

Introduction to Neonatal Abstinence Syndrome

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Learning Objectives

1. Define Neonatal Abstinence Syndrome
2. Describe Neonatal Abstinence Syndrome in Arizona and the United States



Did you know...

- Americans make up 5% of the world's population and consume 80% of all opioids sold globally
- Opioid overdoses cause 46 deaths per day in the US
- Prescription pain relievers claim more lives than heroin and cocaine combined

The Silent Epidemic

- Drug poisoning deaths have surpassed motor vehicle deaths
- There was a 4 fold increase in the quantity of Prescription Pain Relievers sold in the U.S. in the last decade
- Arizona was the 12th highest state in the country for prescription drug misuse among individuals 12+ years in 2013

Women of childbearing age

- Approximately 1/3 of women of childbearing age had an opioid prescription filled each year from 2008-2013
 - 39% of women aged 15-44 on Medicaid
 - 28% of women aged 15-44 on private insurance

Ailes, E.C., et al. (2015) Opioid prescription claims among women of reproductive age – United States, 2008-2012. *Morbidity and Mortality Weekly Report*. 64(2), 37-41.

Pregnant women

- 21.6% filled a prescription for an opioid during pregnancy
 - 18.5% in 2000 vs 22.8% in 2007

These drugs can increase the risk of Neonatal Abstinence Syndrome

Desai, R.J., et al. (2014). Increase in prescription opioid use during pregnancy among medicaid-enrolled women. *Obstetrics & Gynecology*, 123 (5), 997- 1001.

Neonatal Abstinence Syndrome (NAS)

- NIH definition: Fetal and neonatal addiction and withdrawal as a result of the mother's dependence on drugs during pregnancy
- Primarily associated with use of opiates during the prenatal period (antepartum)
 - Amphetamines, barbiturates, benzodiazepines (e.g., diazepam, clonazepam), cocaine, marijuana, opiates and/or narcotics (e.g., heroin, methadone, codeine/hydrocodone, vicodin, oxycodone)
 - Other substances including alcohol have been linked to this syndrome

U.S. National Library of Medicine. Neonatal Abstinence Syndrome. National Library of Medicine Website. Available at <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMHT0024264//> Accessed on June 18, 2015.

NAS Withdrawal

- Withdrawal may occur from both licit (legal/prescribed) and illicit (illegal/misuse of prescription drugs) drugs.
- Babies with opioid withdrawal usually exhibit symptoms 1-3 days after birth (some as late as 5 – 10 days)

NAS Symptoms

- High-pitched cry/irritability
- Respiratory distress
- Sleep–wake disturbances
- Alterations in infant tone and movement (hyperactive primitive reflexes, hypertonicity, and tremors with resultant skin excoriations)
- Feeding difficulties
- Gastrointestinal disturbances (vomiting and loose stools)
- Autonomic dysfunction (sweating, sneezing, fever, nasal stuffiness, and yawning)
- Failure to thrive

NAS: United States

- From 2009 – 2012, NAS increased from over 3 births per 1,000 hospital births to nearly 6 babies per 1,000 hospital births
- Aggregate hospital charges for NAS increased from \$732 million to \$1.3 trillion
 - 81% from state Medicaid plans in 2012

