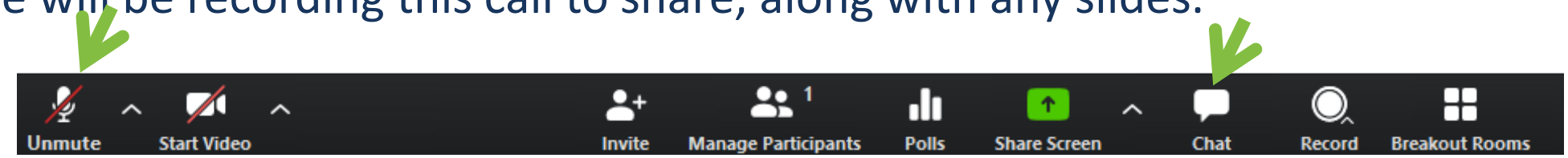
Neonatal Opioid Withdrawal Syndrome Initiative

Action Period Call
July 26, 2023
12:00 – 1:00 PM CT

Welcome

- Please type your name and organization you represent in the chat box and send to "Everyone."
- Please click on the three dots in the upper right corner of your Zoom image, click "Rename" and put your name and organization.
- Please also do for all those in the room with you viewing the webinar.
- Attendees are automatically muted to reduce background noise.
- You may enter questions/comments in the "chat" box during the presentation. We will have a Q&A session at the end.
- Slides will be available via email and at http://www.alpqc.org/initiatives/nows
- We will be recording this call to share, along with any slides.



Agenda

Welcome & Updates Upcoming Initiatives		12:00 – 12:10
Data Overview		12:10 – 12:20
Potential Initiatives Overview/Q&A		12:20 – 12:50
Hospital Interest Poll		12:50 – 12:55
Next Steps & Reminders		12:55 – 1:00

Updates

Updates

- Monthly 1:1 sessions with ALPQC Quality Improvement RN
  - Hospital teams should email Lham17@uab.edu to schedule
- Steering Committee Re-launch at the ALPQC Summit
  - Look for email invitation and application prior to the September Summit
  - Hospital representatives are invited to join and serve on the Hospital Advisory Group or any subcommittees or workgroups
- ALPQC Newsletter set to resume in August
- Newly created flyer for MOUD and Narcan is awaiting final approval for distribution
- Sign up for hospital team share
- Summit will be in Montgomery on September 20th, 2023

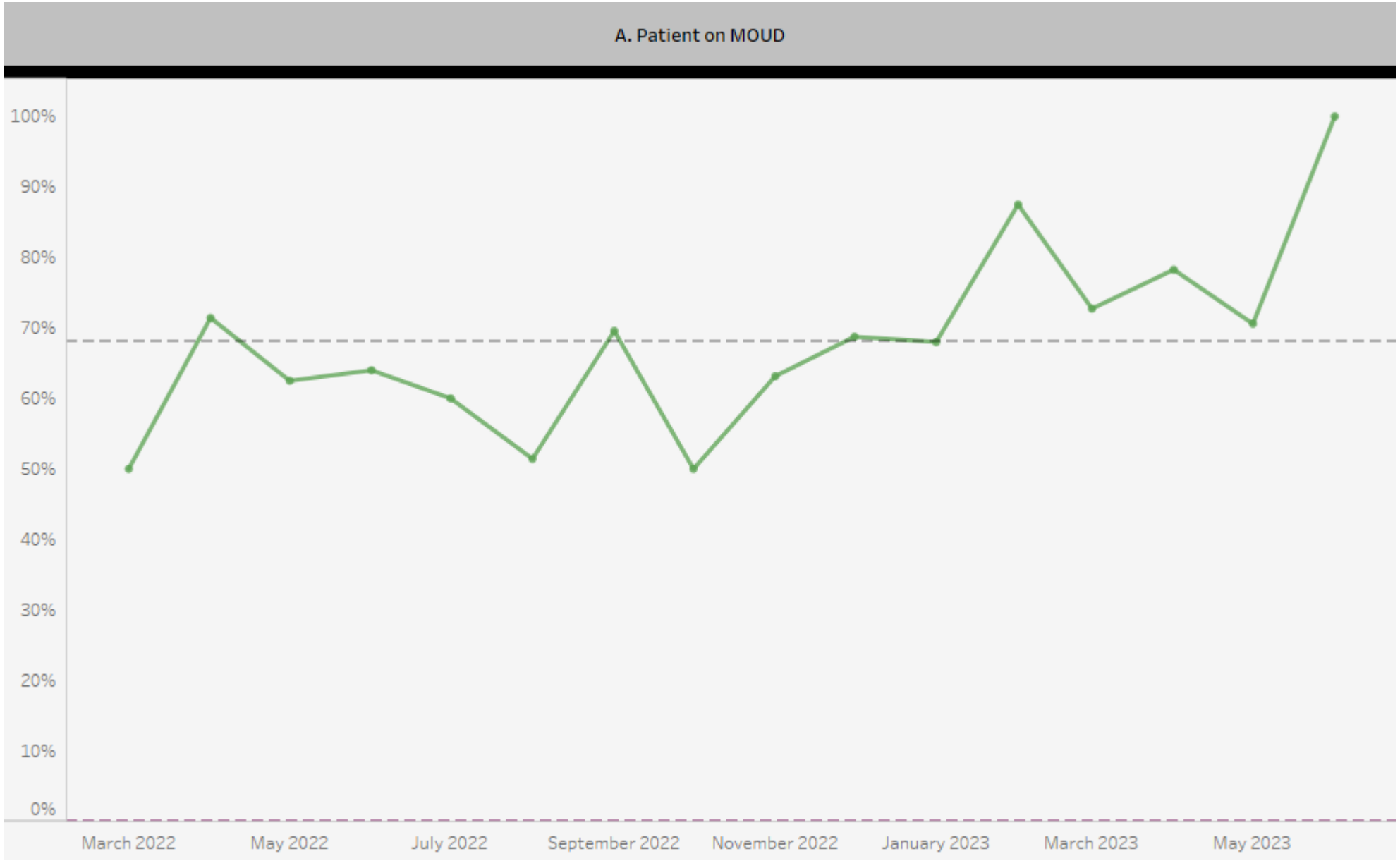
NOWS Data Update

		Measures	HospitalsParam No Hospital	All Initiative Hospitals (Average from Apr, 22 - Jun, 23)
Data	Obstetrical	OB A: Patient on MOUD (% yes)		66.04 %
		OB B: Referred to addiction services (% yes)		74.84 %
		OB C: Narcan counseling documented (% yes)		27.36 %
	Neonatal	Neo B: Non-pharm guideline consistently used (% yes)		96.54 %
		Neo C: Infant received pharm care (% yes)		44.97 %
		Neo D: # Days of pharmacologic care (days)		6.92 days
		Neo E: # Days old at discharge - Length of stay (days)		13.18 days
		Neo F: Collaborative Discharge Plan completed (% yes)		87.11 %
		Neo H: Readmission within 10 days (% yes)		1.57 %

