UPMC LIFE CHANGING MEDICINE

UPMC | MAGEE-WOMENS HOSPITAL

Non-Pharmacologic Care for Neonatal Abstinence Syndrome

Gysella Muniz MD, FAAP
Regional Director of Quality Newborn Care
Director, Newborn Nursery Service

Kristen Maguire MSN, RNC-MNN, CBC
Unit Director, Mother-Baby, UPMC Magee-Womens Hospital

Stephanie Bobby
PRC, UPMC Magee-Womens Hospital

Objectives

- **Description and current approach to Neonatal Abstinence Syndrome (NAS)**
- **Introduction to the Eat, Sleep, Console NAS Assessment method**
- **Maximization of non-pharmacologic care for infants with NAS**
- **Experiences and Outcomes from UPMC Magee Newborn Nursery and Parent Partnership Unit (PPU)**

Our Approach & Why?

"The FIRST-line treatment for NAS is non-pharmacologic care."

- Infant with opioid exposure: Rooming-in on postpartum unit and breastfeeding.
- Assessed with Finnegan q3-4 hours.
- Score of Three 8s or two 12s -> moved out of mother's room. Morphine +/- adjuvant.
- Barriers for parental presence and breastfeeding
- Hospitalized for several days (potential transfer to another facility).

Our Current Model – Finnegan Scale

Central Nervous System Disturbances	Metabolic, Vasomotor, and Respiratory Disturbance	Gastrointestinal Disturbance
Excessive High Pitched Crying – 2 Continuous High Pitched Crying - 3	Sweating – 1	Excessive Sucking – 1
Sleep < 1 Hr After Feeding – 3 Sleep < 2 Hr After Feeding – 2 Sleep < 3 Hr After Feeding – 1	Fever < 101 (37.2 – 38.3 C) – 1 Fever > 101 (38.4 C) – 2	Poor feeding – 2
Hyperactive Moro Reflex – 2 Markedly Hyperactive Moro – 3	Frequent Yawning (>3) – 1	Regurgitation – 2 Projective Vomiting – 3
Mild Tremors Disturbed – 1 Mod – Severe Tremors Disturbed – 2	Mottling – 1	Loose Stools – 2 Watery Stools – 3
Mild Tremors Undisturbed – 3 Mod – Sev Tremors Undisturbed - 4	Nasal Stuffiness – 1	
Increased Muscle Tone - 2	Sneezing (>3) – 1	
Excoriation – 1	Nasal Flaring – 2	
Myoclonic Jerk – 3	Respiratory Rate (>60) – 1 Respiratory Rate (>60 w Retractions) – 2	
Seizures – 5		

Finnegan LP, et al, *Int Clin Pharmacol Biopharm*, 1975

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What is Eat, Sleep, Console?

- Novel, nonintrusive, safe approach to assess infants with NAS
- Focused on infant's ability to function regardless of the withdrawal symptoms.
- Mother and Non-Pharm care = FIRST LINE TREATMENT
- Originally established by Grossman et al. at (Yale NHCH)
- Northern New England PQIN (New Hampshire, Vermont, Maine)
- Neonatal Quality Improvement Collaborative of Massachusetts (neoQIC)

Grossman et al, 2017

ESC Assessments

- **Every 3-4 hours at times of feeding / cares**
- **Encompass the last 3-4 hours since the prior assessment**
- **Feedback from all caregivers**
- **Does not require the infant to be removed from the mother to complete**

ESC: A Function-Based Tool

- **3 questions:**
- **Eat: Does the newborn eat expected amounts for postnatal age / gestational age?**
- **Sleep: Does the newborn sleep at least one hour continuously?**
- **Console: Is the infant consolable and level of soothing support needed?**