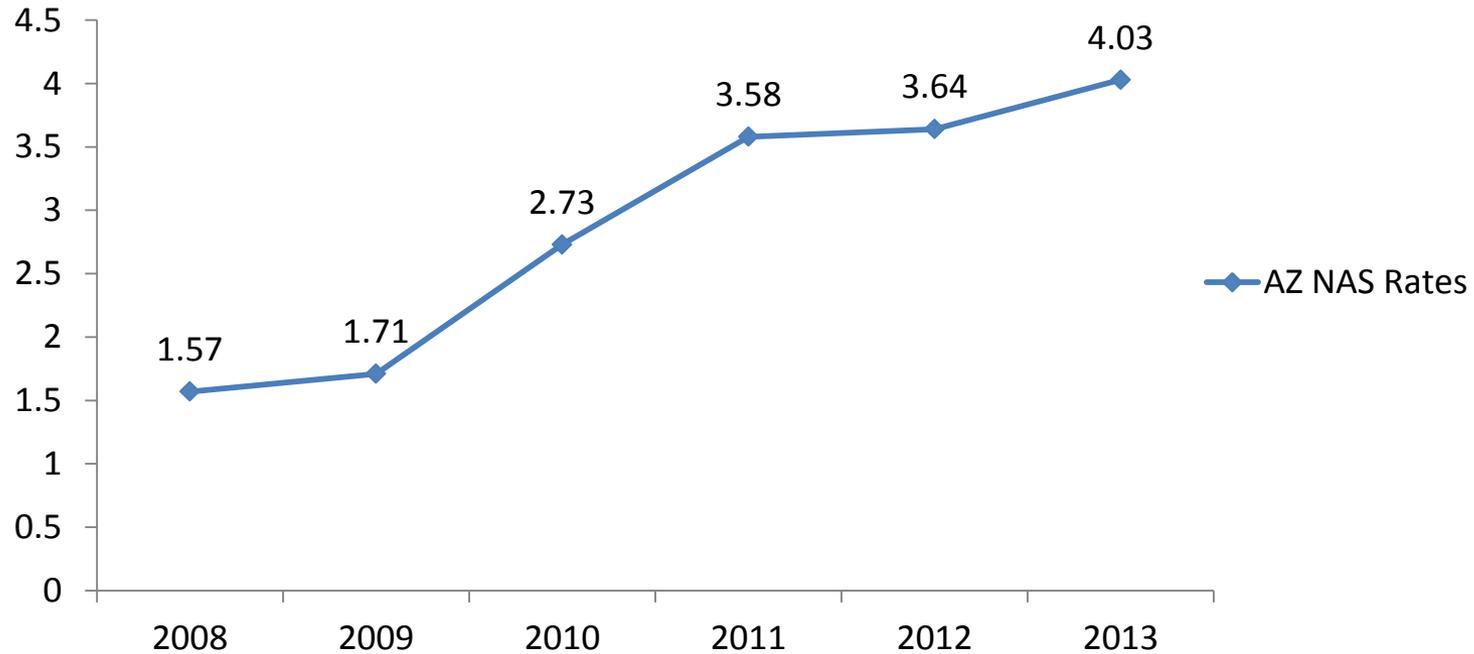
Patrick, S.W., Davis, M.M., Lehman, C.U., & Cooper, W.O. (2015). Increasing incidence and geographic distribution of neonatal abstinence syndrome: United States 2009 to 2012. *Journal of Perinatology*.

NAS defined in Arizona

- ‘NAS’: The number of newborns in AZ with any underlying ICD-9-CM diagnosis code of 779.5 “drug *withdrawal* syndrome in a newborn.”
- ‘Other substances including alcohol’: The number of newborns in AZ with any underlying ICD-9-CM diagnosis codes: 760.71 (Alcohol), 760.72 (Narcotics), and 760.75 (Cocaine)

