MASSACHUSETTS
HEALTH POLICY COMMISSION

CARING FOR FAMILIES IMPACTED BY OPIOID USE DISORDER

THE HEALTH CARE INNOVATION INVESTMENT PROGRAM: MOTHER AND INFANT-FOCUSED NEONATAL ABSTINENCE SYNDROME PROGRAM

APRIL 2021

> "[Recognizing] how important it is for the mother to **hold [her] baby**, and for the infant to **stay with their mother**...[I]t changes everybody's reflection on the mother-infant dyad, [from] 'We have to help this baby from what happened to them,' to, 'Oh, we have to **help this family**, and we have to **support this family**.' "
>
> – LOWELL GENERAL HOSPITAL STAFF MEMBER

Over the last two decades, there have been significant increases in rates of opioid use disorder (OUD) among reproductive-aged and pregnant women.[1] Opioid use during pregnancy and after delivery can adversely affect the health of both the mother and infant. Infants exposed to opioids in utero may experience symptoms during a period of withdrawal that are called neonatal abstinence syndrome (NAS). These symptoms include feeding intolerance, tremors, irritability, and in some instances, respiratory distress and seizures.[2] Massachusetts experienced a six-fold increase in the incidence of NAS between 2004 and 2013.[3]

In response to these trends, providers, policymakers, and communities recognized opportunities to improve care for infants and families affected by OUD. In 2015, the Massachusetts Legislature directed the HPC to implement an investment program to improve care for opioid-exposed newborns and for women with OUD during and after pregnancy.

The Massachusetts Health Policy Commission (HPC) launched the $3 million Mother and Infant-Focused Neonatal Abstinence Syndrome Investment Program (NAS Investment Program) in 2016 to test promising evidence-based interventions and emerging best practices that could reduce health care spending and improve quality of care for infants with opioid exposure and their mothers. The initiative funded six hospitals: Baystate Medical Center, Beverly Hospital, Boston Medical Center, Lawrence General Hospital, Lowell General Hospital, and UMass Memorial Medical Center. All six awardees received technical assistance and evaluation support from the Neonatal Quality Improvement Collaborative (NeoQIC).

1 From 1999 to 2014, maternal OUD rates at delivery more than quadrupled. CDC. Data and Statistics About Opioid Use During Pregnancy | CDC [Internet]. Centers for Disease Control and Prevention. 2020 [cited 2020 Sep 28]. Available from: https://www.cdc.gov/pregnancy/opioids/data.html

2 McQueen K, Murphy-Oikonen J. Neonatal Abstinence Syndrome. New England Journal of Medicine. 2016 Dec 22;375(25):2468–79.

3 França UL, Mustafa S, McManus ML. The Growing Burden of Neonatal Opiate Exposure on Children and Family Services in Massachusetts. Child Maltreat. 2016 Feb 1;21(1):80–4.

KEY COMPONENTS OF THE NAS INVESTMENT PROGRAM

INCREASING NON-PHARMACOLOGIC INTERVENTIONS

OPTIMIZING NAS PHARMACOLOGIC TREATMENT AND HOSPITAL UTILIZATION

IMPROVING ACCESS TO WRAPAROUND SERVICES

SUPPORTING ORGANIZATIONAL CULTURE CHANGE

6 AWARDS • **$3 MILLION** INVESTED • **1,107** MOTHER-INFANT DYADS SERVED

INCREASING NON-PHARMACOLOGIC INTERVENTIONS

Hospitals increased the use of non-pharmacologic interventions for infants with opioid exposure. Utilizing non-pharmacologic interventions—such as rooming-in, skin-to-skin contact and cuddling, and breastfeeding—in the hospital was critical to the success of the NAS Investment Program. These interventions empowered parents to join the care team for their infants, increased maternal-infant bonding, and improved patient satisfaction. Non-pharmacologic interventions were also strongly associated with reduced use of pharmacologic treatment and better hospital utilization outcomes (see: Optimizing NAS Treatment and Hospital Utilization)

MOTHER'S MILK: fed infants breastmilk at any time during hospitalization, via breastfeeding or pumping.

ROOMING-IN: permitted infants to stay in the same hospital rooms as their mothers (instead of the neonatal intensive care unit (NICU) or special care nursery) for at least one night before maternal discharge.

"[T]he promotion of breastfeeding has been the **most successful non-pharmacological care strategy** promoted at [our hospital] for eligible mothers. The combination of providing additional hours for the **lactation team** and introducing a **peer mentor** has brought about an improved culture of **supporting breastfeeding** within this patient population."

