New NAS Clinical Care Guidelines

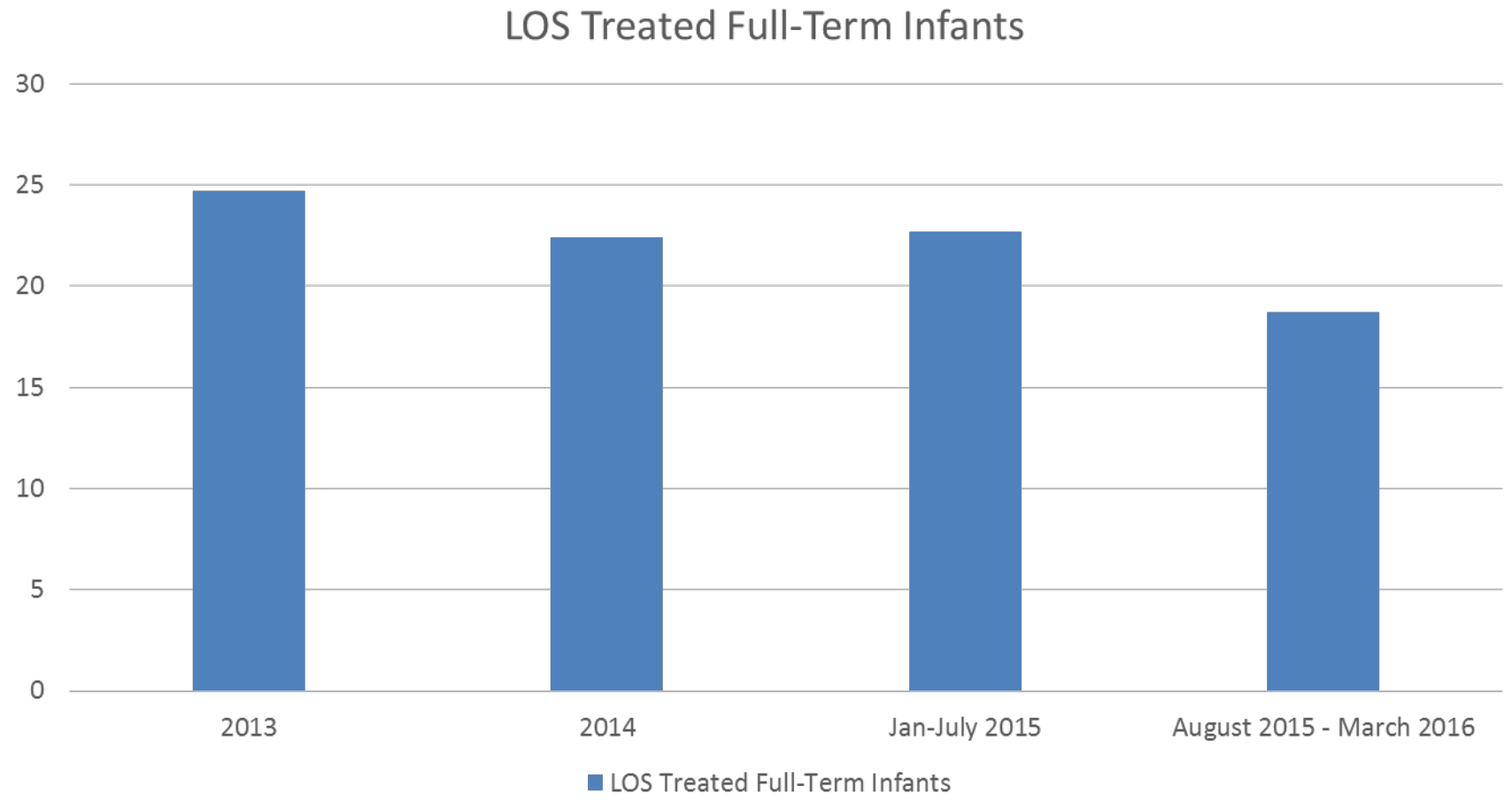
Background, Goals, and Frequently Asked Questions

The NAS Quality Improvement Team

What is the background behind the changes?