TIME				
EATING				
Poor eating due to NAS? Yes / No				
SLEEPING				
Sleep < 1 hr due to NAS? Yes / No				
CONSOLING				
Unable to console within 10 min due to NAS? Yes / No				
Soothing support used to console infant: Soothes with little support: 1 Soothes with some support: 2 Soothes with much support or does not soothe in 10 min: 3				
PARENTAL / CAREGIVER PRESENCE				
Parental / caregiver presence since last assessment: No parent present: 0 1 - 59 minutes: 1 1 hr – 1 hr 59 min: 2 2 hr – 2 hr 59 min: 3 3 hr+: 4				
MANAGEMENT DECISION				
Recommend a Team Huddle? Yes / No				
Management decision: Optimize non-pharm care: 1 Initiate medication treatment: 2 Other (please describe):				
NON-PHARM INTERVENTIONS				
Rooming-in: Increased / Reinforced				
Parental presence: Increased / Reinforced				
Skin-to-skin contact: Increased / Reinforced				
Holding by caregiver/cuddler: Increased / Reinforced				
Swaddling: Increased / Reinforced				
Optimal feeding: Increased / Reinforced				
Non-nutritive sucking: Increased / Reinforced				
Quiet environment: Increased / Reinforced				
Limit visitors: Increased / Reinforced				
Clustering care: Increased / Reinforced				

DEFINITIONS

EATING

- **Poor eating due to NAS:** Baby unable to coordinate feeding within 10 minutes of showing hunger *AND/OR* unable to sustain feeding for 10-15 minutes at breast or with 10-15 cc of finger- or bottle-feeding due to NAS symptoms (e.g., fussiness, tremors, uncoordinated or excessive suck)
- ***Special Note:*** **Do not** indicate "Yes" for poor eating if it is clearly due to non-NAS related factors (e.g., prematurity, transitional sleepiness or spittiness in the first 24 hours of life, or inability to latch due to ankyloglossia or other infant / maternal anatomical factors). If it is not clear if the poor eating is due to NAS, please indicate "Yes" on the flowsheet and continue to monitor the infant closely

SLEEPING

- **Sleep < 1 hour due to NAS:** Baby unable to sleep for more than a one hour stretch after feeding due to NAS symptoms (e.g., fussiness, restlessness, increased startle, tremors)
- ***Special Note:*** **Do not** indicate "Yes" if sleep < 1 hour is clearly due to non-NAS related factors (e.g., physiologic cluster feeding, interruptions in sleep for routine newborn testing). If it is not clear if sleep < 1 hour is due to NAS, please indicate "Yes" on the flowsheet and continue to monitor the infant closely

CONSOLABILITY

- **Unable to console within 10 minutes due to NAS:** Baby unable to be consoled within 10 minutes by infant caregiver effectively providing recommended Consoling Support Interventions
- ***Special Note:*** **Do not** indicate "Yes" if infant's inconsolability is due to infant hunger, difficulty feeding or other non-NAS source of discomfort (e.g., circumcision pain). If it is not clear if the inability to console within 10 minutes is due to NAS, please indicate "Yes" and continue to monitor the infant closely

Consoling Support Interventions (CSIs)

- Caregiver begins talking to infant and uses his/her face voice to calm infant
- Caregiver continues talking to infant and places hand on infant's abdomen
- Caregiver continues talking to infant and holds infant's arms and legs toward center
- Picks up infant, holds skin-to-skin or swaddled in blanket, and gently rocks or sways infant
- Offers a finger or pacifier for infant to suck, or a feeding if infant showing hunger cues

SOOTHING SUPPORT USED TO CONSOLE INFANT

1. **Soothes with little support:** Consistently self-soothes or is easily soothed (i.e., with one of first 3 CSIs above)
2. **Soothes with some support:** Soothes with skin-to-skin contact, being held clothed or swaddled, rocking or swaying, sucking on finger or pacifier, or feeding
3. **Soothes with much support:** Has difficulty responding to all support efforts listed above; never self-soothes