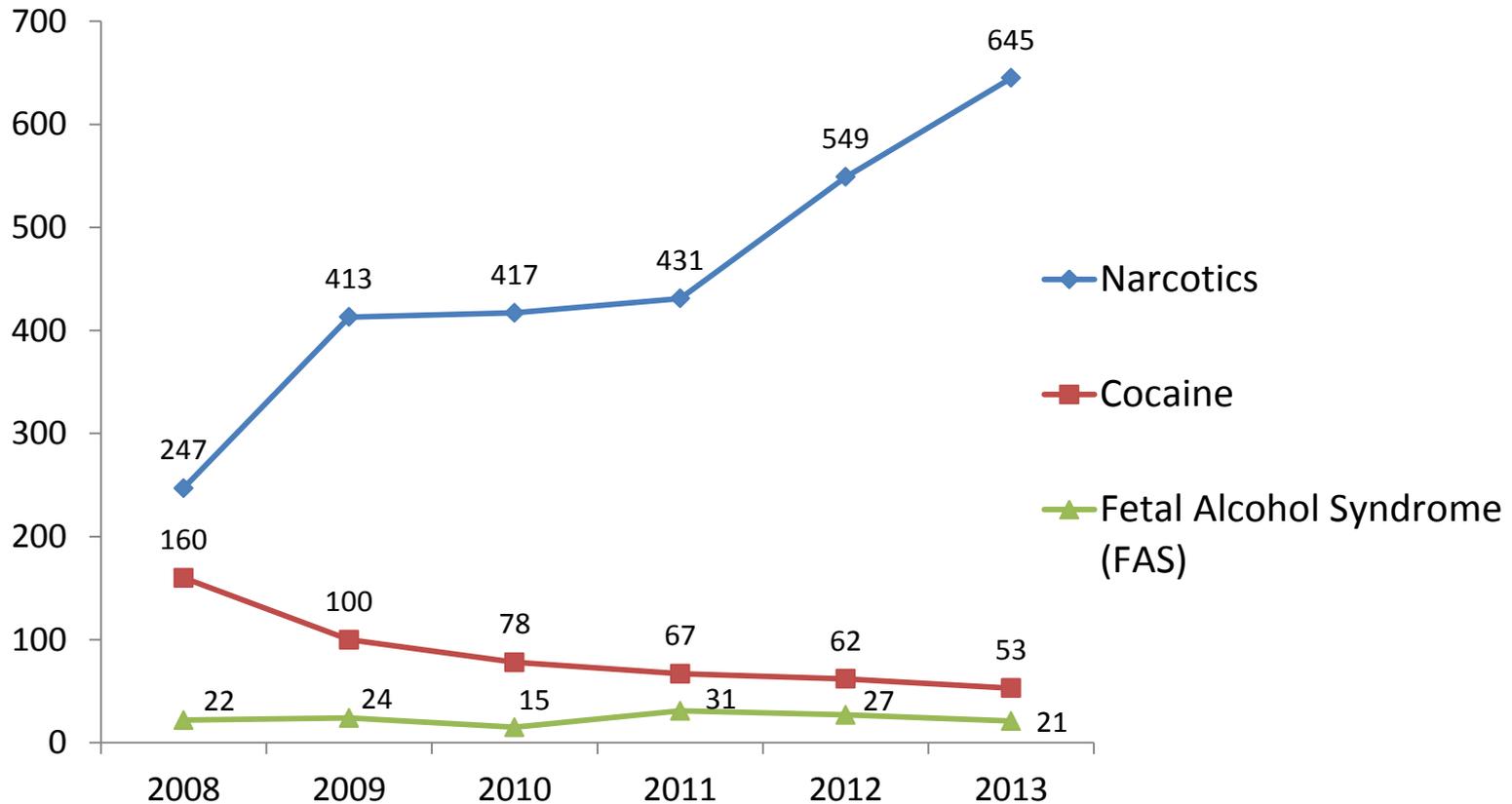
NAS: Arizona

Arizona Neonatal Abstinence Syndrome Rates for 2008-2013

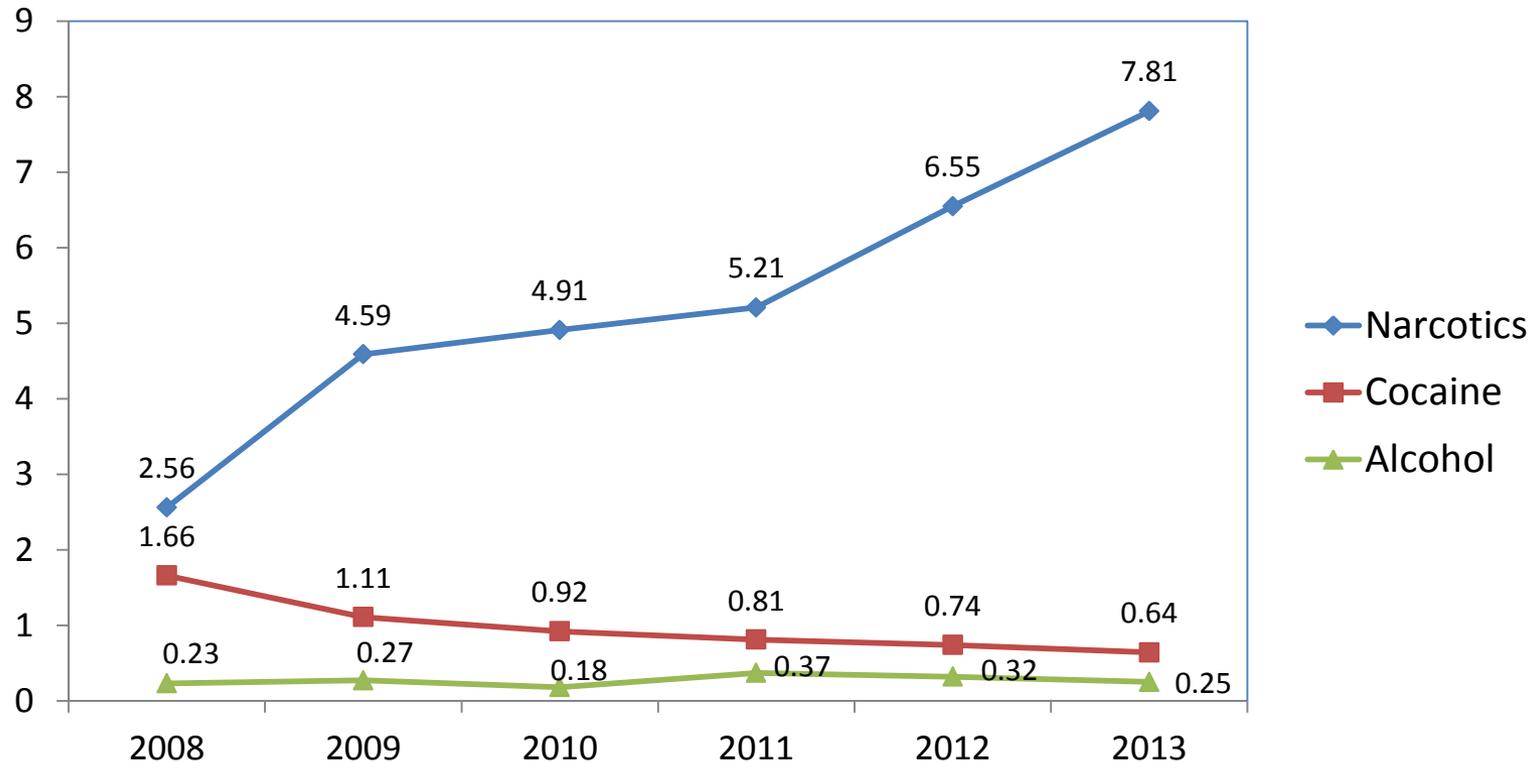


Source: AZ Dept of Health Services Vital Statistics. Hussaini SK. Neonatal Abstinence Syndrome: 2008-2013 Overview. *Research Brief*, 2014.