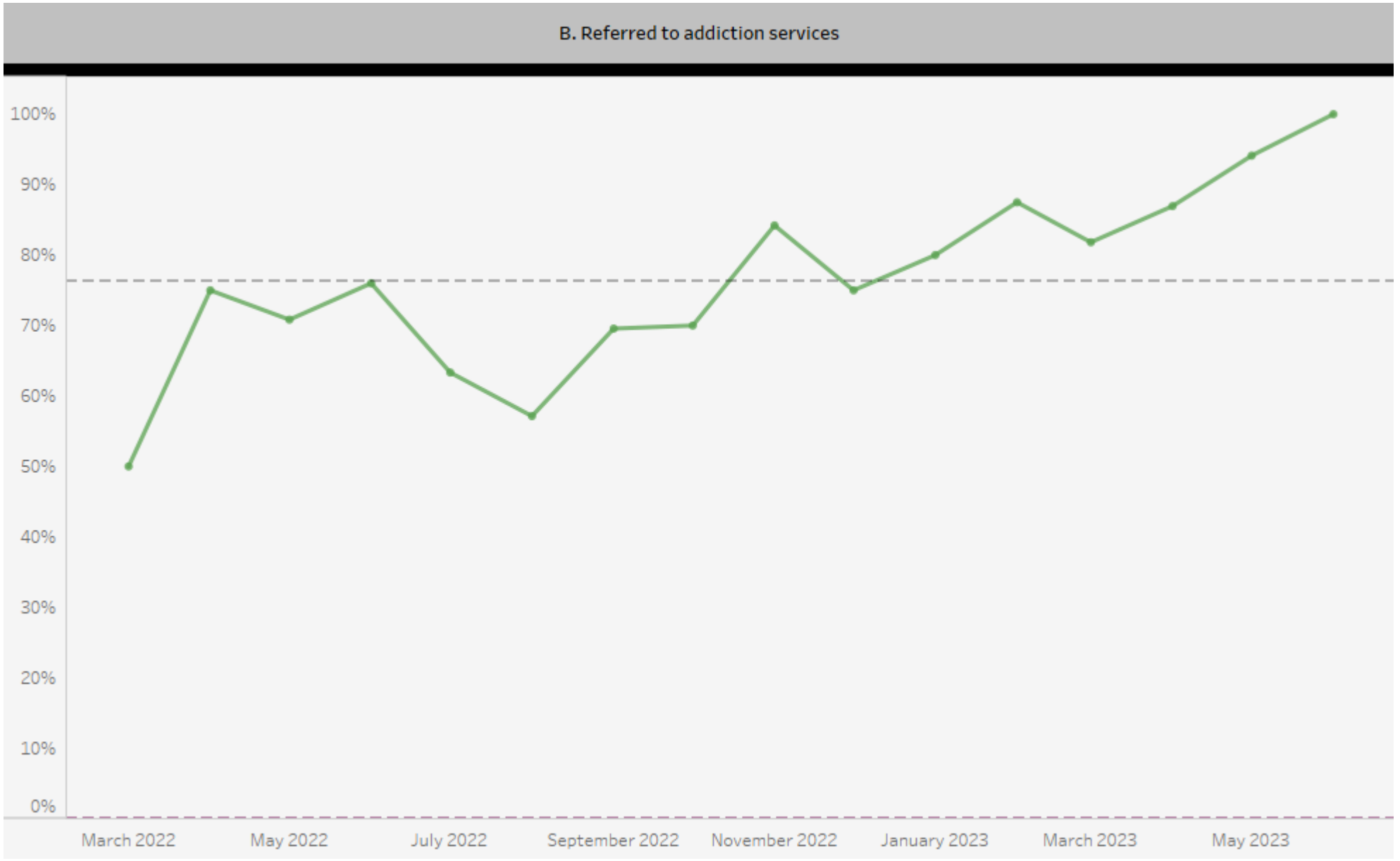
Data Update

Obstetric Measures

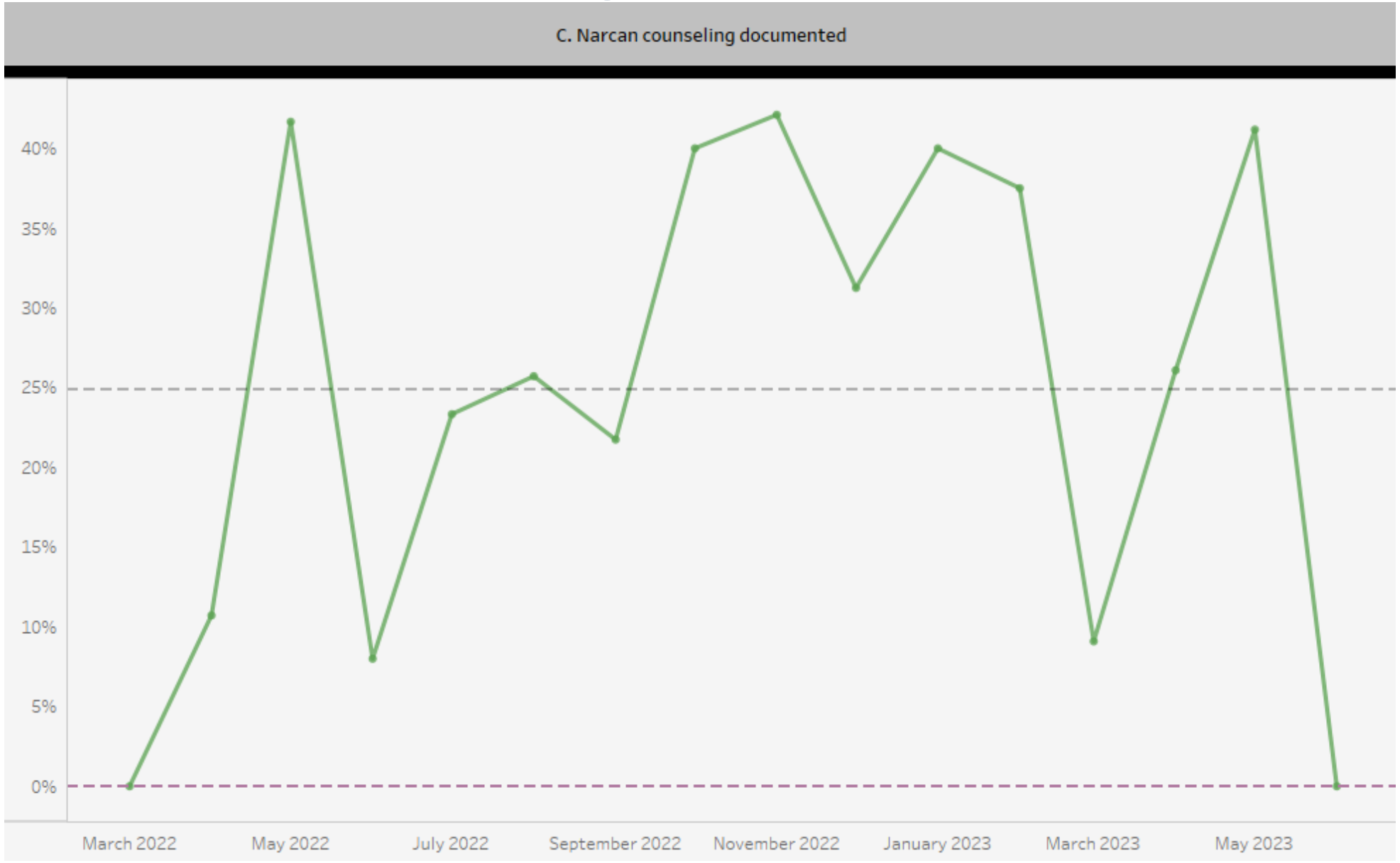
Medication for OUD



Addiction Services



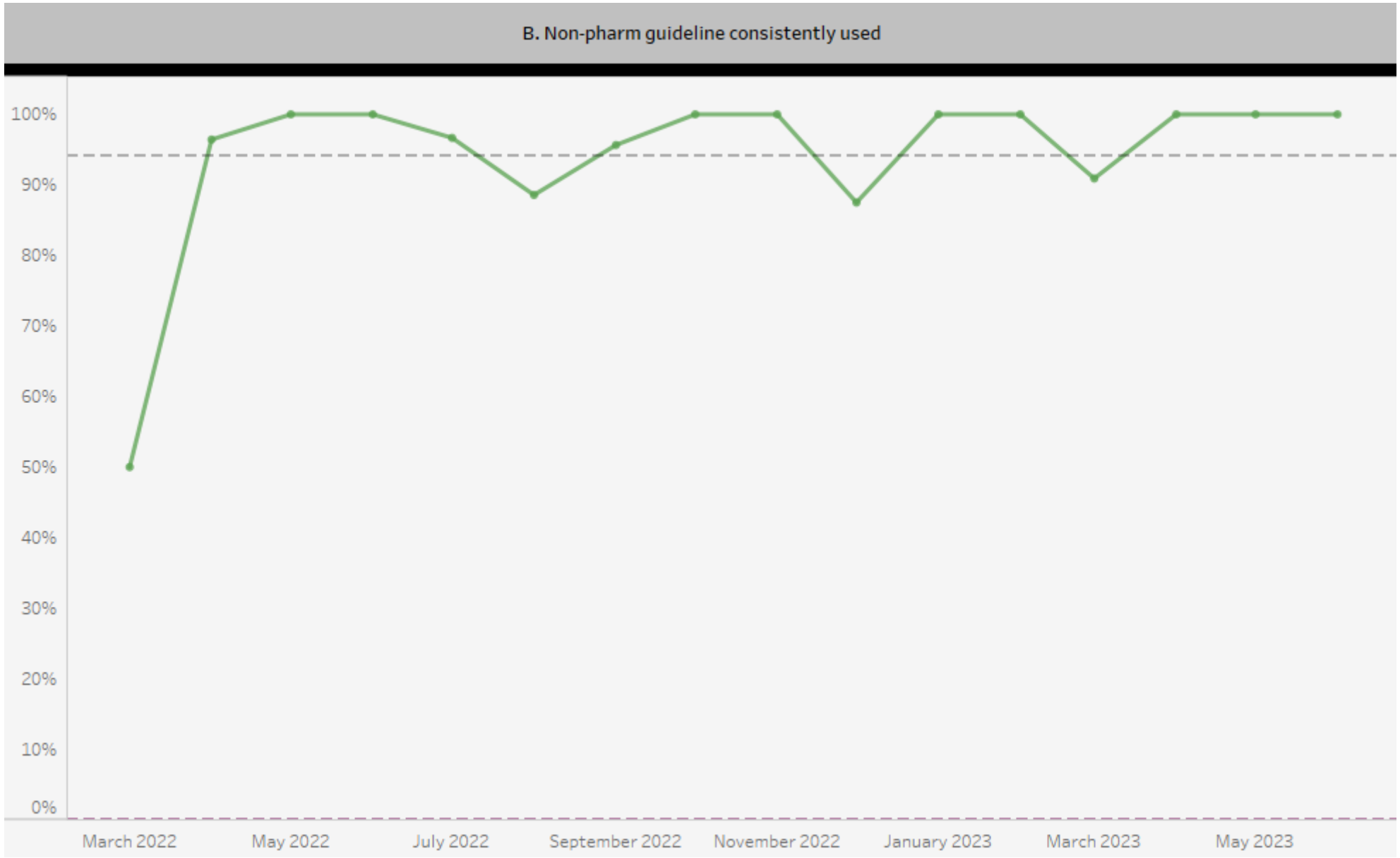
Narcan Counseling



Data Update

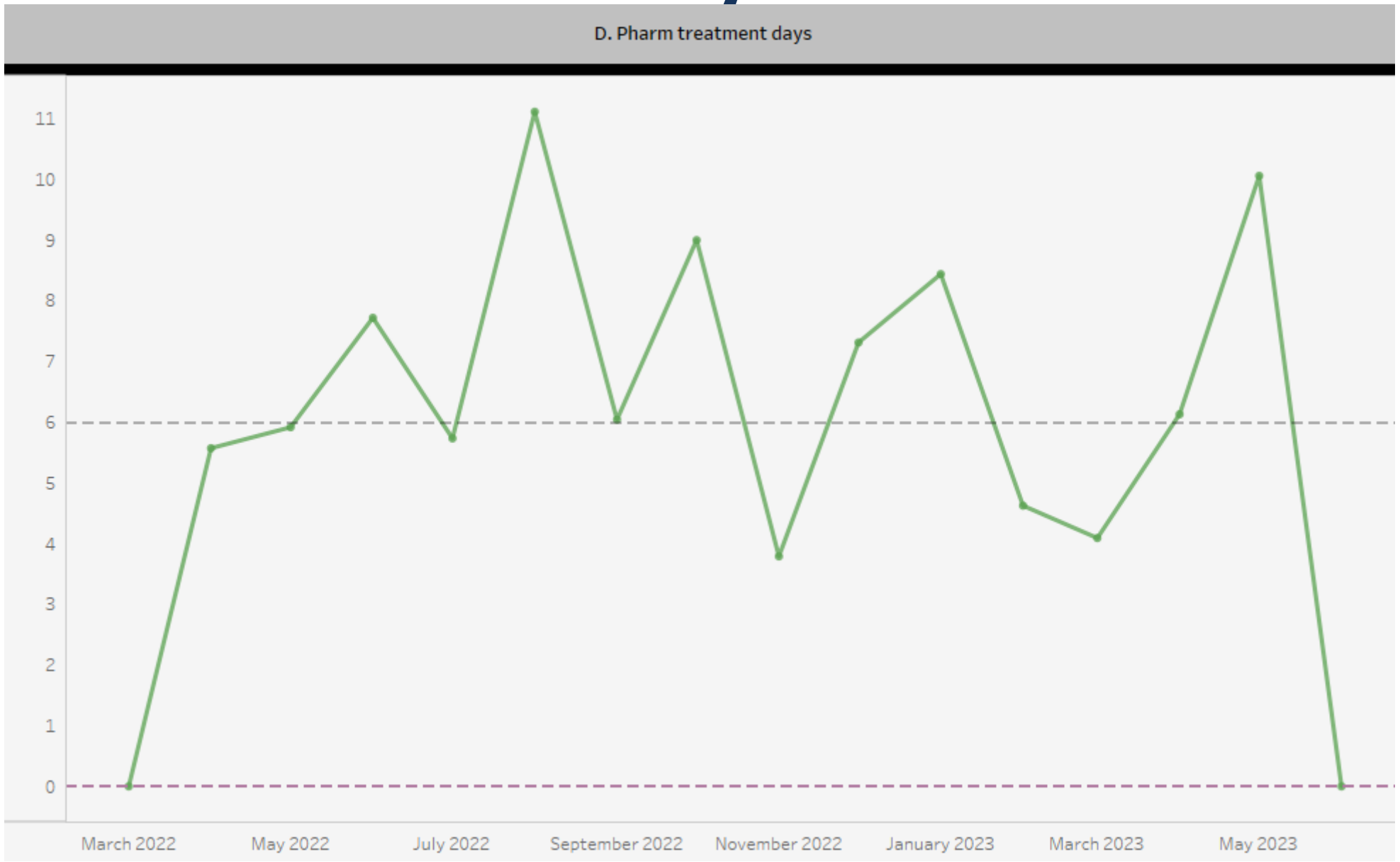
Neo Measures

Non-Pharm Care

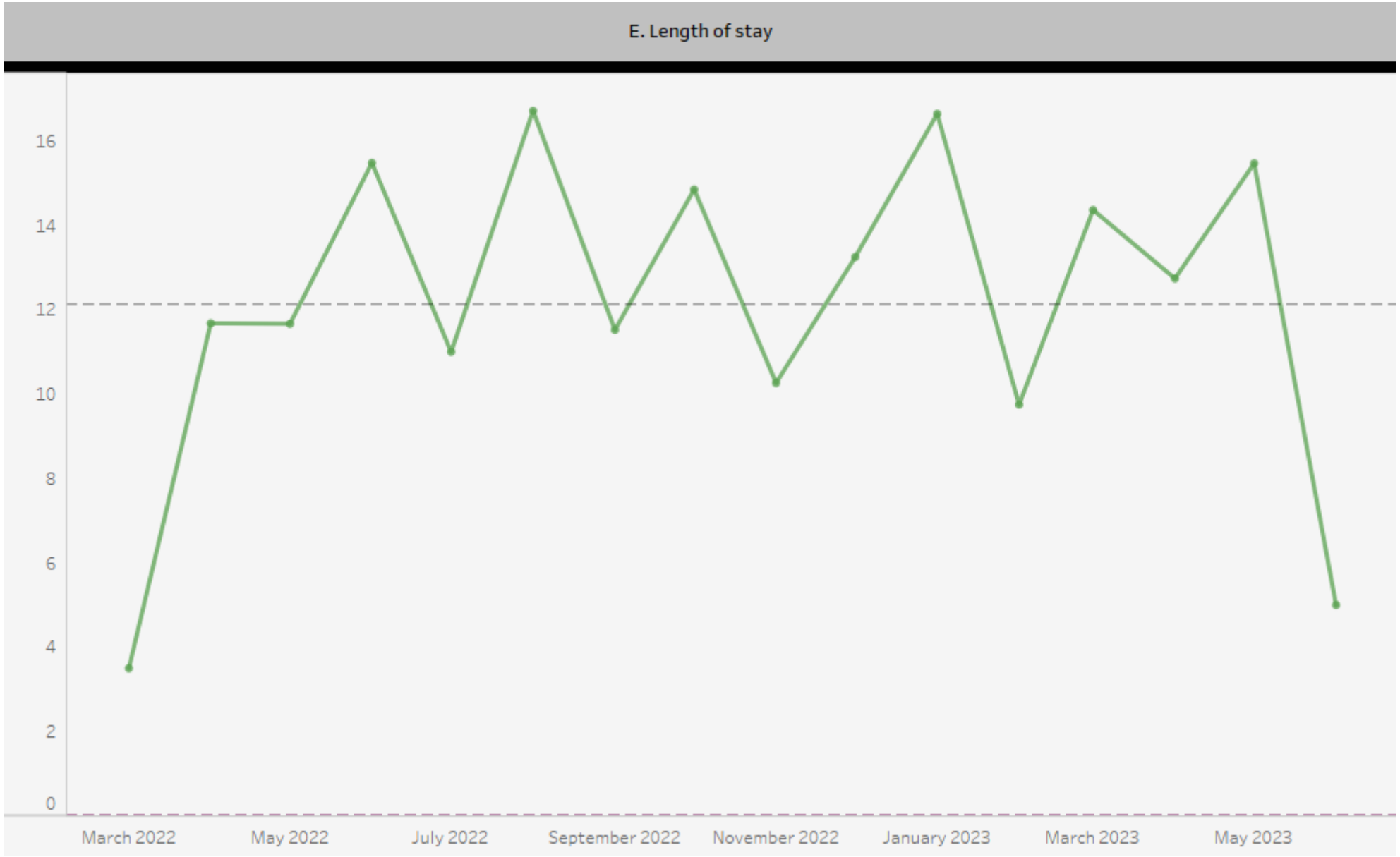


Pharm Treatment

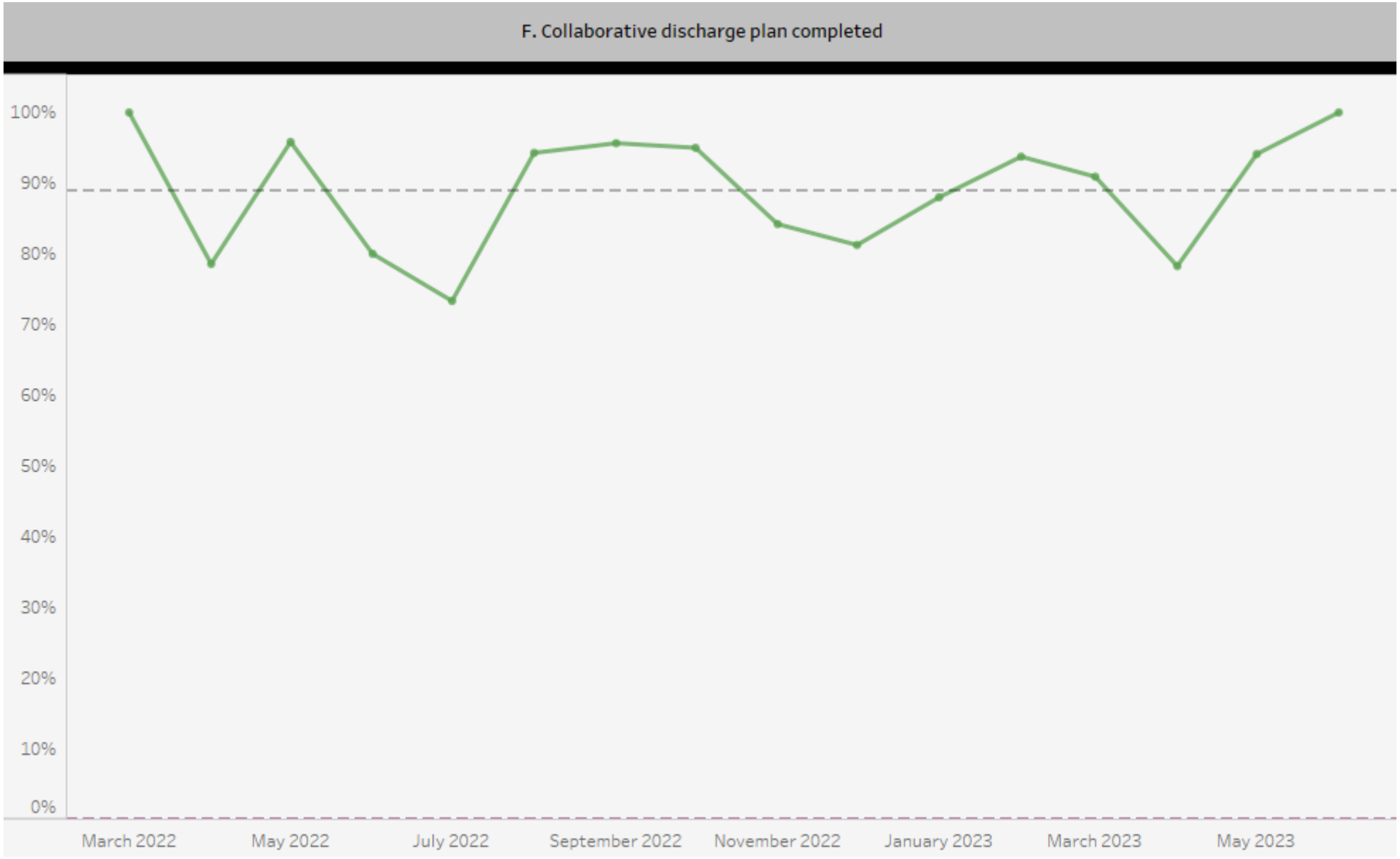
Pharm Treatment Days



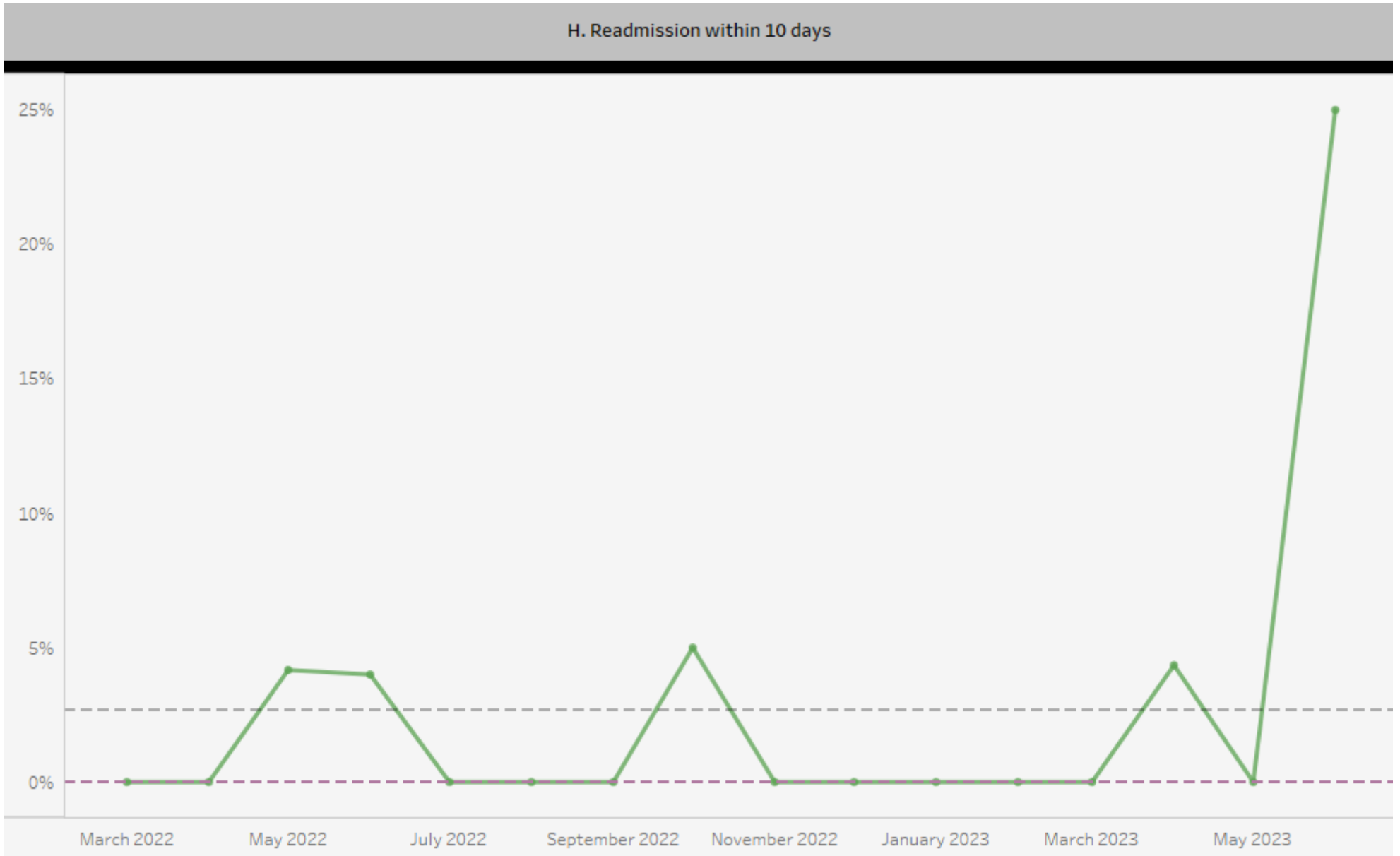
Length of Stay



Collaborative Discharge Plan



Readmission



Data Update

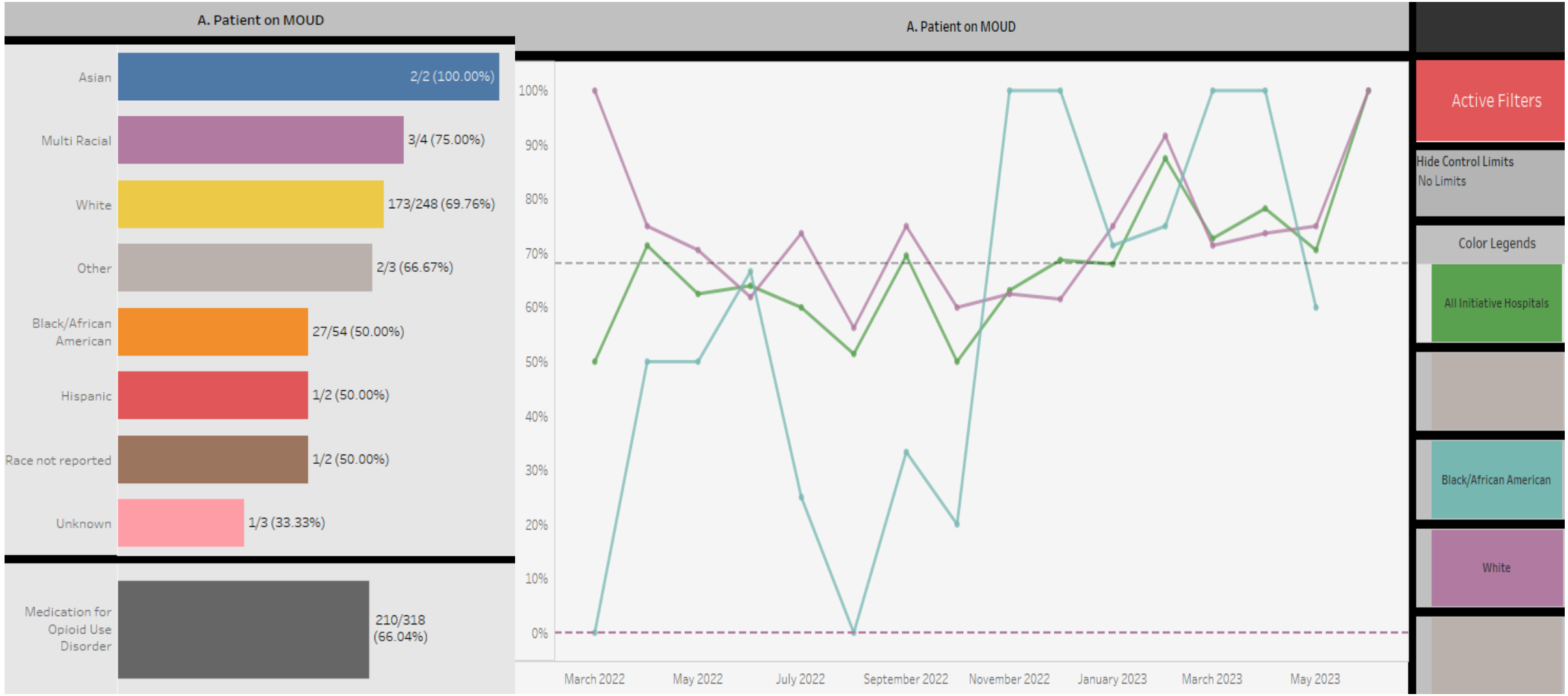
Structural Measures

Structural Measures

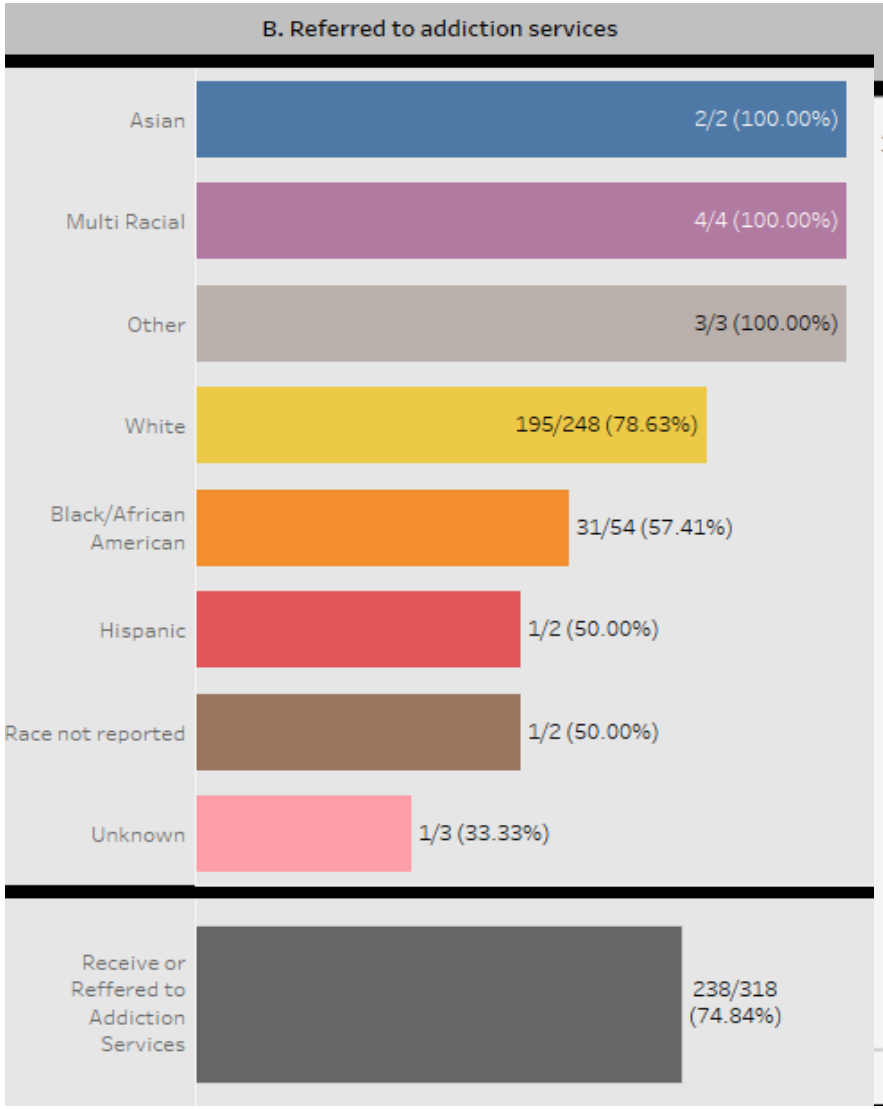
Data Update

Race / Ethnicity Data

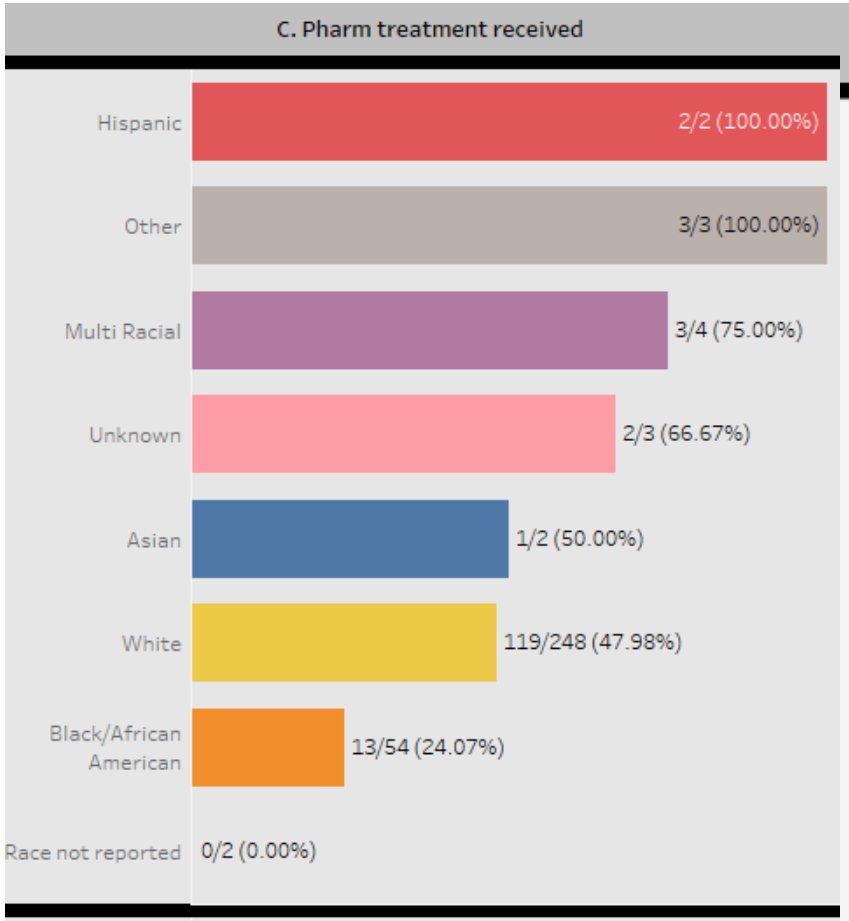
Medication for Opioid Use Disorder



Addiction Services

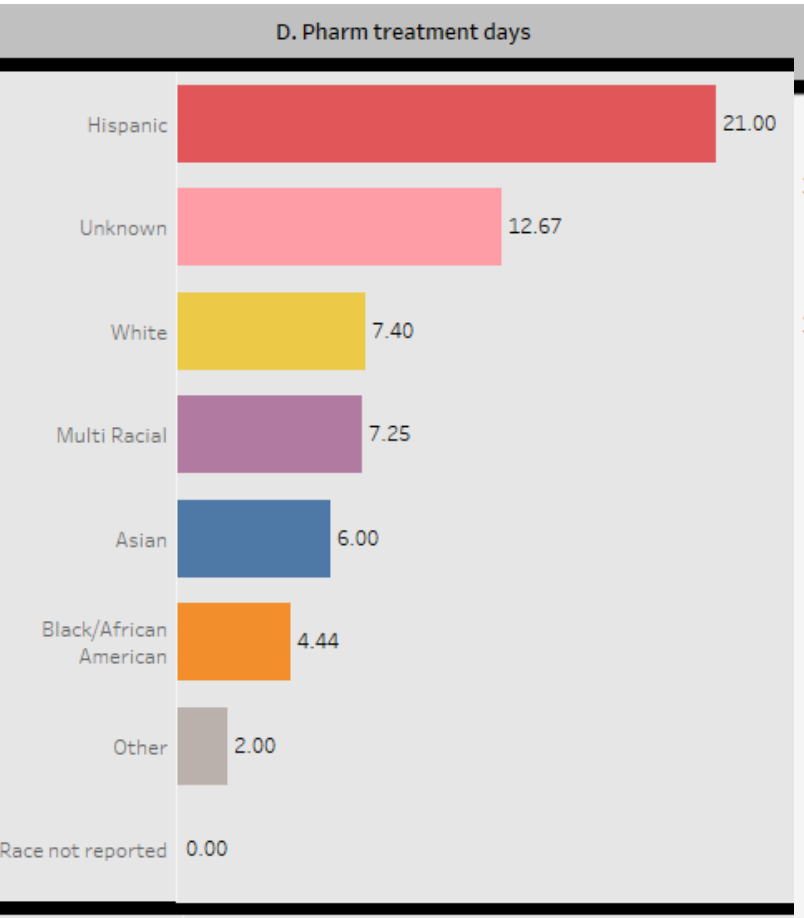


Pharm Care

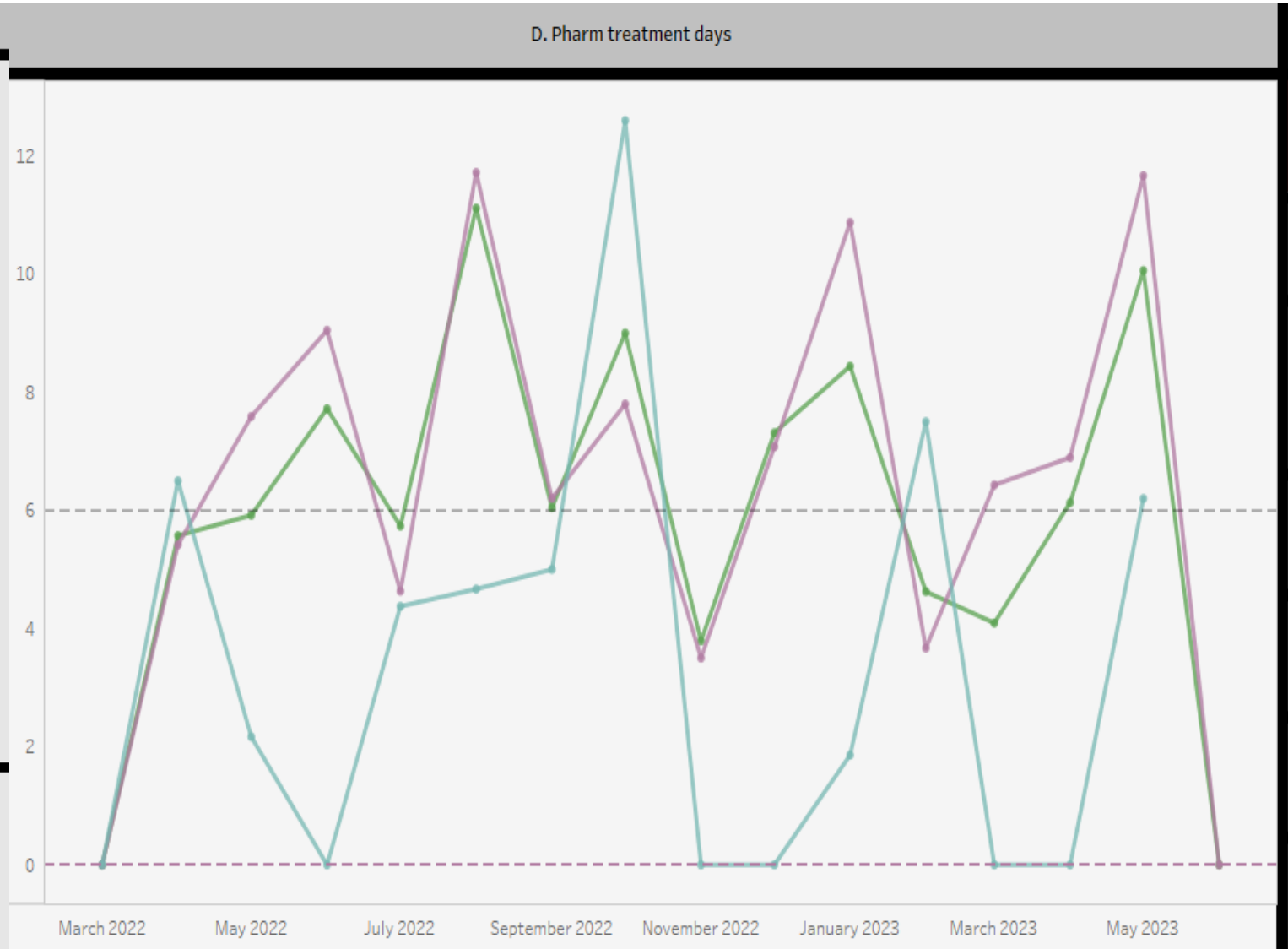

C. Pharm treatment received
