

Foundational Components and Reading/Resource List for Implementing the ESC Care Tool[®]/Approach in the Care of Opioid-Exposed Newborns

The following list outlines foundational components of the ESC Care Approach. We understand that prenatal education and rooming-in may not be attainable in all clinical settings, but feel they should be prioritized when available and that all non-pharmacologic care interventions be implemented to their greatest extent possible in your hospital's individual care settings for each and every baby.

FOUNDATIONAL COMPONENTS

1. **Prenatal Education & Preparation of Mothers/Families** to be their Newborn's First Line Treatment for NOWS
2. **Prioritization/Optimization of Non-pharmacologic Care** as First Line Treatment for NOWS in All Care Settings
3. **Rooming-in and Mother-Baby Couplet Care** When & Where Available
4. **Promotion of Parental Presence & Engagement in Care** with Parent/Caregiver Huddles & Shared Decision Making
5. **Promotion of Skin-to-Skin & Breastfeeding** (Unless Medical Contraindications Exist)
6. **Baby-centered NOWS Assessments & Clustered Care** around the Baby's Sleep/Wake/Feed Cycle
7. **Function-based Symptom Prioritization & Full Care Team Huddles for Pharmacologic Treatment Decisions**
8. **Use of a Standardized Non-pharmacologic Care Bundle & Pharmacologic Treatment Protocol** to Promote Consistent Evidence-based Care Among All Perinatal Clinic & Hospital Staff
9. **Staff Trained & Reliable in Bedside NOWS Assessments** Using a Standardized, Structured Assessment Tool
10. **All Perinatal Staff Trained in Trauma-informed, Compassionate Care**
11. **Development of a Plan of Safe/Supportive Care for Safe & Healthy Transitions to Home**

*As you consider implementing the ESC Care Tool in your hospital's care of opioid-exposed newborns, we recommend that you review the following articles supportive of the ESC Care Approach to help you understand the reasoning and evidence behind recommendations for many of the foundational components, in order of year of publication. **For those with limited time, we have starred (*) high-yield recommended readings/resources.** Please also refer to the "Development of the Eat, Sleep, Console (ESC) Care Tool for Care of Opioid-Exposed Newborns" module for a brief review of several of the key readings listed below.*

KEY READINGS/RESOURCE LIST

Implementing the ESC Care Approach/Tool

- *Grossman MR, Berkowitz AK, Osborn RR, et al. **An Initiative to Improve the Quality of Care of Infants with Neonatal Abstinence Syndrome.** *Pediatrics*. 2017;139: e20164460.
<https://pediatrics.aappublications.org/content/pediatrics/139/6/e20163360.full.pdf>
- *Grossman MR, Lipshaw MJ, Osborn RR, Berkowitz AK. **A Novel Approach to Assessing Infants with Neonatal Abstinence Syndrome.** *Hosp Pediatr*. 2018 Jan;8(1):1-6.
<https://hosppeds.aappublications.org/content/hosppeds/8/1/1.full.pdf>
- Wachman EM, Grossman M, Schiff DM, et al. **Quality improvement initiative to improve inpatient outcomes for Neonatal Abstinence Syndrome.** *J Perinatol*. 2018;38:1114-1122.
Available on the ISCPTN Research Portal
- *Wachman EM, Houghton M, Melvin P, et al. **A quality improvement initiative to implement the eat, sleep, console neonatal opioid withdrawal syndrome care tool in Massachusetts' PNQIN collaborative.** *J Perinatol*. 2020;1-10. doi: 10.1038/s41372-020-0733-y
Available on the ISCPTN Research Portal

Non-pharmacologic Care / Parental Engagement

- Holmes AV, Atwood EC, Whalen B, et al. **Rooming-In to Treat Neonatal Abstinence Syndrome: Improved Family-Centered Care at Lower Cost.** *Pediatrics*. 2016;137(6):e20152929.
<https://pediatrics.aappublications.org/content/pediatrics/137/6/e20152929.full.pdf>

- Atwood EC, Sollender G, Hsu E, et al. **A Qualitative Study of Family Experience with Hospitalization for Neonatal Abstinence Syndrome.** *Hosp Pediatr.* 2016;10:626-632.
<https://hosppeds.aappublications.org/content/hosppeds/6/10/626.full.pdf>
- *Howard MB, Schiff MD, Penwill N, et al. **Impact of Parental Presence at Infants' Bedside on Neonatal Abstinence Syndrome.** *Hosp Pediatr.* 2017;7:63-69.
<https://hosppeds.aappublications.org/content/hosppeds/7/2/63.full.pdf>
- *MacMillan KDL, Rendon CP, Verma K, et al. **Association of Rooming-in With Outcomes for Neonatal Abstinence Syndrome: A Systematic Review and Meta-analysis.** *JAMA Pediatr.* 2018;172:345-351.
Available on the ISCPTN Research Portal

*Video presentation on development of the ESC approach at Yale New Haven Children's Hospital:

