

Specialty Sleeper Impacts on Neonatal Intensive Care Unit Admission for Neonatal Abstinence- Length of Stay and Eat, Sleep, Console Sleep Scores

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The Background...

The University of Vermont Medical Center (UVMMC) is a 562-bed hospital located in Burlington, Vermont. The medical center's 29-bed Level III NICU treats approximately 650-660 infants each year, and up to 100 infants admitted to the hospital are monitored for signs of neonatal abstinence syndrome (NAS) due to exposure of opiates and other substances in utero.

The UVMMC NICU applied a novel approach to treating NAS, utilizing Methadone instead of Morphine to treat withdrawal, and discharging infants home on Methadone for an outpatient wean with our highly specialized NeoMed clinic. This approach was groundbreaking and worked well until... COVID.



Dr. Anne Johnston: NAS Treatment Pioneer



The Situation...

Whereas previous approaches resulted in a minimal length of stay for infants requiring pharmacologic treatment of NAS (~10 days on average), COVID rendered our team unable to continue safely managing Methadone weans outpatient.

Starting in December of 2020- All infants treated for NAS remained in-patient within the NICU for the duration of pharmacologic treatment.

Eat, Sleep, Console (ESC) Scoring Tool is used to determine necessity of pharmacologic treatment, length of treatment, and ability to wean.



The Problem...

- ▶ Length of stay went from ~10 days to ~20 days – doubling once infants were required to stay in NICU through their wean.
 - ▶ The average LOS for Project August Pre-SNOO infants was 28.85 days.
- ▶ Support staff (cuddlers, extended family members, etc) were no longer permitted in the NICU
- ▶ Nursing staff became overwhelmed, frustrated and exhausted
- ▶ Staffing assignments had to be changed to accommodate the near-constant attention these infants required

A Possible Solution...

SNOO Sleeper: A novel infant bed designed to provide movement and white noise in response to infant needs, which complies with AAP safe sleep recommendations.

Could the SNOO bed help us, our infants, staff, and families?

A Quality Improvement Project was born...

