# Epidemiology of Opioid Addiction, Statewide Perspectives

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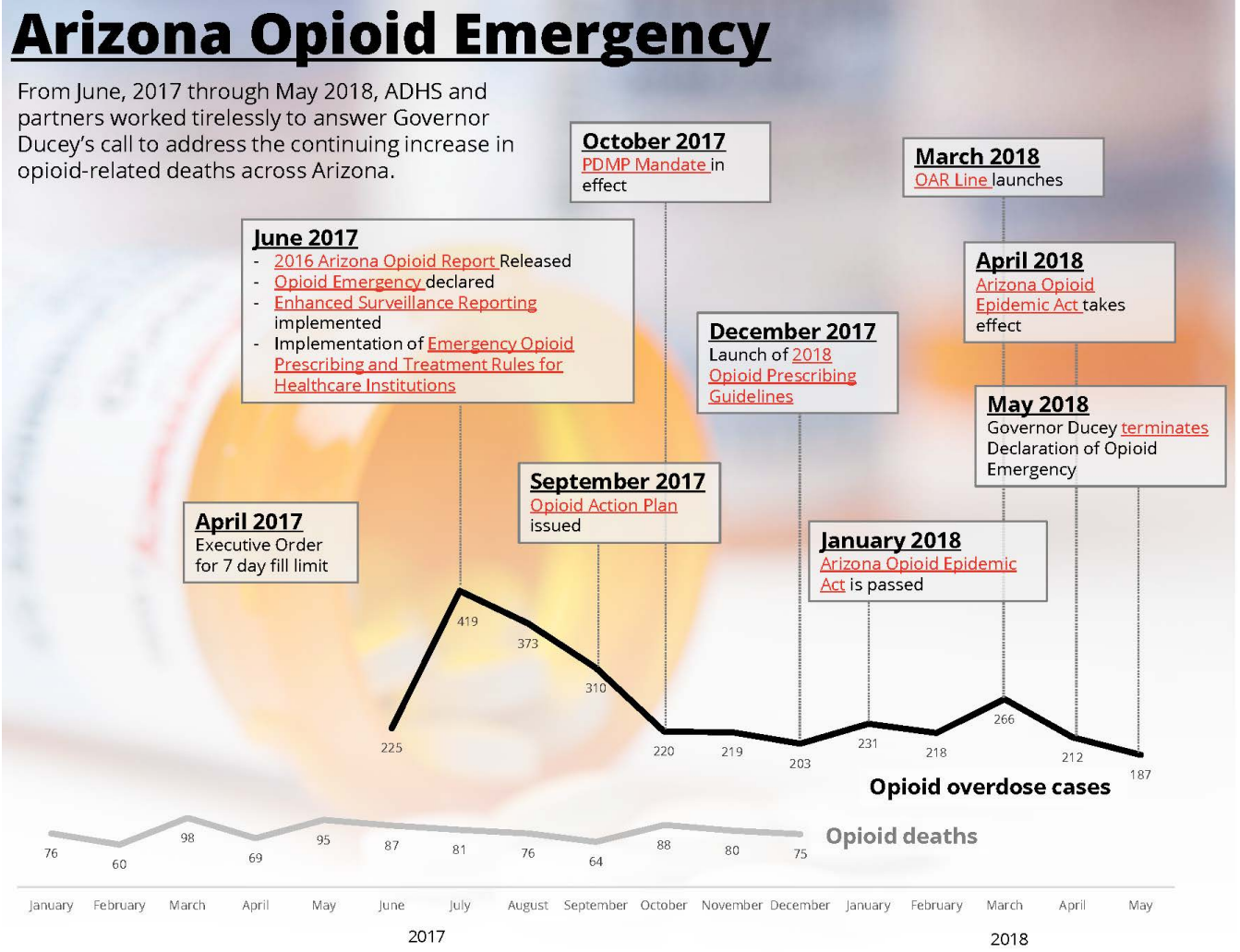
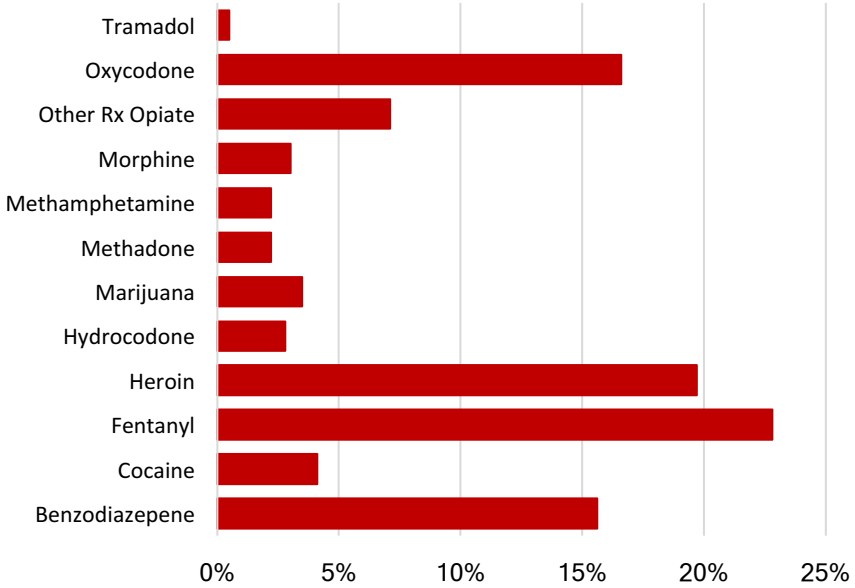
# Arizona Opioid Emergency

From June, 2017 through May 2018, ADHS and partners worked tirelessly to answer Governor Ducey's call to address the continuing increase in opioid-related deaths across Arizona.