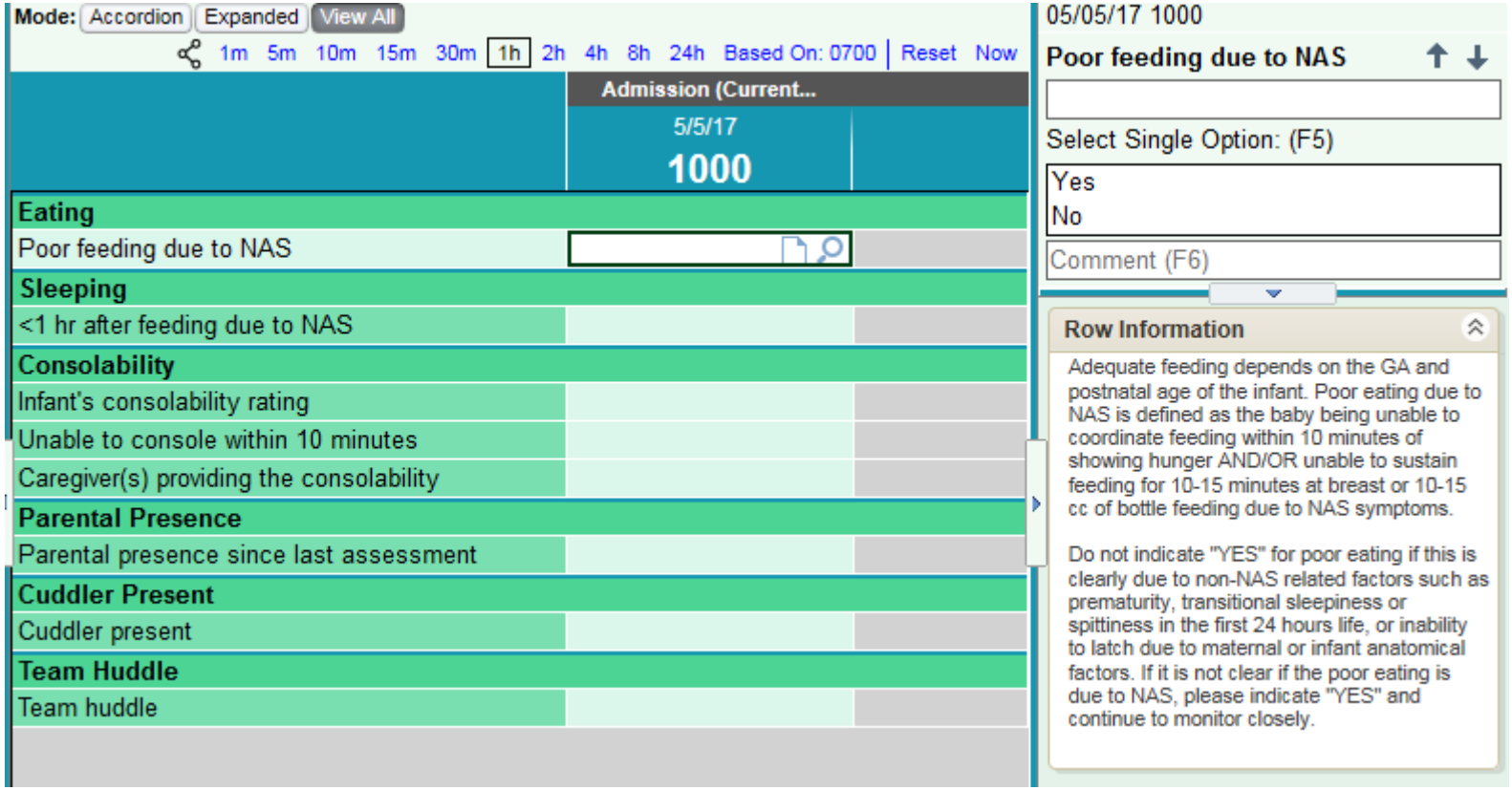
PARENTAL PRESENCE

- Time since last assessment that biological parent or foster parent has spent in room with infant

OPTIMAL FEEDING QUALITY:

- **Baby feeding at early feeding cues until content** without any limit placed on duration or volume of feeding.
- **Breastfeeding:** Baby latching deeply with comfortable latch for mother, and sustained active suckling for baby with only brief pauses noted. Assist directly with breastfeeding to achieve more optimal latch/position and request lactation consultation if any concerns present.
- **Bottle feeding:** Baby effectively coordinating suck and swallow without gagging or excessive spitting up; modify position of bottle or flow of nipple if any concerns present.

Electronic Documentation – Our Next Goal



Feedings

Poor eating due to NAS:

- Baby **unable to coordinate feeding *within* 10 minutes of showing hunger**
- **Or sustain feeding for *at least* 10 minutes at breast**
- **Or with 10 mL by alternate feeding method** (*or other age-appropriate duration / volume)* **due to opioid withdrawal symptoms** (e.g., fussiness, tremors, uncoordinated suck, excessive rooting)

Sleep

<u>Sleep < 1 hour due to NAS</u>: Baby unable to sleep for *at least* one hour after feeding due to opioid withdrawal symptoms (e.g., fussiness, restlessness, increased startle, tremors).