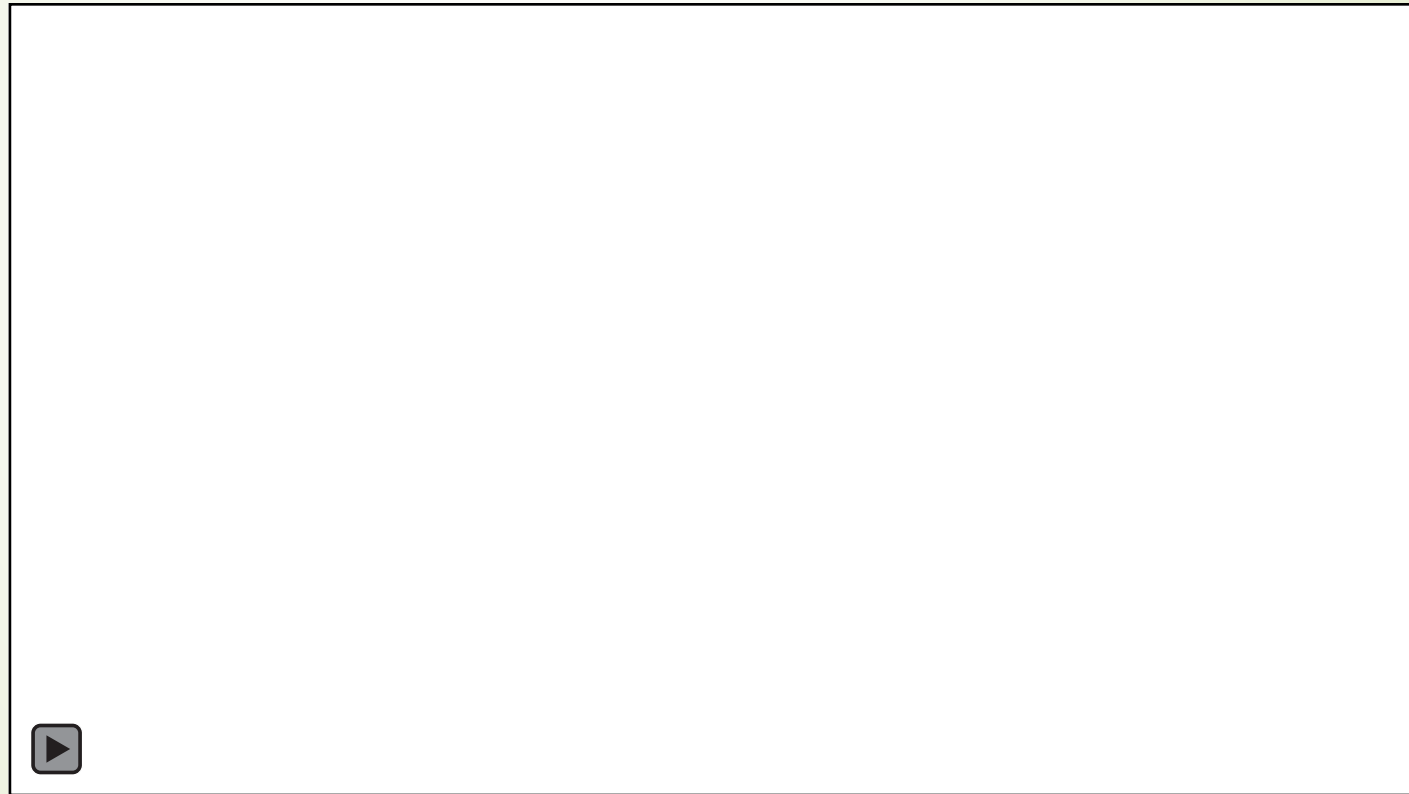


The Bed...





SNOO in action...



AIM statement:

To measure the length of stay and incidence of “YES” scores using the ESC scoring tool for 100% of term infants admitted to the NICU for a primary diagnosis of NAS from 12/18/20 through 9/24/2022, noted to be both before and after introduction of SNOO specialty sleeper to NICU. Goal to decrease both by 10% from pre to post.

Who: All infants 35+0 weeks GA or greater admitted to NICU for maintenance dosing of pharmacologic treatment of NAS with exclusion criteria of any other prolonged diagnosis (respiratory distress, HIE, cooling, prematurity, etc).

Intervention: SNOO bed provided for all qualifying infants starting on 11/8/2021 until present.

How: Length of stay (LOS) and YES scores for poor sleep will be calculated and analyzed using pre/post percentage averages.

Measures: Quantitative (LOS and YES scores) and Qualitative (nursing staff survey)



Quantitative Analysis

Pre-SNOO group: December 2020 to November 2021

- ▶ Approximately 58 infants were monitored for 96 hours after delivery (In our newborn nursery) for neonatal opioid withdrawal (NOWs).
- ▶ NICU had 22 infants who received any Methadone – some may have been from that group of 58, some may have been transported from an outside hospital, and some may have received the medication for reasons other than NAS.
- ▶ Of those 22, 7 qualified for our QI project based on being term, having scheduled methadone dosing, and not having co-diagnosis on admission which would contribute to length of stay.

7 infants in PRE-SNOO group



Quantitative Analysis

SNOO group: November 2021 – September 2022

- ▶ Approximately 51 infants were monitored in our newborn nursery for NOWs.
- ▶ NICU had 18 infants who received any Methadone
- ▶ 18 infants qualified for the SNOO bed, 7 of which received scheduled methadone dosing and met inclusion criteria.

