

Improving Hospital Care of Opioid-Exposed Newborns: Successes and Remaining Questions

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Between 1999 and 2014, the rate of opioid use among US pregnant women at the time of delivery quadrupled. It is currently estimated that nationwide, 14% to 22% of women fill an opioid prescription during pregnancy. For newborns exposed to intrauterine opioids, the immediate risks include the postnatal withdrawal syndrome known as neonatal abstinence syndrome (NAS), which is currently estimated to affect one US birth every 15 minutes.¹ Clinical monitoring for newborns with intrauterine opioid exposure, as well as treatment approaches for NAS, varies widely across US hospitals.² Multidisciplinary collaboration and standardization of screening for intrauterine opioid exposure, observation for and pharmacologic and nonpharmacologic treatment of NAS, and discharge planning are important for optimal clinical outcomes and also may improve maternal experience.³

Hwang et al⁴ describe findings of a two-year initiative by a clinical, public health, and policy collaborative in Colorado state. The Colorado Hospital Substance Exposed Newborn Quality Improvement Collaborative (CHoSEN QIC) aimed to decrease the average length of stay (LOS) by 20% from baseline for all opioid-exposed newborns (OENs), decrease the proportion of OENs who receive opiate therapy by 20% from baseline, and decreased LOS for OENs requiring opiate treatment by 20% from April 2017 to December 2019. The collaborative's interventions were focused on improving nonpharmacologic care, increasing use of human milk, increasing consistency in assessment for NAS by using the Eat, Sleep, Console (ESC) assessment tool, and decreasing the use of opiate therapy. Impressively, with implementation of their care standardization approach, they were able to meet all 3 aims. They decreased the average LOS for OENs from a baseline of 15.9 to 7.5 days and decreased the average LOS for those newborns who required pharmacologic therapy from 19.2 to 11.5 days. They also demonstrated a decrease in the percentage of OENs who received pharmacologic therapy from a preintervention mean of 55.1% to 22.6%.

Despite the strengths of this study, which include a large sample size over multiple hospitals, there are clear limitations. First, as the authors acknowledge, there are relatively few data points representing the initial baseline, raising a potential concern that this may not have been an accurate portrayal of the system before the initiative. In

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the absence of more baseline data, further information about baseline processes across participating hospitals (eg, survey data regarding policies and practices) would have helped to strengthen confidence that the shift in mean reflected a true system change. Although the authors of the study provide a clear description of hypothesized key drivers, the perceived or experienced barriers to implementation, as reported by sites, are not described. For example, how did differences in staffing or facilities impact sites' ability to implement ESC? Also not reported was a description of approaches most frequently used by sites to overcome those barriers. Sharing these details through the lens of implementation, perhaps highlighting sites that were more or less successful, would have helped to increase the generalizability of this work and the relevance to other sites interested in implementing ESC.

The most notable limitation of this work is the absence of postdischarge outcomes, including, but not limited to, hospital readmission. The experiences of these families after discharge (including the emergence of withdrawal symptoms, feeding difficulties, etc) are an important consideration in the context of ESC given the dramatic reduction in average LOS. This large multicenter quality improvement (QI) collaborative presents an ideal opportunity to report these kinds of balancing measures. Such data would go far in addressing residual safety concerns about ESC as more hospitals around the country consider switching from more traditional NAS scoring systems.

Taken in the context of other published studies on ESC implementation,^{5,6} the multisite, statewide approach of CHoSEN QIC makes an important contribution to what is already known. Previous single-center studies on ESC, conducted in both academic and community settings, have revealed similar reductions in LOS and opiate use.⁷⁻⁹ Shared findings across previous studies include reported benefits of decreased stigma and increased collaboration across providers and with families.¹⁰ However, the multisite, statewide approach undertaken

for CHoSEN QIC requires an even greater level of engagement from a variety of stakeholders at multiple levels as well as the adaptation of procedures and policies to the unique staffing, facilities, and culture of each participating hospital. As described by the authors, the success of this project was facilitated by academic-community partnerships, as well as the infrastructure of an existing statewide perinatal QI collaborative, and can serve as a model for other multisite initiatives seeking to standardize NAS care.

In the wake of this impactful study, many questions remain regarding hospital care of newborns with intrauterine opioid exposure and their mothers. First, future research on ESC implementation should explore facilitators and barriers to success across a range of settings. For example, recent findings suggest that births affected by NAS have increased disproportionately among rural hospitals, which, compared with urban hospitals, may differ in space, staffing, and other resources to optimize nonpharmacologic NAS care.¹¹ Future research may also explore how patient factors, such as demographics, pharmacogenetics, type of opioid exposure, and coexposures, impact the success of ESC to manage NAS. Additionally, future research in this area must define and measure the range of potential postdischarge outcomes for these newborns and their families, given the shift to decreasing observation and pharmacologic care in the hospital. Finally, research on NAS has traditionally been focused on hospital care, with minimal emphasis on the role of primary care follow-up for this population. Given the clinical and psychosocial complexity associated with the care of newborns with NAS (and increasingly shorter hospital stays for observation and treatment), future research should be focused on optimizing primary care systems to address maternal parenting needs, reduce health care-associated stigma, and increase connection to early childhood supports, such as Early Intervention. Ultimately, as more hospitals adopt the ESC paradigm, it is likely that primary care will play a more central role in infant outcomes and maternal experience of care.

CONCLUSIONS

The successful QI work described by Hwang et al⁴ provides a framework for hospitals to partner together with existing statewide perinatal QI collaboratives to standardize NAS care. Building on this foundation, future groups could add to the collective knowledge by including primary care stakeholders and measuring longer-term postdischarge outcomes important for the health of infants and their families.

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