Consolability

Unable to console within 10 minutes due to NAS:

- Baby unable to console *within* 10 minutes (due to opioid withdrawal symptoms) despite infant caregiver/provider effectively providing any/all of the Consoling Support Interventions.

http://www.neoqicma.org/eat-sleep-console

Non-pharmacologic Care

- Rooming-in
- Parent (or other caregiver) presence at bedside if possible
- Quiet environment
- Holding, Skin to Skin
- Swaddling
- Reduced stimulation
- Promote breastfeeding

Symptom Prioritization

Central Nervous System Disturbances	Metabolic, Vasomotor, and Respiratory Disturbance	Gastrointestinal Disturbance
Excessive High Pitched Crying – 2 **Continuous High Pitched Crying - 3**	Sweating – 1	Excessive Sucking – 1
Sleep < 1 Hr After Feeding – 3 Sleep < 2 Hr After Feeding – 2 Sleep < 3 Hr After Feeding – 1	Fever < 101 (37.2 – 38.3 C) – 1 **Fever > 101 (38.4 C) – 2**	**Poor feeding – 2**
Hyperactive Moro Reflex – 2 Markedly Hyperactive Moro – 3	Frequent Yawning (>3) – 1	Regurgitation – 2 **Projective Vomiting – 3**
Mild Tremors Disturbed – 1 Mod – Sev Tremors Disturbed – 2	Mottling – 1	Loose Stools – 2 **Watery Stools – 3**
Mild Tremors Undisturbed – 3 Mod – Sev Tremors Undisturbed - 4	Nasal Stuffiness – 1	
Increased Muscle Tone - 2	Sneezing (>3) – 1	
Excoriation – 1	Nasal Flaring – 2	
Myoclonic Jerk – 3	Respiratory Rate (>60) – 1 **Respiratory Rate (>60 Retractions) – 2**	
Seizures – 5		

Do not delay treatment with non-pharmacologic care if symptoms of concern are **apnea or **seizures** and these are felt possibly due to opioid withdrawal*

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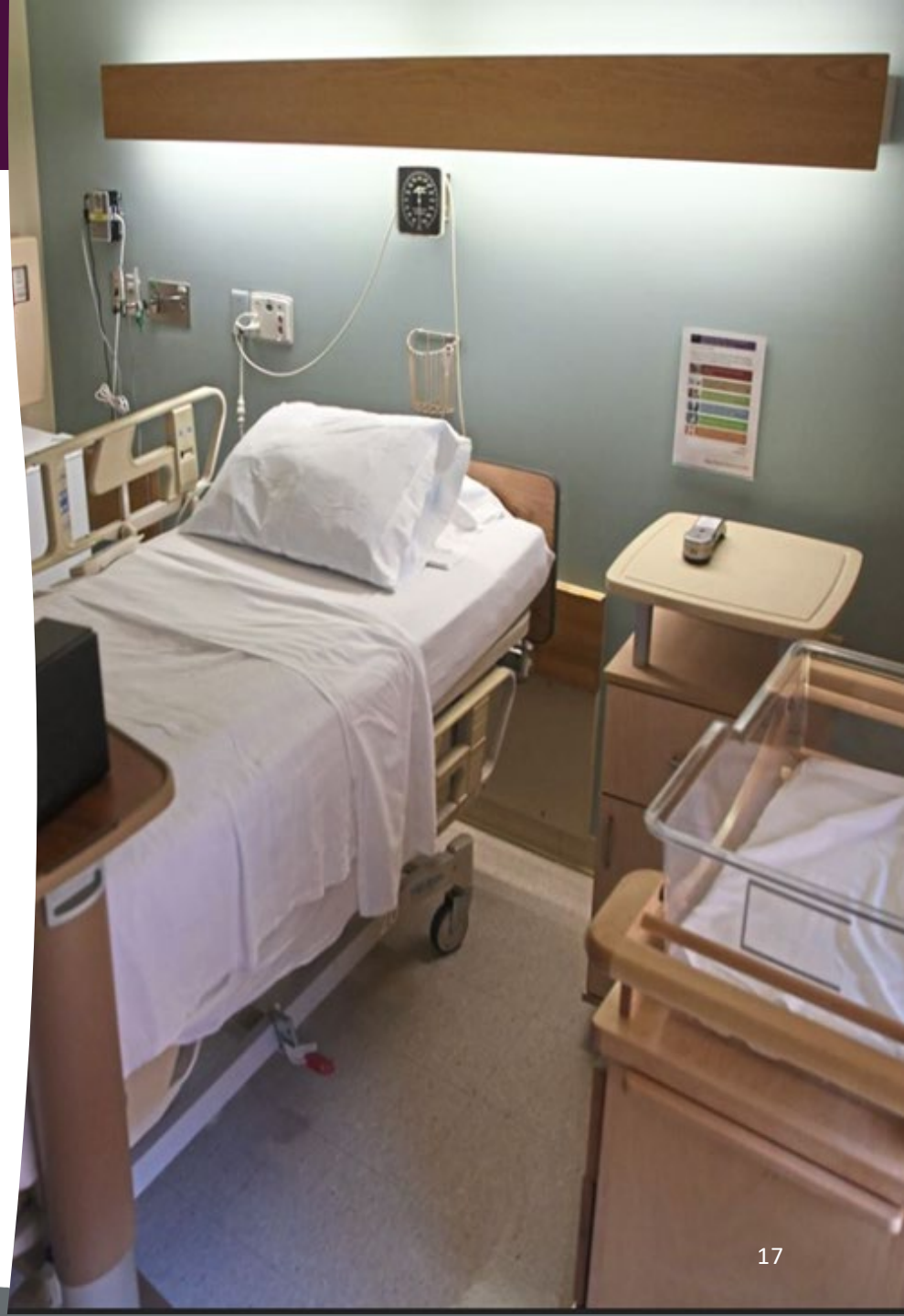
Magee Before the Parent Partnership Unit (PPU)