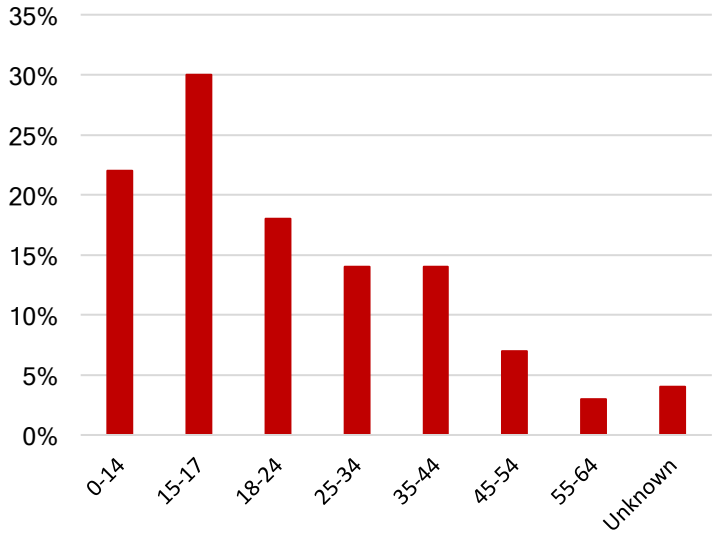



ADHS Director's Blog: https://directorsblog.health.azdhs.gov/tag/opioid/

# Single substance overdoses in AZ 2019 Data

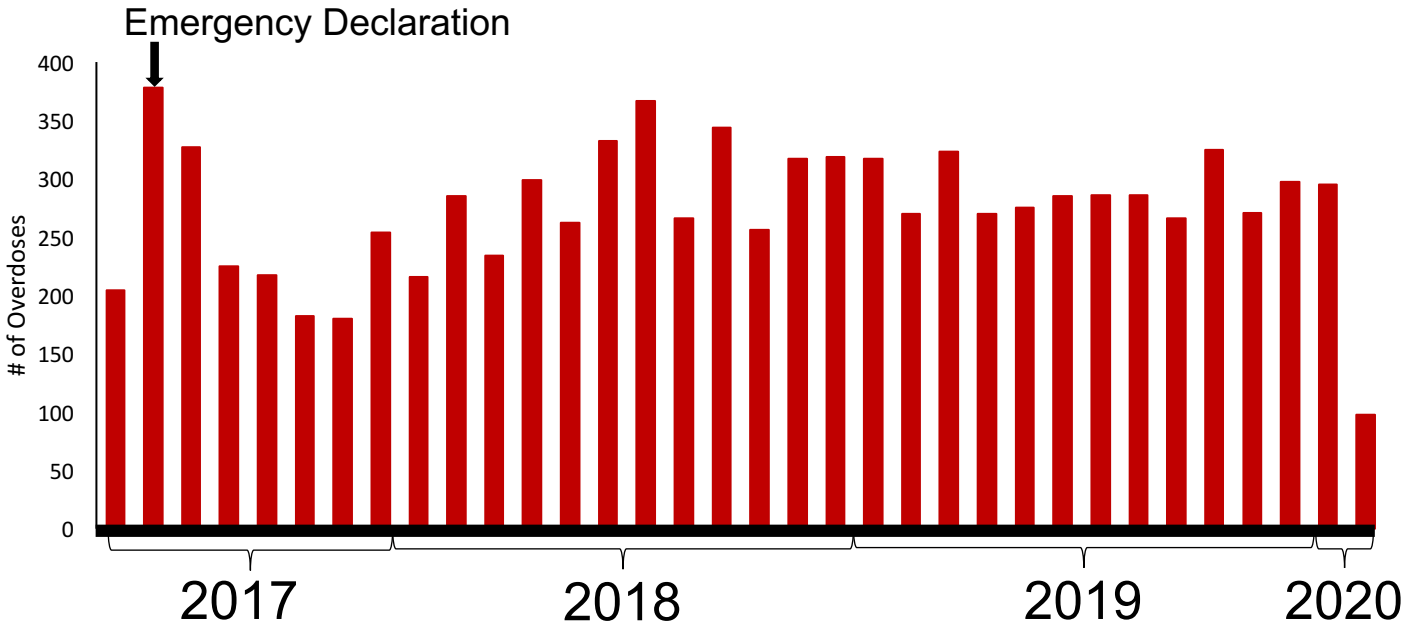



# Age distribution of opioid overdoses in AZ




Data from the Arizona Department of Health Services Opioid Interactive Dashboard

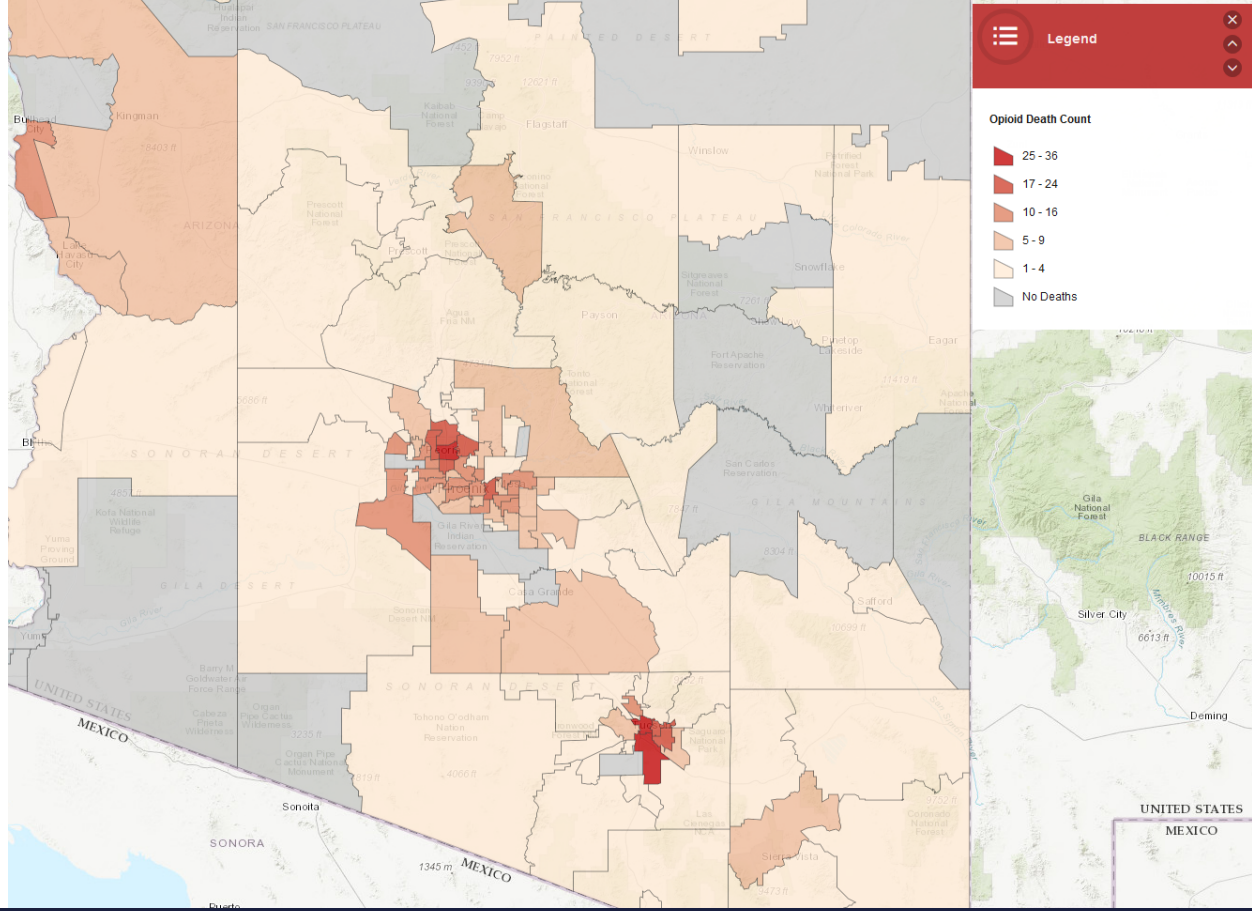
# Temporal distribution of opioid overdoses in Arizona



