

# Maternal Substance Use Disorders and Infant Withdrawal Syndromes in Hospital Deliveries among American Indians/Alaska Natives

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## Background



## Significance

- Prenatal substance exposure can have negative effects on fetal development and infant health.
- Fetal Alcohol Spectrum Disorder (FASDs) can result in physical and developmental problems.
- Prematurity, fetal withdrawal, and neonatal abstinence syndrome (NAS) are established effects of substance misuse during pregnancy.



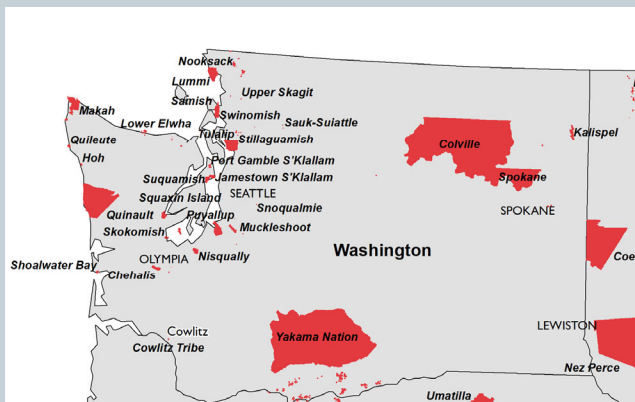
## Clinical Presentation and Management

- Onset: 12-24 hrs (heroin), 48-72 hrs (methadone, buprenorphine) up to 5-7 days
- Dysregulation leading to:
  - CNS hyperirritability- crying, inconsolable, tremor, poor sleep
  - GI dysfunction- feeding problems, vomiting, watery stool
  - Respiratory symptoms- tachypnea, nasal flaring
  - Autonomic instability- fever, yawning, mottling
- Assessment- repeated evaluation and scoring every 3-4 hours using modified Finnegan NAS score
- Non-pharmacologic interventions: comforting measures, environmental controls, maternal support
- Pharmacologic treatment (50-60%): morphine, methadone or buprenorphine



## Washington State AI/AN population

29 federally-recognized Tribes (2.0% WA population)



## Research Question

This study aimed to determine the prevalence of antepartum maternal substance use disorder (SUD) and the incidence of NAS among American Indians/Alaska Natives (AI/AN) compared to Non-Hispanic Whites (NHW) with hospital deliveries in Washington State.





# Methods



## Data Source

- Washington State Comprehensive Hospital Abstract Reporting System (CHARS), 2011 – 2014
- Collects data on diagnoses, procedures, costs & payers for all inpatient discharge in community hospitals
  - Includes most (if not all) hospitalizations for AI/AN patient
    - No Indian Health Service (IHS) hospital in the Northwest – tribal/urban AI/AN patients in WA must obtain inpatient care at community hospitals



## AI/AN Racial Misclassification

- Challenges with race/ethnicity data quality: AI/AN are misclassified in surveillance and administrative datasets more frequently than other race/ethnicities
- Misclassification results in underestimated morbidity and mortality for AI/AN



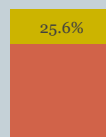
## Correct Racial Misclassification

Downstream solution: Use record linkage to correct misclassified records



- NWTEC corrects misclassified AI/AN records through probabilistic record linkage with the Northwest Tribal Registry

- **25.6%** AI/AN misclassified in CHARS 2011 – 2014



## Measures

- Identified documented substance use disorders through the International Classification of Disease, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis and procedure codes.



## Methods – Analysis Plan

### Inclusion Criteria

- Resident of WA
- Delivery at hospital
- Discharge record with a ICD-9-CM diagnosis code indicating a substance use disorder





