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Neonatal Abstinence Syndrome: An Overview of Delaware and National Data

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WHAT IS NAS?

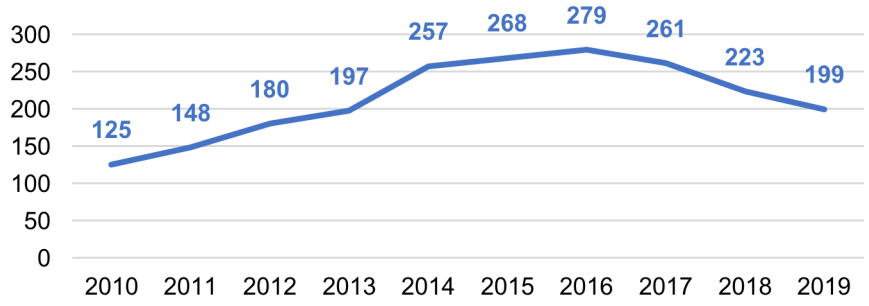
Neonatal Abstinence Syndrome (NAS) is a withdrawal syndrome experienced by newborns exposed to various substances during fetal development.[1] NAS can lead to a variety of short-term and long-term complications for impacted infants.[2] Although NAS is primarily associated with opioid use, it is also associated with use of alcohol, nicotine, and prescription medications during pregnancy.[3]

NAS can happen in all populations but occurs most commonly in the children of pregnant persons between the ages of 25-29, those who are non-Hispanic white, Medicaid recipients, and residents of rural areas.[4] Given the high rates of opioid use disorder across the United States and locally in Delaware[5], substance use during pregnancy is a major public health issue.

NAS IN DELAWARE

In Delaware, the number of NAS cases rose consistently between 2010 and 2016, from 125 cases to 279 cases (Figure 1). However, the number of cases declined after 2017, and was 199 in 2019, which was the lowest number of cases in six years.[6,7]

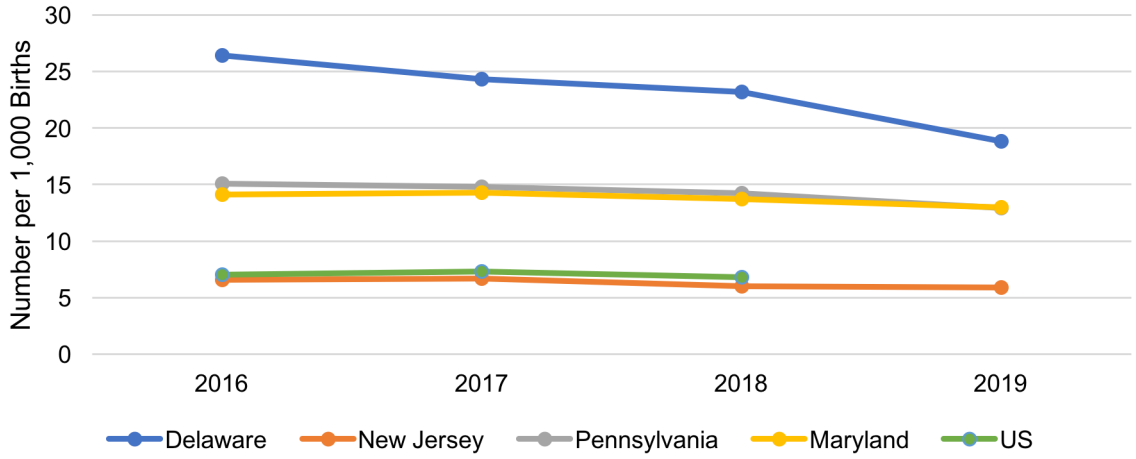
Figure 1. Delaware NAS Cases, 2010-2019*



*Due to different rates of data reporting, the data from 2010-2018 is sourced from Delaware Health and Social Services, and the 2019 point was from data reported by the Agency for Healthcare Research and Quality.

