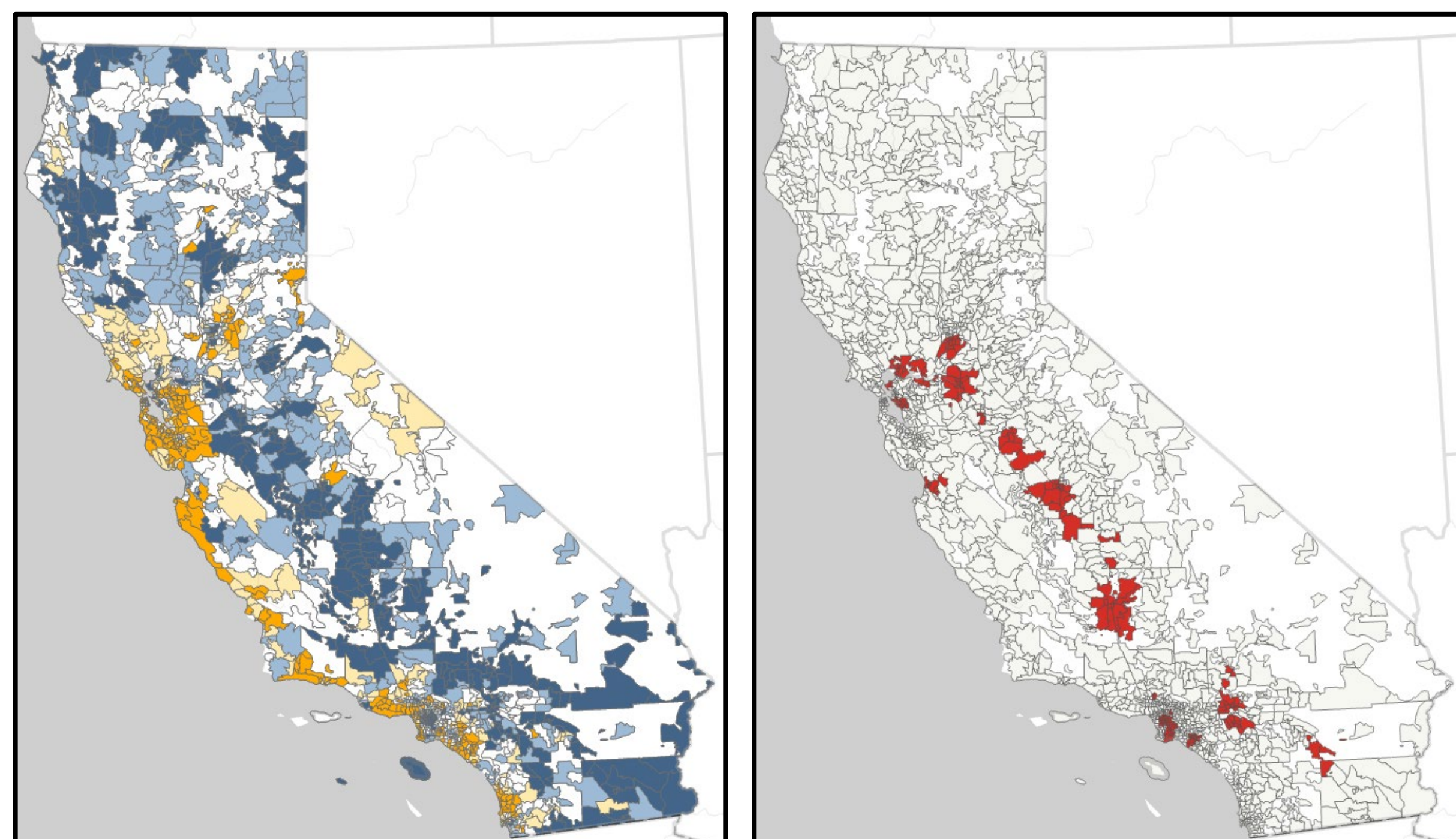
- Primary predictor: Childhood Opportunity Index
- Primary outcome: incidence of pediatric firearm injury encounters (ZIP Code level)
- Secondary outcomes: intent, mortality, admission, disposition, length of stay (patient level)

### Analyses:

- Hot spot analysis using Getis-Ord  $G_i^*$  statistic
- Incidence rate ratios
- One-way analysis of variance and Kruskal-Wallis test
- Chi-squared and Fisher's exact test

## FIREARM INJURY AND CHILDHOOD OPPORTUNITY INDEX

Fig 1. Childhood Opportunity Index and hot spots of pediatric firearm-related injury by ZIP Code in California, 2015-2018.