- Dr. Matt Grossman's National Center on Substance Abuse and Child Welfare (NCSACW) 3/21/18 webinar "Infants with Prenatal Substance Exposure and their Parents: Family Approach of Yale New Haven Children's Hospital"
<https://www.youtube.com/watch?v=7epcyi2mafY>

ADDITIONAL RECOMMENDED READINGS

NEWS/NAS-related Reviews and AAP Clinical Report

- *Wachman EM, Schiff DM, Silverstein M. **Neonatal Abstinence Syndrome: Advances in Diagnosis and Treatment.** *JAMA.* 2018;319:1362-1374.
Available on the ISCPTN Research Portal
- *Whalen BL, Holmes AV, Blythe S. **Models of care for neonatal abstinence syndrome: What works?** *Semin Fetal Neonatal Med.* 2019;24:121-132.
Available on the ISCPTN Research Portal
- MacMillan KDL. **Neonatal Abstinence Syndrome: Review of Epidemiology, Care Models, and Current Understanding of Outcomes.** *Clin Perinatol.* 2019;46:817-832.
Available on the ISCPTN Research Portal
- *Patrick SW, Barfield WD, Poindexter BB, Committee on Fetus and Newborn, Committee on Substance Use and Prevention. **Neonatal Opioid Withdrawal Syndrome.** *Pediatrics.* 2020;146(5):e2020029074.
<https://pediatrics.aappublications.org/content/pediatrics/146/5/e2020029074.full.pdf>

Non-pharmacologic Care for the Opioid-exposed Newborn

- *Velez M and Jansson LM. **The Opioid dependent mother and newborn dyad: non-pharmacologic care.** *J Addict Med.* 2008;2:113-120.
Available on the ISCPTN Research Portal
- Edwards L and Brown LF. **Nonpharmacologic Management of Neonatal Abstinence Syndrome: An Integrative Review.** *Neonatal Netw.* 2016;35:305-313.
Available on the ISCPTN Research Portal
- Bogen DL and Whalen BL. **Breastmilk feeding for mothers and infants with opioid exposure: What is best?** *Semin Fetal Neonatal Med.* 2019;24:95-104.
Available on the ISCPTN Research Portal
- Ryan G, Dooley J, Finn LG, Kelly L. **Nonpharmacological management of neonatal abstinence syndrome: a review of the literature.** *J Matern Fetal Neonatal Med.* 2019;32:1735-1740.
Available on the ISCPTN Research Portal

Trauma-Informed and Trauma-Responsive Care

The following serve as key readings/resources for staff as you continue improvement work in caring for opioid-exposed newborns and their families. A more complete list of recommended readings, resources and references will be available in the Trauma-Informed and Trauma-Responsive Care section of the "Instructional Manual for Caring for Opioid-Exposed Newborns Using the ESC Care Tool"

- Dube SR, Felitti VJ, Dong M, et al. **Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study.** *Pediatrics.* 2003 Mar;111:564-572.
Available on the ISCPTN Research Portal

- Harris NB. **How Childhood Trauma Affects Health Across A Lifetime** [Video File]. Available at: https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime?utm_campaign=tedspread&utm_medium=referral&utm_source=tedcomshare. Accessed on Oct 15, 2020.
- *SAMHSA's Trauma and Justice Strategic Initiative. **SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach**. 2014. Available at: https://ncsacw.samhsa.gov/userfiles/files/SAMHSA_Trauma.pdf. Accessed on Oct 15, 2020.
- Oh DL, Jerman P, Marques SS, et al. **Systematic review of pediatric health outcomes associated with childhood adversity**. *BMC Pediatr*. 2018;18:83. <https://bmcpediatr.biomedcentral.com/articles/10.1186/s12887-018-1037-7>

Other ESC Care Approach Implementation Studies

- Dodds D, Koch K, Buitrago-Mogollon T, Horstmann S. **Successful Implementation of the Eat Sleep Console Model of Care for Infants With NAS in a Community Hospital**. *Hosp Pediatr*. 2019;9:632-638. <https://hosppeds.aappublications.org/content/hosppeds/9/8/632.full.pdf>
- 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;9:615-623. <https://hosppeds.aappublications.org/content/hosppeds/9/8/615.full.pdf>
- Achilles JS and 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;9:624-631. <https://hosppeds.aappublications.org/content/hosppeds/9/8/624.full.pdf>
- Parlaman J, Deodhar P, Sanders V, et al. **Improving Care for Infants with Neonatal Abstinence Syndrome: A Multicenter, Community Hospital-Based Study**. *Hosp Pediatr*. 2019;9:608-614. <https://hosppeds.aappublications.org/content/hosppeds/9/8/608.full.pdf>
- Hwang SS, Weikel B, Adams J, et al. **The Colorado Hospitals Substance Exposed Newborn Quality Improvement Collaborative: Standardization of Care for Opioid-Exposed Newborns Shortens Length of Stay and Reduces Number of Infants Requiring Opiate Therapy**. *Hosp Pediatr*. 2020;10:783-791. Available on the ISCPNTN Research Portal