Number of AZ Newborns with drug exposure, 2008-2013



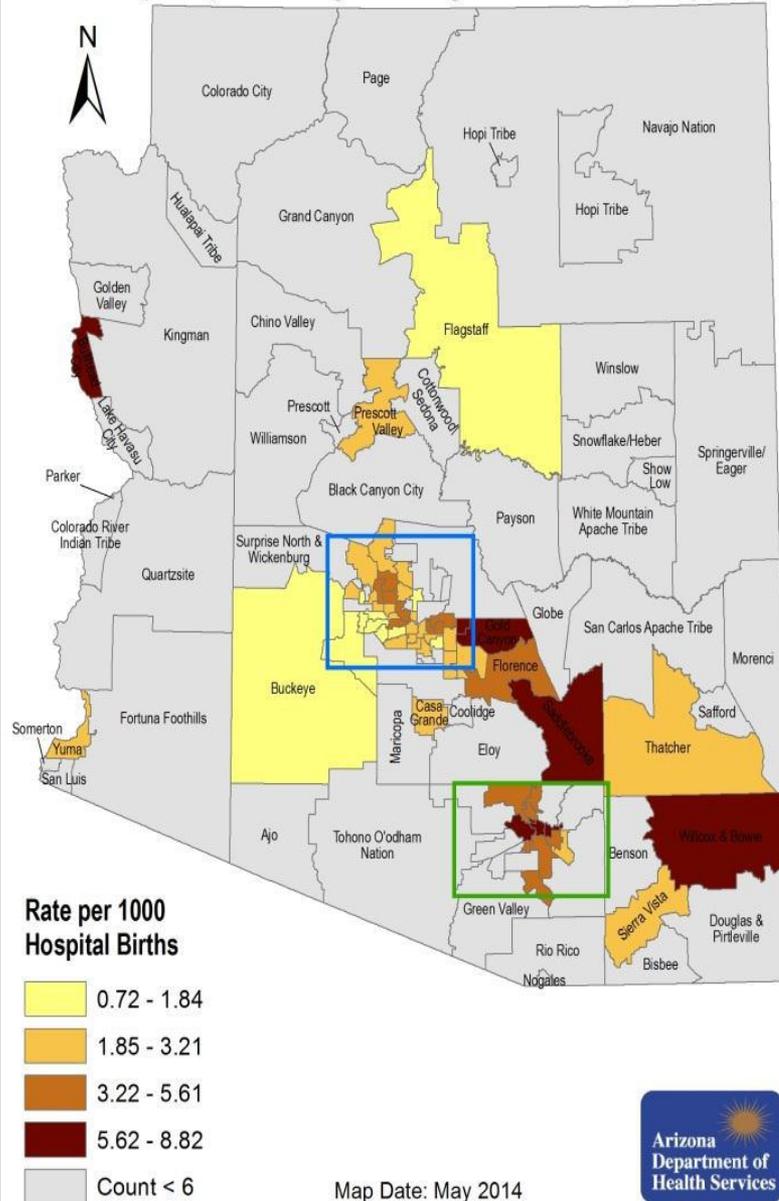
Rates of AZ Newborns with drug exposure per 1,000 live births, 2008-2013



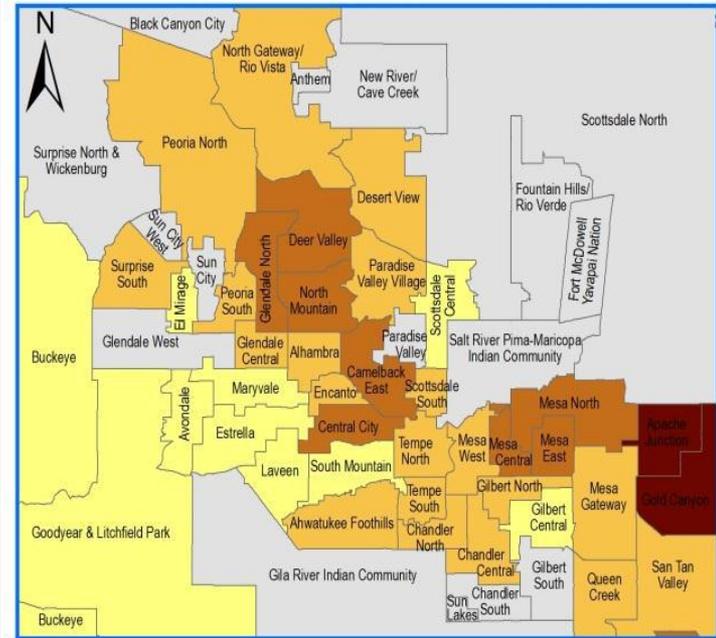
NAS: Arizona Counties 2008-2013

- Maricopa county had a significantly lower NAS rate (2.56 per 1000 births) compared to the state
- Pima county had a significantly higher NAS rate (5.06 per 1000 births) compared to the state
- Border region also had a significantly higher rate (4.06 per 1000 births) compared to non-border region (2.51 per 1000 births) and the state rate

