

Mother & Baby Substance Exposure Toolkit

Best Practice No. 20

A part of the California Medication Assisted Treatment Expansion Project

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If pharmacotherapy is indicated, consider a trial of morphine every 3 hours PRN as an initial strategy for the treatment of neonatal abstinence syndrome instead of scheduled dosing or more long-acting pharmacotherapy options

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Nursery/NICU and Treatment

Overview

If criteria for pharmacotherapy are met per a hospital-specific written guideline, morphine every 3 hours as needed (PRN) may be trialed as an initial strategy for the treatment of neonatal abstinence syndrome (NAS) instead of scheduled dosing or more long-acting pharmacotherapy options.

Why we are recommending this best practice

Signs of NAS are not consistent throughout the day, nor is parental presence. Pharmacologic treatment may not be necessary every 3 hours. PRN dosing of morphine may minimize pharmacotherapy exposure and therefore side effects from scheduled morphine doses (e.g., respiratory depression, bradycardia, hypotension, urinary retention, decreased intestinal motility) or long-acting pharmacotherapy such as methadone.

Strategies for Implementation

Incorporate guidelines for initiation of PRN morphine for the treatment of NAS into the hospital's guideline when a newborn meets criteria to initiate pharmacotherapy. Consider including guidelines to describe a threshold for escalating to scheduled q3 hour dosing and when to escalate the dose of scheduled morphine. Consider cardiorespiratory monitoring continuously or intermittently when the newborn is receiving morphine.



Baby M

Kayla continues to care for Baby M with breastfeeding, holding skin-to-skin, and minimizing overstimulation. A nurse assesses Baby M and notes at 2 days old that he is unable to sleep for at least one hour after feeding and has continuous crying. The nurse confirms that both she and Kayla have had difficulty consoling Baby M and that at the time of the last assessment he was still crying after 10 minutes of attempts at consolation. He also has moderate tremors when disturbed, a hyperactive Moro reflex, and nasal stuffiness. The nurse assists Kayla with trying to optimize non-pharmacologic interventions, but Baby M continues to have poor sleep and persistent crying. Kayla and the medical team discuss the situation and, given their concern for functional impairment, Baby M is moved to an inpatient room where he is given one dose of PRN morphine by mouth and placed on a cardiorespiratory monitor. Medical staff have recently worked with hospital administrators to ensure newborns with NAS can be placed in private rooms to preserve the mother/baby dyad. After Kayla is discharged, she can stay with him and continue to provide his care.

Non-pharmacologic measures continue to be optimized. After feeds, Baby M is occasionally irritable, but with swaddling and holding he soothes quickly. Once soothed, he sleeps until the next feeding. He requires one additional dose of PRN morphine the following day for poor feeding and inconsolability, after which his symptoms do not recur. He completes a period of monitoring without medication for a day and a half, with Kayla providing all of his care. Baby M is discharged home to Kayla with close follow-up from the outpatient pediatrician.

References

1. Zimmermann-Baer U, Notzli U, Rentsch K, Bucher HU. Finnegan neonatal abstinence scoring system: normal values for first 3 days and weeks 5-6 in non-addicted infants. *Addiction*. 2010;105(3):524-528.
2. Grossman MR, Berkwitt AK, Osborn RR, et al. An initiative to improve the quality of care of infants with neonatal abstinence syndrome. *Pediatrics*. 2017;139(6).
3. Blount T, Painter A, Freeman E, et al. Reduction in length of stay and morphine use for NAS with the "Eat, Sleep, Console" method. *Hosp Pediatr*. 2019;9(8):615-623.
4. Achilles J, Castaneda-Lovato J. A quality improvement initiative to improve the care of infants born exposed to opioids by implementing the eat, sleep, console assessment tool. *Hosp Pediatr*. 2019;9(8):624-631.

Alexandra Jacob

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Dr. Alexandra Jacob 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

MPH, RNC-NIC

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.