7 infants in SNOO group

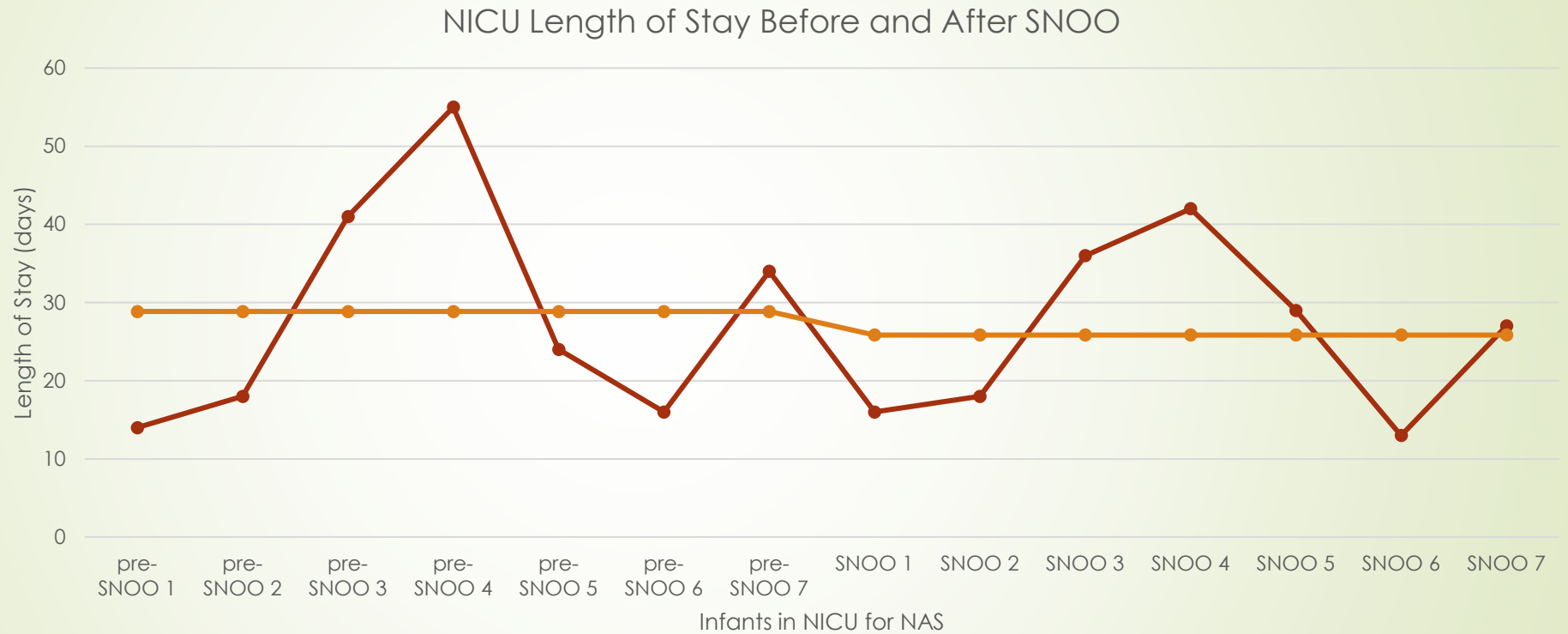


Qualitative Analysis

A qualitative survey of NICU nursing staff was completed approximately one month into implementation of SNOO sleeper and again 6 months after implementation.

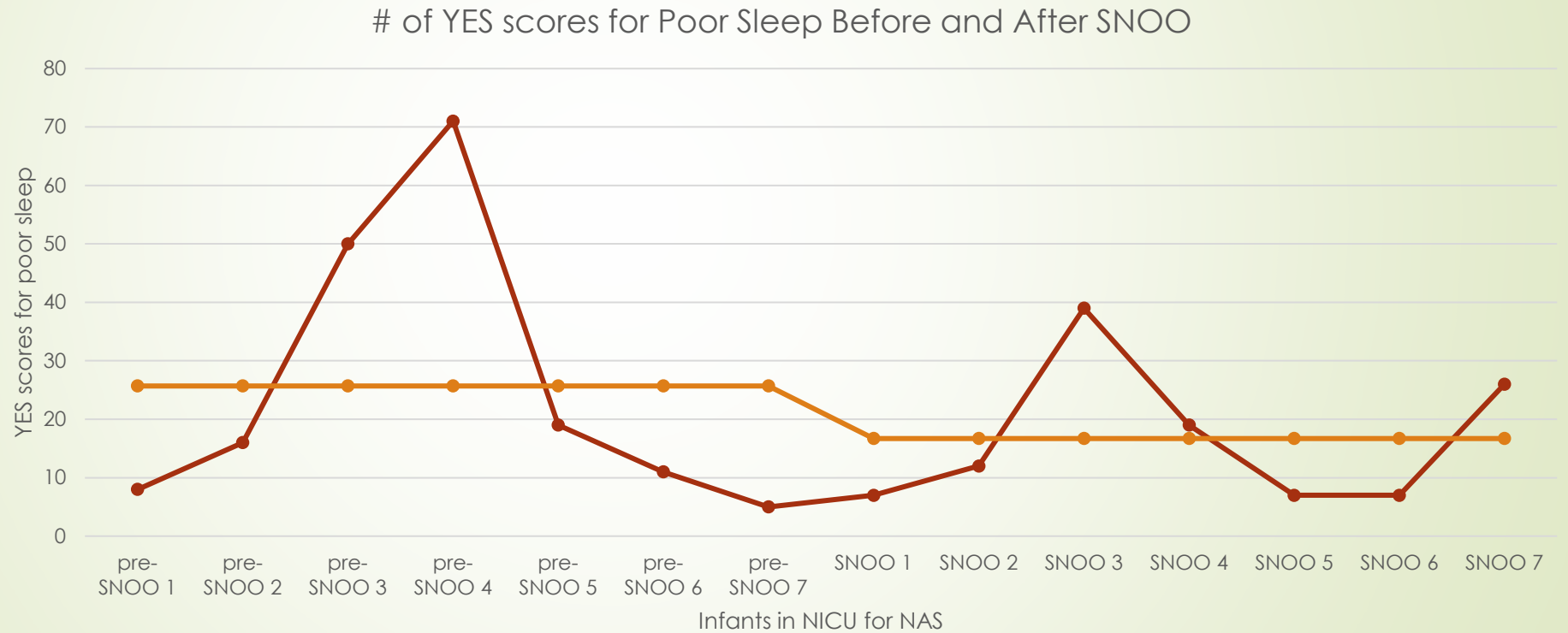
- ▶ 14 of 76 NICU RNs responded to the first survey (1 month post-implementation)
- ▶ 21 of 76 NICU RNs responded to the second survey (6 months post-implementation)

