

# **Improving the Care of Substance-Exposed Newborns and their Families: A Massachusetts Quality Improvement Initiative**

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## **Background**

Perinatal opioid use and neonatal abstinence syndrome (NAS) continues to be a major public health concern in Massachusetts. In the context of an ongoing epidemic of opioid use and abuse, the incidence of mothers, infants, and families impacted by opioid use during pregnancy continues to rise. Numerous state and community organizations have worked over the years to improve the care and outcomes for substance exposed newborns (SENs) and their families in Massachusetts. These efforts have included efforts to increase treatment availability through the Bureau of Substance Abuse Services, to improve protocols for screening and monitoring of high-risk families by the Department of Children and Families, to increase partnerships with community-based agencies and peer support programs, and to increase enrollments of infants with NAS in Early Intervention.

In addition, since 2012, the Neonatal Quality Improvement Collaborative of Massachusetts (NeoQIC) has coordinated an improvement initiative focused on improving the care of newborns with NAS. Nearly 40 hospitals across the state have participated in this collaborative effort, built around twice-yearly statewide summits, annual state-of-the-art webinar series offered by the Vermont-Oxford Network, and periodic data audits. Hospital-based multidisciplinary improvement teams, systematically identified opportunities to standardize and improve practices. Substantial increases have been seen in the number of hospitals with standard guidelines for specific aspects of NAS care, and substantial improvements have been seen in numerous clinical outcomes, including decreased length of stay, decreased length of pharmacologic treatment, and increased use of human milk. In 2015, the Massachusetts Perinatal Quality Collaborative (MPQC) launched a task force focused on the care of mothers with opioid use, and brought together a diverse array of stakeholders and clinical providers to coordinate efforts to improve the care of these women, with a particular focus on increasing provider trainings on medication-assisted treatment for opioid addiction. In addition, the task force developed a comprehensive toolkit of best practices and resources for the care of mothers with opioid use that will be made widely available to providers throughout the state. Throughout all of these efforts, NeoQIC and MPQC have partnered closely with the Massachusetts Department of Public Health (DPH) and other state agencies actively engaged in efforts to improve the care of these families.

In 2017, we hope to build upon these previous efforts with a new collaborative quality improvement (QI) initiative focused on SENs and their families. This initiative will be led by NeoQIC and the MPQC, in partnership with the Massachusetts DPH and the Massachusetts Health Policy Commission. All hospitals that care for mothers and newborns are invited to participate.

## **Initiative Goal**

Our goal is to develop a collaborative quality improvement initiative of Massachusetts hospitals that will use structured quality improvement methods and sharing of data and practices to further support hospital-based improvement efforts to achieve measurable improvements in the care of substance-exposed newborns and their families.

## **Initiative Components**

The NeoQIC-MPQC SEN QI initiative will be built around **multi-disciplinary hospital-based improvement teams** working collaboratively to achieve measurable improvements. The initiative will offer participating teams structured **quality improvement education**, through a training series facilitated by the National Institute for Children's Health Quality (NICHQ). Hospital teams will use **structured quality improvement methods** to improve their local practices, including setting specific aims, following appropriate outcome and process measures, and using plan-do-study-act cycles to test and implement changes. Teams will be asked to collect data on key performance measures, and a **shared database with online data entry** will be used to assess hospital and statewide progress, and **regular progress reports** will be returned to hospital teams to drive improvement. **Annual staff surveys** will be used to assess clinical knowledge and attitudes towards perinatal substance use, and **annual practice surveys** will be used to identify variations in practice between hospitals. **Toolkits of best practices and resources** for the care of mothers and newborns impacted by perinatal substance use will be made published and updated regularly. Collaboration through open sharing of practices and data will be encouraged, and will be supported by **twice-yearly statewide summits and regular webinars**. Modest financial support (\$2000-\$5000) will be provided to participating teams to help defray some of the costs of participation.

## **Statewide Database**

A key component of this project will be a database of key outcome and process measures related to the care of SENs and their families. Participating hospital teams will be asked to use this database to collect information on SENs under their care. The database is designed with the appropriate privacy and security precautions, and hospitals are able to enter data into the database once appropriate data use agreements are completed. The data form covers a range of measures related to NAS, including: maternal-fetal exposures, use of breast-milk during hospitalization, pharmacologic therapy for NAS, non-pharmacologic therapy for NAS, length of stay, discharge disposition, and follow-up care.