Hispanic
2/2 (100.00%)
Other
3/3 (100.00%)
Multi Racial
3/4 (75.00%)
Unknown
2/3 (66.67%)
Asian
1/2 (50.00%)
White
119/248 (47.98%)
Black/African American
13/54 (24.07%)
Race not reported
0/2 (0.00%)
Pharmacologic Treatment
143/318 (44.97%)


C. Pharm treatment received
70%
60%
50%
40%
30%
20%
10%
0%
March 2022
May 2022
July 2022
September 2022
November 2022
January 2023
March 2023
May 2023
Active Filters
Hide Control Limits
No Limits
Color Legends
All Initiative Hospitals
Black/African American
White

Pharm Days


D. Pharm treatment days
Hispanic
21.00
Unknown
12.67
White
7.40
Multi Racial
7.25
Asian
6.00
Black/African American
4.44
Other
2.00
Race not reported
0.00


Days of Pharmacologic Treatment
6.925


D. Pharm treatment days
12
10
8
6
4
2
0
March 2022
May 2022
July 2022
September 2022
November 2022
January 2023
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Active Filters
Hide Control Limits
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Black/African American
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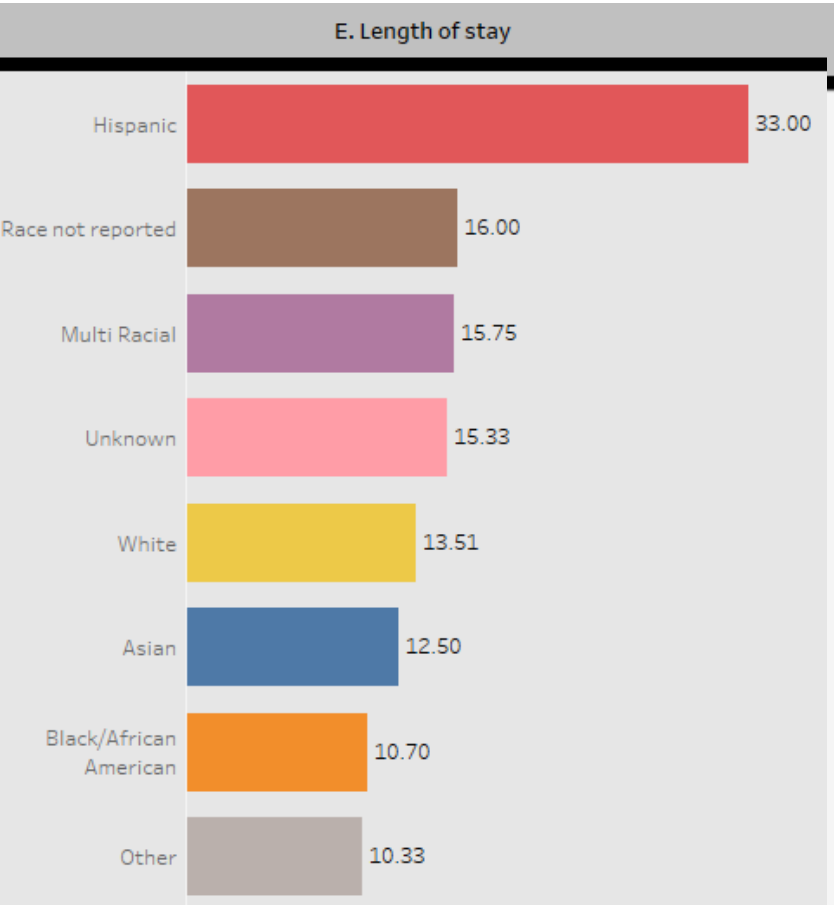
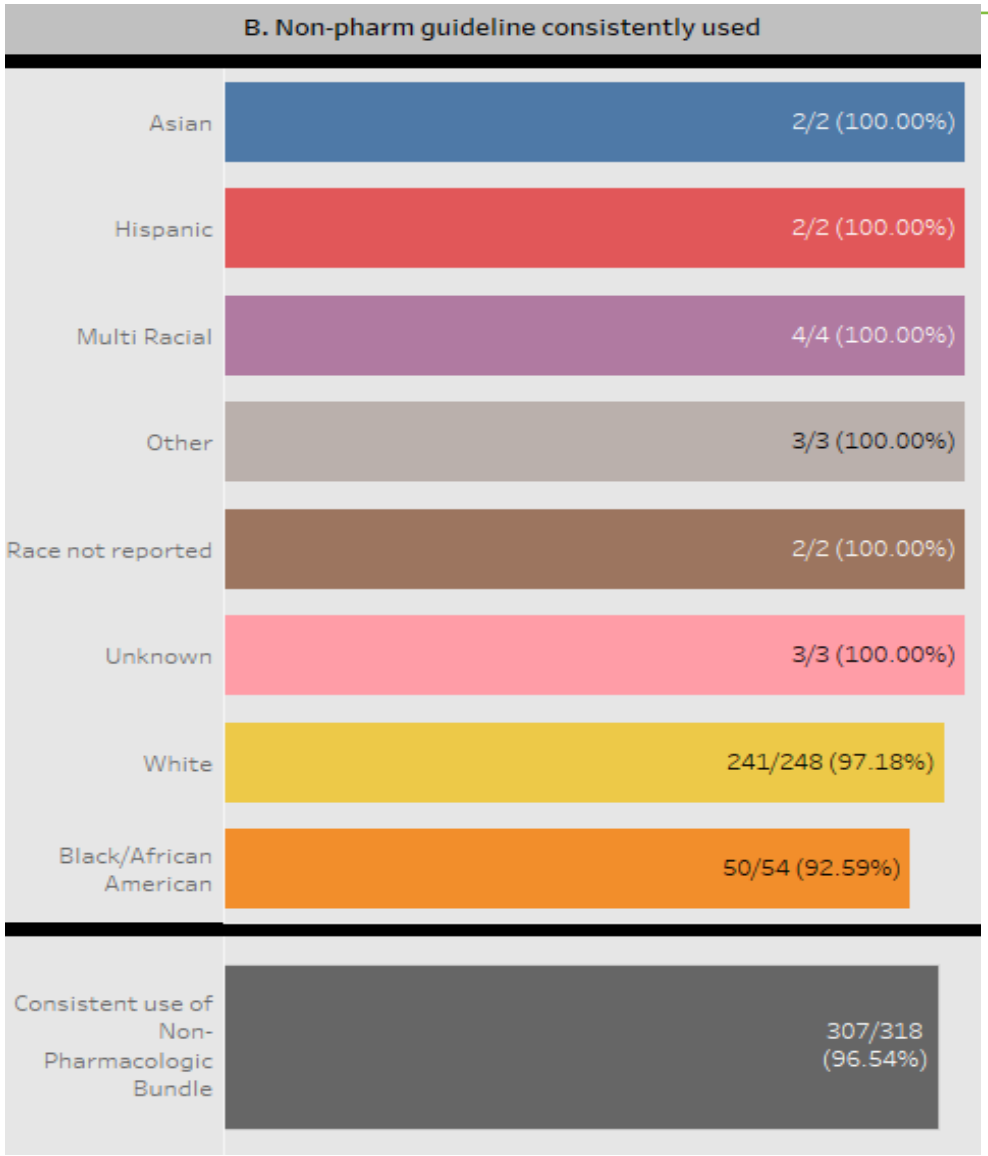
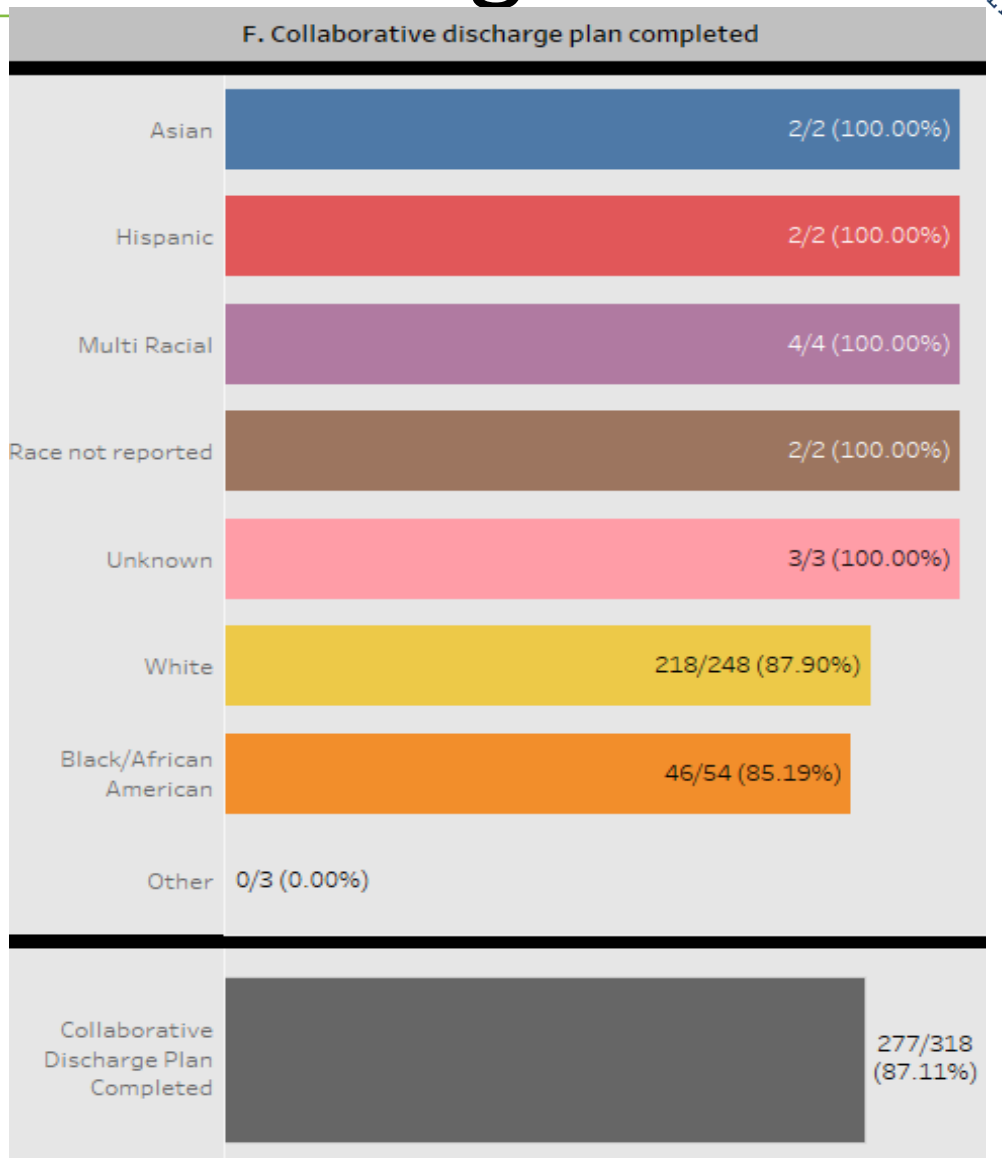
Length of Stay



Non-Pharm Care

Collaborative Discharge Plan





Potential Neonatal Initiatives

Overview

Nutritional Support / Growth

- The incidence of postnatal growth restriction (discharge weight <10th percentile) remains high

- Better growth prior to 40 weeks PMA associated with better long term neurodevelopmental outcomes including lower rates of cerebral palsy and higher scores on mental and physical developmental testing

- Standardization of nutrition practices have been demonstrated to reduce postnatal growth restriction in other PQCs

-CMQCC's Nutritional Support of the Very Low Birth Weight (VLBW) Infant: A Quality Improvement Toolkit