- Approximately 70% of opioid exposed infants born at UPMC Magee, required pharmacologic treatment
- Infants exposed to opioids are identified and observed for 5-7 days for NAS symptoms
- Mothers discharged day 2 or 3 - separating infant from mother during observation and treatment.

Objectives of the PPU

- Establish a comprehensive family centered care model with the goals of:
  - Reduction of need for pharmacologic treatment of NAS
  - Decrease the length of stay
  - Increase breastfeeding initiation
- Empower families to be an active participant and be the first line of treatment for infants with a focus on non-pharmacologic care



New Model of Care

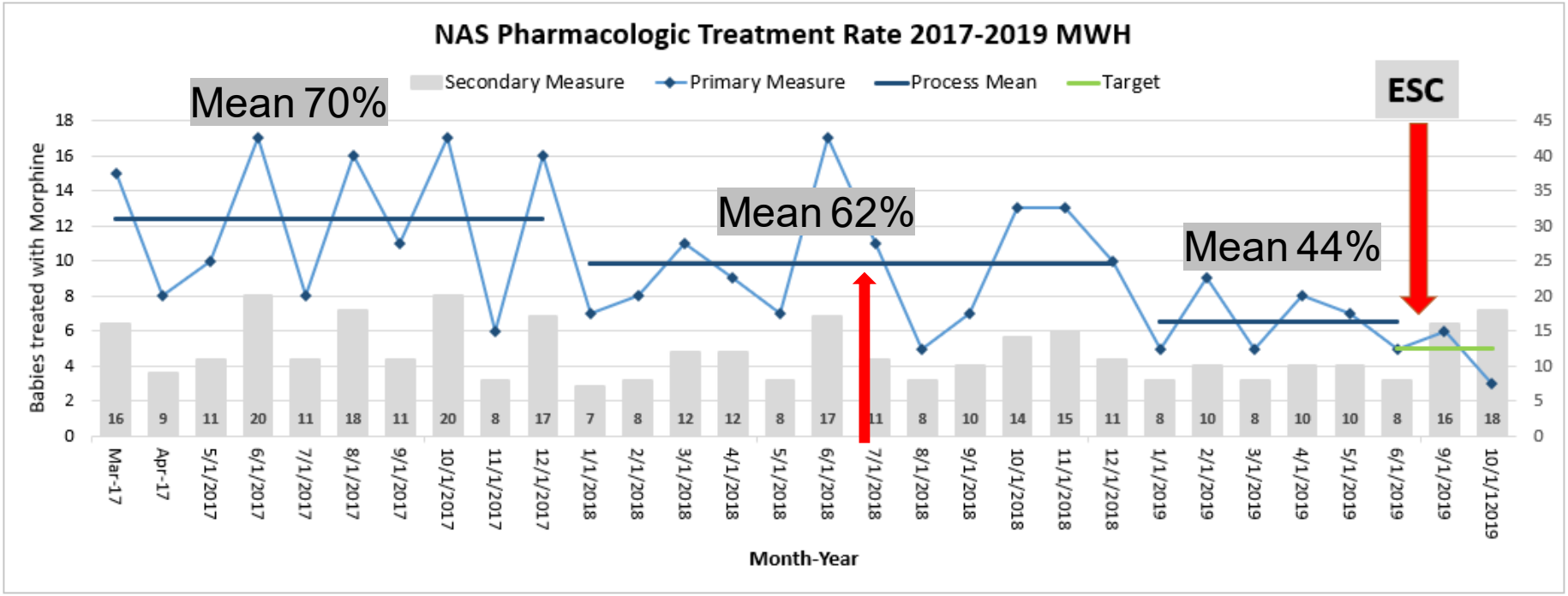
- Rooming in structure in place
- Mom discharged from hospital but stays with baby in room
- Multi-disciplinary collaboration for comprehensive care
- Bundle of interventions geared toward baby and family-centered care
- Educational sessions to create health and wellness

