



Prenatal Drug Exposure and Neonatal Abstinence Syndrome in Northeast TN

Overview and Regional Snapshot

Neonatal Abstinence Syndrome

- **What is Neonatal Abstinence Syndrome (NAS)?**
 - The term Neonatal Abstinence Syndrome (NAS) refers to a group of signs and symptoms that may occur in infants withdrawing from drug dependency following in-utero drug exposure
 - Abstinence syndromes may occur with repeated exposure to substances characterized by dependency
 - Dependency occurs when receptors in the body are repeatedly exposed to a substance and, as a result, only function normally in the presence of that substance; absence of the substance results in physiologic signs and symptoms of withdrawal
 - The most common class of substances associated with NAS are the opiates/opioids

Prenatal Drug Exposure vs. NAS

- NAS is a clinical diagnosis based on:
 - History/evidence of exposure
 - Clinical signs and symptoms of withdrawal
- Not all infants with in-utero drug exposure will show signs and symptoms of withdrawal
- However, all infants with in-utero drug exposure are at risk for adverse outcomes

Etiology

- **Infants exposed in-utero to substances that may cause dependence are potentially at risk of withdrawal following birth**
- **NAS may be related to:**
 - Prescription drugs obtained with a prescription
 - Prescription drugs obtained without a prescription
 - Illicit drugs
- **NAS may be related to use, misuse, abuse or addiction**

Diagnosis

- **Clinical diagnosis of NAS is based on:**
 - **History/Evidence of exposure:**
 - **Maternal report, maternal testing**
 - **Infant urine, meconium, hair, or umbilical cord testing**
 - **Clinical signs/symptoms of withdrawal**
 - **Modified Finnegan Neonatal Scoring System**
 - **Central Nervous System**
 - **Metabolic/Vasomotor/Respiratory**
 - **Gastrointestinal**

Management

- **Goal of treatment during neonatal withdrawal is to alleviate short-term symptomatology to allow healthy feeding, growth and maternal (caregiver) bonding**
 - First line CNS/GI/Respiratory/Vasomotor support measures
 - Pharmacologic therapy with opioid replacement +/- adjunctive medications as needed

Sutter MB et al. Neonatal Opioid Withdrawal Syndrome. *Obstet Gynecol Clin N Am.* 41 (2014) 317-334

Prevention

- **Although NAS can be anticipated and managed at birth it is a preventable condition**
 - **Prevent maternal exposure to substances that cause dependency**
 - Increase awareness of risks associated with opioid use
 - Increase awareness of and adherence to guidelines for the outpatient management of non-malignant chronic pain
 - Promote the responsible disposal of prescription drugs through take back events and drop off locations
 - Prevent diversion and accidental ingestion through the use of lock boxes
 - Increase awareness of the importance of taking prescription medications only as prescribed
 - Increasing access to comprehensive treatment for alcohol and substance use
 - **Prevent unintended pregnancy in women of reproductive age who are not seeking pregnancy and are already exposed or at high risk of exposure**
 - Increasing awareness of the risks of opioid use during pregnancy
 - Ensuring access to reproductive health education, family planning counseling and services

Scope

- **Between 2000 and 2012, the NAS hospitalization rate increased approximately fifteen-fold**
- **Since NAS surveillance began in 2013, the total number of cases of NAS has continued to increase but the rate of NAS diagnoses (#NAS cases per 1,000 live births) has remained relatively stable with increases not reaching statistical significance**
- **Impacts of NAS extend beyond the diagnosis and management of the acute withdrawal syndrome**

Miller AM and Warren MD (2015). Neonatal Abstinence Syndrome Surveillance Annual Report 2015. Tennessee Department of Health, Nashville, TN.

- **NAS Surveillance Data 2013-2015**
- **Geographic distribution:**
 - Rates of NAS are lowest in West Tennessee and increase in an easterly fashion
 - Highest rates of NAS occurred in Northeast and East Regions and Sullivan County
- **Sources of exposure:**
 - When categorized into mutually exclusive categories of exposure:
 - 48.5% of cases were exposed to prescription drugs only
 - 26.8% were exposed only to illicit or diverted drugs
 - 23.2% were exposed to a mix of prescription and illicit or diverted drugs
 - Since 2013, there has been a statistically significant increase in the percentage of NAS cases exposed only to prescription drugs
 - Among cases exposed to only prescription drugs, 81.3% were exposed to medications used in medication assisted treatment

Miller AM and Warren MD (2015). Neonatal Abstinence Syndrome Surveillance Annual Report 2015. Tennessee Department of Health, Nashville, TN.

Regional snapshot

- Rates of NAS in the Northeast Region have consistently been among the highest rates in the state
- Five of seven counties in the Northeast Region showed a worsening of case rates between 2013 and 2015
- 68.3% of cases reported in the Northeast Region were exposed to prescription drugs only

Miller AM and Warren MD (2015). Neonatal Abstinence Syndrome Surveillance Annual Report 2015. Tennessee Department of Health, Nashville, TN.

Research

- **Opportunities to better understand, respond to, and prevent maternal substance use, prenatal substance exposure, and neonatal abstinence syndrome exist across the spectrum from pre-conception to long term follow up of affected infants**

- **Tennessee Department of Health Neonatal Abstinence Syndrome Health Topic Page**
 - <https://www.tn.gov/health/topic/nas>
 - Background Information
 - Reporting Resources
 - Additional NAS Resources
 - Reports and Publications
 - NAS Surveillance Summary Archive
 - NAS Update Archive
 - NAS Research Projects