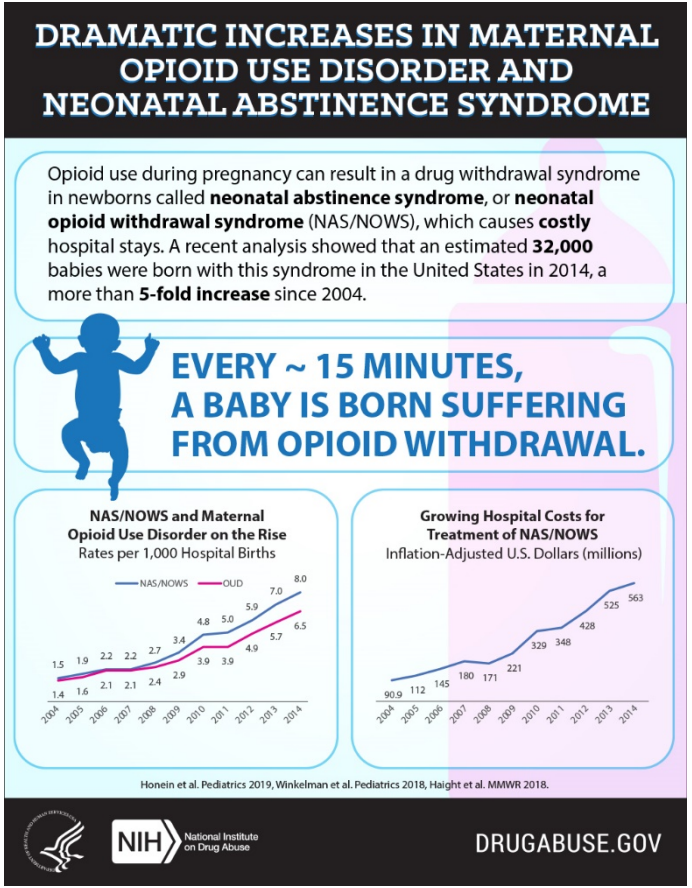

Data from the Arizona Department of Health Services Opioid Interactive Dashboard

# Geographic Distribution of Opioid Deaths in Arizona

Data from the Arizona Department of Health Services Opioid Interactive Dashboard



**As the Opioid Crisis continues to grow in Arizona, so do the number of its tiniest victims. -ADHS**



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# Characterization of populations linked to Neonatal Abstinence Syndrome: Infants with NAS and their mothers

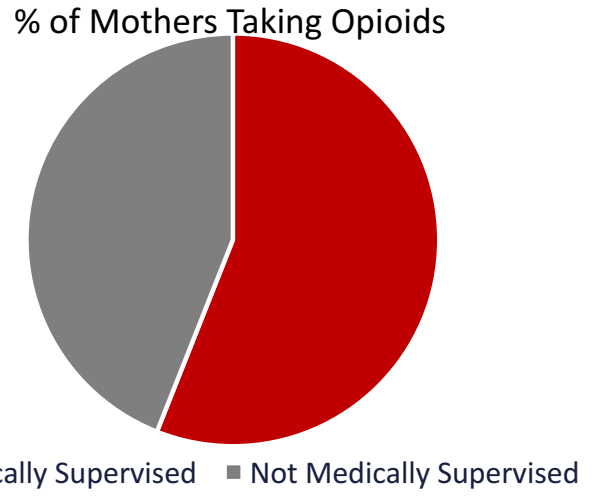
# NEONATAL ABSTINENCE SYNDROME (NAS):

- Drug withdrawal symptoms occurring among drug-exposed infants shortly after birth
- Symptoms include a high-pitched cry, respiratory distress, difficulties feeding, and failure to thrive.
- Primarily occurs 1-3 days after birth among opioid-exposed infants

# NEONATAL ABSTINENCE SYNDROME in Arizona:

- Overdoses for heroin, fentanyl, and hydrocodone among females are highest for ages 25-44 (childbearing age).

- From June 15, 2017 – February 6, 2020, there have been 1,342 cases of NAS reported to the Arizona Department of Health Services



# NEONATAL ABSTINENCE SYNDROME in Arizona:

**Number of Newborns with NAS and Drug Exposures in Arizona, 2008-2015***

| Year | NAS | Narcotics | Cocaine | Hallucinogens | Alcohol | Other Drugs of Addiction | # of Hospital Births |
|---|---|---|---|---|---|---|---|
| **2008** | 145 | 234 | 161 | 35 | 22 | | 95,420 |
| **2009** | 154 | 410 | 99 | 51 | 25 | | 89,115 |
| **2010** | 223 | 414 | 79 | 46 | 15 | | 84,069 |
| **2011** | 300 | 424 | 68 | 46 | 30 | | 81,988 |
| **2012** | 304 | 531 | 59 | 47 | 27 | | 82,905 |
| **2013** | 339 | 646 | 55 | 68 | 20 | | 82,338 |
| **2014** | 438 | 650 | 34 | 93 | 33 | | 83,427 |
| **2015** | 470 | 462 | 37 | 73 | 33 | 299 | 85,514** |
| **Total** | 2,373 | 3,771 | 592 | 459 | 205 | 299 | 684,776 |

Source: Arizona Department of Health Services, Public Health Vital Statistics, Hospital Discharge Data Base, 2008-2015.
(*2015 NAS Counts include a change in reporting using the ICD10-cm codes)
**Preliminary counts

## Project Objectives

**Aim 1:** ***To characterize the population of infants born with neonatal abstinence syndrome.***

**Aim 2:** ***To characterize the population of women who use opioids while pregnant.***

## Approach

Access Hospital Discharge Data for all infants who were born and mothers who gave birth from 2010-2017.

↓

Identify NAS cases and mothers who had opiates in their system when they gave birth.