– UMASS MEMORIAL MEDICAL CENTER STAFF MEMBER

SKIN-TO-SKIN CONTACT AND VOLUNTEER CUDDLERS: initiated skin-to-skin contact and cuddling between mothers and infants within 24 hours of birth. Some hospitals created or expanded "cuddler programs" that placed volunteer cuddlers in the NICU, special care nursery, and occasionally in private rooms to increase non-clinical human contact with infants when parents were not present.

KEY FINDINGS RELATED TO INCREASING NON-PHARMACOLOGIC INTERVENTIONS

Over the course of this program, awardees saw:

76-78% of infants on average received skin-to-skin contact in the first 24 hours after birth, which was sustained over the course of the program

18% increase in the rate of rooming-in among eligible infants prior to maternal discharge

23% increase in use of mother's milk among eligible infants

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OPTIMIZING NAS PHARMACOLOGIC TREATMENT AND HOSPITAL UTILIZATION

Hospitals reduced the use of pharmacologic treatment, use of intensive care settings, and length of stay for infants with opioid exposure. Pharmacologic treatment can be used to treat infants' symptoms of opioid withdrawal in cases where non-pharmacologic interventions alone are not enough. However, pharmacologic treatment usually requires infants be transferred to a NICU or special care nursery for extended periods, which is expensive and less conducive to parental engagement. The need for pharmacologic treatment for infants with opioid exposure is determined by a symptom scoring tool. By standardizing and/or adopting new scoring methods for NAS symptoms and modifying medication protocols, hospitals optimized dosing of pharmacologic agents (typically methadone or morphine). Adoption of these processes in combination with non-pharmacologic interventions helped hospitals reduce the need for pharmacologic treatment. This, in turn, helped reduce intensive care admissions as care in the NICU and special care nursery were associated with a higher rate of need for pharmacologic treatment. Additionally, infants who required pharmacologic treatment on average had a longer length of stay than those who did not.

KEY FINDINGS RELATED TO NAS PHARMACOLOGIC TREATMENT AND HOSPITAL UTILIZATION

Over the course of the program, awardees saw improvements in outcomes for term infants (37+ weeks gestation) with opioid exposure:

~50% reduction in the need for pharmacologic treatment

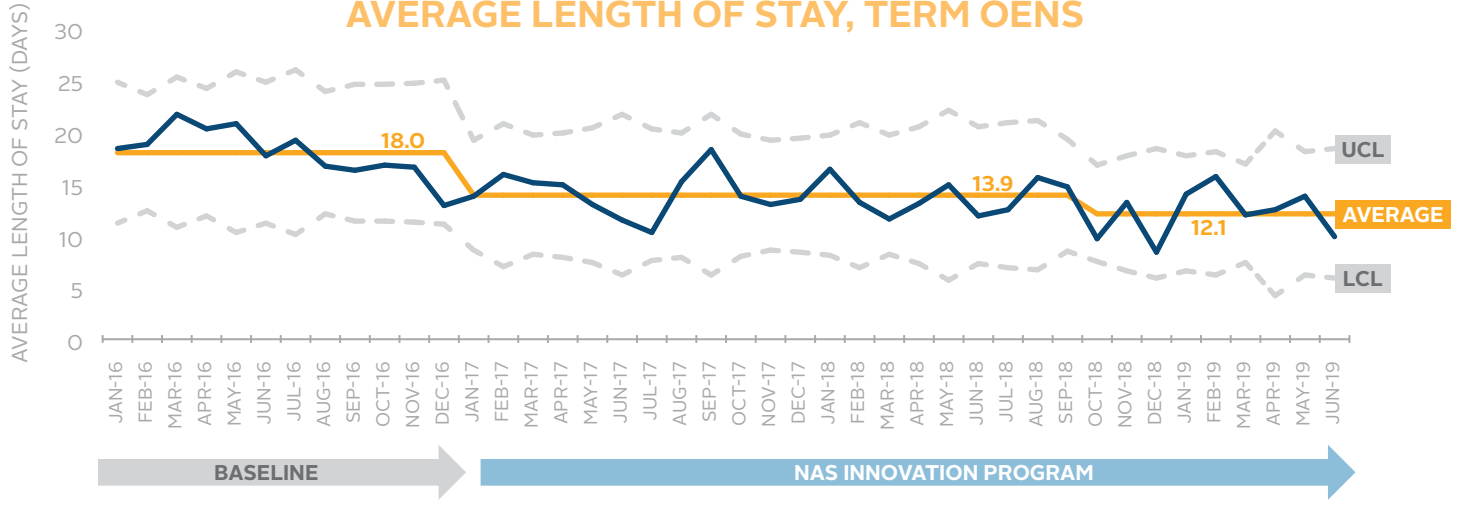
30% reduction in use of intensive care setting

33% reduction in average length of stay

"Before, we would admit babies to [the special care nursery] and they would remain there throughout the whole course. Mothers were not allowed to room-in after their medical discharge ... There was little room for parents to be involved. Now, we **prioritize non-pharmacologic treatment** ... as first line therapy. We focus on involving the parents. Families spend as little time in special care nursery as possible, and we promote rooming in or staying in the special care nursery family rooms. **The most impactful change has been rooming-in,** which has helped parents be more involved in their child's care and **get more support** for early parenting."

