

Health Care System

Jefferson Health

Hospital Name

Jefferson Einstein Montgomery Hospital (*formerly Einstein Medical Center Montgomery*)

Title of Initiative

Improving the Care for Infants affected by Neonatal Abstinence Syndrome

Abstract

Due to the opioid use disorder epidemic the numbers of infants affected by Neonatal Abstinence Syndrome (NAS) continues to rise. While these infants have classically been managed with medication as primary treatment, recommendations are to first maximize non-pharmacologic management. Our objective was to decrease length of treatment (LOT) for infants affected by NAS by focusing on non-pharmacologic interventions and adopting a new scoring tool. A multi-disciplinary team was formed in July 2018. Our focuses are antenatal education/support, inpatient management, and discharge follow-up. We improve antenatal support with physician leadership at Plan of Safe Care Meetings, encourage antenatal consults, distribute educational pamphlets, and attended local methadone clinic group meetings. To improve inpatient care, we focused on staff education, implementation of structural hospital changes with enhanced bedside equipment, and improving parental presence through transportation and food vouchers. A Breastfeeding Traffic Light was created to support breastfeeding. We implemented multiple PDSA cycles before transitioning to the Eat Sleep Console (ESC) scoring tool in November 2020. Involvement in the Perinatal Quality Collaborative, meeting with local pediatricians, and tracking Early Intervention referrals help foster discharge support. Outcomes measured are LOT and length of stay (LOS). Secondary measures include any breastfeeding at discharge. Balancing measures include rescue doses and readmissions. Process measures include adherence to NAS protocol. In 2017, the average LOT was 9.1days, LOS was 15.4days and 18 infants received pharmacologic therapy. After transitioning to ESC, in 2022 our LOT was 4.5days and LOS was 10.7days. Through optimization of each arm, we have improved care.

What were the goals of your initiative?

Our primary goals were to decrease length of stay and length of pharmacologic treatment (when needed) for infants affected by neonatal abstinence syndrome through improved non-pharmacologic care. We planned to implement this improvement through antenatal education, improved inpatient management including staff education, structural hospital changes, and a transition to a new scoring tool. In addition, we wanted to improve caregiver presence at the bedside and increase breastfeeding rates. Finally, we targeted discharge follow up and care including collaborating with pediatric offices and tracking early intervention referrals.

What was the baseline assessment and/or data that indicated there was an opportunity for improvement?

In 2016, before any interventions, our LOS for infants affected by NAS was 16.9days and our LOT was 11.4days with 47% of infants receiving pharmacologic treatment. In June 2017, a doctor published an article in Pediatrics that showed a reduction in the LOT for infants affected by NAS from 22.4days to 5.9days through a focus on nonpharmacologic interventions and a simplified scoring system. A follow-up study published by the same doctor further compared our standard treatment with the new scoring system of Eat, Sleep, Console (ESC) which demonstrated no adverse events or readmissions. At this time, we realized an opportunity that would allow for a transition to first focus on improved non-pharmacologic care with an eventual transition to the new ESC scoring system.

Describe the interventions that were instrumental in achieving the results for your initiative.

A multi-disciplinary team including physicians, nursing, pharmacy, OT/PT, Social Work (SW), and lactation was formed in July 2018. We chose to first focus on improved inpatient care including staff education and removing barriers to parental presence at the bedside through provision of transportation and food vouchers. There were multiple enhancements to bedside equipment including softer/muslin blankets, white noise machines, Ipad for music therapy, Snoo beds, rocking/motion chairs, and providing a quiet environment with dimmable lighting. We focused on education of parents with prenatal consults that included SW and provision of a newly created educational pamphlet. In coordination with lactation, we developed a breastfeeding traffic light to encourage early breastfeeding. We provided physical leadership at the Plan of Safe Care meetings and collaborated with Center of Excellence and Nurse Family Partnership representatives, in addition to joining the state Perinatal Quality Collaborative. Our multidisciplinary team of pharmacy, nursing, lactation and physicians worked closely to review every case and adherence to protocols. Only when we felt that we had achieved a culture change that focused on non-pharmacologic interventions as our first line treatment did we transition to the new ESC scoring tool. We have continued to work to improve care through the involvement of a patient representative, attending meetings at the local methadone clinic, tracking infants who receive early intervention referrals, and providing Narcan to birth parents at discharge.

