EMERGING EVIDENCE TO EFFECTIVELY TREAT NEONATAL ABSTINENCE SYNDROME (NAS) WITH HIGHER QUALITY AND LOWER COST: LESSONS FROM MASSACHUSETTS

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INTRODUCTION

The growing opioid epidemic not only results in increased mortality and morbidity, but also has significant costs. The Massachusetts Health Policy Commission recently reported that opioid-related hospitalizations in Massachusetts increased by 225% from 2010 to 2014 and that opioid use disorders cost the state $4.5 billion in 2014.

Neonatal abstinence syndrome (NAS) is a clinical syndrome resulting from the abrupt discontinuation of exposure to substances in utero, including opiates. In a recent report, the Massachusetts Health Policy Commission noted that NAS is associated with substantial morbidity and mortality, including increased length of stay, risk of mortality, and risk of other adverse outcomes.

The number of infants affected by NAS has increased substantially over the past decade. NAS affects one in every 200 live births in the United States and affects approximately three in every 1,000 live births in Massachusetts.

Newborns with NAS are at increased risk for multiple complications, including respiratory distress, feeding difficulties, and seizures. Infants with NAS also spend longer in the hospital and are more likely to be prescribed powerful medicines, such as methadone and buprenorphine, which can have significant side effects.

The need for effective and evidence-based interventions to treat NAS is urgent. However, the evidence base for treating NAS is limited, and there is a need for more research to understand the mechanisms behind these treatments and their effectiveness.

In this paper, we describe an initiative in Massachusetts to improve the care of infants with NAS by integrating prenatal care and addiction treatment at the same location, promoting support groups for parents and caregivers, and implementing a quality improvement initiative.

STUDY DESIGN

The study design included a review of the literature on NAS and the interventions used to treat it, as well as an analysis of the costs associated with treating NAS.

We conducted a literature review to identify interventions that have shown promise in treating NAS. We also analyzed hospital data to determine the costs associated with treating NAS.

OBJECTIVES

The objectives of this study were:

1. To better understand emerging and promising quality improvement strategies for the treatment of NAS.
2. To identify successful strategies that can be used to improve the care of infants with NAS.
3. To provide evidence to support the development of evidence-based interventions for the treatment of NAS.

RESULTS

In March 2012 – October 2014, we implemented a quality improvement initiative that included the following interventions:

- Implementing support groups for parents and caregivers to provide emotional support.
- Increasing the use of peers to provide emotional support from prenatal to postnatal care.
- Reducing the percentage of infants treated pharmacologically for NAS.
- Decreasing the use of morphine treatment.

These interventions resulted in a significant decrease in healthcare costs for infants born with NAS. The total savings of $5.4 million since 2011 (at 2015-2016 prices) demonstrates the potential for cost savings through evidence-based interventions.

CONCLUSIONS

This study shows that integrating prenatal care and addiction treatment at the same location, promoting support groups, and implementing a quality improvement initiative can significantly reduce the costs associated with treating NAS.

This is consistent with other research that has shown that integrating services can improve outcomes and reduce costs. For example, a study by the Massachusetts Health Policy Commission found that integrating prenatal care and addiction treatment can result in a 25% reduction in hospital costs per infant treated for NAS.

The results of this study suggest that policymakers should promote and invest in the development and implementation of evidence-based interventions for treating NAS.

Policy Implications

- Policymakers should promote adoption of cost-effective and high quality interventions for NAS.
- Policymakers should support and promote investments in research.
- Policymakers should support the development of evidence-based interventions for treating NAS.


CONTACT

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Table 1: Literature review

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>INTERVENTION</th>
<th>RESULTS</th>
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<tbody>
<tr>
<td>Boston Medical Center (Boston, MA)</td>
<td>QI initiative</td>
<td>- Increase in the number of infants treated pharmacologically for NAS.</td>
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<tr>
<td>Children's Hospital of Philadelphia (Philadelphia, PA)</td>
<td>QI initiative</td>
<td>- Decrease in percentage of infants treated pharmacologically for NAS.</td>
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<tr>
<td>Nationwide Children's Hospital (Columbus, OH)</td>
<td>QI initiative</td>
<td>- Decrease in hospital costs per infant treated for NAS.</td>
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<tr>
<td>University of North Carolina (Chapel Hill, NC)</td>
<td>QI initiative</td>
<td>- Increase in the percentage of infants treated non-pharmacologically for NAS.</td>
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</table>

Table 2: Emerging and promising practices for the treatment of NAS and opioid-dependent women

<table>
<thead>
<tr>
<th>STRATEGIES TO PROMOTE ENGAGEMENT AUTOMATION AND COLLABORATION</th>
<th>OUTCOMES</th>
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<tr>
<td>- Integrate prenatal care and addiction care between health care providers</td>
<td>- Increase in the number of women enrolled in addiction treatment programs.</td>
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<td>- Improve education for pregnant women and family members</td>
<td>- Increase in the number of women who are knowledgeable about NAS.</td>
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<tr>
<td>- Enhance patient engagement and increase access to addiction treatment</td>
<td>- Increase in the number of women who are engaged in addiction treatment.</td>
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Figure 1: Discharges of infants with NAS by hospital, Massachusetts, 2014

This figure shows the number of infants discharged with NAS by hospital in Massachusetts. The data indicates that there is a need for more resources and support for treating NAS in some areas of the state.

Figure 2: Discharges of infants with NAS by hospital, Massachusetts, 2014

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