– BEVERLY HOSPITAL STAFF MEMBER

AVERAGE LENGTH OF STAY, TERM OENS



IMPROVING ACCESS TO WRAPAROUND SERVICES

Hospitals provided comprehensive services to mothers with OUD throughout pregnancy and postpartum to support their recovery and enable families to care for their infants in a safe and healthy environment. Care teams connected mothers to services as early as possible in the prenatal period. Social workers and peer recovery coaches offered childbirth education and advocated for and supported families throughout their pregnancies. Hospitals provided services such as patient education, recovery support, mental health services, and referrals to resources to increase maternal engagement and support for women with OUD throughout the continuum of care (See: "Outpatient Wraparound Services").

OUTPATIENT WRAPAROUND SERVICES

PREGNANCY AND PARENTING EDUCATION

- CHILDBIRTH EDUCATION
- BREASTFEEDING EDUCATION AND SUPPORT
- MINDFULNESS EDUCATION
- LABOR + DELIVERY AND PEDIATRIC STAFF CONSULTATIONS

NAS-SPECIFIC CARE

- EDUCATION AROUND NAS AND NAS CARE
- ASSISTANCE NAVIGATING THE DEPARTMENT OF CHILDREN AND FAMILIES PROCESS
- PLAN OF SAFE CARE
- EARLY INTERVENTION REFERRALS

MATERNAL CARE AND SUPPORT SERVICES

- PRENATAL CARE
- MENTAL HEALTH SERVICES
- SUBSTANCE USE TREATMENT REFERRALS AND ADHERENCE

> "[Mothers are now] **fully prepared** and already **engaged** in treatment and **more stable** in their recovery so that they [can] take their babies home … I think having them … **get things started** and in place ahead of time really was the **biggest change**."
>
> **– LOWELL GENERAL HOSPITAL STAFF MEMBER**

MOMS DO CARE PROGRAM

In 2015 the Department of Public Health's Bureau of Substance Addiction Services launched the Moms Do Care (MDC) Program at four hospital sites, funded by a grant from the Substance Abuse and Mental Health Services Administration (SAMHSA). The aim of MDC is to engage and retain pregnant and postpartum women in medications for opioid use disorder and recovery support services by offering trauma-informed and integrated medical and behavioral health care. MDC provides peer-support services and offers trainings for providers on the topics of trauma-informed care, compassion fatigue, paths to recovery, and more to provide better care and support to participants.

In 2016, the HPC provided funding for two additional hospitals, Beverly Hospital and Lowell General Hospital, to implement this program in coordination with their inpatient NAS Program quality improvement initiatives. These two programs enrolled and served 113 mothers over a 28-month period. The following are findings from the HPC funded MDC programs, based on the program evaluation completed by Advocates for Human Potential (AHP):

~9,300 peer, case management, and treatment services delivered, with the highest average number of services delivered to each participant in the first month postpartum.

37% INCREASE in MDC participants receiving substance use treatment tailored specifically to pre gnant or parenting women at six-month follow-up compared to baseline.

87.5% INCREASE in MDC participants receiving trauma treatment (individual counseling for trauma, domestic violence, post-traumatic stress disorder or related issues) at six-month follow-up compared to baseline.

73% DECREASE in mothers' use of non-prescribed drugs "weekly or more often" at six-month follow-up compared to baseline. This remained consistent at six months postpartum.

HPC

SUPPORTING ORGANIZATIONAL CULTURE CHANGE

Hospitals promoted respectful, patient-centered care through the recovery and birthing processes by creating change in staff attitudes and adopting best care practices and protocols. Awardees described one of the greatest achievements of the NAS Investment Program as the shift in attitudes and organizational culture towards the care for families, mothers, and infants affected by OUD. Hospitals took various approaches to address the implicit and explicit biases of hospital staff members at all levels, including providing training on trauma-informed care, hiring peer recovery coaches to bridge the gaps in understanding by those with lived experience, and ensuring staff were up to date on best practices for care provided to the patient population.

