

## Introduction and Purpose

Neonatal Abstinence Syndrome (NAS) is a growing worldwide pandemic and is a threat to the health of diagnosed infants (Alemu et al., 2020). Symptoms of NAS include low-birth weights, difficulty feeding, unsoothable irritability, and seizures (Barfield et al., 2017). Evidence has shown that these impacts extend into childhood, negatively affecting growth and development (Fill et al., 2018). The purpose of this study is to analyze the impact of NAS on infants, their mothers, and the nurses who care for the infants. We also identify several effective pharmacological and nonpharmacological interventions to counteract NAS withdrawal symptoms.

## Background and Significance

NAS is a substance-withdrawal disorder that impacts infants that have been exposed to addictive substances in utero; substances include methadone, buprenorphine, narcotics, opioids, alcohol, illegal substances, and more. NAS presents as respiratory distress, low birth weight, poor feeding, and irritability soon after birth (Alemu et al., 2019).

NAS across the US has increased by threefold since the 2000s; however, Tennessee has increased by tenfold (Tennessee Department of Health).

More than 5% of women use illicit drugs during pregnancy and 49-94% of infants who are exposed to illicit drugs or opioids experience NAS (Johnson, 2017). Additionally, children born with NAS are 3.2 times more likely to have a greater number of healthcare insurance claims through age 8; these claims are also more costly (Guodong et al., 2019).

In 2016, an estimated \$1.8 billion in medical expenses from neonatal hospitalizations resulted from NAS (Alemu et al., 2019).

Lawmakers across the United States feel that opioid abuse during pregnancy is the main concern; however, research supports any substance that is abused during pregnancy is harmful to a fetus and can cause an infant experience NAS upon birth (Woodruff & Roberts, 2019).

In a study by Rockefeller et al. (2019), they analyzed the mother's perspective. The study focused on their experiences with healthcare workers, support groups, and the obstacles they faced when bonding and caring for their child.

## Key Findings

A study by Parlaman (2019) found that by introducing nonpharmacological treatments, the infant with NAS hospital stay reduced from nine days to six days as well as a 60% decrease in morphine use. Morphine use dropped from 63% to 23%.

Such non-pharmacological treatments include in-rooming with the mother, limiting light/sound exposure, and not using the Finnegan tool for assessing NAS because this contradicts idea of limited stimuli (Loyal et al., 2019).

NAS is a growing pandemic, specifically in rural areas with high poverty rates. An example would be the Appalachian area of East Tennessee. This region experiences NAS at a rate of 28.5 per 1,000 live births compared to the state of Tennessee's rate of 12.7 per 1,000 live births (Erwin, 2017).

In the Rockefeller et al. study (2019) the women interviewed reported overwhelming support from healthcare professionals; however, there was a lack of information about NAS from them. Instead, the mothers gathered information from other mothers and support groups for NAS. Another study on the mother's perspective reported they often felt criticized or judged by healthcare workers, making it more difficult for them to seek help when they know that they have a substance abuse issue (Johnson, 2017).

In an focused ethnography by Nelson (2016), NICU nurses expressed grief, exhaustion, and frustration when caring for neonates affected by maternal substance abuse in utero (pp. 34-74). Nurses also reported difficulty during interactions with mothers because they were often anxious and have complex psychosocial issues (Loyal et al., 2019).

## Conclusion

The NAS pandemic stems from the growing opioid crisis. Proper prescription of controlled substances, accurate surveillance of the trends of NAS, and available treatments for expecting mothers are ways the Center for Disease Control and Prevention (CDC) is tackling the crisis (Barfield et al., 2017). Standardization of assessing infants at risk for NAS is needed to provide quality care to these infants.

Non-pharmacological methods, such as in-rooming, low stimulus environments, and breastfeeding, should be pursued before narcotic treatment (Barfield et al., 2017; Loyal et al., 2019).

Methods of preventing NAS include educating the general public about NAS, especially pregnant woman who may battle substance abuse. Many physicians recommend prescribing non opioid methods of treatment for pain (Ko et al., 2017). State lawmakers should also stay abreast of the current conditions of NAS in their states and work to decriminalize the situation so women can seek prenatal care without fear of being charged.

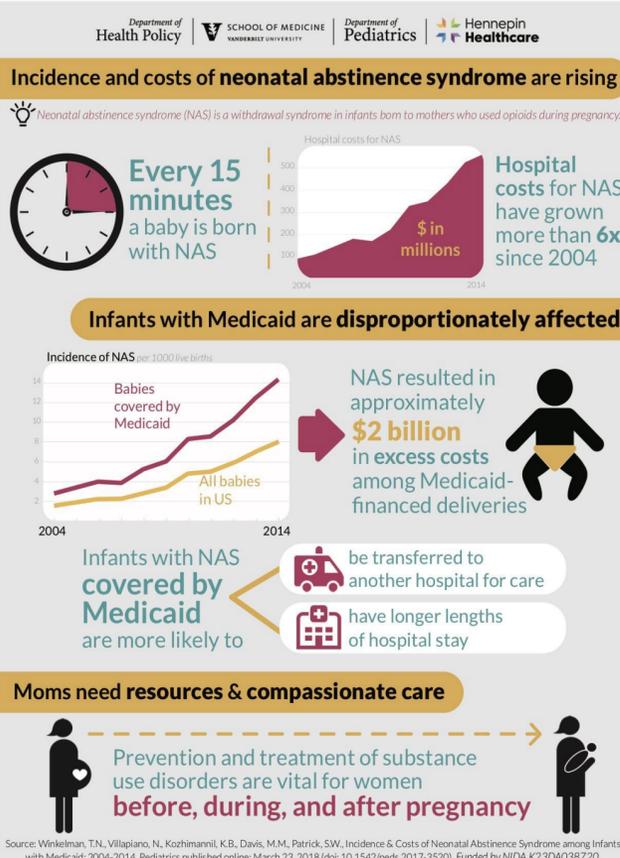
Posters/pamphlets, speaking at SUD meetings, and educating mothers about NAS are ways to inform the general public about this growing crisis.

## Literature Review and Methods

The Literature Review for Neonatal Abstinence Syndrome (NAS) analyzed 20 articles on the topic of NAS and the effects on mothers, infants, and nurses. Pubmed and CINAHL were used to collect articles written within the past five years.

Key words: "Neonatal Abstinence Syndrome", "Neonatal Abstinence Syndrome AND nurses", "Long term effects of NAS", "NAS AND mothers"

### References



Source: Winkelman, T.N., Villapiano, N., Kozhimannil, K.B., Davis, M.M., Patrick, S.W., Incidence & Costs of Neonatal Abstinence Syndrome among Infants with Medicaid: 2004-2014, Pediatrics published online: March 23, 2018 (doi: 10.1542/peds.2017-3520). Funded by NIDA K23DA038720.