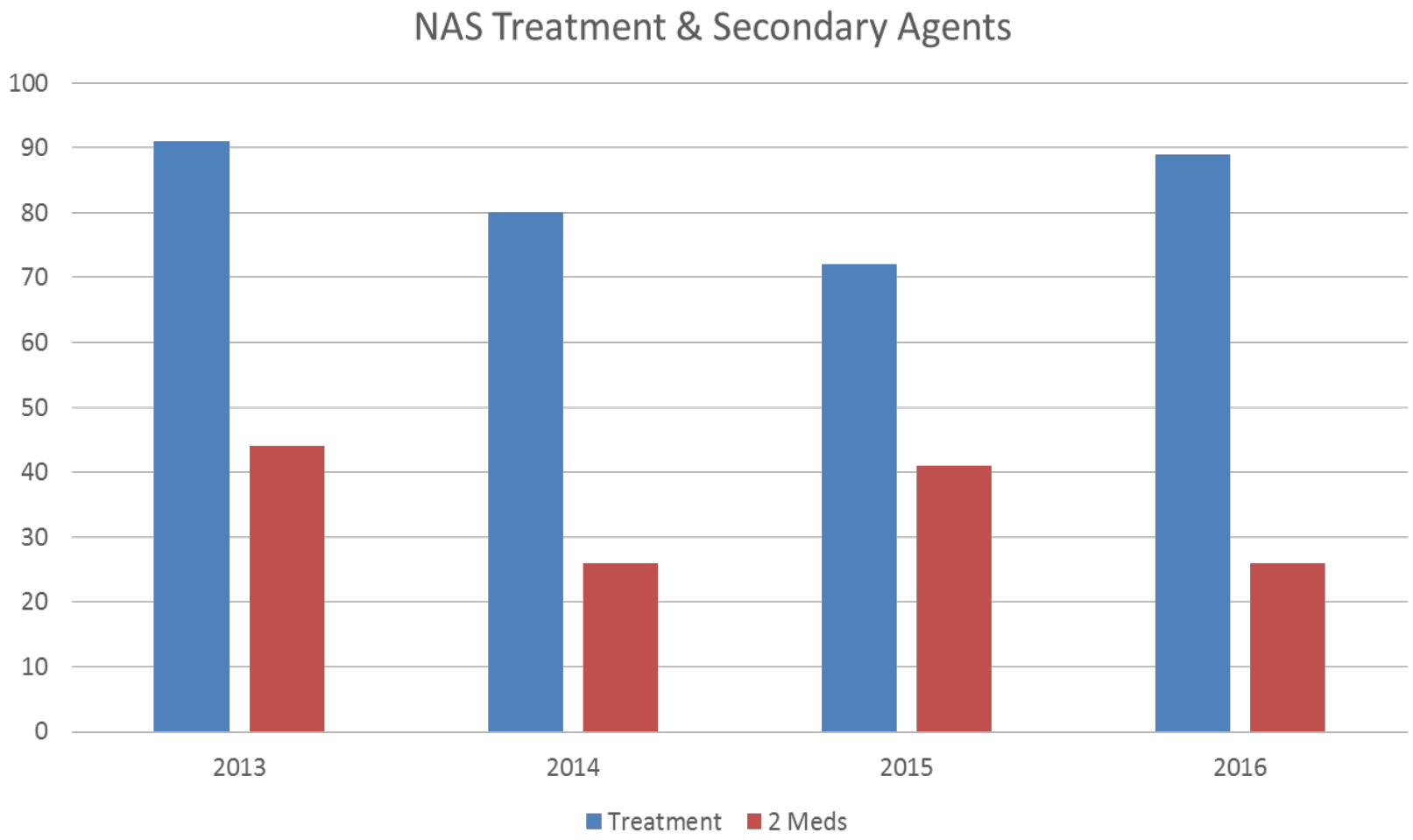
- BMC's length of hospitalization for NAS has **decreased 25% since 2013** to an average of **18 days**, below the national average of 22 days
- However, our medication treatment rate for opioid-exposed infants remains high at 85-90%, **double** the national average
- New research and quality improvement (QI) initiatives have identified potentially better practices that have been successful in decreasing medication treatment without adverse events at other institutions

BMC Length of Stay - Treated Infants with NAS



25% decrease in LOS for treated infants between 2013 - 2016

Pharmacologic Treatment at BMC



National average is 50-60%

FNAST Scoring - On it's last days?