"I've seen a shift in a lot of the attitudes. [I]f you're able to witness...**the mother being a mother,** then I think...it's [going to] change your whole way of **caring for the parent.**"

– BOSTON MEDICAL CENTER STAFF MEMBER

"The nursing staff...started to realize A.) where these families were coming from; [and] B.) how hard these moms work at **being the best parent that they can be.** And I think seeing that in real life in front of them really kind of **made [the] difference.**"

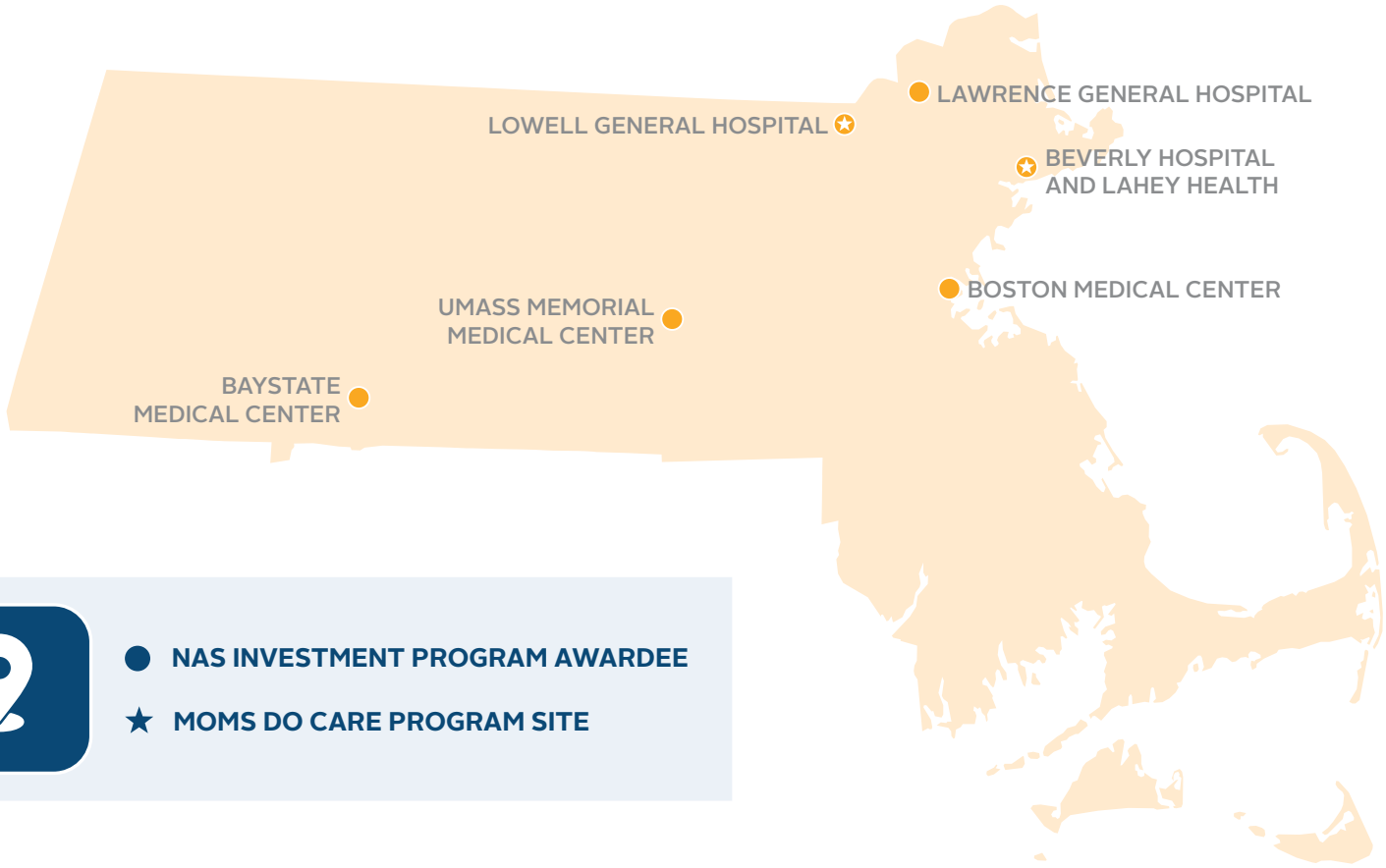
– BAYSTATE MEDICAL CENTER STAFF MEMBER

"In general, women [living with] addiction are **hesitant to access health care** based on judgment and stigma amongst other things... It's important for the women to feel as if they **have an ally and a support** [who] is genuinely interested in their **well-being**."

– LAWRENCE GENERAL HOSPITAL STAFF MEMBER

HPC

MOTHER AND INFANT-FOCUSED NEONATAL ABSTINENCE SYNDROME INVESTMENT PROGRAM SITES



● **NAS INVESTMENT PROGRAM AWARDEE**

★ **MOMS DO CARE PROGRAM SITE**

About the Massachusetts Health Policy Commission

The Massachusetts Health Policy Commission (HPC) is an independent state agency that advances a more transparent, accountable, and equitable health care system through its policy leadership and innovative investment programs. The HPC's goal is better health and better care – at a lower cost – for all residents across the Commonwealth.

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