Educational Sessions for Parents

- Infant care
- Soothing and calming techniques
- Creating a Safe Environment
- Infant Massage
- Developmental Support
- Parental support
  - Self-care
  - Mindfulness
  - Nutrition
  - Community Resources
  - Lactation services/support

RESULTS

Pharmacologic Treatment Rate per Year - MWH



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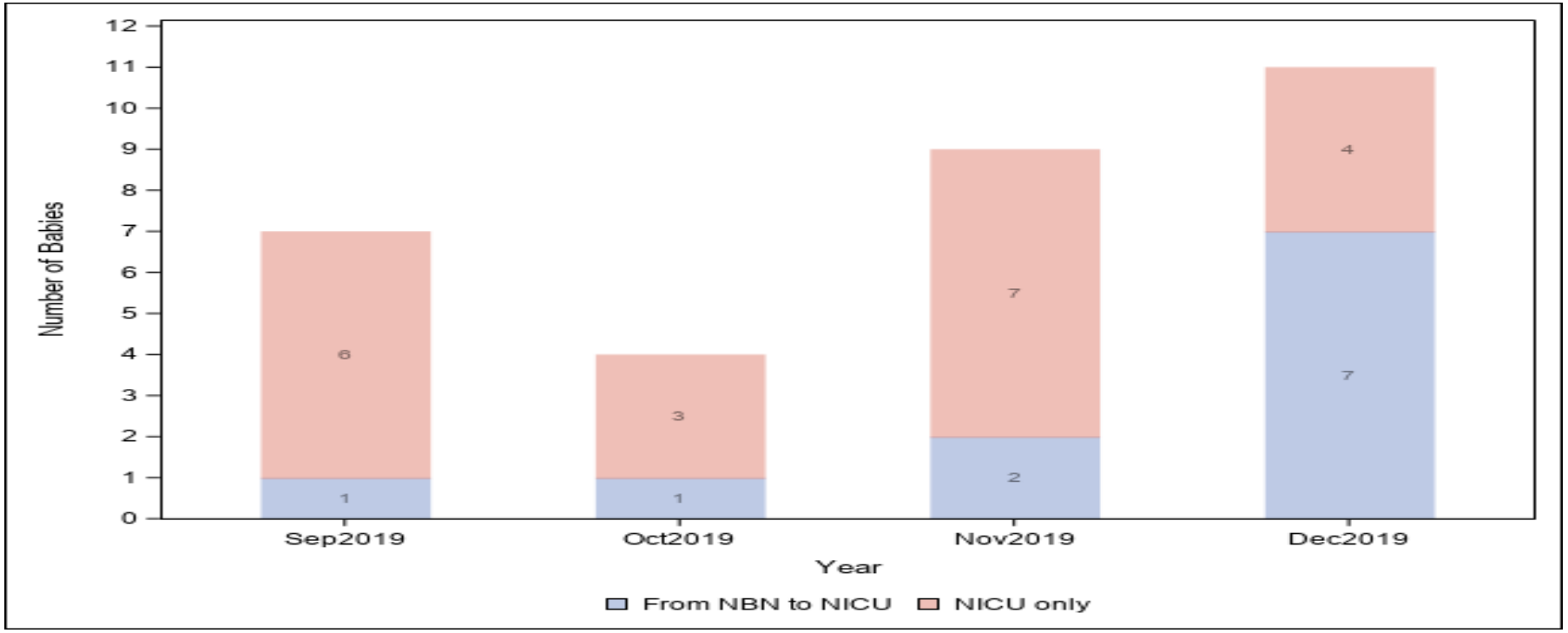
NICU vs NBN Transferred Infants