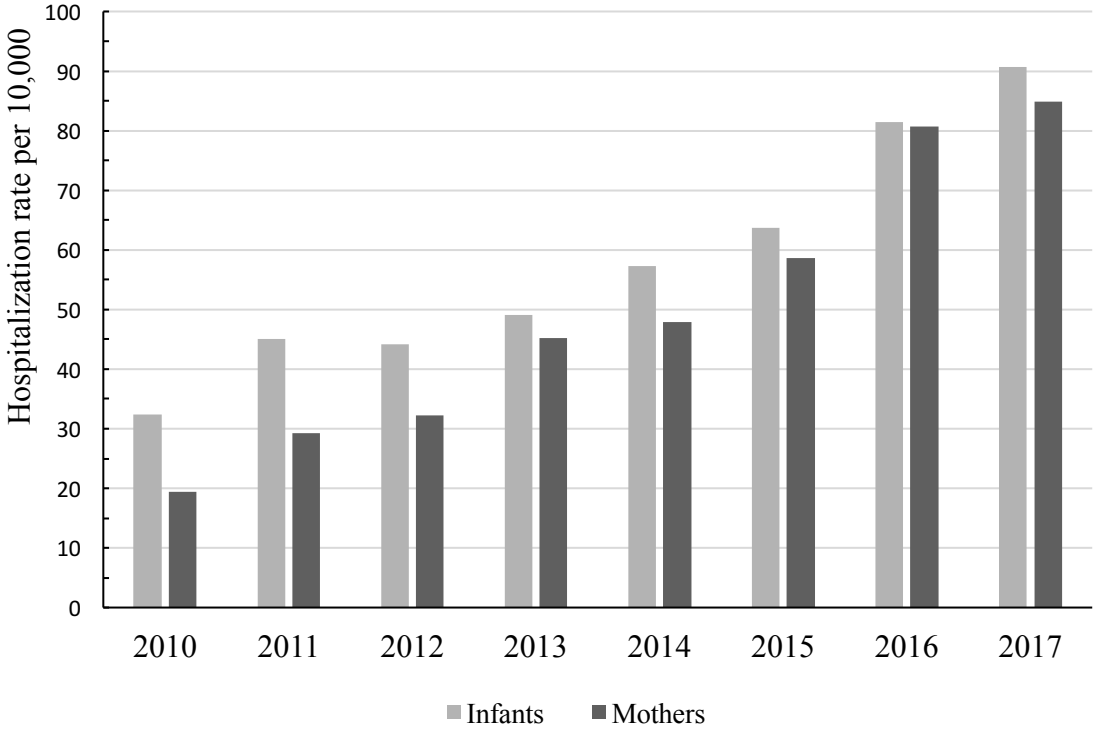
↓

Stratify the general and target populations by race/ethnicity, insurance (as a proxy for SES), length of hospital stay, and total visit charges.

↓

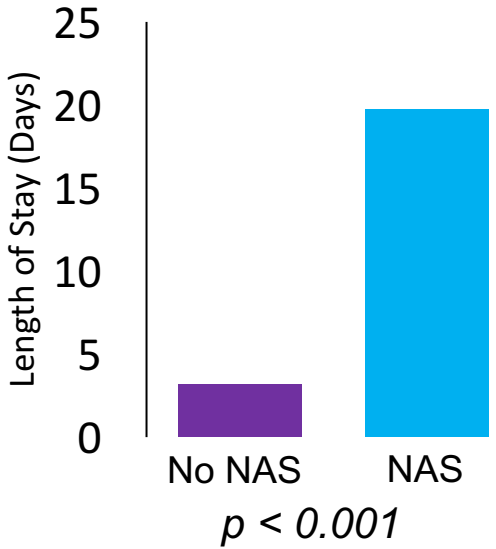
Perform statistical analyses to better understand if there are significant deviations of the NAS group from the general population.

# IP and ED Hospitalization Rates



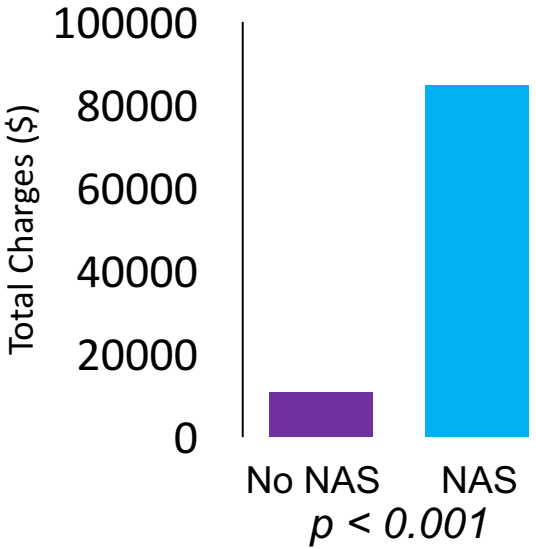
# Healthcare Utilization: Infants

## Length of Stay




*p < 0.001*

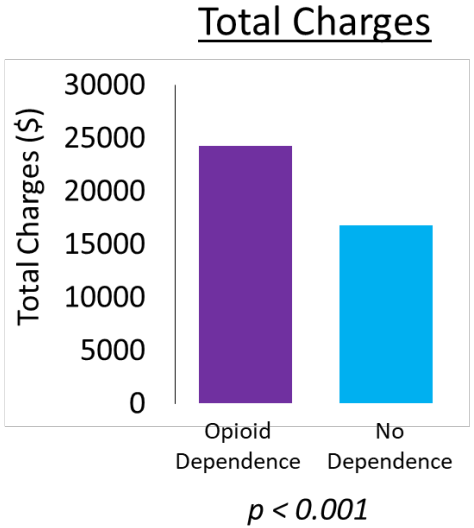
## Total Charges



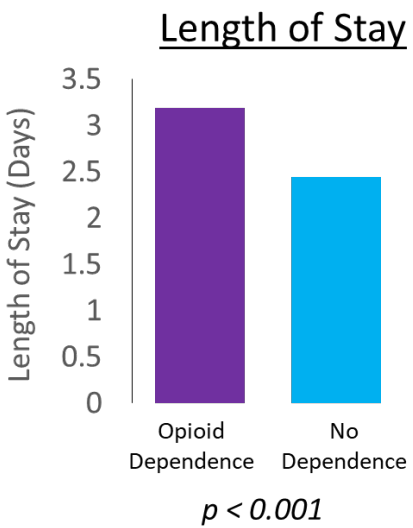

*p < 0.001*

Infants with NAS compose **0.5%** of the total infant population. Total charges associated with infants who have NAS account for **4.5%** of all birth related charges ($323,230,298 of $7,153,221,072) from 2010 through 2017.