Source: Center for Community Research and Service, 2022. 2010-2018 data from Delaware Health and Social Services, Division of Public Health. (2019). Neonatal Abstinence Syndrome: 2010-2018. 2019 data from HCUP Fast Stats. Healthcare Cost and Utilization Project (HCUP). September 2021. Agency for Healthcare Research and Quality, Rockville, MD.

Figure 2. Rates of Neonatal Abstinence Syndrome in Delaware, New Jersey, Pennsylvania, Maryland, and the United States, 2016-2019



Note: 2019 rates are not available for the U.S. at time of publication.

Source: Center for Community Research and Service, 2022. HCUP Fast Stats. Healthcare Cost and Utilization Project (HCUP). September 2021. Agency for Healthcare Research and Quality, Rockville, MD.

Although Delaware has seen a decrease in the number of cases of NAS per year, the rate is substantially higher than that of neighboring states and has been consistently more than three times the national rate since 2016 (See Figure 2).[8] In Delaware, there were 18.8 NAS cases per 1,000 births in 2019, a reduction from 27.6 cases per 1,000 births in 2016.[9]

TREATMENT

NAS is identified using the NAS Scoring System, which identifies symptoms of withdrawal, along with maternal history and drug screens of urine, meconium, and the umbilical cord.[10] Severity, measured using the Finnegan Neonatal Abstinence Scoring System, indicates whether a pharmacologic or non-pharmacologic treatment plan will be used.[11] Treatment includes a mixture of non-pharmacologic interventions including common methods of comforting a child such as swaddling, rocking, and feeding, and pharmacologic intervention often including tapering of morphine, phenobarbital, methadone, or clonidine.[12]

HEALTH OUTCOMES

Symptoms of NAS typically appear in newborns within 72 hours of birth, and include tremors, irritability, trouble sleeping, hyperactive reflexes, seizures, nasal congestion, yawning, trouble feeding, vomiting, increased sweating, and dehydration.[13] As they grow older, children who experienced NAS as infants are more likely to experience educational disabilities, developmental delays, language impairment, and have poor school performance.[14,15] While there is limited research regarding how NAS impacts infants throughout their lifespan, NAS is thought to be associated with an increased

risk for central nervous system defects, which can have detrimental lifelong effects.[16]

NAS is just one adverse outcome that is associated with maternal opioid use. Exposure to opioids also increases the likelihood that a child is born preterm, has poor fetal growth, experiences birth defects, and has a longer hospital stay after birth or is re-hospitalized within 30 days of birth.[17] These things can occur as a result of substance exposure even if the child does not exhibit symptoms leading to an NAS diagnosis.

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SOCIETAL COSTS

In addition to detrimental health outcomes, NAS diagnoses also come with societal costs. Babies born with NAS experience longer, more expensive hospitalizations than babies without NAS. On average, infants with NAS have hospital stays that are 3.5 times longer and more than three times more expensive than babies born without NAS.[18] In 2016, the average NAS treatment cost was $22,552 and 83% of in-hospital births that involved children diagnosed with NAS were covered by Medicaid, meaning that much of this financial impact is borne by state and federal budgets.[19]

NAS diagnoses may also place a strain on certain social services. Delaware's Plan of Safe Care for Infants with Prenatal Substance Exposure and their Families requires that healthcare providers notify the Department of Family Services if a child is born with or affected by substance use, withdrawal symptoms, or Fetal Alcohol Syndrome Disorder, in accordance with federal law.[20] In doing this, an investigation would occur, potentially leading to a child being placed in a special care setting. Research shows that a caseworker's perception that a child's caregiver has a substance abuse disorder leads to an increased likelihood of child removal.[21] Prevention of prenatal substance exposure is key in reducing the strain felt by the Department of Family Services, special care settings, and new families.

The detrimental health outcomes of NAS are associated with societal costs as well, including more expensive hospitalizations and increased need for special care settings and potential family separations.

