



# Pediatric Academic Societies Meeting

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## Alternative Treatment Approach for Neonatal Abstinence Syndrome May Shorten Hospital Stay

*Research being presented at the Pediatric Academic Societies 2017 Meeting suggests treating opioid-exposed newborns based on how well they can sleep and be consoled also helps avoid drug-based therapy.*

SAN FRANCISCO, Calif. – New research suggests a revamped, “common sense” approach to treating newborns suffering opioid withdrawal—gauging whether the baby can eat, sleep and be consoled within 10 minutes before administering drugs to wean them off exposure—may safely reduce the length of hospitalization they need.

An abstract of the study, “A Novel Approach to Evaluating and Treating Infants with Neonatal Abstinence Syndrome (NAS),” will be presented at the Pediatric Academic Societies 2017 Meeting in San Francisco on Sunday, May 7.

An estimated 95 percent of U.S. hospitals use the Finnegan Neonatal Abstinence Scoring System (FNASS) to guide treatment, based on 21 symptoms of opioid withdrawal. These include tremors, seizures, excessive crying, diarrhea, vomiting, congestion, sneezing and other symptoms that can make it difficult for the baby to eat and sleep. Babies with severe symptoms are started on pharmacologic therapy, typically using the narcotics morphine or methadone.

Researchers at Yale-New Haven Children’s Hospital examined whether more non-pharmacologic interventions for NAS in a modified approach called the Eat, Sleep, Console (ESC) model, such as providing a low-stimulation environment, having mothers room-in with their infants and feeding them frequently, could help infants go home sooner.

Fifty babies were included in the study between March 2014 and August 2015. The researchers determined traditional FNASS guidelines would have indicated starting morphine treatment in 30 (60 percent) of the infants. With the ESC guidelines used instead, however, morphine was started on just 6 patients (12 percent).

The study also found that of the 301 patient days evaluated, the FNASS score recommended starting or increasing morphine therapy on one-quarter of the days. Instead, following the ESC model, morphine was started or increased on just 3 percent of the days.

Using the alternative approach helped reduce the length of hospitalization for infants with NAS from 22.5 to 5.9 days without an increase in readmission rate, said Matthew Grossman, MD, an assistant professor of pediatrics at Yale School of Medicine and Quality and Safety Officer for the hospital who launched the ESC model there in 2011.

Abstract author Matthew Lipshaw, MD, FAAP, said the findings are particularly important with the current opioid epidemic in the United States. The incidence of NAS increased fivefold between 2000-2015 in the United States, Dr. Lipshaw noted, resulting in an estimated \$1.5 billion in hospital charges in 2012 alone.

“We found that a common sense approach based on the functional well-being of infants is a safe and more effective way to treat NAS than traditional treatment guidelines, substantially reducing exposure to opioids in these infants and better meeting patient needs,” Dr. Lipshaw said.

Dr. Lipshaw will present the abstract, “A Novel Approach to Evaluating and Treating Infants with Neonatal Abstinence Syndrome,” between 10:30 a.m. and 12:30 p.m. on Sunday, May 7, at the Moscone West Convention Center in San Francisco.

*Please note: only the abstract is being presented at the meeting. In some cases, the researcher may have more data available to share with media, or may be preparing a longer article for submission to a journal. Contact the researcher for more information.*

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*The Pediatric Academic Societies (PAS) Meeting brings together thousands of individuals united by a common mission: to improve child health and wellbeing worldwide. This international gathering includes pediatric researchers, leaders in academic pediatrics, experts in child health, and practitioners. The PAS Meeting is produced through a partnership of four organizations leading the advancement of pediatric research and child advocacy: Academic Pediatric Association, American Academy of Pediatrics, American Pediatric Society, and Society for Pediatric Research. For more information, visit the PAS Meeting online at [www.pas-meeting.org](http://www.pas-meeting.org), follow us on Twitter @PASMmeeting and #pasm17, or like us on Facebook.*

**ABSTRACT**

**TITLE:** A Novel Approach to Evaluating and Treating Infants with Neonatal Abstinence Syndrome

**CURRENT CATEGORY:** Hospital Medicine

**KEYWORDS:** Neonatal Abstinence Syndrome, Drug Exposed Neonate, Methadone.

**Background:** Infants born to mothers who used opioids in pregnancy may develop neonatal abstinence syndrome (NAS), a constellation symptoms associated with opioid withdrawal. Most institutions use the Finnegan Neonatal Abstinence Scoring System (FNASS) to guide treatment.

**Objective:** At our institution, we developed a novel approach to treating infants with NAS. Instead of the FNASS, management decisions were evaluated using a new approach which relied on 3 factors: eating, sleeping and consolability (ESC). The purpose of this study was to describe our novel approach and to compare this approach to one based on the FNASS.

**Design/Methods:** We conducted a retrospective study comparing our novel approach vs the FNASS guided approach for the treatment of infants with NAS. The study population included all infants born at  $\geq 35$  weeks' gestation at Yale-New Haven Children's Hospital with a diagnosis of NAS from March 2014-August 2015 who were cared for in both the well newborn nursery and the general inpatient unit. FNASS scores were obtained during the hospitalization but did not guide management. We measured the number of incidences when using the FNASS approach would have led to starting or increasing medication as well as the number of times morphine was actually started or increased using the ESC approach.

**Results:** We reviewed 50 patients with prenatal exposures to opioids with a total of 301 hospital days. FNASS scores indicated starting morphine in 30 infants (60%). Morphine was actually started on only 6 patients (12%) ( $p < 0.0001$ ) based on the ESC approach. The FNASS led protocol directed initiating or increasing meds on 24.6% of days compared to 2.7% of days using the ESC approach ( $p < 0.0001$ ). The FNASS approach directed that morphine was either not started or decreased on 65.8% of days compared with 94.4% of days using the ESC approach ( $p < 0.0001$ ). There were no readmissions or reported adverse events.

**Conclusion(s):** The FNASS has been used to guide the management of infants with NAS since its development in the mid-1970s. Despite its wide acceptance, the FNASS has never been validated nor have its widely used score cutoffs been tested. We suggest that non-FNASS based NAS protocols, using novel evaluation and treatment approaches such as our ESC approach, can decrease medication administration and resource utilization for NAS without leading to significant adverse events. Further work is needed to assess long term neurodevelopmental outcomes associated with various evaluation and treatment approaches.