

Vanderbilt study shows babies born with drug withdrawal symptoms on the rise

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The number of infants born in the United States with drug withdrawal symptoms, also known as neonatal abstinence syndrome (NAS), nearly doubled in a four-year period. By 2012, one infant was born every 25 minutes in the U.S. with the syndrome, accounting for \$1.5 billion in annual health care charges, according to a new Vanderbilt study published in the *Journal of Perinatology*.

Neonatal abstinence syndrome has been linked to both illicit drug use as well as use of prescription opioids—narcotic pain relievers such as hydrocodone—by pregnant women. Infants born with NAS are more likely to have respiratory complications, feeding difficulty, seizures and low birth-weight.

The study found that from 2009-2012, the incidence of neonatal abstinence syndrome rose in the United States from 3.4 births per 1,000 to 5.8 births per 1,000. Broken down by geographic area, the east south central division (Tennessee, Kentucky, Mississippi and Alabama) had the highest rates of the syndrome, occurring in 16.2 hospital births per 1,000.

"The rise in neonatal abstinence syndrome mirrors the rise we have seen in opioid pain reliever use across the nation. Our study finds that communities hardest hit by opioid use and their complications, like overdose death, have the highest rates of the NAS," said study lead author Stephen Patrick, M.D., MPH, MS, assistant professor of Pediatrics and Health Policy in the Division of Neonatology with the

Monroe Carell Jr. Children's Hospital at Vanderbilt.

Other previous research studies have shown opioid pain reliever use skyrocketing in the past decade. In 2012 alone, physicians in the United States doled out an estimated 259 million opioid prescriptions, enough for every American adult to have one bottle, according to the Centers for Disease Control and Prevention. Also, another recently published study by Patrick found that [pregnant women](#) are commonly being prescribed opioid pain relievers, increasing the likelihood their infants are born with NAS.

In this study, Vanderbilt researchers wanted to see if the rise in infants born with neonatal abstinence syndrome correlated with the overall rapid increase in overall opioid use in the U.S. They combed four years of data, from 2009-2012, in two national databases, the Kids' Inpatient Database and the Nationwide Inpatient Sample, to identify rates of the syndrome.

The results revealed that NAS rates had doubled in the study period, with more than 80 percent of the infants enrolled in state Medicaid programs. Looking back even further, the results mean NAS has grown nearly fivefold since 2000.

"The findings of this study demonstrate that [neonatal abstinence syndrome](#) is a growing public health problem in the United States and places a tremendous burden on babies, their families, and the communities in which they live," said William Cooper, M.D., MPH, Cornelius Vanderbilt Professor of Pediatrics and Health Policy and the senior author for the study.

Additionally, national health care expenditures for treating babies with NAS grew from \$731 million in 2009 to nearly \$1.5 billion in 2012.

Geographic variation was also examined for babies diagnosed with the syndrome. Beyond the east south central region, New England had the next highest rate of NAS at 13.7 births per 1,000. The area with the lowest national rate was the west south central division with 2.6 births per 1,000.

"Too often in our health system we react to problems instead of forging public health solutions. Imagine if we were able to use the dollars spent to treat NAS on improving [public health](#) systems aimed at preventing opioid misuse and improving access to drug treatment for mothers," said Patrick.

Provided by Vanderbilt University Medical Center

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