

# **Long-term unemployment linked to increase in neonatal abstinence syndrome**

January 29 2019

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# Mental Health Clinician Shortage, Long-Term Unemployment *associated with* Neonatal Abstinence Syndrome\*

\*Neonatal Abstinence Syndrome (NAS) is a withdrawal syndrome experienced by some opioid-exposed infants after birth.



Based on  
county-level  
data from  
**8 states**



Rates of NAS  
increased from  
**3.2 to 14.5**  
per 1000 hospital births  
from 2009-2015

## MENTAL HEALTH



of rural  
metropolitan  
counties



of metro-  
adjacent  
rural counties



of rural  
remote  
counties

IN OUR STUDY  
had a  
shortage  
of mental  
health  
providers

Counties with a  
shortage of mental  
health providers  
were associated with  
**higher rates of NAS**

Adjusted IRR, 1.17



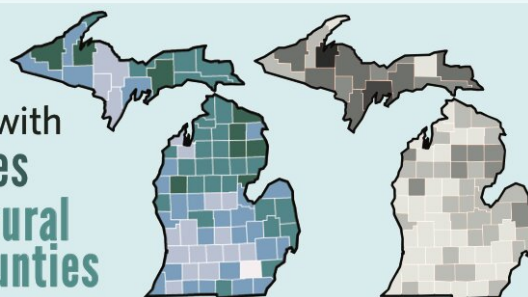
## ECONOMIC FACTORS

From 2009-2015  
the **10-year**  
unemployment  
rate increased  
from

**8.2%**  
to  
**6.5%**

and was  
associated with  
**higher rates  
of NAS in rural  
remote counties**

Adjusted IRR, 1.34



UNEMPLOYMENT RATE  
10-year moving average  
4-6 12

RATE OF NAS  
per 1000 hospital births  
0 100



In rural  
remote  
counties,  
a **higher proportion  
of manufacturing jobs**  
WAS ASSOCIATED WITH  
**higher rates of NAS**

Adjusted IRR, 1.06



County  
macroeconomic  
conditions affect  
rates of NAS,  
especially in  
**rural counties**

POLICYMAKERS  
should consider  
**economic  
development**  
as a **HEALTH  
INTERVENTION**

Patrick, S.W., Faherty, L.J., Dick, A.W., Scott, T.A., Dudley, J., Stein, B.D. (2019) Association Among County-Level Economic Factors, Clinician Supply, Metropolitan or Rural Location, and Neonatal Abstinence Syndrome. Journal of the American Medical Association, X(Y). doi:

Supported by the National Institute on Drug Abuse & the National Institute for Health Care Management @VUMCchildpolicy • To explore NAS in your county, visit [www.childpolicy.org/nas](http://www.childpolicy.org/nas)



VANDERBILT  
Center for  
Child Health Policy



Babies born after being exposed to opioids before birth are more likely to be

delivered in regions of the US with high rates of long-term unemployment and lower levels of mental health services, according to a study from researchers at Vanderbilt University Medical Center and the RAND Corporation. Credit: Vanderbilt University Medical Center

Babies born after being exposed to opioids before birth are more likely to be delivered in regions of the U.S. with high rates of long-term unemployment and lower levels of mental health services, according to a study from researchers at Vanderbilt University Medical Center and the RAND Corporation.

Studying more than 6.3 million births in a diverse group of eight states, the study found that rural counties plagued by long-term [unemployment](#) had significantly higher rates of babies born with [neonatal abstinence syndrome](#) as compared to [urban counties](#) with lower unemployment rates.

Counties with shortages of mental health providers also had higher levels of neonatal abstinence syndrome as compared to other counties. The association was observed primarily in urban areas.

The study, published in the Jan. 29 edition of the *Journal of the American Medical Association*, is the first to examine the association between long-term economic conditions, health care provider shortage areas and the incidence of neonatal abstinence syndrome, which can occur when babies are chronically exposed to opioids before [birth](#).

"The finding should open our eyes to the social complexities that lead to newborns being treated for drug withdrawal in our nation's hospitals," said Stephen W. Patrick, MD, MPH, MS, director of the Vanderbilt Center for Child Health Policy and lead author of the paper.

"The opioid crisis is not just a health care problem, it is also a social problem, and solutions will need to address the social needs of communities as well as the health care needs.

"As Congress considers legislation, particularly those related to building infrastructure in rural communities, it should consider that these investments may also benefit the health of communities."

Patrick and his colleagues have shown previously that one consequence of the nation's opioid epidemic has been a sharp increase in the number of newborns who show signs of withdrawal from opioids.

From 2000 to 2014, the rate of neonatal abstinence syndrome rose from 1.2 cases per 1,000 hospital births to 8 cases per 1,000 births. In 2014, the average was one infant born every 15 minutes in the U.S. with neonatal abstinence syndrome.

While poor economic conditions have been linked to [opioid](#) use, there had been no large-scale studies examining whether those issues also are associated with newborn exposure to the drugs.

Researchers from Vanderbilt and RAND analyzed information about 6.3 million births from 2009 through 2015 in the 580 counties in Florida, Kentucky, Massachusetts, Michigan, North Carolina, New York, Tennessee and Washington. Those cases were compared to the 10-year unemployment rate for each of the counties, as well as factors about health care workforce levels.

Counties with persistently elevated levels of unemployment had higher rates of neonatal abstinence syndrome. The rate of neonatal abstinence syndrome in the counties with the highest unemployment rate was 20.1 cases per 1,000 births, compared to 7.8 cases per 1,000 births in the counties with the lowest unemployment rates.

The study also found higher rates of neonatal abstinence syndrome in counties with shortages of mental health workers, primarily in metropolitan counties. Counties with shortages of mental health workers experienced 14 cases of neonatal abstinence syndrome per 1,000 births as compared to rates of 1.6 cases per 1,000 births in other counties. There was no such association with physical health providers.

"We know that individuals with mental health problems are more likely to use or be dependent on opioids," said Bradley D. Stein, MD, Ph.D., senior author of the study and director of the RAND Opioid Policy Center. "Our findings suggest that until we can provide better access to effective mental [health](#) care, we face an uphill battle effectively addressing the [opioid crisis](#)."

**More information:** *Journal of the American Medical Association* (2019). [DOI: 10.1001/jama.2018.20851](https://doi.org/10.1001/jama.2018.20851)

Provided by Vanderbilt University Medical Center

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