DEPARTMENT OF HEALTH

Neonatal Abstinence Syndrome

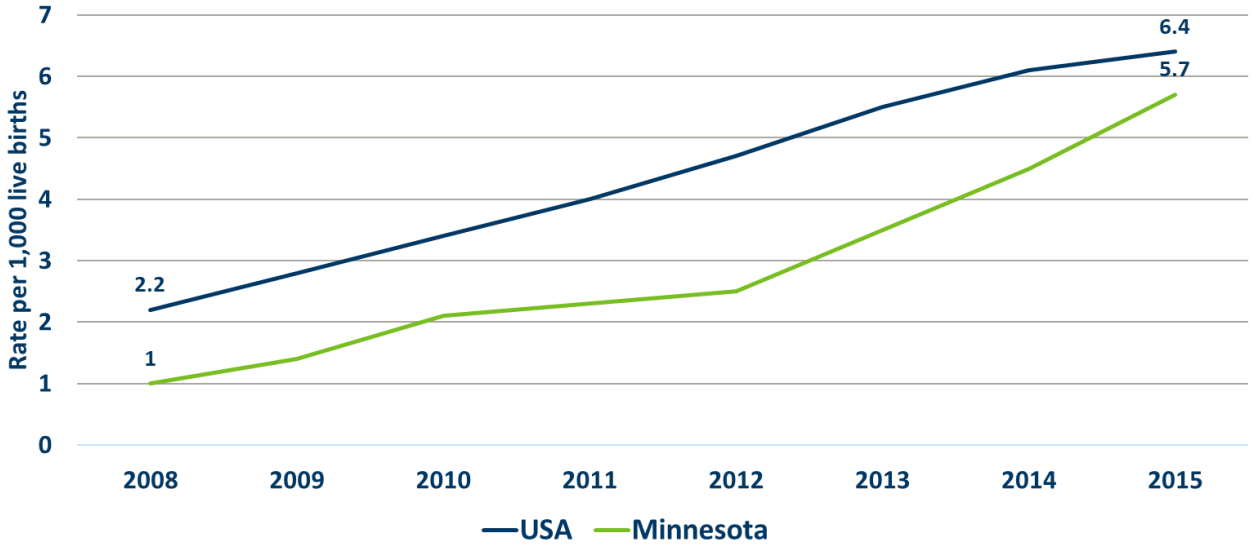
HEALTH EFFECTS EXPERIENCED BY INFANTS BORN TO MOTHERS EXPERIENCING SUBSTANCE USE DISORDER

Why It's Important

Neonatal abstinence syndrome (NAS) is a constellation of signs of withdrawal in newborns (neonates less than 28 days) following in utero exposure to medications or illicit drugs, most commonly opioids (including opioid agonists used for treatment of opioid use disorder), benzodiazepines, and barbiturates.[1] Other substances, such as alcohol, nicotine, medications and other drugs may influence the severity and timing of withdrawal. Babies born to mothers who have misused certain medications or illicit drugs during pregnancy can experience numerous negative health effects very early in life. Neonatal Abstinence Syndrome (NAS) is a group conditions which present when going through withdrawal from a substance that is passed from the mother's bloodstream to the fetus through the placenta.[2]

The drugs most commonly associated with NAS are narcotics, muscle relaxants, antidepressants, and illegal substances including cocaine, heroin, ecstasy, methamphetamine, and synthetic opioids.[1] The United States is currently experiencing an opioid epidemic with the rate of babies born with NAS tripling to 6 per 1,000 births in 2013 from 1.5 per 1,000 births in 1999.[3]

Figure 1. Neonatal Abstinence Syndrome Rate in the USA and Minnesota, 2008-2015



Source: HCUP – State Inpatient Databases analyzed by Maternal and Child Health Bureau (MCHB)