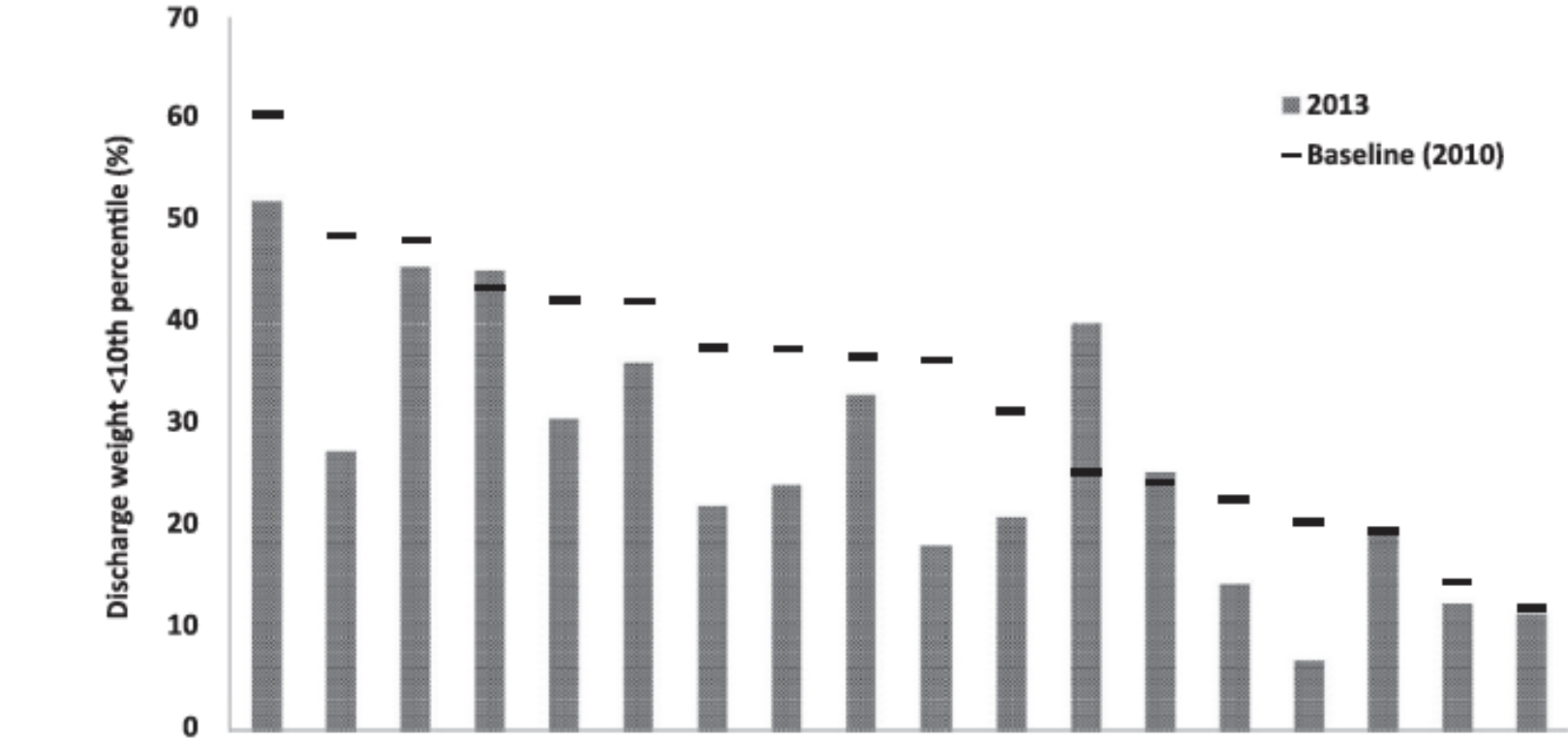
Nutritional Support / Growth

Table V. Survey questions

Survey responses	2010 (%)	2013 (%)	*P* value
Response rate	81 (116/143)	88 (167/190)	.12
Policies and protocols address			
1) Trophic feeding (feeding volume <20 mL/kg/day)			
Trophic feeding initiation	37	90	<.001
Trophic feeding duration/advancement	41	92	<.001
Used to provide minimal enteral nutrition or gut stimulation	91	98	.016
Using donor milk when breast milk unavailable	3	8	.21
Using formula when breast milk unavailable	86	83	.52
Advanced based on duration specified by protocol		85	
Advanced based on individual clinical decision		74	
2) Nutrition (advancing) feeding			
Initiation	45	92	<.001
Criteria for advancement	59	93	<.001
3) Procedures to evaluate feeding intolerance	41	69	<.001
Feeding intolerance identified based on			
Routine assessment of gastric aspirates		89	
Percentage volume or specific amount of gastric aspirates		67	
Color of gastric aspirates		83	
Bilious emesis and/or changes in abdominal exam		95	
Changes in abdominal girth		78	
4) Use of breast milk			
Mothers are educated about the benefits of breast feeding		100	
Hospital-grade breast pumps are available for use		100	
Limitations exist on loaning out hospital-grade breast pumps		38	
Breast milk is routinely fortified			
With powdered and/or liquid fortifier	93	96	.46
At <100 mL/kg/day	18	41	<.001
At 100 mL/kg/day	54	48	.46
At ≥100 mL/kg/day	28	11	<.001

Stevens et al. *J Pediatrics.* 2018

Nutritional Support / Growth



Center		A	B	C	D	E	F	G	H	I	J	K	L	M	O	P	Q	R	S
No. of subjects	2010	123	28	21	67	100	69	126	44	67	79	53	50	100	91	120	82	94	77
	2013	131	33	11	71	102	51	102	25	85	72	48	46	71	85	118	78	98	53

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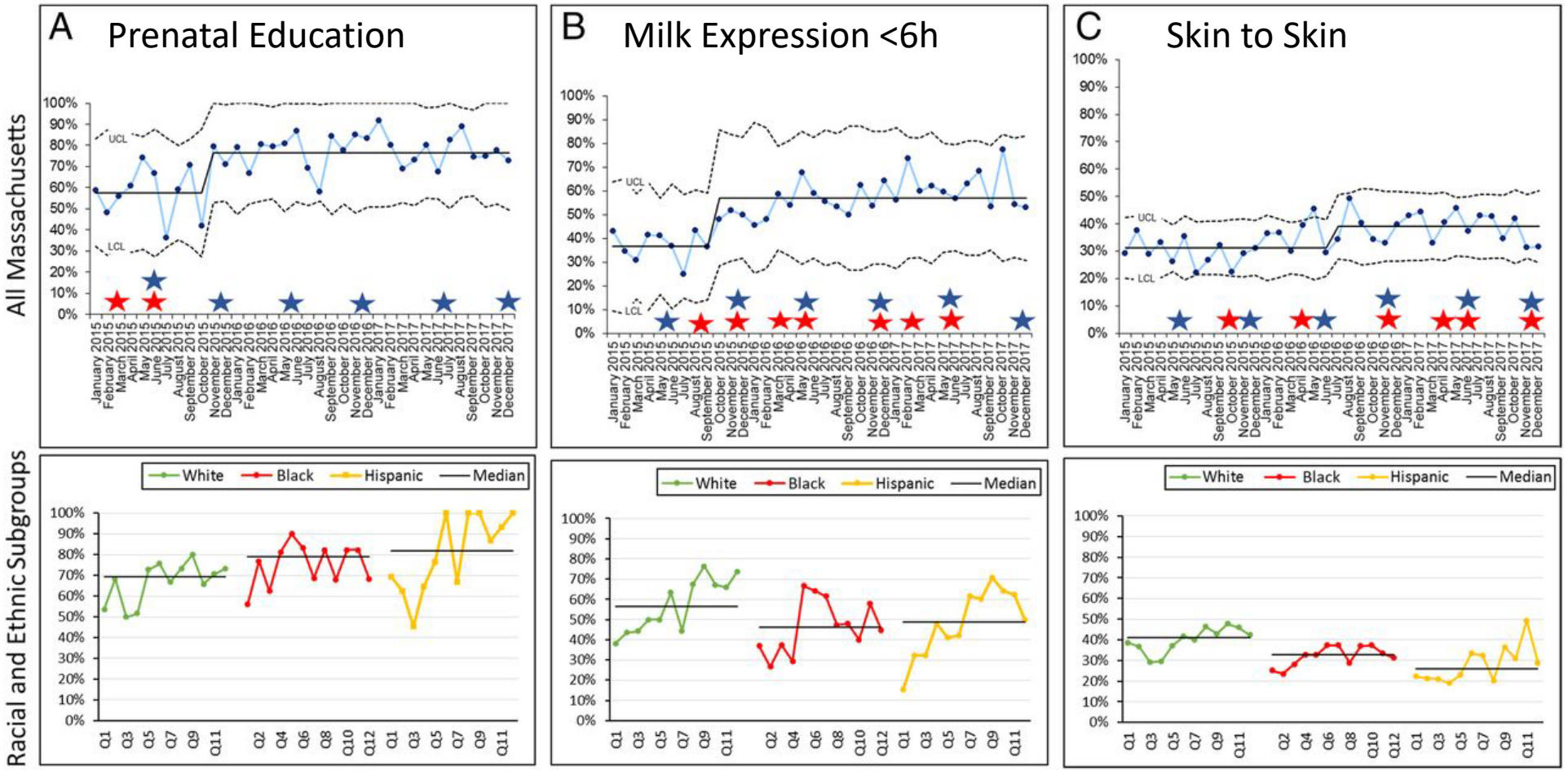
Stevens et al. *J Pediatrics.* 2018

Human Milk

- Breast milk is the optimal source of nutrition for babies, especially those under 1,500 grams at birth.
- Benefits include a reduction in:
  - Necrotizing enterocolitis
  - Late onset sepsis
  - Chronic lung disease
  - Adverse neurodevelopment
- Barriers to mothers own milk include:
  - Family education
  - Support of early and frequent milk expression
  - Skin to skin care
- Provision of milk varies by race and ethnicity

-Mothers Own Milk - Florida Perinatal Quality Collaborative | USF Health

Mass PQC



Parker et al. *Pediatrics.* 2019

CPQCC

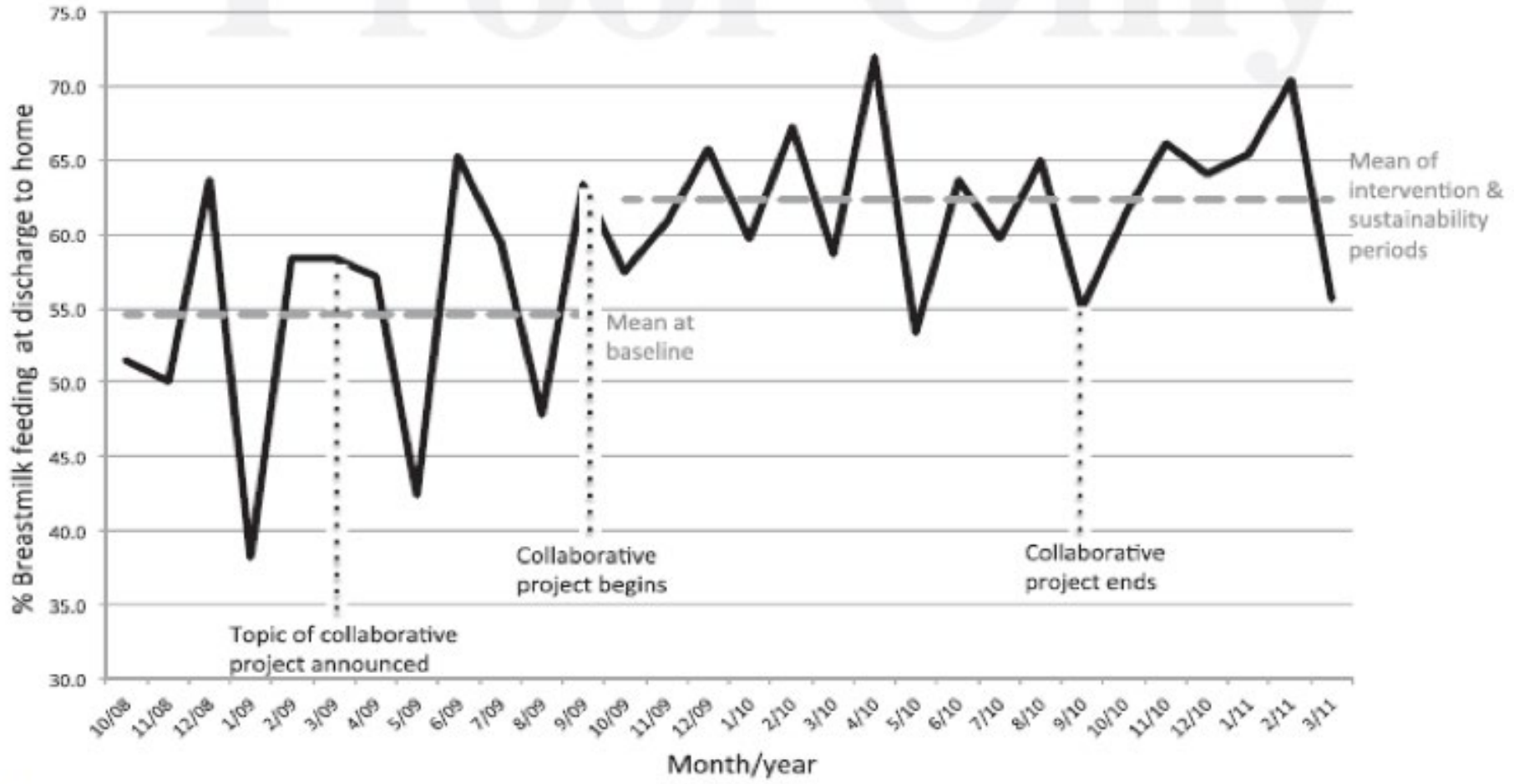


FIGURE 1
Annotated run chart of breast milk feeding at discharge for collaborative participants.

Lung Protection

- Bronchopulmonary dysplasia (BPD) remains one of the most common morbidities of prematurity
- Noninvasive respiratory support, less invasive surfactant administration, caffeine, and vitamin A reduce BPD[1]
- Prior QI initiatives have focused on initial noninvasive strategies to reduce mechanical ventilation exposure[2]
- Interventions to systematically reduce ventilation exposure may improve long term pulmonary and ND outcomes[3,4,5]

1: Abiramalatha et al. *JAMA Pediatrics*. 2022.
2: Healy et al. *Sem Fetal and Neo Med.* 2021.
3: SUPPORT Study Group. *NEJM*. 2010.
4: Thome et al. *Biol Neonate.* 2006.
5: Carlo et al. *J Pediatrics.* 2002.