Results: Length of Stay



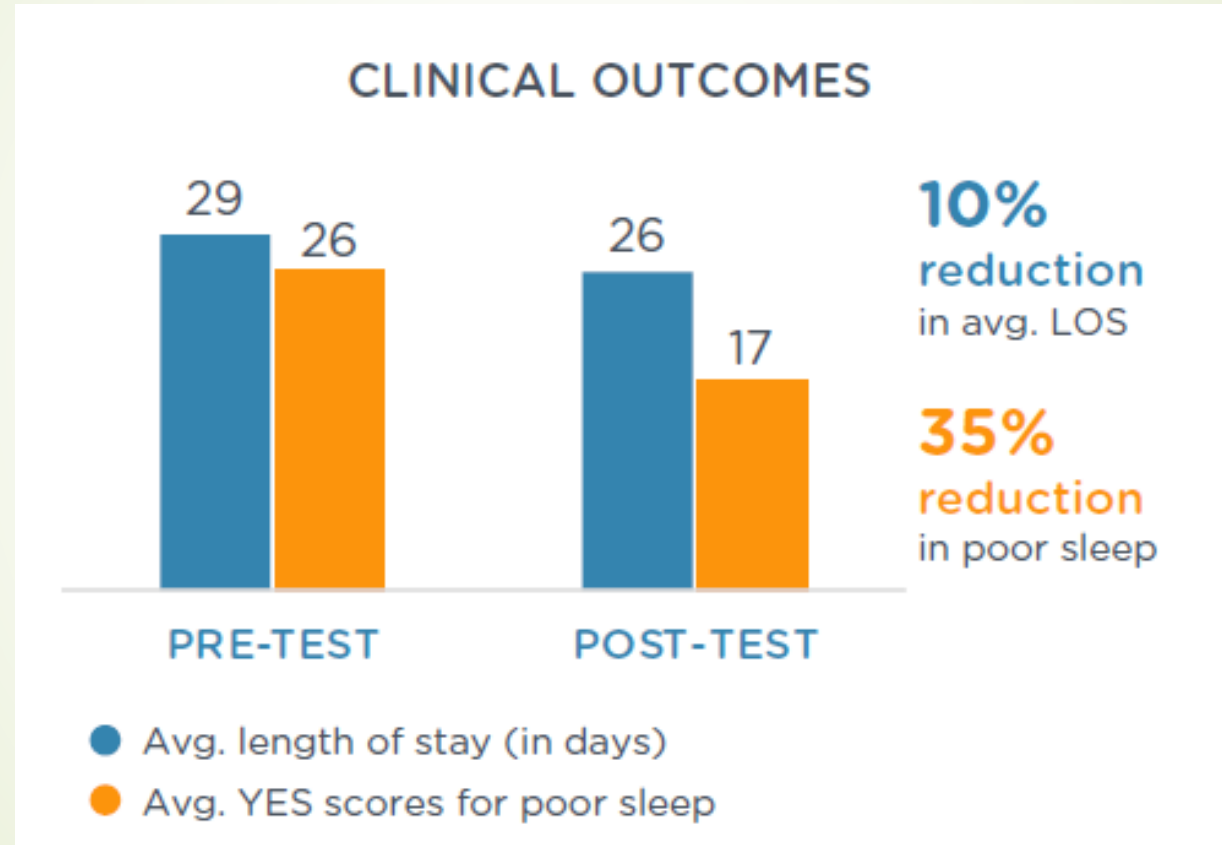
Average length of stay went from 28.85 to 25.85 days, a decrease of 3 days!

