

Mother & Baby Substance Exposure Toolkit

Best Practice No. 19

A part of the California Medication Assisted Treatment Expansion Project

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Prioritize measurement of functional impairment as a basis for initiation and escalation of pharmacologic treatment

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Nursery/NICU and Treatment

Overview

Instead of basing pharmacologic initiation and escalation of treatment solely on a total Finnegan score, consider prioritizing measures of functional impairment. A functional impairment-based strategy for managing neonatal abstinence syndrome (NAS) should employ staff who have been trained in engaging mothers with opioid use disorder (OUD) and in using non-pharmacologic interventions for the newborn. The use of a functional impairment-based treatment strategy should be designed and tailored to a specific unit within the context of a formal quality improvement initiative so that safety may be routinely monitored and reviewed.

Why we are recommending this best practice

Subacute symptoms of NAS can continue for weeks or months. Prolonged inpatient management and pharmacotherapy may lead to adverse infant neurodevelopment and poor parental engagement. Focusing on a newborn's functional impairments to guide pharmacotherapy may reduce length of stay and pharmacotherapy exposure. Studies of this method indicate no increase in readmission rates; however, there are no long-term studies to evaluate benefit versus harm of this method.

Strategies for Implementation

- Create a unit protocol for nurse scoring of functional measures, conduct nursing and staff education prior to implementation, and educate health care providers regarding guidelines for use of pharmacotherapy. Monitor acceptability and feasibility of this protocol within the hospital as well as readmission rates for infants.
- Examples of published methods emphasizing functional impairment are:
 - Finnegan Symptom Prioritization focuses on certain function-based items in the Finnegan score. Most recent reports include poor feeding, poor sleep, and continuous crying as prioritized functional measures. Other components of the Finnegan score that are sometimes included are emesis, diarrhea, tachypnea, or fever.
 - "Eat, Sleep, Console" prioritizes a newborn's inability to take an age-appropriate volume of food, sleep more than one hour after feeding, or be consoled within ten minutes.
- Functional-based assessment and management of newborns with NAS should be

designed for the specific hospital. The formal “Eat, Sleep, Console” (ESC) approach was initially developed by Dr. Matthew Grossman at Yale New Haven Children’s Hospital. Similar quality improvement programs are being successfully implemented at both academic centers and community hospitals as part of a non-pharmacologic approach.

- These are emerging (best) practices with encouraging short-term outcomes, and about which further study is needed to confirm long term outcomes.
- Alternative strategies employ the use of a modified Finnegan checklist with the mother scoring subjective functional items (e.g., quality of cry, stool consistency, tremulousness, etc.).

Deep Dive

The total Finnegan score describes NAS symptoms, but it does not reflect how NAS severity affects the infant’s ability to function. Several of the symptoms included in the Finnegan scoring system can be attributed to cluster feeding or other normal newborn behaviors. This symptom-based score may lead to unnecessary opioid treatment of infants without functional impairment. Studies show that opioid pharmacotherapy and length of stay decrease significantly with use of a function-based assessment compared to use of the total Finnegan score alone. Use of a function-based assessment can avoid initiation of opioid treatment, separation of the dyad, and a newborn’s transfer to the high-stimulation NICU environment.

Resources

1. Eat Sleep Console as part of neoQIC
2. Eat Sleep Console Pathway, Yale New Haven Children’s Hospital

References

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Dr. Alexandra Iacob is a Neonatal-Perinatal Fellow at University of California, Irvine (UCI) based out of UCI Medical Center and Miller Children's and Women's Hospital Long Beach. While in fellowship, she is also pursuing a Master in Public Health at Johns Hopkins University. She is passionate about improving neonatal outcomes across all socioeconomic classes via both quality improvement projects and policy efforts. She is particularly interested in neonatal abstinence syndrome and the impact it has on the mother, the baby, and the family as a whole.

Angela Huang

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Angela Huang is a clinical nurse in the Neonatal Intensive Care Unit at Santa Clara Valley Medical Center, where she is also a nurse coordinator managing and leading quality improvement and research projects. She is actively involved in hospital-wide and county-wide opioid use reduction initiatives, specifically outcome improvement for mother/infant dyads with a history of substance use and exposure. Angela is also the co-chair for the CPQCC Maternal Substance Exposures Workgroup which is assessing the statewide scope of NAS and NAS management practices.

Kathryn Ponder

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Dr. Ponder is a neonatologist with East Bay Newborn Specialists, working in the neonatal intensive care units at the UCSF Benioff Children's Oakland, John Muir Walnut Creek, and Alta Bates hospitals. She is also the director of the John Muir High Risk Infant Follow-Up clinic. She has revised her practice's guidelines for the care of infants with Neonatal Abstinence Syndrome and is leading a quality improvement initiative at John Muir to implement these changes. She has previously conducted research and published in the fields of developmental/placental biology and maternal health. She continues to be interested in the developmental origins of disease and optimizing neurodevelopmental outcomes for infants.

Lisa Chyi

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Dr. Lisa Chyi is a practicing neonatologist at Kaiser Walnut Creek. She is co-chair for the CPQCC Maternal Substance Exposures Workgroup which is assessing the statewide scope of NAS and NAS management practices. She also helped develop the NAS management guideline and oversees NAS patient care for the Kaiser Northern California region.

Pamela Aron-Johnson

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Pamela has been at UCI Medical Center in Irvine, California for 35 years in several roles including staff nurse in the NICU for 17 years, Outpatient Nurse Manager for Primary and Specialty Services, and currently the Quality and Patient Safety Advisor for the NICU and OB departments. She is also a member of the Data Committee Advisory Group for CPQCC, and is the data nurse coordinator at UCI for both CPQCC and CMQCC.

Priya Jegatheesan

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Dr. Priya Jegatheesan is the Chief of Newborn Medicine and the Regional NICU Director for Santa Clara Valley Medical Center in San Jose, California, an institution committed to the medically underserved. Her main area of interest is outcomes and data-driven quality improvement. She established a comprehensive computerized database system in the SCVMC NICU that enables prospective data collection for quality improvement and research. She also actively participates in CPQCC's Perinatal Quality Improvement Panel and chaired the QI infrastructure sub-committee for 2 years. She became a member of the Society for Pediatric Research in 2014 and has actively participated in clinical research. She is currently the study site Principal Investigator for a NIH funded multi-center study evaluating ondansetron (5HT3 antagonist) for prevention of neonatal abstinence syndrome in newborns born to mothers who had chronic opioid use during pregnancy. She is a passionate champion for optimizing care of newborns exposed to substances during pregnancy to prevent neonatal abstinence syndrome by promoting mother-infant couplet care.