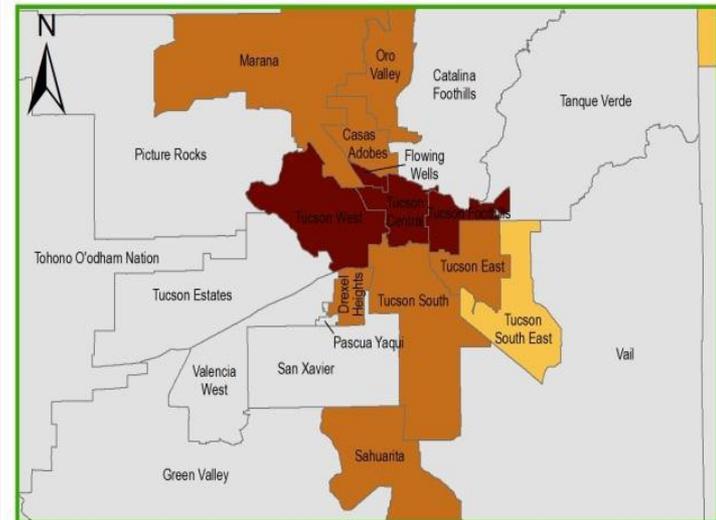
Figure 2. 2008-2013 Neonatal Abstinence Syndrome (NAS) Rates by Primary Care Area (PCA)



Metro Phoenix



Metro Tucson



Arizona Newborns exposed to all drugs (i.e., narcotics, cocaine and alcohol):

- Pinal county accounted for approximately 9% of cases relating to narcotic exposure and 4% of the cases relating to cocaine exposure
- Narcotic exposure was higher (5.6 per 1,000 births) in non-border regions compared to the overall state rate (5.2 per 1,000 births)
- In contrast, cocaine exposure (1.7 per 1,000 births) was higher in border regions compared to the overall state rate

NAS Characteristics: AZ and US

	Arizona NAS rates	US NAS rates
Males	55 %	55 %
Low birth weight	18 %	19 %
Medicaid	77 %	78 %
Private insurance	13 %	15 %
Respiratory Diagnosis	17 %	31 %
Feeding Difficulties	5 %	18%
Seizures	1 %	2.3 %

Patrick, S.W., Schumacher, R.E., Benneyworth, B.D., Krans, E.E., McAllister, J.M., & Davis, M.M. (2012). Neonatal Abstinence Syndrome and associated health care expenditures. *The Journal of the American Medical Association*, 307 (18), 1934-1940.



NAS Characteristics: AZ NAS births compared to all other AZ births

	Arizona NAS rates	Other AZ Hospital Births
Males	55 %	51 %
Caucasian	68 %	47 %
Medicaid	77 %	53 %
Private insurance	13 %	37 %
Low Birth Weight	18 %	7 %
Respiratory Diagnosis	17 %	5 %
Feeding Difficulties	5 %	1 %
Seizures	1 %	.08 %
Median cost in dollars	\$31,070	\$2,518
Median Length of Stay	13 days	2 days

NAS Symptoms: Arizona

NAS infants in Arizona compared to other Arizona Newborns (2008-2013)

- 3 times more likely to be low birth weight
- 4 times more likely to have respiratory symptoms
- 5 times more likely to have feeding difficulties
- 17 times more likely to have seizures

AZ Newborns exposed to all drugs (i.e., narcotics, cocaine and alcohol): Characteristics

	AZ Newborns Exposed to All Drugs	Other AZ Hospital Births
Low Birth Weight	23.18 %	7.02%
Respiratory Symptoms	14.42 %	4.88 %
Feeding Difficulties	4.04 %	1.15 %
Medicaid	75.52 %	52.8 %
Median Hospital Stay Cost	\$4,932	\$2,514

In Summary

- Newborns with NAS experience
 - Longer hospital stays
 - Increased Medical Complications
 - Increased Medical Costs (Often using state Medicaid plans)

What are we doing now?

- Arizona Opioid Prescribing Guidelines
- Controlled Substances Prescription Monitoring Program (CSPMP)
- Policies for Licensed Healthcare Facilities
- Home Visiting – Substance Abuse Screening
- 2 Free CME Credits to help AZ DEA prescribers incorporate the 2014 Arizona Opioid Prescribing Guidelines at:

www.VHL.com/AZPrescribing



Questions?