- **The Finnegan scale (FNAST)… What is the data to support using this scale with a cut-off score of ≥8 for medication?**
- Although the Finnegan scale is the most widely used tool, it is was developed in the 1970's for research purposes
- The Finnegan is a great catalog of all possible withdrawal symptoms
- It is "reliable" meaning that by using the specified definitions, you can teach 2 people to score the same way
- The rationale for using a cut-off score of ≥8 for medication has never been established or validated
- Recent studies have indicated poor correlation between Finnegan scores and overall NAS outcomes and infant well being

Jones HE*, Am J Addictions*, 2016; Finnegan LP, et al, *Int Clin Pharmacol Biopharm*, 1975.

The original Finnegan publication

- ***"The infant with a score of "7" or less was not treated with drugs for the abstinence syndrome because, in our experience, he would recover rapidly with swaddling and demand feedings. Infants whose score was "8" or above were treated pharmacologically."*** *(Finnegan LP, et al. Int Clin Pharmacol Biopharm. 1975)*
- Use of more function based assessments **("eat/sleep/console")** to decide about need for medication is potentially better practice
- Our BMC QI team would like to move away from using the Finnegan in the upcoming months in place of a function based assessment tool that better captures how the baby is doing

Non-Pharmacologic Care as First-Line Treatment

- According to the American Academy of Pediatrics (AAP), non-pharmacologic care is FIRST-LINE treatment, before medication. However, few institutions carry this out to its true meaning.
- ***"Withdrawal from opioids is a self-limited process. Unnecessary pharmacologic treatment will prolong drug exposure and the duration of hospitalization to the possible detriment of maternal-infant bonding. The only clear benefit of pharmacologic treatment is the short-term amelioration of clinical signs."*** *(Hudak ML, et al, AAP, Pediatrics, 2012)*

Does it actually work?

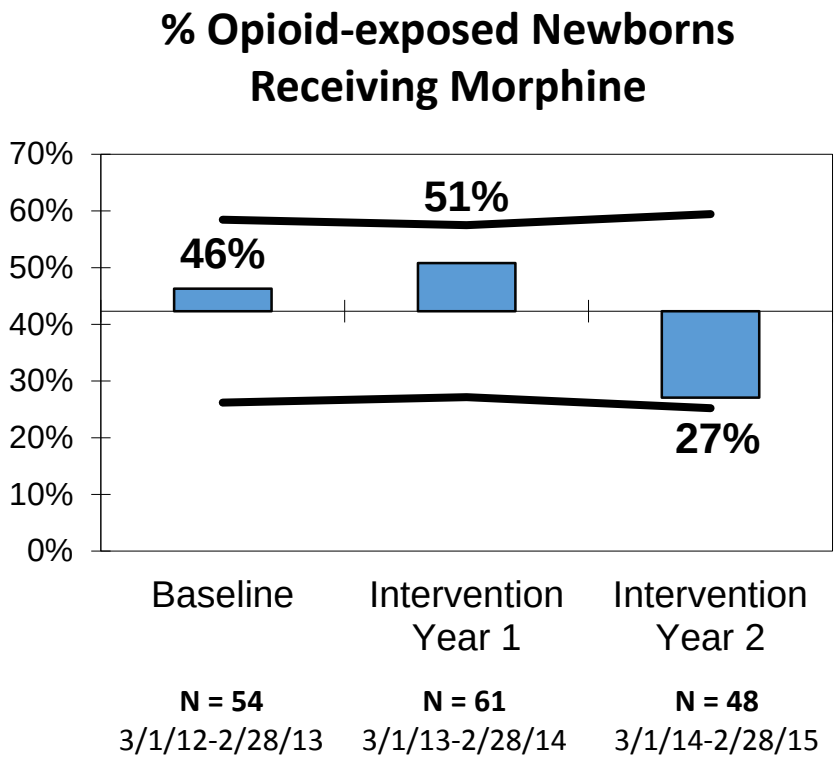
- Promotion of rooming-in, breastfeeding, and parental engagement in care have been shown to reduce medication treatment rates by 30-60%.
- Dartmouth and Yale have successfully decreased medication treatment rates to **10-20%** for opioid and polypharmacy exposed infants though use of **rooming-in, non-pharmacologic care** and **function based assessments** through a comprehensive QI approach**.**