Lung Protection

Category	Description	Initiatives Including Intervention
Optimize Non-invasive Ventilation	Trial of CPAP before intubation, expedited extubation	64%
Surfactant delivery	LISA, INSURE	27%
Avoidance of hyperoxia	SpO2 targeting	23%
Approach to mechanical ventilation	Gentle ventilation, volume targeting	14%
Delivery room based interventions	Golden hour	14%

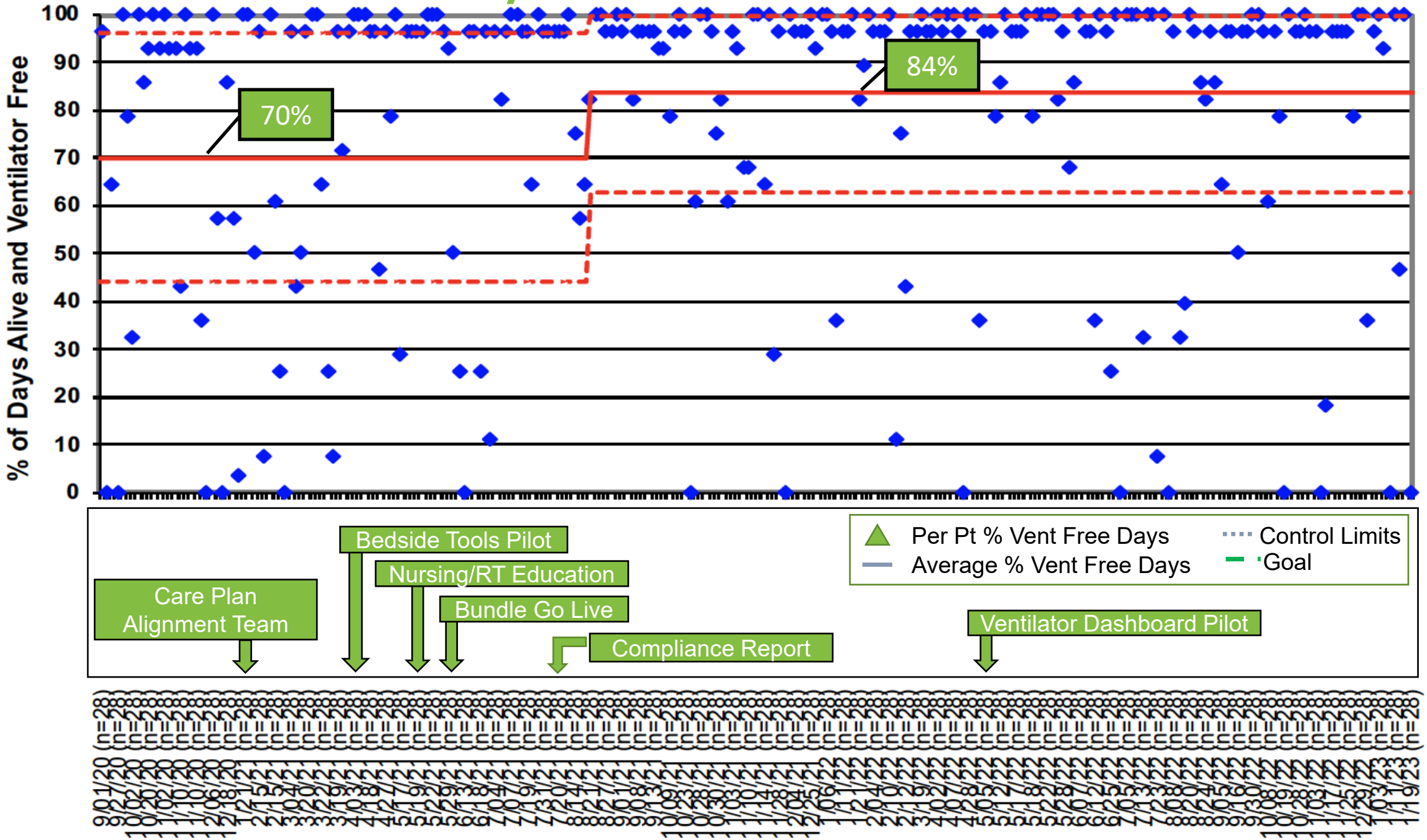
Healy et al. *Sem Fetal and Neo Med.* 2021

Lung Protection

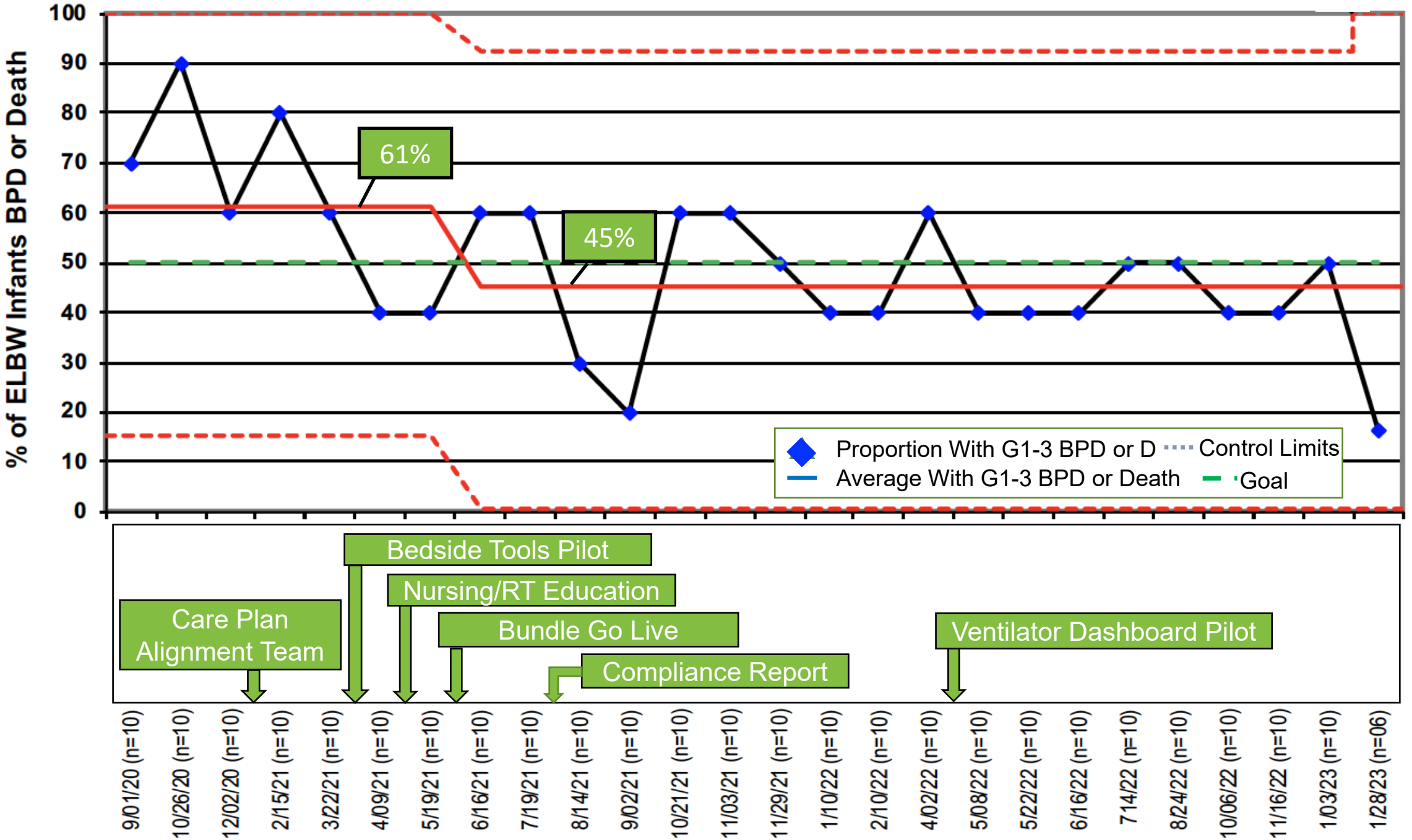
Grade	Late Death or Moderate to Severe NDI
No BPD	33%
I	46%
II	60%
III	79%

Jensen et al. *AJCCM.* 2019.

X-Chart: Alive Ventilator Free Days



P-Chart: Grade 1-3 BPD or Death



Hypothermia Prevention

- Normothermia (36.5°C-37. 5°C) at the time of admission to the neonatal intensive care unit (NICU) in extremely low birthweight (ELBW) infants (birth weight <1000 g) is associated with decreased morbidity and mortality, decreased length of stay and hospital costs.

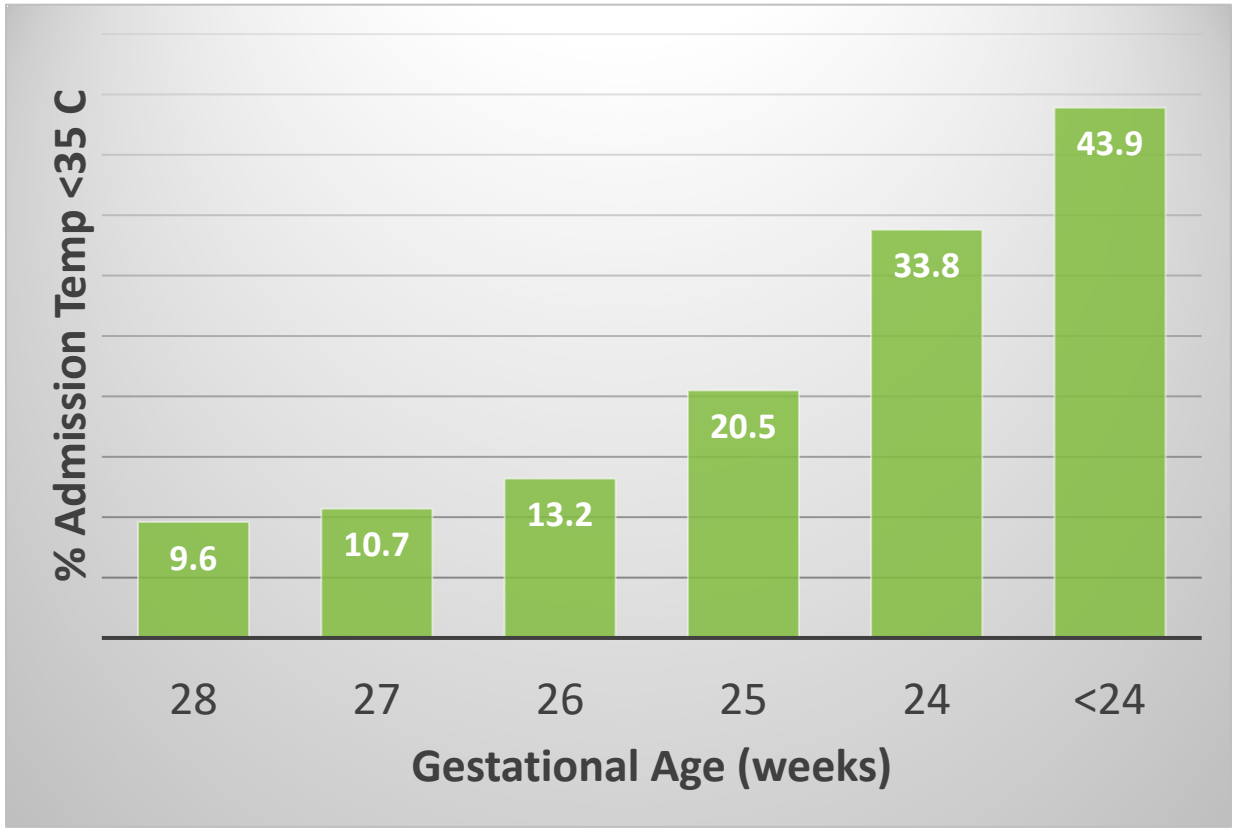
- The focus of this initiative is to implement a temperature bundle to improve admission hypothermia.

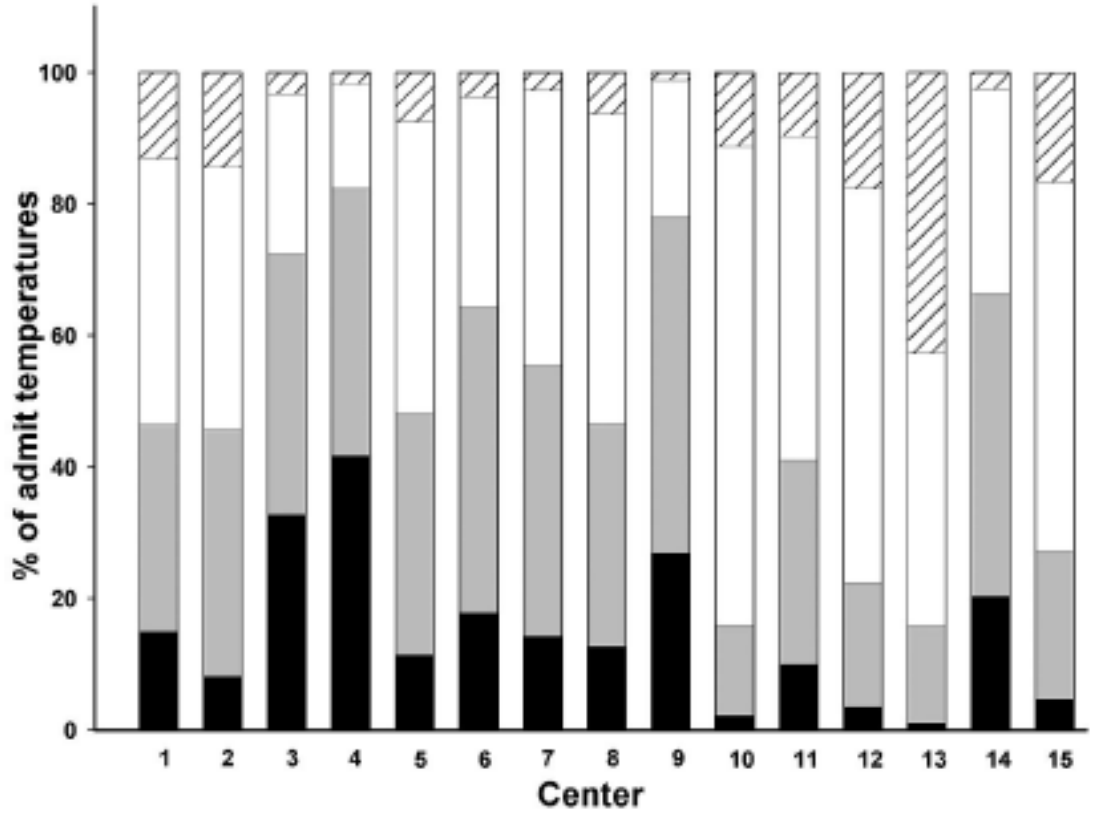
Hypothermia in very low birth weight infants: distribution, risk factors and outcomes. | California Perinatal Quality Care Collaborative (cpqcc.org)

Thermoregulation Considerations

- Newborns lack protective mechanisms to balance heat loss and gain
- Temperatures can drop at 0.1°C to 0.3°C per minute
- At risk infants are those born more prematurely and lower BW
- Cold stress has been associated with hypoglycemia, respiratory distress, coagulation defects, IVH, and death
- Strategies:
  - Radiant warmer
  - Plastic wrap, cap
  - Thermal mattress
  - Warmed humidified air
  - Increased room temp