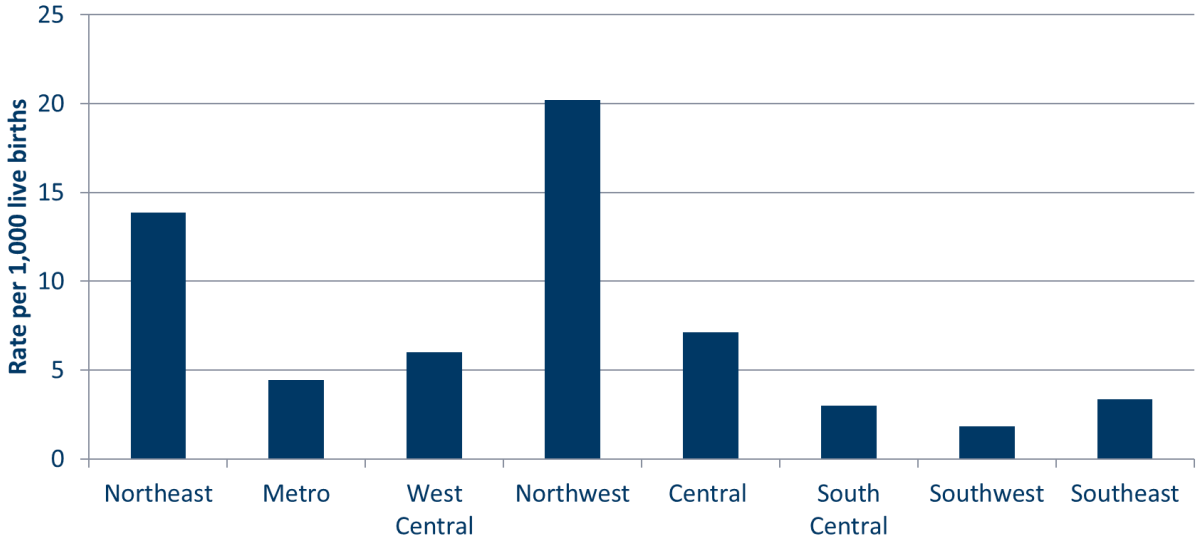
When the baby is born, they stop receiving this substance through the placenta and experience withdrawal symptoms like breathing problems, poor feeding, diarrhea, seizures, and fever.[2] Most babies will experience symptoms of NAS soon after birth and these symptoms can last for up to six months. Babies with NAS are also at a higher risk of being born prematurely or at a low birthweight. In Minnesota, the prematurity rate among newborns with NAS was 26 percent, compared to 11 percent of newborns without NAS.[4] Babies born with NAS also experience prolonged hospitalization or admission

to the NICU. As these babies grow, they are at a greater risk of experiencing developmental delays or speech impairment than children who were not born with NAS.[5]

"The opioid crisis, alcohol & drugs have overtaken our families and may have had wiped out a generation of caring parents"- Needs Assessment Discovery Survey Respondent

From 2012 to 2016, there were 1,839 cases of NAS in Minnesota. This corresponds to a rate of 5.5 per 1,000 live births. Minnesota data shows babies born with NAS are more likely to be male and a large portion (47%) of the total number of NAS cases occurred in the Metro region (873 of the total 1,839 cases), while the rate for the Metro region was the fifth highest regions (Figure 2).[6] However, the rate of babies born with NAS is highest in the Northwest region of the state.

Figure 2. Neonatal Abstinence Syndrome Rate by Minnesota Region, 2012-2016



Source: Minnesota Hospital Discharge data analyzed by MDH Injury and Violence Prevention Section

Focus on Health Equity

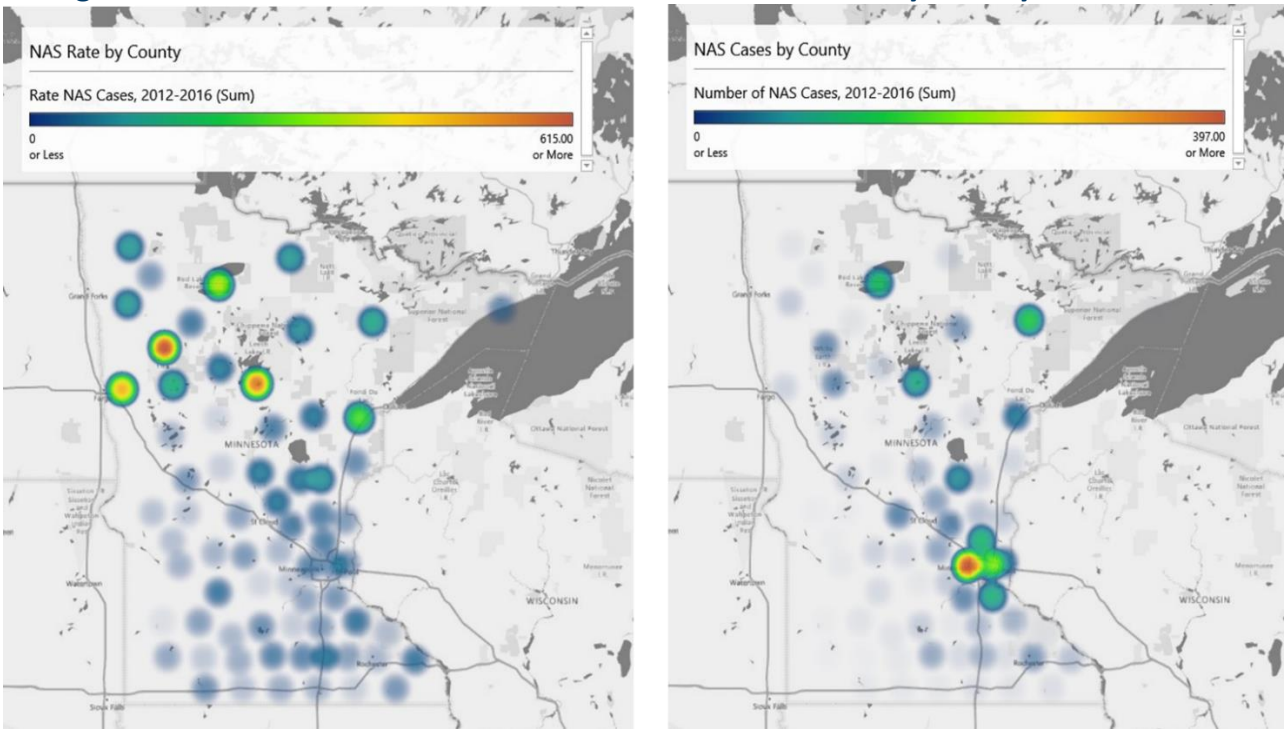
Access to substance use treatment facilities, especially treatment centers that accept pregnant women or mothers with their children, is a barrier to many mothers living in Minnesota as the majority of treatment centers are located in the Metro area. If treatment is available, the type of care that is provided is not always culturally appropriate or unbiased which can result in women feeling judged, fearful, or shamed.[8] Many people living in rural areas have to travel farther for medical care in general, which can delay seeking treatment and medical care.[9] As fewer hospitals in rural Minnesota have obstetric services, infants born with severe NAS may require a transfer to a larger hospital, incurring more costs and logistical challenges for families that choose to stay with their infant during their hospitalization. Research from the University of Minnesota found that diagnoses of maternal opioid use disorder and NAS are increasing fastest among rural residents.[9]

