

Babies with Neonatal Abstinence Syndrome: Most Cases Not from Mother's Prescription

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The title of this brief was updated to reflect a more accurate description of how babies experience neonatal withdrawal syndrome. See [this article](#) for more information.

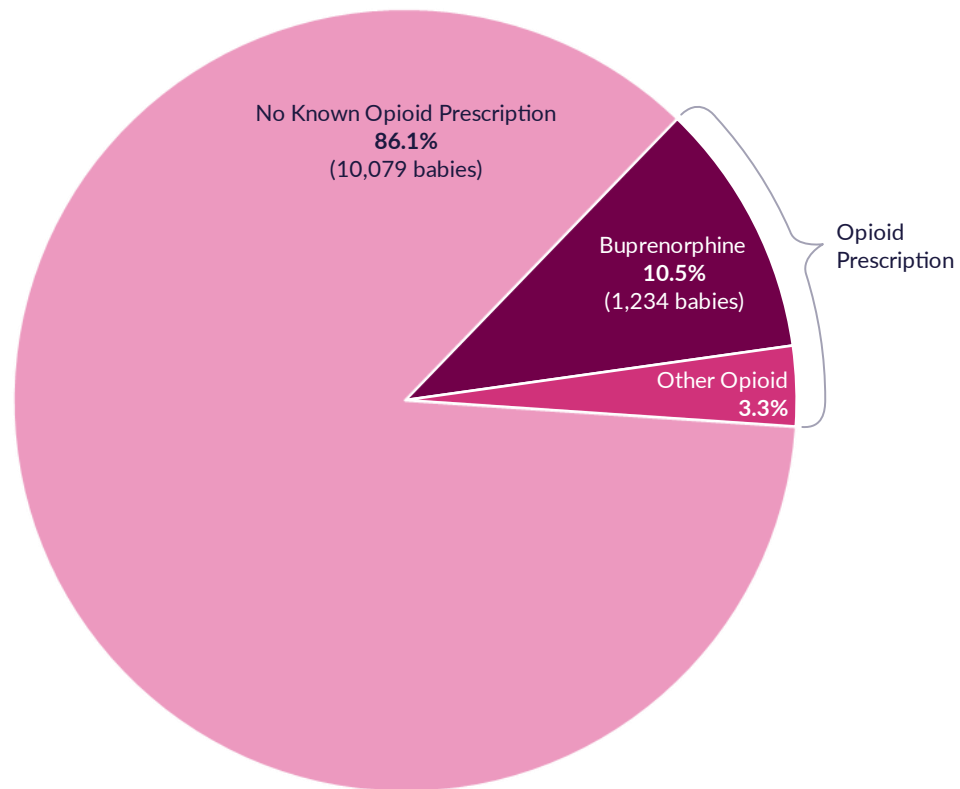
Key Findings:

- 0.9% of babies have neonatal abstinence syndrome (NAS). Of those, over 86% were born to mothers with no opioid prescription, suggesting that prescribed opioids are not the most common cause of NAS.
- Of the opioids prescribed to pregnant mothers whose babies had NAS, 76% were for buprenorphine, which is used to treat opioid use disorder.

Neonatal abstinence syndrome (NAS) can be diagnosed in babies born with exposure to a variety of addictive substances, including opioids, amphetamines, and benzodiazepines. Because of the ongoing and worsening opioid epidemic¹ and the established risk of NAS in babies born to parents taking prescribed opioids², we studied more than 1.3 million births that occurred between January 1, 2018, and January 1, 2022, to examine the role of prescription opioids in babies born with NAS. For those births, we identified babies born with NAS and how many of those babies' mothers were prescribed an opioid within 90 days before the birth.

Our data show that 86.1% of babies with NAS were born to pregnant mothers without such a prescription (Figure 1), suggesting that most NAS cases aren't tied to opioid prescriptions. Therefore, clinicians should review social factors and patient drug use history to be aware of possible NAS in patients without an opioid prescription.

Babies with Neonatal Abstinence Syndrome by Type of Opioid Prescription



"Babies with Neonatal Abstinence Syndrome by Type of Opioid Prescription," 2022. EpicResearch.org

Figure 1: Babies with NAS by whether an opioid was prescribed to the mother, and if so, what type of opioid was prescribed.

1.5% of pregnant mothers had an opioid prescription. Of those mothers who had an opioid prescription and whose babies had NAS, 76% of their opioid prescriptions were for buprenorphine, accounting for 10.5% of all babies who had NAS. Buprenorphine is often used to treat opioid use disorder. Clinicians should consider whether the potential risk of NAS from buprenorphine outweighs the risks of abstinence related to opioid use disorder during pregnancy.^{3,4}

These data come from Cosmos, a HIPAA-defined Limited Data Set of more than 140 million patients from 165 Epic organizations including 950 hospitals and over 20,000 clinics, serving patients in all 50 states. This study was completed by two teams that worked independently, each comprised of a clinician and research scientists. The two teams came to similar conclusions.

References

1. American Medical Association. *Issue brief: Nation's drug-related overdose and death epidemic continues to worsen*. Updated February 15, 2022. Accessed March 11, 2022. <https://www.ama-assn.org/system/files/issue-brief-increases-in-opioid-related-overdose.pdf>
2. Centers for Disease Control and Prevention. *Prescription Opioid Pain Reliever Use During Pregnancy*. Updated July 10, 2020. Accessed March 11, 2022. <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/substance-abuse/prescription-opioid-use-during-pregnancy/index.htm>
3. Kraft WK. Buprenorphine in Neonatal Abstinence Syndrome. *Clin Pharmacol Ther*. 2018;103(1):112-119. doi:10.1002/cpt.930
4. Jansson LM, Velez, ML, McConnell K, Spencer N, et al. Maternal buprenorphine treatment and infant outcome. *Drug Alcohol Dependence*. 2017. doi: 10.1016/j.drugalcdep.2017.08.001

Data Definitions

Term	Definition
Opioid	A medication with RxNorm code of 2670, 3423, 6378, 6754, 3813, 7052, 7238, 480, 1819, 1841, 7804, 7814, 8001, 56795, 10689, 73032, 4337, 5489, 787390, 477468, 1007785, 7676, 23088, 17933, 8143, 3290, 22713, 6761, 7894, 8119, 8354, 8785, 10597, 32926, 2001357, or 2392230
NAS diagnosis	ICD-10-CM code P96.1 – “Neonatal withdrawal symptoms from maternal use of drugs of addiction” documented as any type of diagnosis (Billing Admission, Problem List, Billing Procedure Linked Diagnosis, Encounter Diagnosis, Discharge Diagnosis, Billing Final Diagnosis, Billing Cause of Injury, or Admitting Diagnosis).
Mother	We use the term “mother” to refer to a pregnant patient, while recognizing that not all pregnant patients identify as mothers.