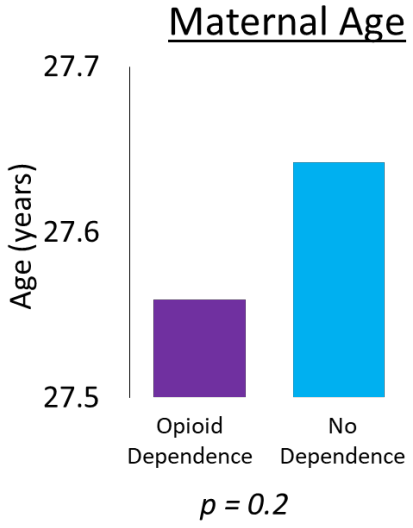
# Healthcare Utilization: Mothers




*p < 0.001*



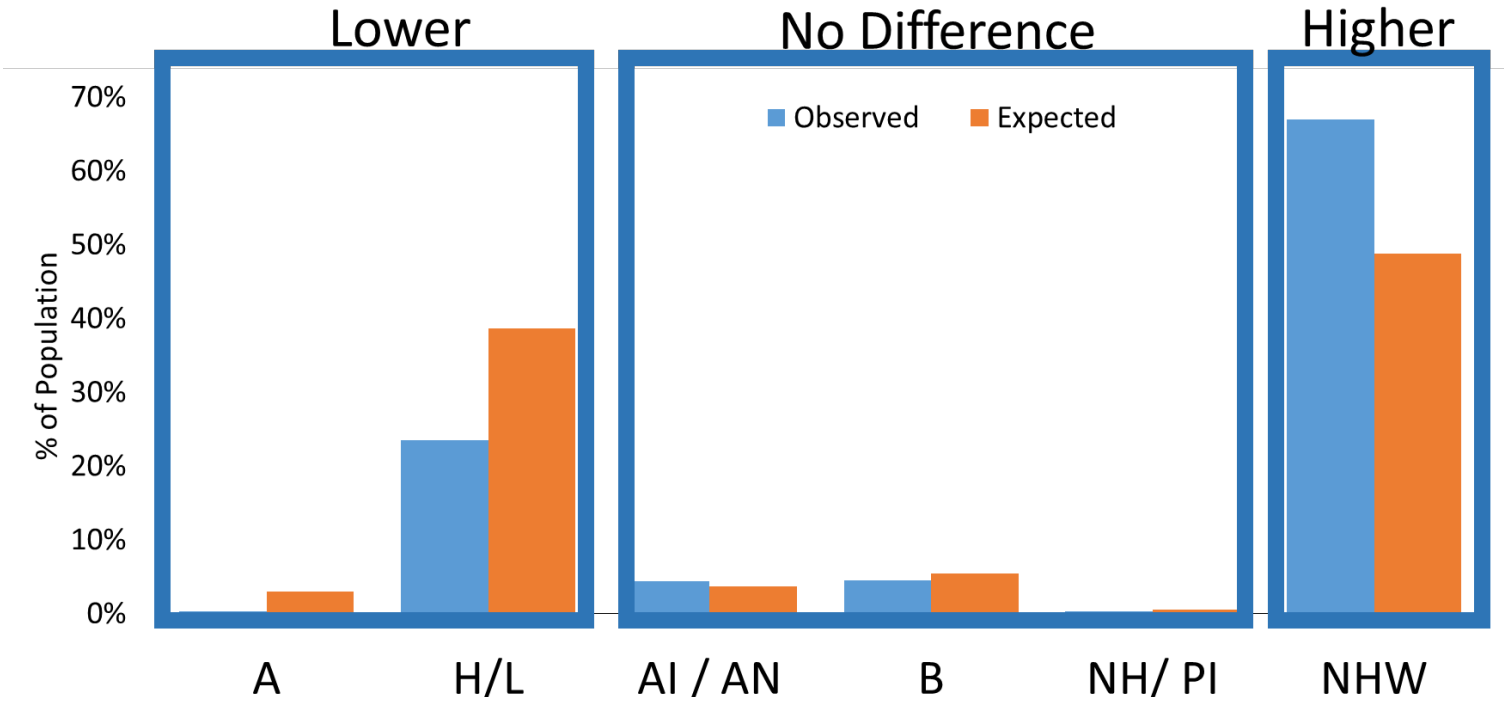

*p < 0.001*




*p = 0.2*

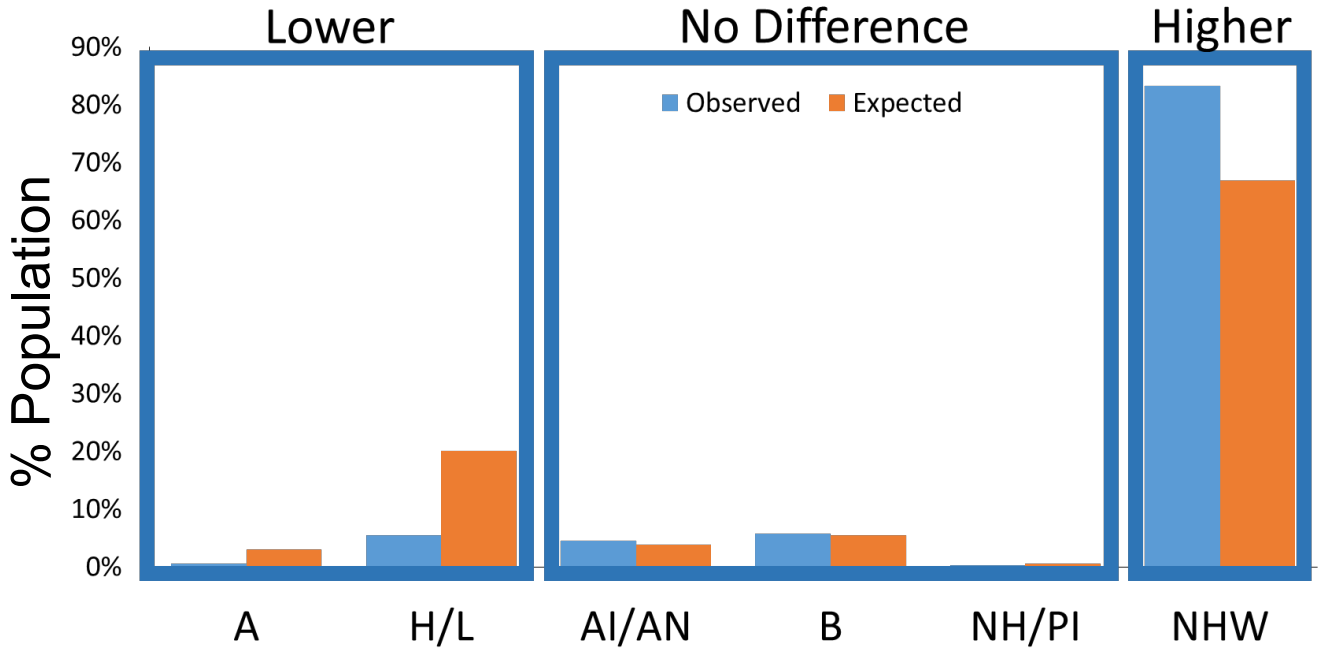
*Significance was assessed using a t-test in each comparison*