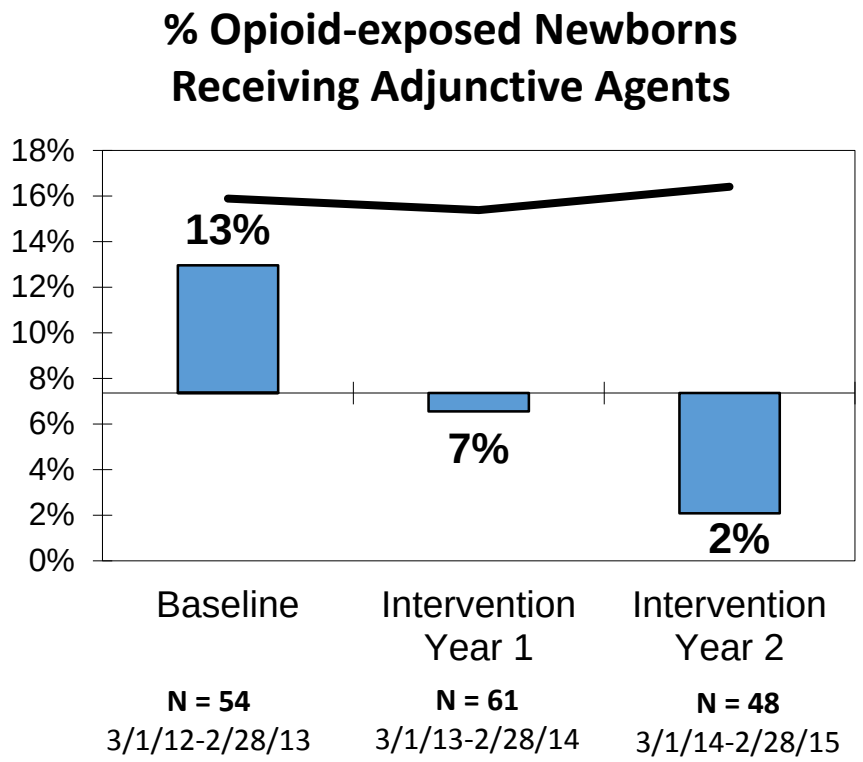
Holmes AV, *Pediatrics*, 2016; Grossman M, Pediatrics, 2017

What will happen if I don’t use medication?

- Symptoms typically start on day 2-3 of life after exposure to methadone or buprenorphine in-utero
- Withdrawal from in-utero opioids is a short-lived condition
- Most infants who do not require medication can be safely discharged home in stable condition by 4-7 days of life

Dartmouth Results





N = opioid-exposed infants per year

Holmes AV, et al. *Pediatrics.* 2016.