Results: YES scores for poor sleep using ESC

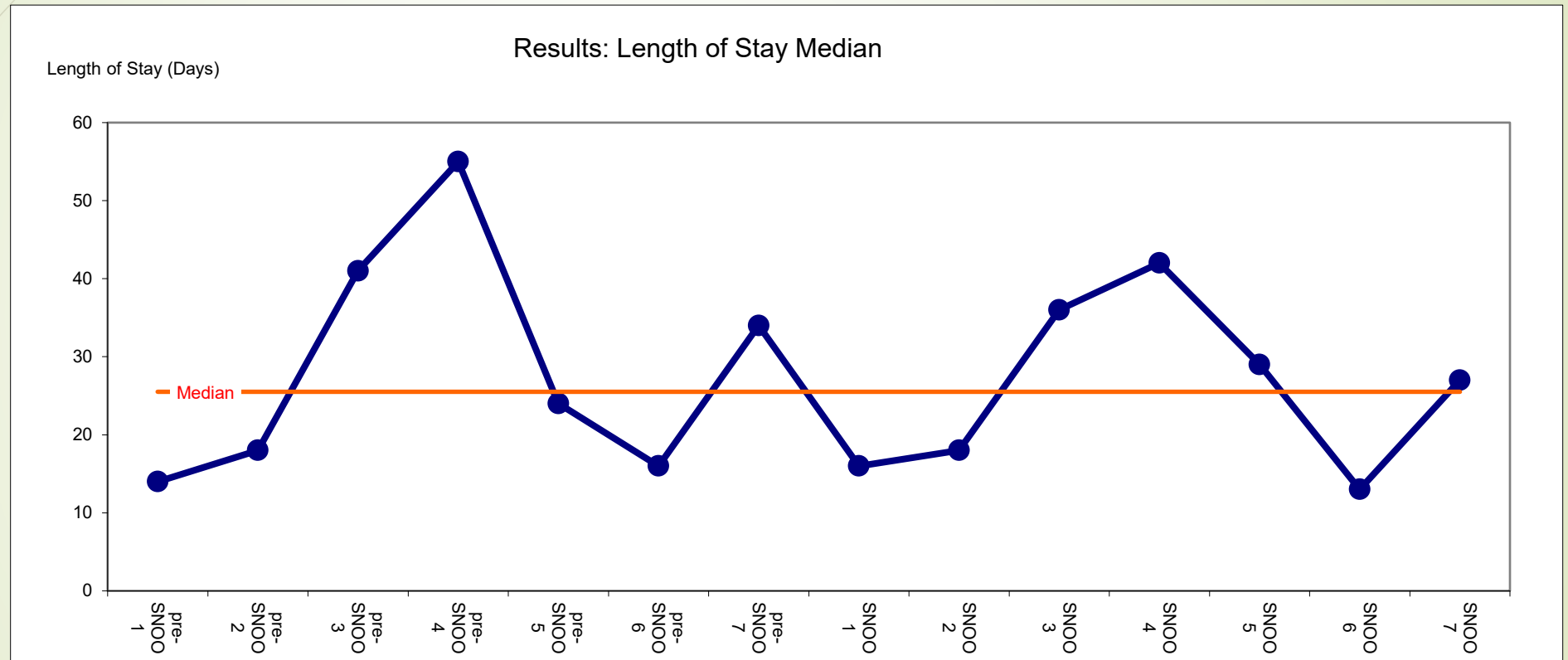


Average number of YES scores went from 25.71 to 16.71!