As hospitals enter data, they will receive regular progress reports summarizing their performance, and comparing their data to the state aggregate. These reports will include run charts and control charts, and will support local hospital-based and statewide quality improvement efforts. Aggregate data will be used to summarize performance at the state level.

Hospitals will be asked to complete data on SENs born January 1, 2017 and after. In addition, retrospective data entry on infants born in 2016 is encouraged to provide baseline data to better assess improvement.

## **Annual Surveys**

In addition to specific measures captured by the database, annual surveys of hospitals and staff will be used to assess other key aspects of care of SENs and their families. Staff surveys will be used to assess improvements in knowledge, as well as staff attitudes towards families impacted by perinatal substance use. Hospital surveys will be used to identify and highlight differences in key practices around the care of mothers and newborns, and to measure standardization of practices over time.

## **Key Metrics**

- Percent of mothers of SENs in medication-assisted treatment
- Percent of SENs requiring pharmacologic therapy
- Percent of SENs receiving non-pharmacologic interventions
- Percent of SENs receiving breast milk
- Average length of stay for infants with NAS
- Average length of pharmacologic therapy for infants with NAS
- Location of care for infant with NAS
- Staff attitude assessments when caring for infants with NAS
- Readmission rate for infants with NAS after discharge (in partnership with state)
- Rate of enrollment in EI at 1 year of age for infants with NAS (in partnership with state)

## **Perinatal Substance Use Quality Improvement Summits**

Twice-yearly summits will be held to foster the further development of an improvement community around perinatal substance use and neonatal abstinence syndrome. Targeted in particular to hospital-based improvement teams, these summits will also include public health agencies, public policy organizations, and other community-based groups supporting these families. The summits will include didactic presentations, quality improvement education, updates on performance metrics, and perhaps most importantly, sharing of progress and ideas between hospitals and groups.

## **Data Sharing**

The shared database for the project will be maintained at Beth Israel Deaconess Medical Center (BIDMC) utilizing the REDCap (Research Electronic Data Capture) platform. Data entry will be done by participating hospitals through a secure, password protected website, and the database is stored on secure BIDMC servers. Data contacts at each hospital will be access to the REDCap website and database. Each participating hospital will have access to their data at any time, but will not have access to data from other hospitals. Only project leaders will have access to all of the data.

In order to be able to share data, participating hospitals will be asked to complete a Data Use Agreement (DUA) that governs use and protection of the data. The DUA will be provided by BIDMC, and will require review by the appropriate legal or compliance office at each hospital. The final DUA will be signed by both the participating hospital and BIDMC.

In addition to the DUA, hospitals are encouraged to review the project with their local Institutional Review Board (IRB). As this is a quality improvement initiative focused entirely on improving systems of care, it is anticipated that IRBs will determine this to NOT be human subjects research, and therefore not require IRB review.

## **Timeline**

The project is launching in January 2017, and will continue through 2019. The NICHQ series of webinars offering training on quality improvement methods will begin in March 2017. The first statewide summit will be in May 2017, and will be held twice-yearly. Data entry will begin after appropriate DUAs are completed; centers will be asked to submit data on infants born after January 1, 2017, and will be encouraged to enter retrospective data on infants born in 2016 to provide baseline performance measurement. Initial practice surveys will be completed in spring 2017.

## **Components of Hospital Participation**

Hospitals that join this initiative are asked to do the following:

- Develop a multidisciplinary team, including maternal and newborn providers
- Collect and submit data, complete practice and staff surveys
- Review your existing practices and policies
- Participate in quality improvement training webinars and summits
- Share your work
- Use structured quality improvements methods to IMPROVE CARE

To join, hospitals must (1) submit a team roster, (2) obtain IRB review as necessary, and (3) complete the Data Use Agreement.

## **Completing Data Use Agreement (DUA)**

To complete the Data Use Agreement (DUA), please note the following:

- The DUA needs to be signed by an “Authorized Official” who can sign on behalf of the hospital. This is typically a senior leader such as a vice-president or a representative from the hospital’s legal department or contracting office. Note clinical leader such as a medical directors or nursing directors are typically NOT Authorized Officials.
- Changes to the language on the DUA are discouraged; if changes are requested, please discuss with the project leaders.

## **Additional Resources**

- **Additional Documents:** Data form, sample key driver diagrams, team roster form, data use agreement
- **Project leaders:** Munish Gupta ([mgupta@bidmc.harvard.edu](mailto:mgupta@bidmc.harvard.edu)); Ron Iverson ([ronald.iverson@bmc.org](mailto:ronald.iverson@bmc.org)).