YALE-NEW HAVEN HOSPITAL

Yale Results

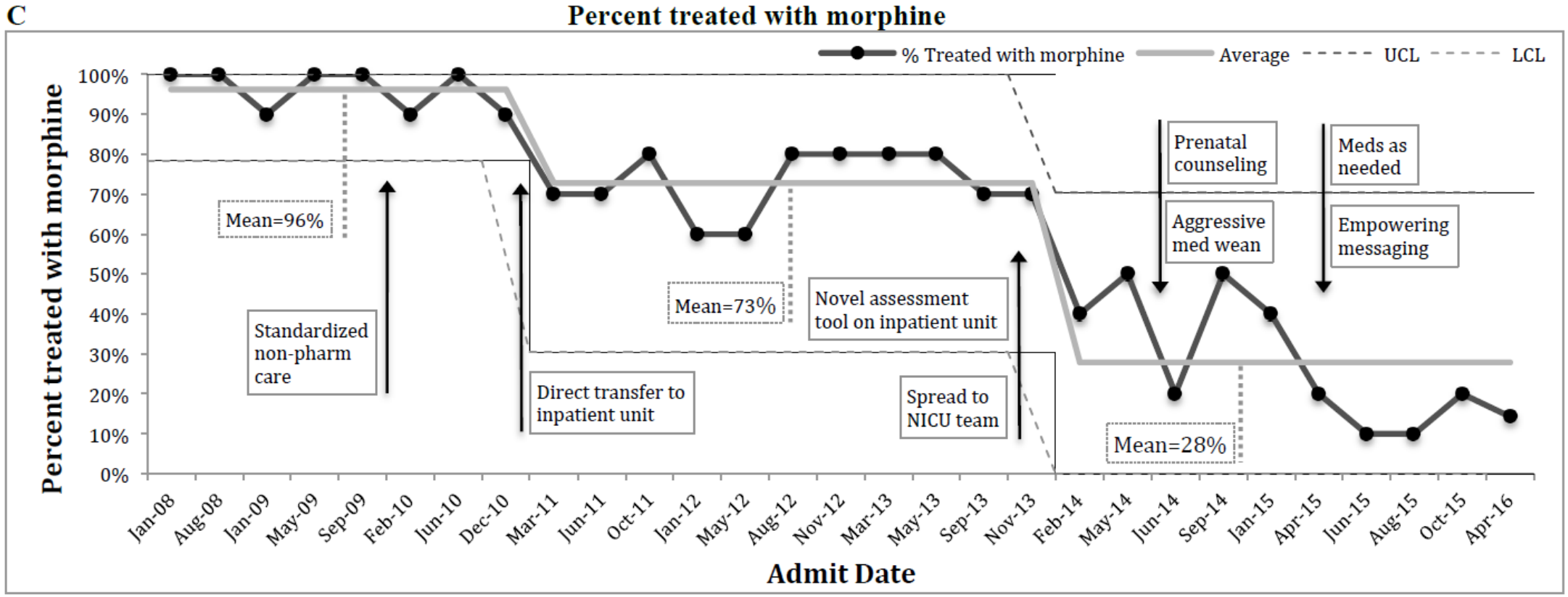


Figure 2: Charts A (LOS) and B (Cost) are XmR statistical process control charts (SPC) where each dot represents a patient exposed to methadone prenatally. Chart C (Treated with morphine) is a p-chart where each dot represents 10 patients exposed to methadone prenatally. The centerline for Charts A and B shifted downward (8 consecutive points below the mean) in March 2010, January 2012 and May 2015. Chart A also shifted downward in June 2014. Centerline for Chart C shifted in March 2010 and January 2014.

Grossman M, et al, *Pediatrics*, June 2017

What is our NAS QI aim at BMC?

- **<u>Aim</u>: To reduce need for medication treatment by 40%, and subsequently length of hospital stay by 30% by December 2017**

- **<u>Step 1</u>:** New NAS guidelines went live July 12th, 2016

What are the changes in the new guidelines?

- 1) Increased emphasis on **non-pharmacologic care as first-line treatment**
- 2) **Holding on starting medication in the first 24 hours of life**
- 3) A switch to **function based assessments** (**ESC)**
- 4) Encouragement of **team huddles**

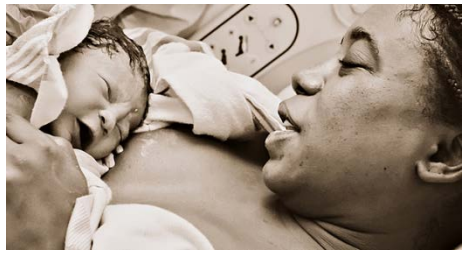
1: Non-Pharmacologic Care Focus

- Give parent the “**Bundle of Care**” handout
- Teach the parents how they can help their baby through the process of withdrawal
- Encourage parents to be present as much as possible
- Skin-to-skin and holding as appropriate
- Feeding on demand
- Dim lighting and decreased sound stimulation
- Swaddling and pacifiers
- Cluster care
- Score the infant in the room with the mother

BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTIONS.
PEDIATRICS

RESPECT

SUPPORTIVE BUNDLE OF CARE



Be with your baby:

You are part of your infants treatment!

1. **Skin-to-skin:** Hold your baby skin-to-skin as much as possible. The whole family can join in the fun. Be careful though - if you are feeling sleepy, place your baby in the bassinette.
2. **Feed on Demand:** If you can, feed your baby breast milk and feed on demand. This means don't watch the clock; watch the baby for feeding cues.
3. **Calming Techniques:**
   - **Swaddle:** Tightly wrap your baby to help soothe them. Ask your nurses to show you!
   - **Pacifiers:** non-nutritive sucking
   - Shooshing
   - Slow, rhythmic up & down movements
4. **Quiet room:** keep the noise level as low as possible by limiting visitors, asking your adults friends and hospital staff to speak softly. keeping the TV volume low, talking on the phone quietly
5. **Dim the lighting** in your room.
6. **Cluster care** – ask your providers to group things together that need to be done to limit the interruptions to your baby.
7. **Medications** – Half of babies require medication to help with their withdrawal, to allow them to sleep, eat, and be comfortable.