Admission Temperature in VLBW Infants





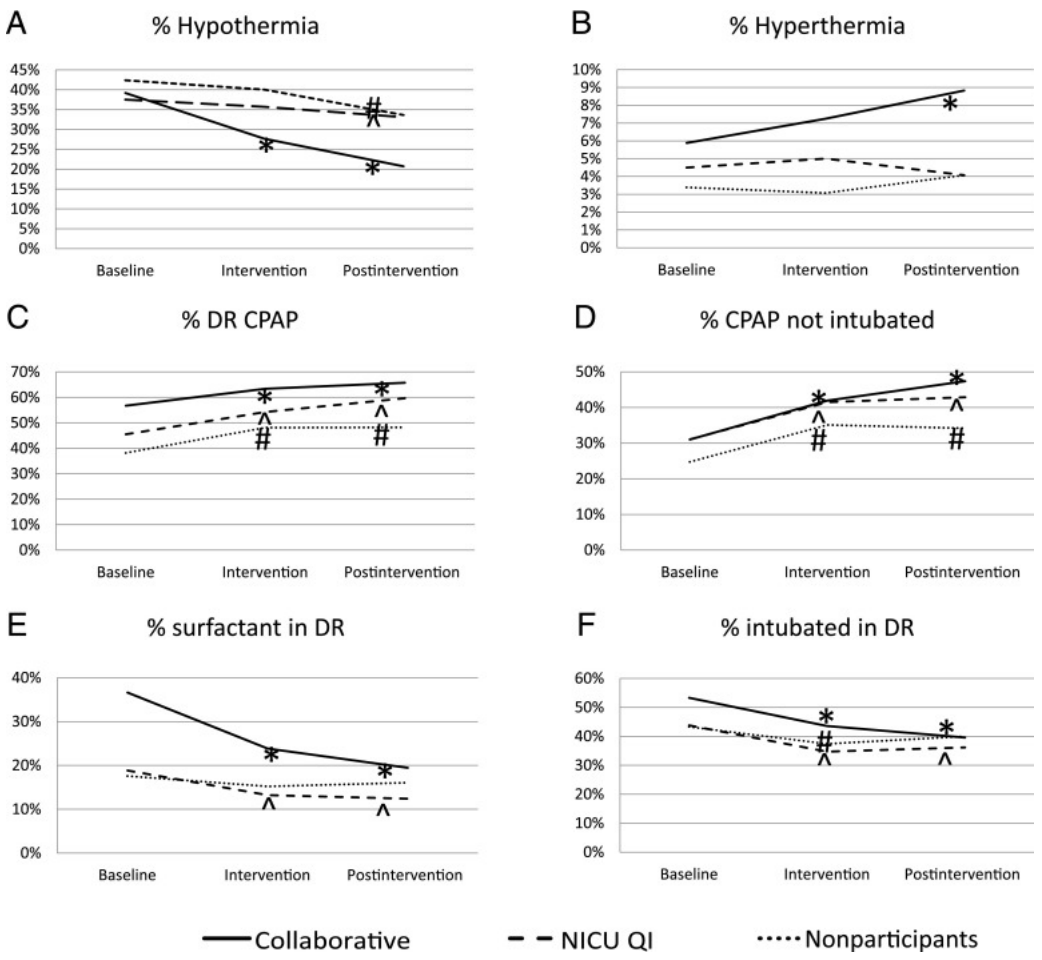
Laptook et al. *Pediatrics. 2007*

Admission temperature inversely related to mortality:

28% increase per 1°C

Laptook et al. *Pediatrics. 2007*

CPQCC



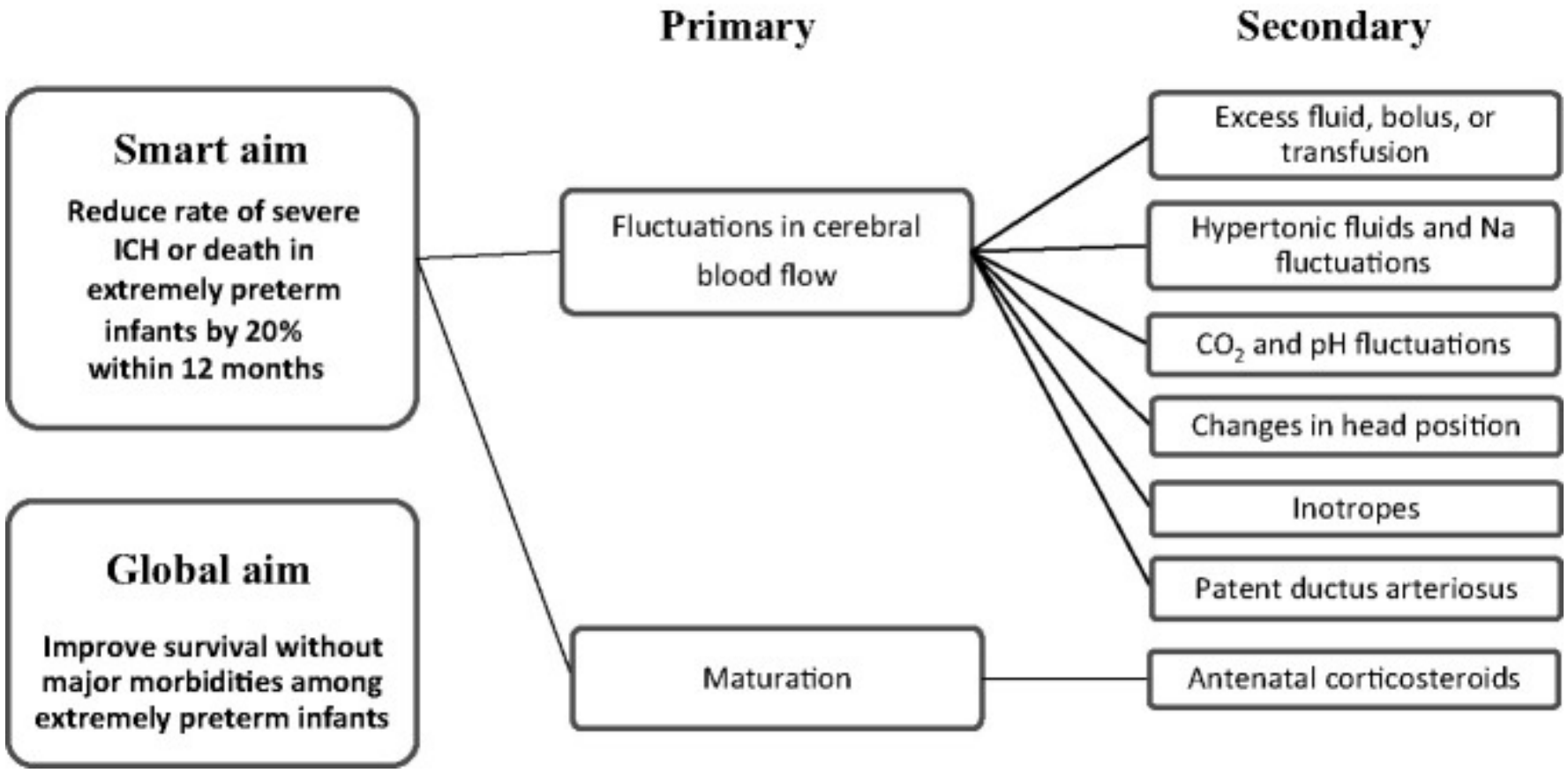
Lee et al. *Pediatrics*. 2014

Brain Health/IVH

- Neonates requiring intensive care are in a critical period of brain development that coincides with the NICU hospitalization
- Intracranial hemorrhage (ICH) is associated with:
  - High mortality
  - Neurodevelopmental impairment
  - Prolonged hospitalization
  - Ongoing complex care in survivors

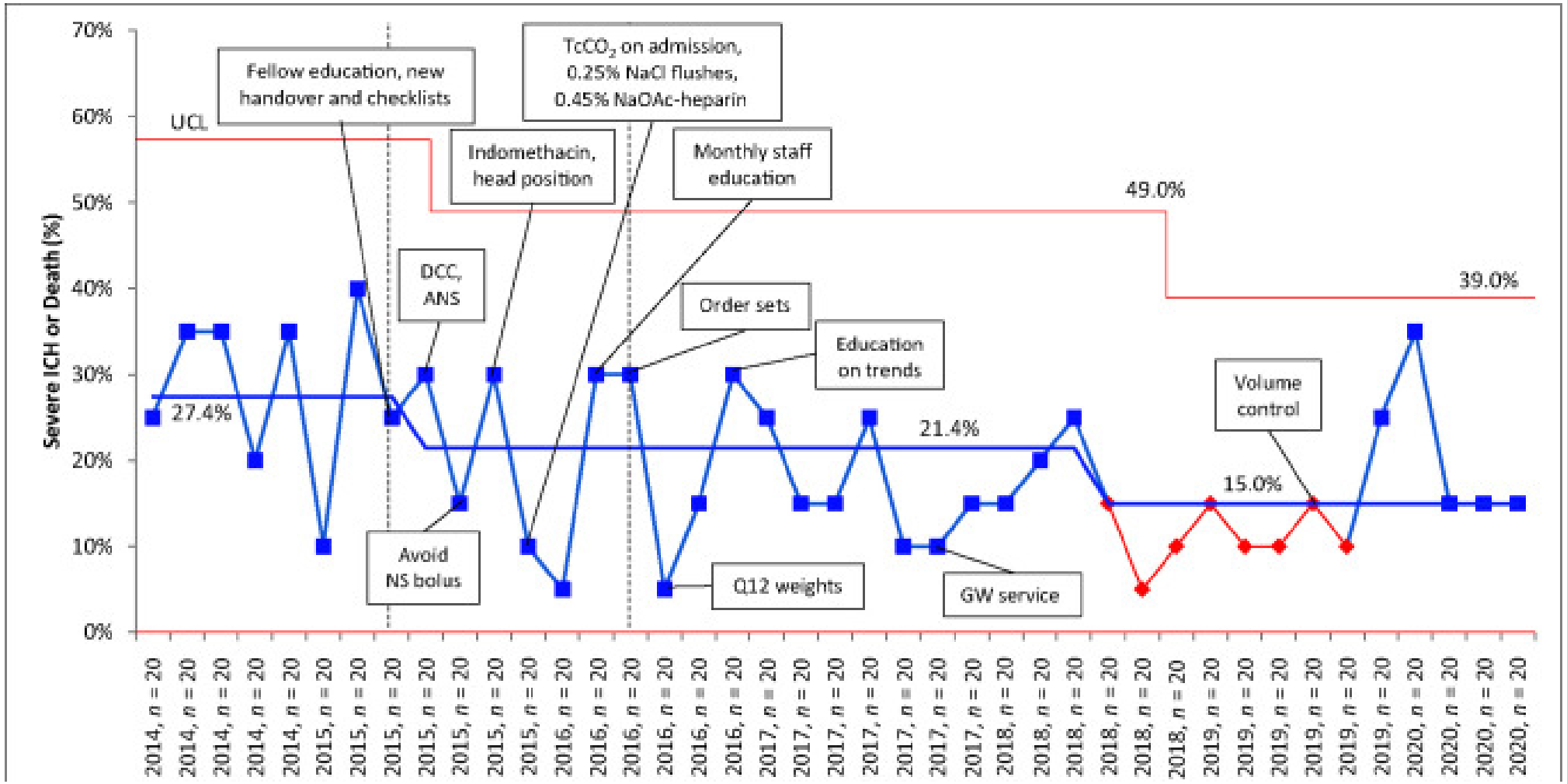
- Prior brain health bundles have implemented evidence-based practices, including delayed cord clamping and bedside neuroprotective strategies, such as avoiding rapid blood draws and flushes, midline head positioning, and a protected sensory environment.

Brain Health/IVH



Travers et al. *Pediatrics*. 2022

Brain Health/IVH



Travers et al. *Pediatrics*. 2022

Q&A

Please feel free to **unmute** and ask questions

You may also enter comments or questions in the “chat” box

Hospital Interest Poll

- Impact
- Enthusiasm
- Alignment
- Feasibility

Hospital Interest Poll

- Infant Growth / Nutritional Support for VLBW Infants
- Human Milk
- Lung Protection in Preterm Infants
- Hypothermia Prevention
- Brain Health/IVH

Hospital Share

Huntsville Hospital

Women & Children
HUNTSVILLE HOSPITAL

ALABAMA PERINATAL ALPQC QUALITY COLLABORATIVE

Our NOWS ALPQC Team

Cathy Mog, RN Director Mother/Baby

Nichole Davidson, RN Director NICU

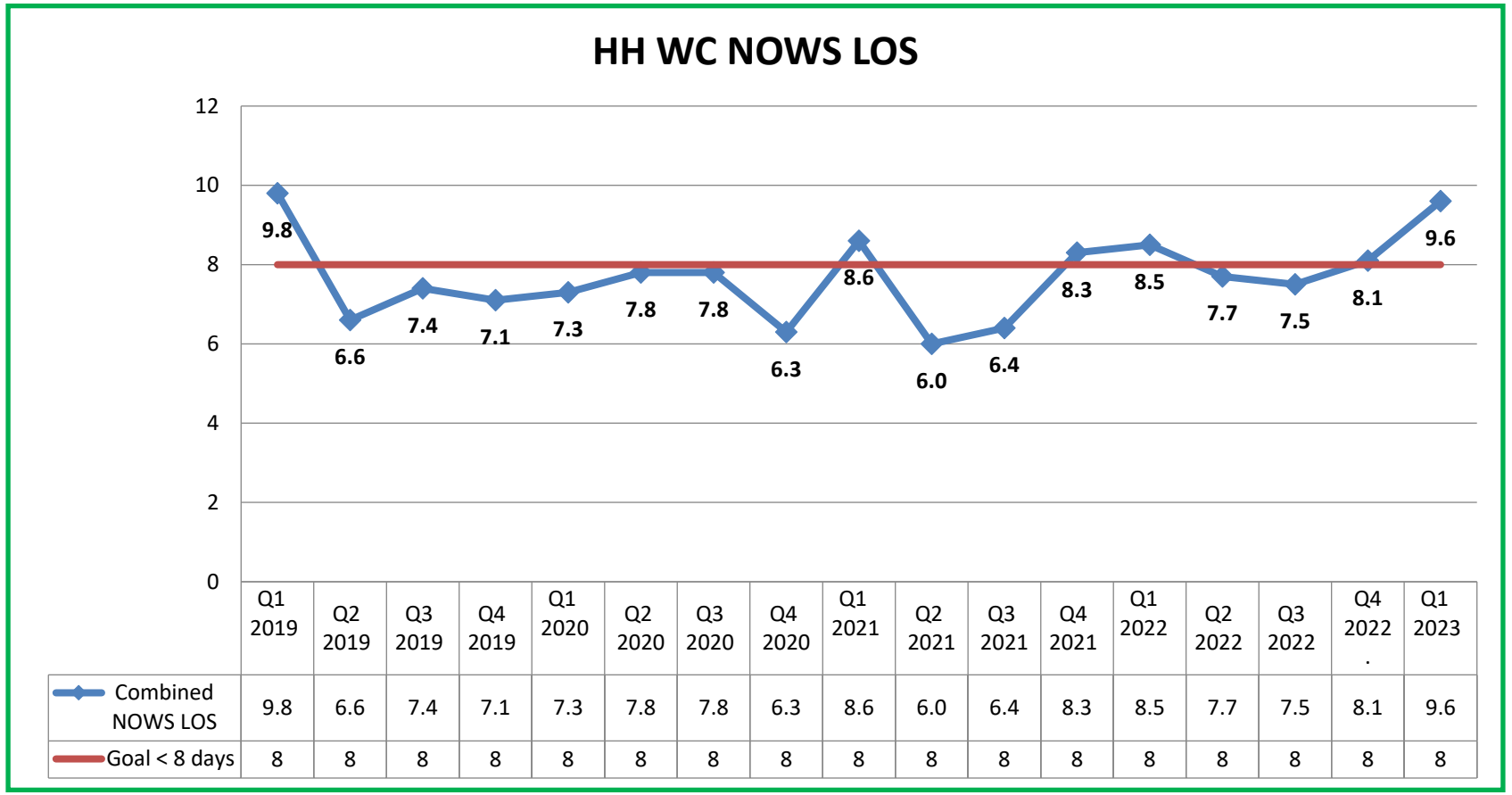
Beth Kirby, RN Small Baby Coordinator

Renee Key, RN Clinical Quality Coordinator

Successes-NOWS Timeline

- Prior to 2018, all NAS/NOWS babies were admitted to NICU and were scored using the Finnegan Scoring Tool and given meds to suppress withdrawal signs.
- Most babies were on scheduled Morphine with minimal non-pharmacological treatment , and on scheduled feeds.
- Our then NAS babies had an Average Length of Stay of 21 days
- August 2018 began training PRN rather than scheduled morphine.
- January 2019 we began rooming-in and use of the Simplified FNAS tool. This helped to decrease the number of babies that were sent to NICU.
- April of 2019 Mandatory Eat, Sleep, Console (ESC) Training began for MB and NICU staff. Official ESC Scoring and techniques began April 30, 2019
- 2019 to Present-this training is mandatory on orientation for all new staff for NICU and MB