# Infant racial disparities



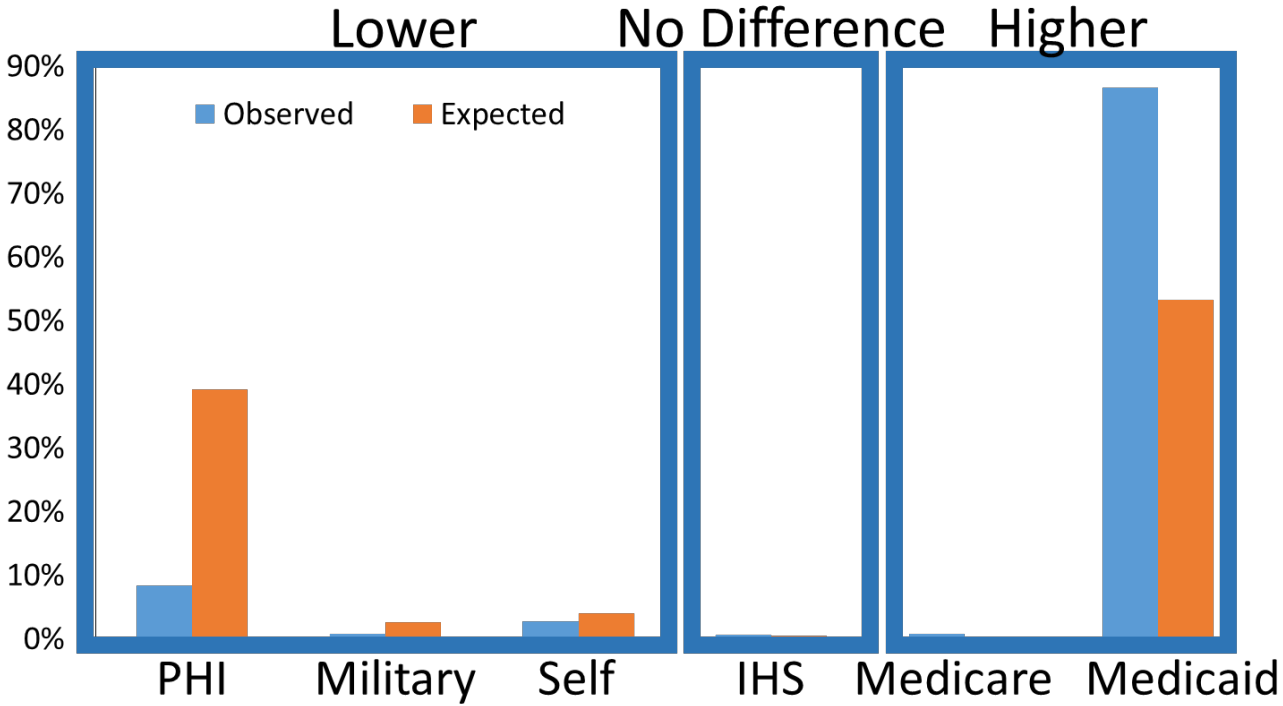

**A**: Asian, **H/L**: Hispanic/Latino, **AI/AN**: American Indian/Alaskan Native, **B**: Black, **NH/PI**: Native Hawaiian/Pacific Islander, **NHW**: Non-Hispanic White

# Maternal racial Disparities



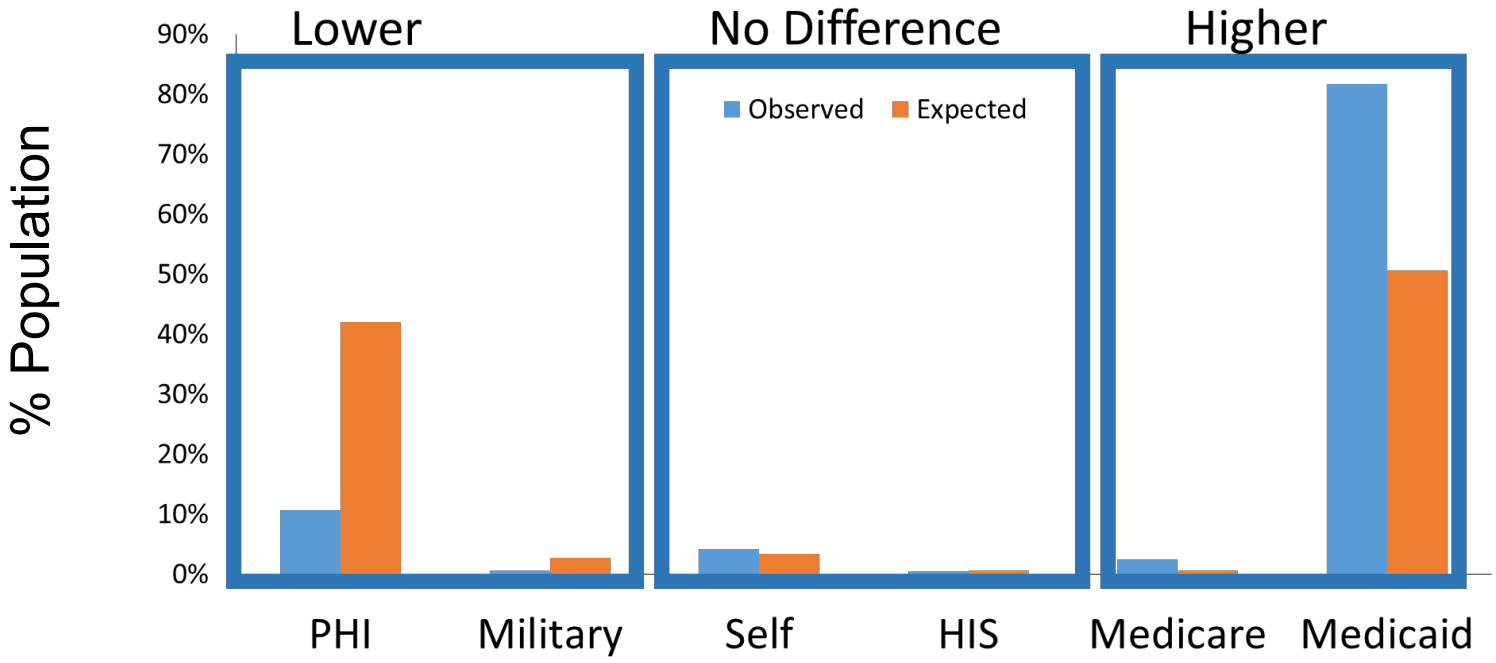

**A**: Asian, **H/L**: Hispanic or Latino, **AI/AN**: American Indian or Alaskan Native, **B**: Black, **NH/PI**: Native Hawaiian or Pacific Islander, **NHW**: Non-Hispanic White