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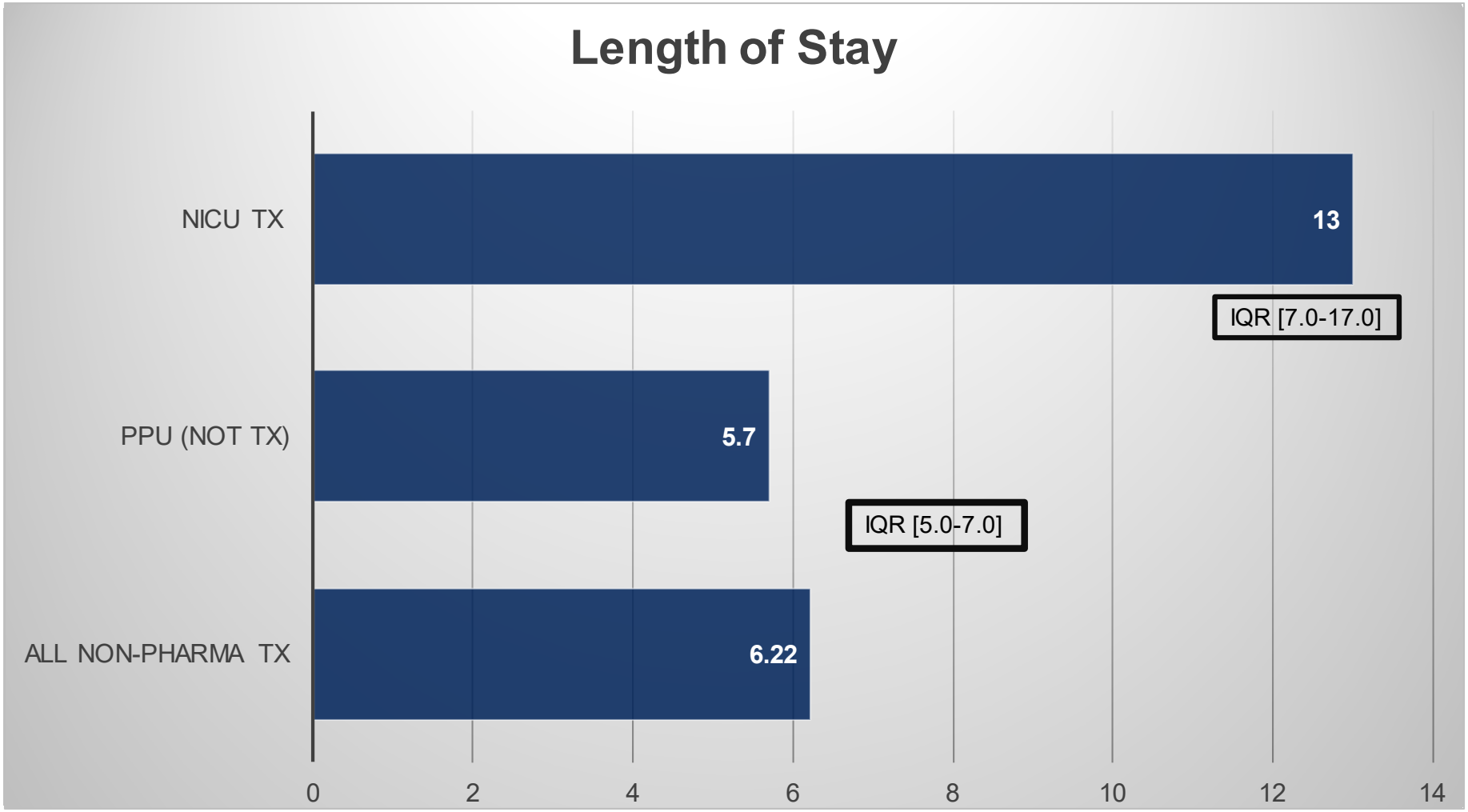
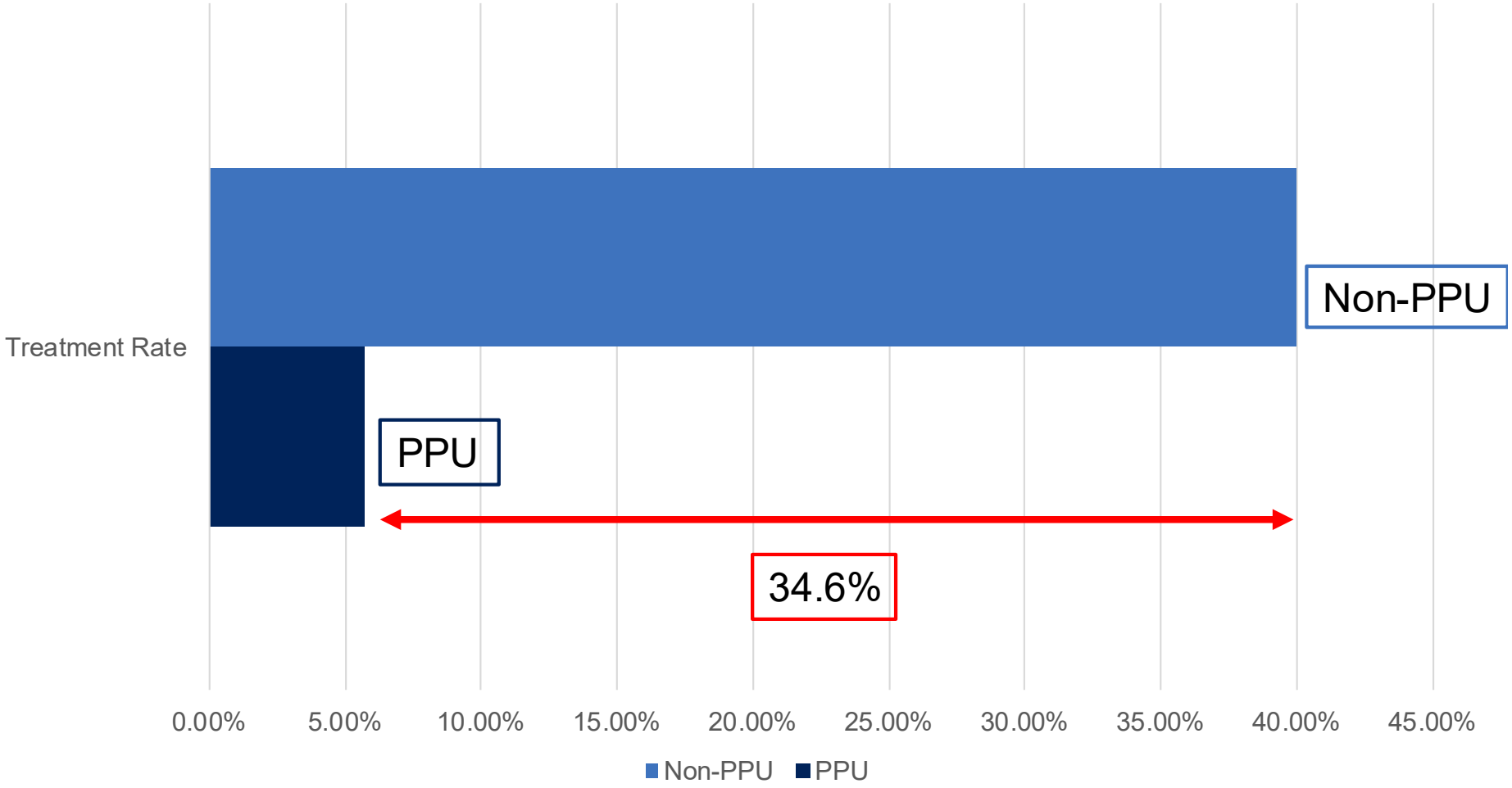
LOS Stratification



Pharmacologic Treatment Rate MWH-2019



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PPU Outcomes

134 babies through PPU

Length of stay – 5.7 days

Breastfeeding initiation 73%

Next Steps;

- Huddles: 24 hr. coverage
- Continue outcome tracking
- Optimization of Cuddler Program
- Rollout of ULearn training and certification module
- Implementation within EMR
- Dissemination to other hospitals

Questions?