In addition to experienced barriers to accessing substance misuse, many women are understandably fearful of losing children or becoming involved with child protective services while seeking prenatal care or treatment for substance misuse. Families of color have historically been treated poorly within child protective services systems and continue to be disproportionately involved in removal of children from a home, which can result in trauma for the family and contribute to generational trauma.[10] Pregnant

women report fear of being identified as misusing substances during pregnancy and potentially facing criminal justice involvement as a result of substance screening as a major barrier to attending regular prenatal care appointments.[8]

Opioid use does not affect all women equally. More than one in ten American Indian women has a diagnosis of opiate dependency or abuse during pregnancy. In Minnesota, there is an 8-fold higher rate of NAS among infants born to American Indians.[2] Substance use and mortality disproportionately affects non-White people living in Minnesota, which subsequently impacts these families and communities through the loss of a parent or child.

Figure 3. Rate and Case Counts of NAS cases in Minnesota by County, 2012-2016



Source: Minnesota Hospital Discharge data analyzed by MDH Injury and Violence Prevention Section

Additional Considerations

Not all cases of NAS are diagnosed as symptoms can be mild and vary greatly. There is the potential for underreporting of NAS cases in Minnesota. Regardless, when infants are born with NAS, the public health cost is substantial. Babies who were born with NAS in 2012 remained in the hospital for an average of 16.9 days at a median cost of $66,700 compared to babies born without NAS who remained in the hospital for an average of 2.1 days at a cost of $3,500.[11] Babies born with the most severe NAS requiring intensive treatment remained hospitalized for an average of 23.0 days at a total median cost of $93,400.

Nurses that provide care for infants diagnosed with NAS often take on the role of providing care to the infant and education to parents and families of these infants. Nurses caring for babies with NAS report needing and wanting more education on how to support mothers experiencing substance misuse at the time of labor and delivery while seeking specialized training to provide the best care possible for NAS infants. Nurses are in a unique position to support the health of families through providing education,

compassionate care, and establishment of trusting relationships with mothers to reduce stigma and shame associated with seeking treatment.[12]

Important Note on Equity and Intersectionality

The Minnesota Department of Health's Title V Needs Assessment team acknowledges that structural (social, economic, political and environmental) inequities result in poor health outcomes across generations. They have a greater influence on health outcomes than individual choices or a person's ability to access health care, and not all communities are impacted the same way.

All people living in Minnesota benefit when we reduce health disparities through policies, practices and organizational systems.

We also acknowledge that the topic addressed in this data story does not exist in isolation– which is important to remember as we do needs assessments and as we start thinking about how we approach solutions. In addition to the needs themselves being intersectional, there are also intersecting processes and systems through which power and inequity are produced, reproduced, and actively resisted.

Citations

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