# Infant socioeconomic disparities



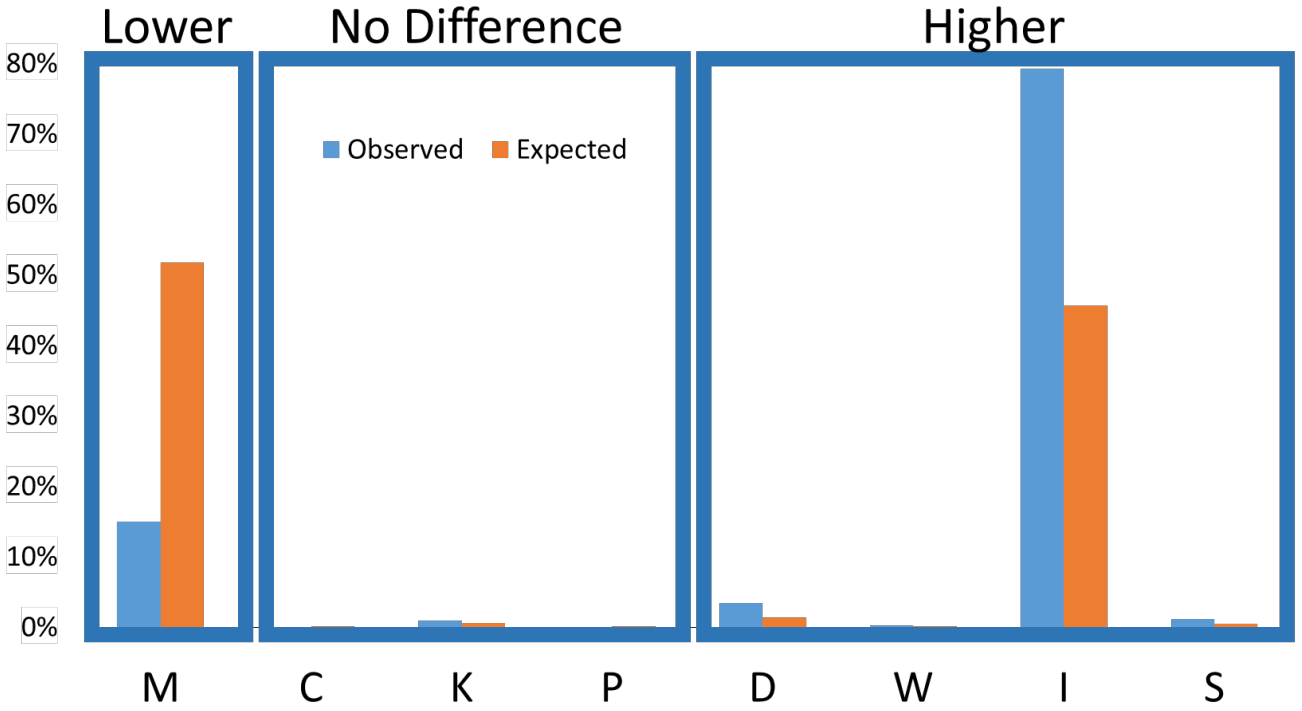

**PHI:** Private Health Insurance, **Self:** Self-Pay, **IHS**: Indian Health Services

# Maternal socioeconomic disparities

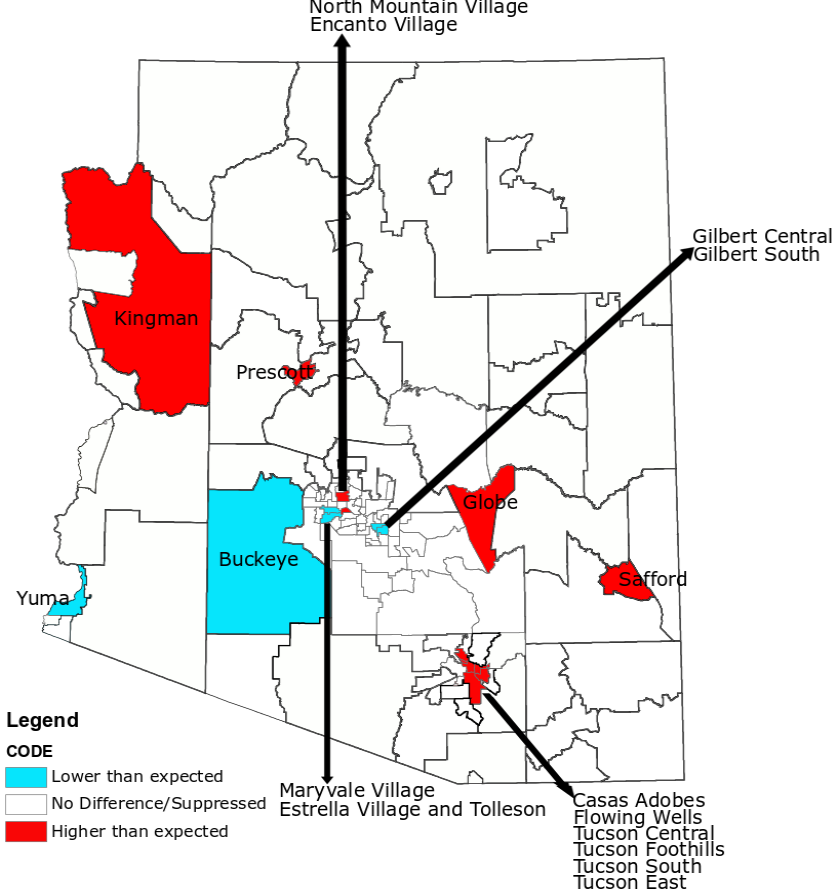


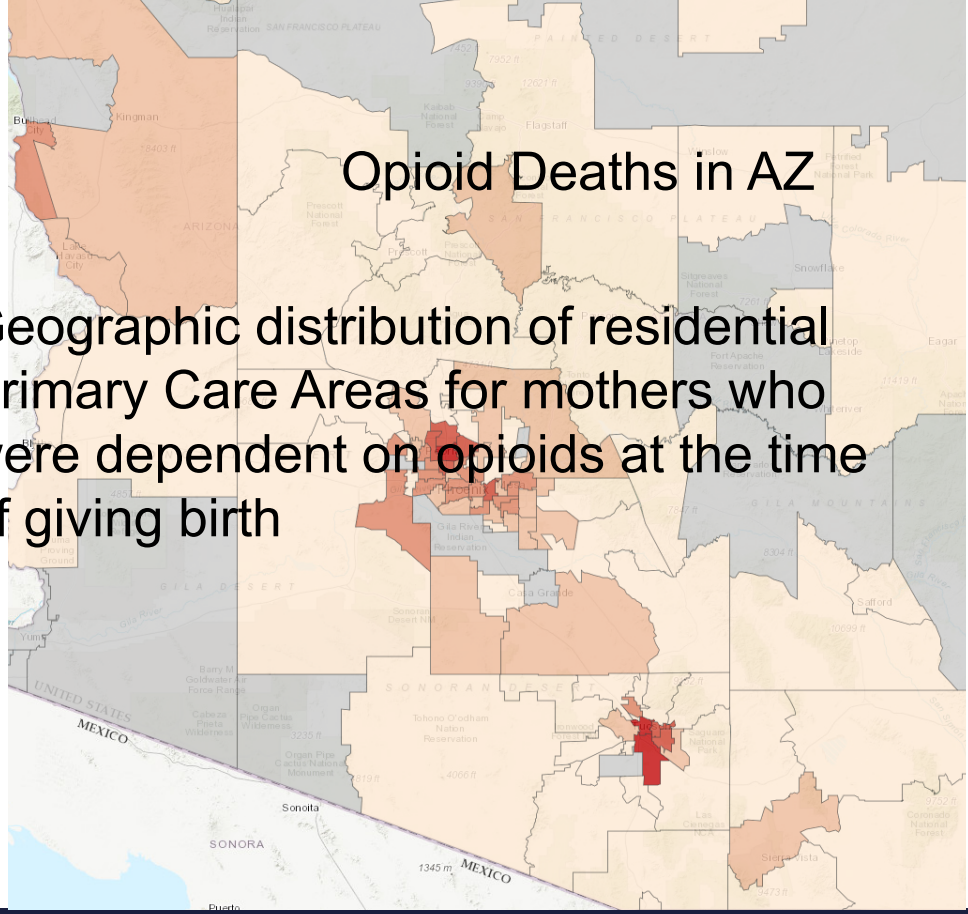

**PHI:** Private Health Insurance, **Self:** Self-Pay, **IHS**: Indian Health Services

# Maternal marital status disparities




**M:** Married, **C:** Minor, **K**: Unknown, **P**: Unknown, **D**: Divorced, **W**: Widowed, **I**: Single, **S**: Separated

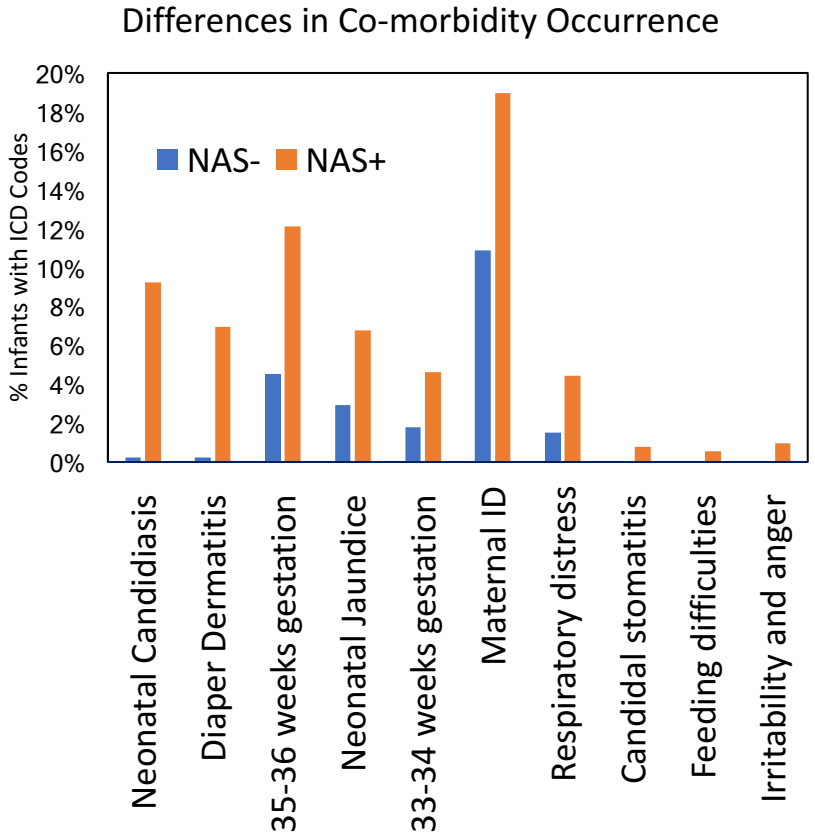

North Mountain Village
Encanto Village
Gilbert Central
Gilbert South
Kingman
Prescott
Globe
Buckeye
Yuma
Safford
Legend
CODE
Lower than expected
No Difference/Suppressed
Higher than expected
Maryvale Village
Estrella Village and Tolleson
Casas Adobes
Flowing Wells
Tucson Central
Tucson Foothills
Tucson South
Tucson East


Opioid Deaths in AZ
Geographic distribution of residential Primary Care Areas for mothers who were dependent on opioids at the time of giving birth
UNITED STATES
MEXICO
SONORA
Sonoita
MEXICO

# CO-MORBIDITIES OF INFANTS WHO HAVE NAS

**Most frequently identified co-morbid conditions currently used for diagnosis**

- high-pitched cry
- respiratory distress
- difficulties feeding
- failure to thrive



# Conclusions

- Characteristics of infants and mothers parallel each other
  - Non-Hispanic white
  - Medicaid or Medicare
  - Significantly longer length of stay
  - Significantly higher total charges
- Mothers are more frequently unmarried than expected
  - Is marriage a proxy for support?
- Newly identified comorbid conditions better explain NAS than traditional indicators
  - Is this an opportunity for better identification of NAS
  - Could NAS symptoms be tempered with proactive treatments of common comorbidities?

# Acknowledgements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