What were the results of your initiative that demonstrate a notable level of improvement?

Prior to any interventions, for infants affected by NAS, our baseline LOT was 11.1days and our LOS was 16.9days with 39% of infants receiving pharmacologic treatment. By 2019, we had decreased these numbers to 7.3days LOT and 13days LOS, despite 41% of infants continuing to receive pharmacologic treatment. We implemented the new scoring system of ESC in late 2020 and our data for that year reflects both the change in scoring system, and the continued focus on non-pharmacologic care. In 2021, our LOT was 2.5days and LOS was 8days with only 12% of infants receiving any pharmacologic treatment.

Explain how the initiative demonstrates innovation.

We formed this multidisciplinary team and began working to improve care for infants affected by NAS in July of 2017, only months after publication of the first study describing a change in management that focused on non-pharmacologic care. What makes our site unique is that we chose to focus on improving care in three unique ways- antenatal care, inpatient management, and post-discharge follow-up. We were also able to track parental presence at bedside (prior to Covid) demonstrating that with increased parental presence, there was decreased LOS. In addition, we created a "Breastfeeding Traffic Light" which is now used widely.

How was health equity embedded into your initiative to improve health outcomes in marginalized communities?

There have been many studies that describe the marginalization that mothers with opioid use disorder (OUD) experience, including lower breastfeeding rates. We understand that to improve care for the infant, this requires a collaborative approach. We worked to improve antenatal education and consults for these mothers. We provided extensive staff education about implicit and explicit bias, and we collaborated with local programs to continue to support the mother and infant dyad after discharge. In addition to tracking and working to encourage breastfeeding rates in these mothers, we are now also able to provide Narcan at discharge.

How did your initiative engage patients and families?

Our quality improvement group was able to incorporate a patient representative who actively participates in meetings and interventions. Through our partnership with the PQC, we have also been able to offer free training to our patient representative at MoMMa's Voices, an organization whose mission is "to amplify the voices of people who have experienced pregnancy and childbirth complications or loss- especially those who have been historically marginalized" in order to become a Certified Patient Family Partner.

How does this initiative demonstrate collaboration across care settings within your health system?

This initiative was rooted in a multidisciplinary approach. From our earliest meetings, there were physicians, nurses, midwives, OT/PT, lactation, social work, pharmacy, and senior leadership representatives. As the quality improvement project has grown, we have had representatives from IT, laboratory, OBs and QI coaches from the perinatal quality collaborative. We were able to lead a workshop at the Vermont Oxford Network that highlighted our collaborative approach as the panel included physicians, OT, social work, nursing and lactation. Pharmacy has continued to work closely with our team to provide the Narcan at discharge and to review adherence to our policy.

Explain ways in which senior leadership exhibited commitment to the initiative.

Senior leadership had representatives present at our earliest meetings. Through this involvement, we were able to present our efforts to the hospital board. In addition, we applied and were accepted for an innovative grant that helped facilitate some of the structural and bedside improvements. Senior leadership has also advocated for protected time to allow

attendance at the perinatal quality collaborative to both share our work and network and learn from other health care systems within the state.

Describe the key steps required to successfully replicate this initiative throughout the region.

After publication of the original studies describing decreased LOS and LOT, many hospitals quickly adopted the new ESC scoring tool. However, we feel that we have exemplified a true quality improvement project with multiple PDSA cycles that resulted in a culture shift in the way in which infants affected by NAS are treated. To truly replicate this work, a multidisciplinary team, including a patient representative, is essential. In addition, focusing on the mother/infant dyad throughout the pregnancy and delivery journey, including antenatal education/support, inpatient hospital management, and post-discharge follow-up is crucial to the wrap-around care model that we achieved.

	2016 (n=38)	2017 (n=40)	2020 (n=25)	2021 (n=25)	2022 (n=28)
LOT (mean, days)	11.4	9.1	3.6	2.5	4.5
LOS (mean, days)	16.9	15.4	9.7	8	10.7
Pharm. Treated (infants)	18/38 (47%)	18/40 (45%)	6/25 (24%)	3/25 (12%)	3/28 (11%)
Any BF (at discharge)			52%	24%	64%