# Results

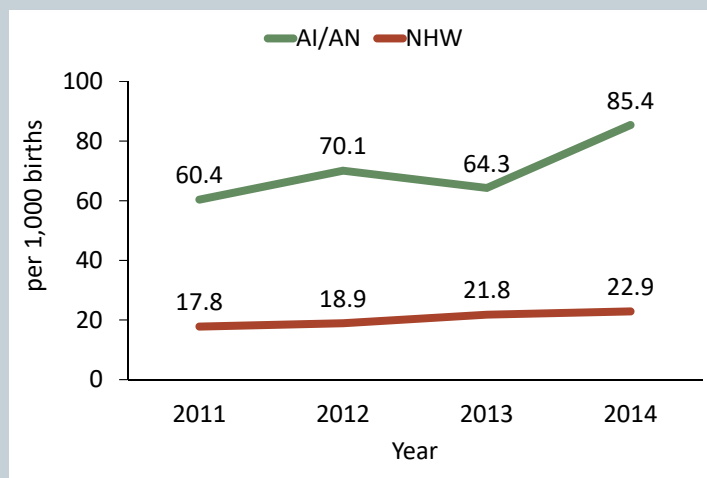


## Results

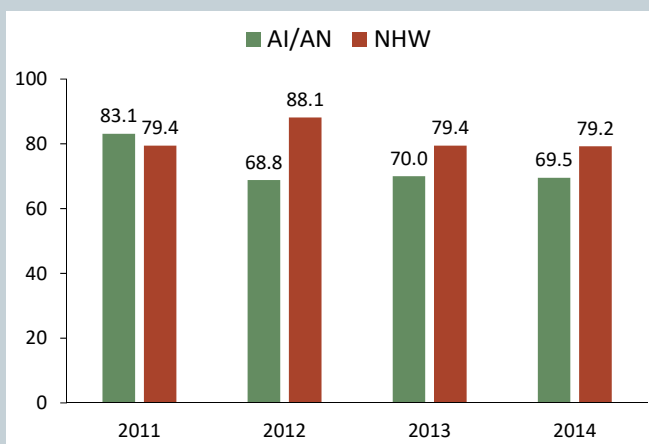
- A total of 309,285 hospital deliveries in WA 2011 – 2014
- There were 2,077 deliveries with maternal substance use disorders
- We identified 220 AI/AN (4.0%) and 1,338 NHW deliveries (1.0%) with neonatal abstinence syndrome



**Figure 1. Maternal Substance Use Disorders Rates in Washington, 2011 - 2014**



**Figure 2. Neonatal Abstinence Syndrome among Neonates with Drug Exposure, Washington**







# Discussion



## Discussion

- The results demonstrate the increasing prevalence of maternal SUD resulting in drug-exposed births in Washington.
- These findings are similar to the national trends.



## Implications

- There is an urgent need to address the high rates of AI/AN maternal SUD
- Underscore the need for sustained support for infants born with NAS



## Implications (Cont'd)

- The results suggest the potential benefits of culturally-centered programs for AI/AN women who use substances during pregnancy
- Integrated prenatal care and substance use treatment may deliver benefits for both mothers and neonates throughout the perinatal period.



## Limitations

- Northwest Tribal Registry under-represents urban AI/AN who don't use Indian health clinics and those with private insurance
  - Includes 75-80% of AI/AN population in the Pacific Northwest
- Data on residents seeking care across state lines may not be counted in their home state



## Acknowledgements

Thank you to:

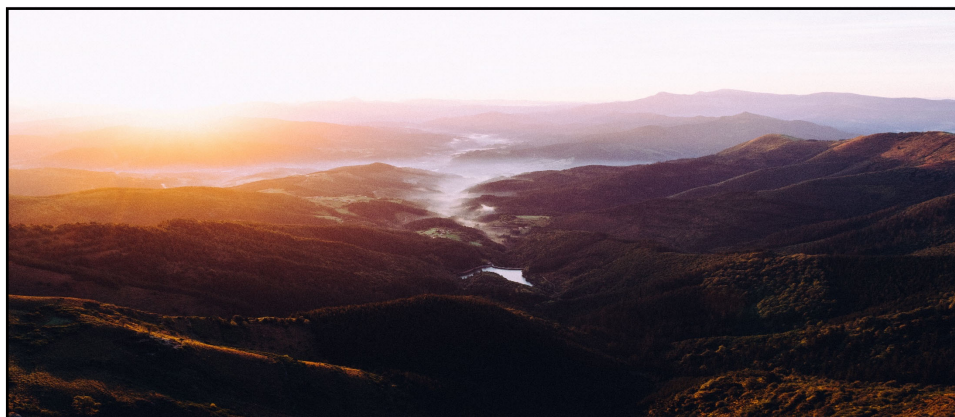
The Tribes of Washington, patients, and families

WA Department of Health

WA Associations of Hospitals and Health Systems

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