POLICY CLIMATE

Policies or initiatives addressing NAS may confront underlying causes including substance abuse, perinatal and child health, and family planning. Effective substance use treatment and prevention strategies are key to reducing NAS. Although many new policies promote supportive care, substance use related policies in the United States have often been punitive, punishing people for substance abuse[22] with measures including loss of custody and tend to be ineffective at preventing NAS.[23] These policies increase the likelihood that a pregnant person with opioid use disorder (OUD) may choose to avoid perinatal and prenatal care due to fear of retribution.[24]

Reducing unintended pregnancy is another strategy to reduce the number of infants born with NAS. Individuals with OUD have been found to use less effective contraceptive methods, or no contraceptive

methods at all[25], leading to a high rate of unintended pregnancy.[26] Ensuring that patients who are known to have OUD are able to access preconception, family planning, and perinatal health care decreases the likelihood of a baby being born with NAS.[27]

DELAWARE INITIATIVES

Substance Abuse Prevention and Treatment Block Grant
Delaware has received money through the Substance Abuse Prevention and Treatment Block Grant (SABG) since 1993, which requires that the state use a certain amount of their funding to support pregnant and parenting women and that pregnant women who seek treatment in facilities using SAPT block grant funds are prioritized and given care within 48 hours.[28]

DE Thrives
DE Thrives was established in 2011 as a program to effectively communicate about the programs and activities of the Family Health and Systems Management and the Delaware Department of Public Health, and was codified into a freestanding organization in 2019.[29] DE Thrives focuses on improving perinatal care provision and quality to improve care outcomes, including developing a standard of care for parents and babies impacted by NAS.[30]

Delaware Healthy Mother and Infant Consortium
The Delaware Healthy Mother and Infant Consortium is a group under the umbrella of Family Health and Systems Management that is charged with providing informational reports and recommendations for improving perinatal and postpartum care to the Governor and the Infant Mortality Task Force.[31] Included in this work is an update on the prevalence of Neonatal Abstinence in Delaware, as well as reports on the increased services required for these children. The consortium also provides information on the status of reproductive health in Delaware, including analyses of the behaviors and risks being taken around pregnancy and reproductive care by people with the potential to become pregnant, including substance use.

DelCAN
Delaware Contraceptive Access Now (DelCAN) is a public-private partnership between the Delaware Department of Public Health and Upstream USA that aims to reduce unintended pregnancies by ensuring Delaware residents have same-day access to effective contraception, including long-acting reversible contraceptives (LARCs).[32] As individuals with OUD have higher than average rates of unintended pregnancy and more frequently report no or less-effective contraceptive use, DelCAN's work is especially relevant to the population of people who are at most risk for neonatal substance exposure.[33] Although the active training portion of this program has ended, evaluation of the impact of this program is ongoing.

Help Is Here DE
Delaware code (Title 24, Chapter 17, § 1769A., 201) requires that medical providers educate pregnant people on the implications of substance use on their pregnancies.[34] Help is Here, a database of mental health, addiction, recovery, and provider resources provides documents and information that help providers to screen and educate their pregnant patients on the impact that substance use can have on their babies.[35]

For more information, visit:

DE Thrives: *dethrives.com*

Healthy Mother and Infant Consortium: *dethrives.com/dhmic*

Help is Here DE: *helpisherede.com*

LOOKING FORWARD

Although NAS cases have declined in Delaware since 2016, the rates of NAS have remained consistently higher than the U.S. and surrounding states. This indicates a continued need for development of new programs and initiatives to provide support to pregnant people who are at risk for having babies with NAS. Delaware's continued vigilance on this and related health issues can help reduce OUD and NAS cases throughout the state.

This report was produced by the University of Delaware Center for Community Research and Service (CCRS), specifically the Medicaid Research Program. The mission of this research team is to obtain and maintain data on health care services, and to carry out research which can lead to improvements in the quality, effectiveness, efficiency, availability, and affordability of health care services in Delaware and beyond.

Please contact Emily Loughlin (emlou@udel.edu) or Rebecca McColl (bmccoll@udel.edu) with any questions or for more information.

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