

Standardizing care improves outcomes for infants born with neonatal abstinence syndrome

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Standardizing hospital care policies across institutions for infants diagnosed with drug withdrawal symptoms at birth reduces their length of treatment and hospitalization, according to new collaborative research led by Vermont Oxford Network, Vanderbilt and the University of Michigan Health System.

Neonatal abstinence syndrome (NAS) is a drug withdrawal syndrome experienced by [infants](#) exposed to opioids, or narcotic drugs like oxycodone, while in utero. NAS has been linked to both illicit drug use as well as prescription opioids—narcotic pain relievers such as hydrocodone—by pregnant women. Infants born with NAS are more likely to have respiratory complications, feeding difficulty, low birthweights, and extended hospital stays.

Over the last decade, the number of prescriptions written for opioids grew substantially. According to the Centers for Disease Control and Prevention, in 2012, an estimated 259 million prescriptions were written in the United States, enough for every American adult to have one bottle of pills. As more Americans used opioids, complications such as adult overdose deaths and NAS increased. Vanderbilt and University of Michigan research previously found that the number of infants diagnosed with NAS grew nearly fivefold from 2000 to 2012.

Vermont Oxford Network, Vanderbilt and the University of Michigan

published their most recent findings April 15 in the journal *Pediatrics*, looking at the impact of standardizing care for infants born with NAS.

"The rapid rise in the numbers of infants with NAS nationwide caught many hospitals off guard. Initially, we found that less than half of participating hospitals had policies to standardize care for affected infants," said lead author Stephen Patrick, M.D., MPH, M.S., assistant professor of Pediatrics and Health Policy in the Division of Neonatology at Monroe Carell Jr. Children's Hospital at Vanderbilt. "Teams from 199 hospitals worked for more than two years to apply evidence-based and family-centered potentially better practices in their hospitals. Their hard work resulted in improvements in outcomes for this vulnerable population."

The data from the 199 participating centers, located in the United States, Canada and the United Kingdom, revealed that following a standardized protocol led to an overall reduction of one day in median length of treatment—from 17 to 16 days—and length of hospitalization was reduced by two days—from 21 to 19 days.

"For many conditions, including NAS, there may be recommended 'best practices' that clinicians are advised to follow. However, every hospital presents a unique clinical practice environment that can and does influence the ability to execute 'best practice.' This study demonstrates how neonatal care centers can work together as a virtual community of practice, sharing clinical environment challenges and solutions to positively affect shared outcomes," said Robert Schumacher, M.D., co-author and professor of Pediatrics in the Division of Neonatal-Perinatal Medicine at C.S. Mott Children's Hospital at the University of Michigan.

Prompted by the alarming epidemic, the American Academy of Pediatrics released a policy statement in 2012, calling for standardizing care for infants with NAS. That same year, Vermont Oxford Network, a

non-profit dedicated to improving the quality and safety of medical care for infants and their families, launched the multi-center quality improvement collaborative focused on rapid-cycle adoption of these important practice guidelines.

An NAS toolkit, written by Schumacher and Patrick, served as a blueprint to guide centers through the process, which included developing and implementing a standard process for identification, evaluation, treatment and discharge of infants with NAS, as well as measuring and reporting rates of NAS and drug exposure. Data was collected from each center from 2012 to 2014. During that period 199 centers audited 3,458 infants with NAS.

Along with implementing evidence-based potentially better practices at the 199 participating institutions, the collaborative supported participants with interactive webinars, real-time feedback of outcomes and sharing of improvement practices through electronic forums.

"Many of the hospitals implemented simple and inexpensive strategies, such as swaddling, soothing, skin-to-skin contact with mothers and breastfeeding to prevent escalation of withdrawal symptoms in the first few days after birth. This translated into decreased use of additional narcotics and sedatives to control [withdrawal symptoms](#), and avoided the need for costly admission to a newborn intensive care unit," said Madge Buus-Frank, DNP, executive vice president and director of Quality Improvement and Education at Vermont Oxford Network.

The evidence of better outcomes, the study authors conclude, reinforces the need to continue to standardize the care provided to infants with NAS and to explore ways to make care more efficient and family centered.

Provided by Vanderbilt University Medical Center

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