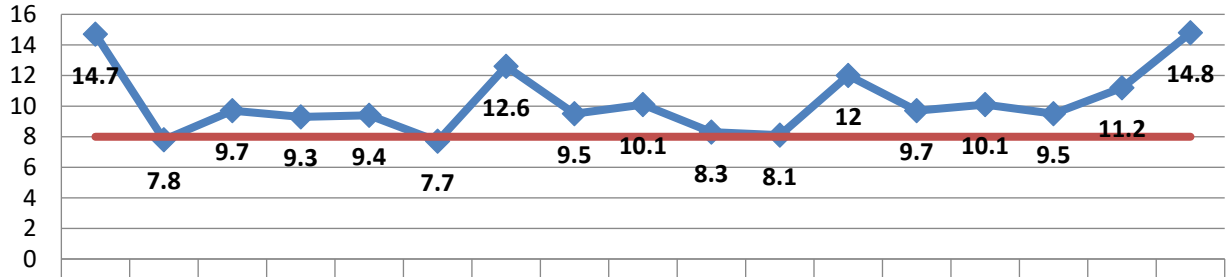
Successes-NOWS Timeline and LOS



	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022 .	Q1 2023
Combined NOWS LOS	9.8	6.6	7.4	7.1	7.3	7.8	7.8	6.3	8.6	6.0	6.4	8.3	8.5	7.7	7.5	8.1	9.6
Goal < 8 days	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

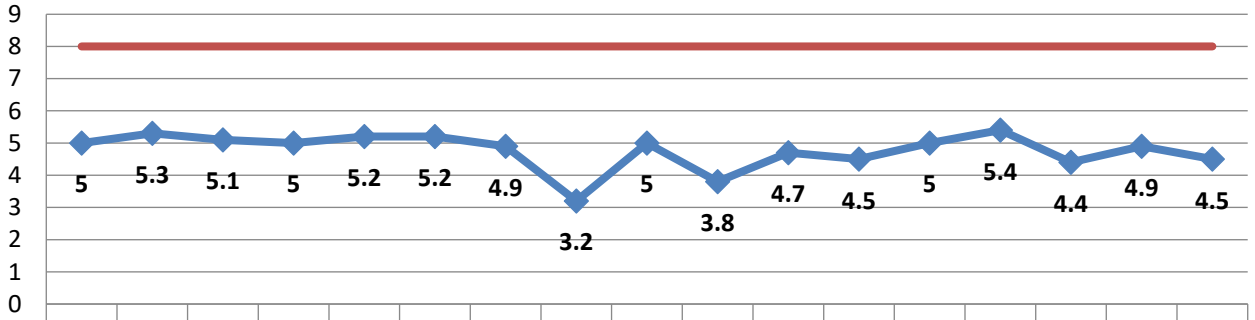
Outliers

HH NICU NOWS LOS



	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022.	Q1 2023
NICU NOWS LOS	14.7	7.8	9.7	9.3	9.4	7.7	12.6	9.5	10.1	8.3	8.1	12	9.7	10.1	9.5	11.2	14.8
Goal < 8 days	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

HH MB NOWS LOS



	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022.	Q1 2023
MB NOWS LOS	5	5.3	5.1	5	5.2	5.2	4.9	3.2	5	3.8	4.7	4.5	5	5.4	4.4	4.9	4.5
Goal < 8 days	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Success Cont.

- 2020 Created First Instructions, Discharge Instructions, and Parent Agreement (guidelines for rooming-in)

NOWS First Instructions

During pregnancy, medications that a mother takes can cross the placenta and enter a baby's bloodstream. W
a baby is born, he or she is no longer exposed to the medication, but may still be dependent on the drug. This
can lead to a group of problems known as Neonatal Opioid Withdrawal Syndrome. Signs and symptoms inclu

- trouble sleeping
- increased muscle tone
- tremors and/or irritability
- poor feeding
- vomiting and diarrhea
- sweating
- increased respirations
- fever
- other nervous system disturbances

NOWS Rooming-In Agreement

NOWS Discharge Information

Scan for more NOWS information

Successes-NOWS Timeline

- 2020 Created brochure to place in OB Physician offices to educate mothers on NOWS

Breastfeeding

Mothers of babies diagnosed with NOWS are encouraged to breastfeed if you:

- Enroll in a treatment program and provide documentation that you are under a physician's care.
- Give consent to release information related to your treatment
- Have had a negative drug screen for non-prescribed medications 90 days prior to delivery
- Have no medical conditions or prescriptions that would interfere with breastfeeding
- Have a negative urine drug screen on admission

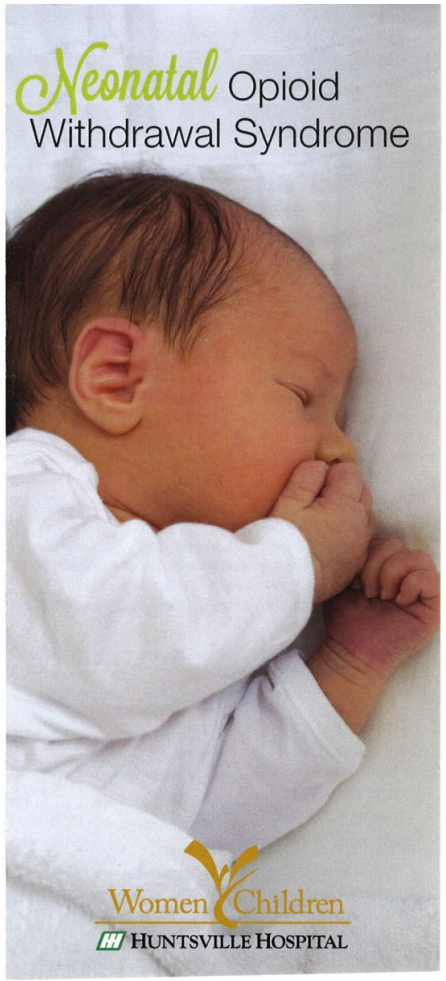
Mothers who meet this criteria are encouraged to contact Social Services prior to delivery. Upon delivery, mothers should begin pumping as soon as possible.

Breastfeeding Support Services
(256) 265-7285 Mother/Baby Unit
(256) 265-7381 Neonatal ICU

Social Services
(256) 265-7633

Women & Children
Huntsville Hospital

Huntsville Hospital for Women & Children
101 Sivley Road · Huntsville, AL 35801
hhwomenandchildren.org



What is Neonatal Opioid Withdrawal Syndrome (NOWS)?

During pregnancy, medications that the mother takes can cross the placenta and enter the baby's bloodstream. When the baby is born, he or she is no longer exposed to the medication, but may still be dependent on the drug. This can lead to a group of problems known as Neonatal Opioid Withdrawal Syndrome (NOWS).

Withdrawal symptoms are commonly experienced by babies exposed to addictive opioid medications such as OxyContin®, Percocet®, Methadone®, Subutex®, as well as some over the counter and herbal medications. Symptoms may also occur in babies exposed to other substances such as barbiturates, antidepressants, alcohol and tobacco.

It is not possible to predict how severe the symptoms will be or how long they will last. NOWS may occur even if the mother was on a low dose of medication.

Signs of withdrawal

- High-pitched or excessive cry
- Tremors/jitteriness
- Sleeping difficulties
- Stuffy nose or sneezing
- Feeding difficulties
- Increased tone
- Fever
- Fast breathing
- Vomiting/diarrhea
- Skin irritation
- Sweating
- Seizures

Care after birth

Each baby will be evaluated after birth to determine if the baby can room in with the mother or should go instead to the Neonatal ICU (NICU) for further monitoring.

Evaluation

Parents can help track the symptoms of withdrawal when rooming in. Some babies develop signs of withdrawal soon after birth; others may not have symptoms for several days. The nurses will talk with you about Eat, Sleep and Console practices that allow parents to comfort their baby through withdrawal symptoms as much as possible. The nurses will also use a scoring tool and discuss scores and treatment plans with the physicians. Babies requiring additional treatment will be transferred to the NICU.

Treatment

Parents can help by providing the following interventions as much as possible:

- Swaddling
- Decreasing light and noise
- Skin to skin with mom or dad
- Rocking
- Frequent small feedings
- Offering a pacifier

Medications may be given to decrease the symptoms. The medication and dose will be adjusted depending on how the baby responds to treatment.

If your baby needs medication, he/she will be monitored in the NICU. Babies on medication will need to stay in the hospital until their symptoms improve.

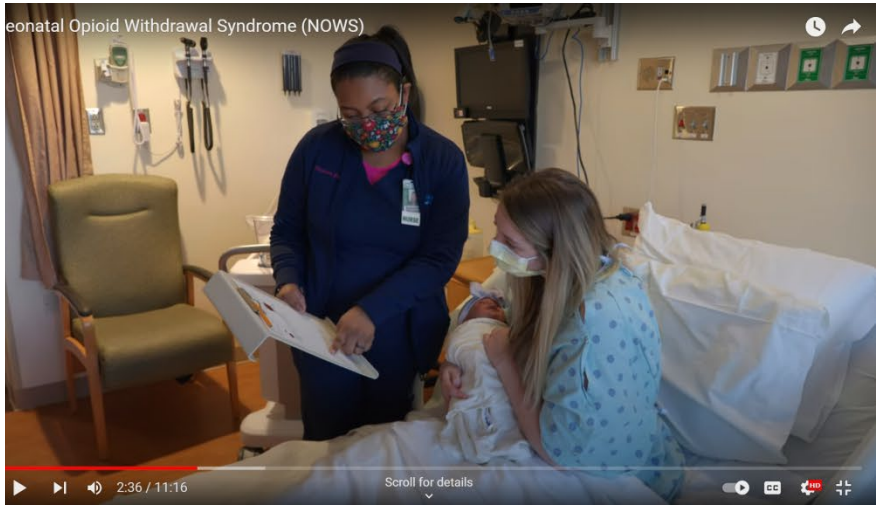
Having your baby in the hospital is a stressful and emotional time for you and your family. We encourage you to be a partner in the care of your baby during this time. Discuss with your nurse how you can best help your baby. Our goal is to help you and your baby through this stressful time and discharge your baby as soon as possible.

Successes-NOWS Timeline

- March 2021 updated the NOWS coordinated care plan and updated resources and contact information for caregivers
- April 2021 worked with our Marketing department to create a Narcan Counseling Patient Education Brochure.
- April 2022 Denise one of our Pediatric OT started working with our mother's and teaching them how to do swaddle baths
- Social Work continues to provide education of resources and education to parents regarding meeting appropriate developmental milestones and early intervention information.

Success Cont.

Worked with Marketing to create Video which is on our website: https://youtu.be/1xrlUnz9bjk



Challenges & Barriers

- Mother's access to Narcan prior to leaving hospital
- Communication with physicians

Opportunities

- Follow up on NOWS Mothers and babies
  - CRS Clinic

Next Steps

- Continue to track and trend NOWS LOS
- Continue to improve the discharge education and support of our NOW Mothers
- Continue to foster better communication with our OBs

Next Steps & Reminders

Q&A

Please feel free to **unmute** and ask questions

You may also enter comments or questions in the “chat” box

Data Submission Reminders

MONTHLY Measures

Process & Outcome Measures		Measurement Period	Reporting Due
Neonatal	A. A: Did the infant have evidence of opioid withdrawal?		
	B. Was a non-pharmacologic guideline used throughout the infant's hospitalization?		
	C. C: Did infant receive pharmacologic treatment?		
	D. D: **If** infant received pharmacologic treatment, for how many days did the infant receive treatment (Birth is day "0")		
	E. How many days old was the infant at discharge (Birth is day "0")	~~Apr 2023~~ ↔	~~May 31, 2023~~
	F. Was a Collaborative Discharge Plan completed prior to discharge?	~~May 2023~~ ↔	~~Jun 30, 2023~~
	G. If not born at your facility, how many days old was infant when transfer was received?	**Jun 2023** ↔	**Jul 31, 2023**
	H. Was the infant readmitted for any cause within 10 days of discharge?	**Jul 2023** ↔	**Aug 31, 2023**
		Aug 2023 ↔	**Sep 30, 2023**
Obstetrical	A. Was the patient on Medication for Opioid Use Disorder (MOUD)? (e.g. on prescribed methadone/ Subutex/etc.)		
	B. Was the patient referred to addiction services prior to maternal discharge?		
	C. Was Narcan counseling documented in the medical record prior to patient discharge?		

All Measures Reported by Race/ Ethnicity

Find data forms, including ICD-10 codes, on our website at www.alpqc.org/initiatives/nows, under the "Data Resources" menu

Data Submission Reminders

QUARTERLY Measures

Structure Measure	Measurement Period	Reporting Due*
1. Hospital has implemented education practices for hospital staff for reducing stigma in opioid-exposed newborns (OENs)		
2. Hospital has implemented education practices for hospital staff for scoring OENs	~~Oct – Dec 2022~~	~~Jan 31, 2022~~
3. Hospital has implemented standardized non-pharmacologic guidelines for OENs	~~Jan – Mar 2023~~	~~Mar 31, 2023~~
4. Hospital has implemented standardized practices of when to transfer infants with NOWs to a higher level of care	~~Apr – Jun 2023~~ **July – Sep 2023**	~~Jun 30, 2023~~ **Oct 31, 2023**
5. Hospital has implemented standardized pharmacologic guidelines for infants with NOWS	**Oct – Dec 2023**	**Jan 31, 2024**
6. Hospital has implemented standardized protocols/guidelines for Collaborative Discharge Plan for mothers and infants		

Find data forms, including ICD-10 codes, on our website at www.alpqc.org/initiatives/nows, under the "Data Resources" menu

Hospital Team Share

Please remember to sign your team up to present at an upcoming Action Period call!

(Link in chat)

Stay Connected!

Twitter: @alpqc

https://twitter.com/alpqc

Next Meeting

Wednesday, August 23, 2023

12:00 PM – 1:00 PM CST