What if the baby is in the NICU?

- **Non-pharmacologic care for the NICU is still possible:**
  - Private room or quiet pod
  - Isolette with cover
  - Consider bili-blanket versus overhead phototherapy lights
  - Swaddling and barriers around infant
  - Pacifiers
  - Encourage parental holding and skin to skin as appropriate
  - Clustering of care

2: Hold on treating in the first 24 hours

- For mothers on maintenance subutex and methadone, withdrawal does not typically start until 2-3 days after delivery
- High scores in the first 24 hours are likely due to co-exposures to **psychiatric medications** and **nicotine** which can cause high muscle tone, tremors, and irritability starting at birth
- High scores in the first 24 hours may also be due to **concurrent medical conditions** of the baby, or due to cluster feeding resulting in poor sleep
- These conditions do not warrant treatment with an opioid medication

3: The bedside evaluation

- A **“YES”** response to any ESC item should prompt a **bedside team discussion**
- **Team members**: Resident physician or nurse practitioner, attending physician (as needed), nurse, parent
- **Things to discuss and review:**
  - ESC items
  - Has non-pharmacologic care been optimized?
  - If non-pharmacologic care has been optimized, does the baby require medication initiation?

4: ESC

- **E = Eat**
  - Does the infant have poor feeding due to NAS?
- **S = Sleep**
  - Sleep < 1 hour after feeding due to NAS?
- **C = Console**
  - Takes > 10 minutes to console the infant?
  - What is the infant's consolability rating?
    - Soothes with little support - 1
    - Soothes with some support - 2
    - Soothes with much support – 3

When to pull the trigger on medication

- If the baby has a **“YES”** response to ESC or consistent **“3s”** for poor consolability, AND **non-pharmacologic care** has been optimized, then medication should be initiated
- If trialing an increase in non-pharmacologic care first for elevated scores, re-assess the baby within **3-4 hours** (at the next scoring interval)
- If the baby is not responding to non-pharmacologic care and is very uncomfortable, medication can be started sooner, within **1-2 hours** of the initial evaluation

Where can I find the new guidelines?

- **The new guidelines are located:**
  - Pharmacy Guidelines page on the BMC Intranet
  - On Mother Infant Unit, NICU, and Pediatric Inpatient Unit Intranet pages
  - Laminated on all pediatric units

FAQs

- **Q: Does this new QI initiative mean that the way that we have been doing NAS care prior to this was “poor care”?**

- **A:** ASOLUTELY NOT
- BMC has always been recognized as a leader in high quality NAS care
- We are doing a really great job, but there is always room for improvement as we learn about emerging best practices
- NAS is a rapidly changing field of study with an increase in research and quality improvement initiatives over the past 5 years

FAQs

- **Q: Why are we scoring the baby, but then ignoring the score and not treating for scores >8? Is this negligent?**
- **A:** NO
- The NAS clinical care guidelines have always been guidelines, to allow for clinical judgement.
- Scores >8 should trigger an evaluation and thoughtful team discussion about the functioning of the baby vs automatic medication based on the total score.
- All methadone and subutex exposed babies withdrawal to some degree and will have symptoms such as high tone and tremors. If the baby is unable to function (eat/sleep/console), then we need to intervene.

FAQs

- **Q: Is the baby going to seize if we don't give medication?**
- **A:** Highly unlikely
- Seizures were reported in the 1970's in a small number of case series, but have not been reported in the NAS literature since that time.
- In these original articles, there was no EEG correlate with these motor events in vast majority of cases questioning whether they were seizures.
- Seizures are incredibly rare in current clinical practice. Hospitals which have been promoting aggressive non-pharm care for years with low medication treatment rates report NO clinical seizures.

Herzlinger RA, et al, *J Pediatr*. 1977; Zelson C, et al, P*ediatrics*. 1971.

Who can I contact with questions?

- **QI Team Leader:** Elisha Wachman
- **Mother-Baby:** Ginny Combs, Bobbi Philipp, Sue Minear, Cathleen Dehn, Kristine Smith, Hannah Simons
- **NICU:** Elisha Wachman, Cathleen Dehn, Donna Stickley, Judy Burke
- **4E:** Karan Barry, Davida Schiff
- **Cuddler Program:** Robin Humphreys, Jen Driscoll