Very low Moderate Very high Hotspots of firearm injury  $p < .05$   
Low High

Incidence of pediatric firearm injury increased as level of childhood opportunity decreased

Assaults were highest in very low Childhood Opportunity Index ZIP Codes, but self-inflicted injury and mortality highest in very high Childhood Opportunity Index ZIP Codes

*Child-specific social determinants of health should inform pediatric firearm injury prevention programs*

## FIREARM INJURY INCIDENCE BY CHILDHOOD OPPORTUNITY INDEX

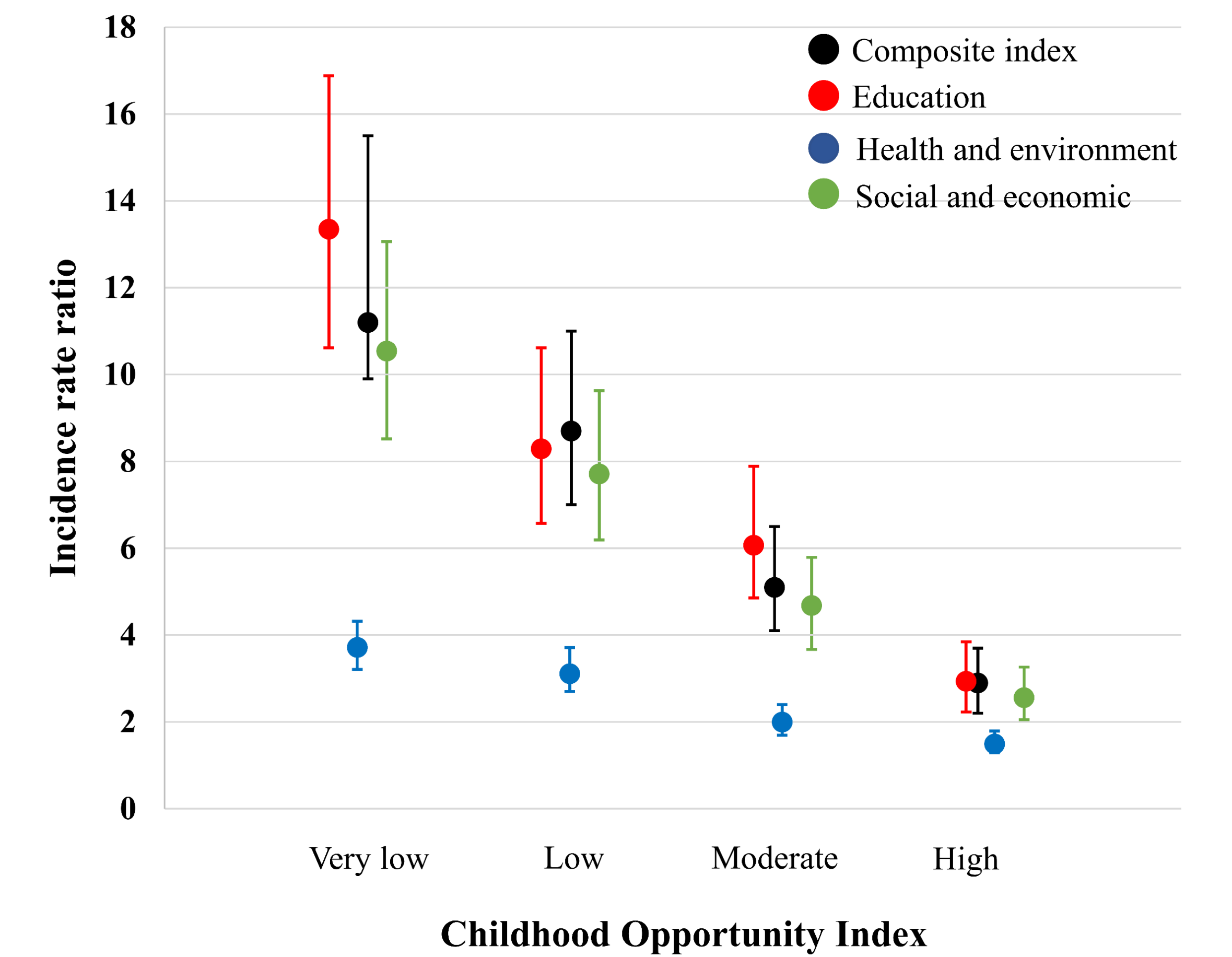


Fig 2. Incidence rate ratios of pediatric firearm-related injury hospital encounters by ZIP Code Childhood Opportunity Index Level in California from 2015-2018

## PATIENT-LEVEL OUTCOMES

- 2,578 pediatric firearm injury encounters
- Childhood opportunity index levels: 41% very low, 29% low, 17% moderate, 10% high, 3% very high

Table. Secondary patient level outcomes by Childhood Opportunity Index Level

	Childhood Opportunity Index					P value
	Very low	Low	Moderate	High	Very high	
<b>Intent</b>						<.001
<b>Assault</b>	57.8%	55.9%	47.3%	46.2%	33.3%	
<b>Unintentional</b>	36.5%	38.5%	43.5%	40.5%	48.3%	
<b>Self-inflicted</b>	0.5%	0.9%	3.1%	4.5%	11.5%	
<b>Other</b>	5.1%	4.7%	6.1%	8.9%	6.9%	
<b>Mortality</b>	4.4%	5.2%	4.0%	4.9%	11.5%	0.047

- No difference in admission, disposition, or length of stay by Childhood Opportunity Index level

## LIMITATIONS

- Only includes children who presented to a hospital
- Lack of granularity beyond the ZIP Code level