Clinical Outcomes



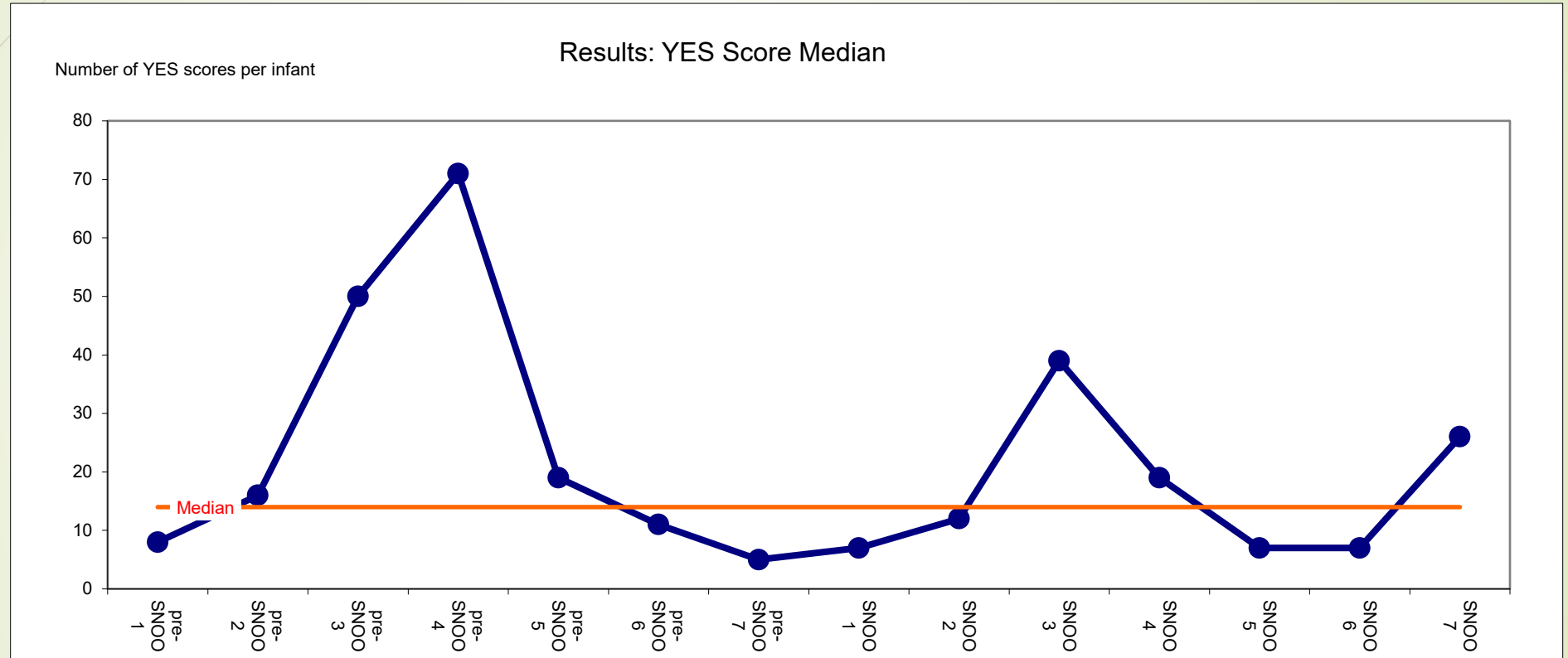
Comparing Medians: LOS



Pre median: 24 days
Post median: 27 days
No shift in median warranted

No statistically significant change was noted from pre to post for LOS.

Comparing Medians: YES scores



Pre median: 16 YES's
Post median: 12 YES's
No shift in median warranted

No statistically significant change was noted from pre to post for LOS.



Results: Qualitative - Staff Survey

On average, how much time does SNOO save you each shift
by soothing fussy infants?

75.01% of nurses surveyed at 1-month post-
SNOO identified a time savings of
1-2 hours per shift or more.

84.22% of nurses surveyed at 6-months post-
SNOO identified a time savings of
1-2 hours per shift or more.

Nurses Report SNOO saves an average of
2.4 hours per shift!

Results: Staff Survey

100% of nurses agree,* SNOO...



- Enhances quality of infant care
- Keeps babies safely on their back
- Reduces fussing
- Reduces staff stress
- Shows the hospital trials innovative technologies

*4-point Likert scale responses of "Strongly agree," "Somewhat agree."



In Summary

Work to continue to explore the use of the SNOO bed in the NICU remains ongoing.

Initial results are reassuring that this bed can function as a supplement to existing non-pharmacologic interventions currently used for term infants in the NICU with a primary diagnosis of NAS.

Next steps may include use of this bed in our Newborn Nursery for infants monitored during the 96 hour observation time with AIM to decrease NICU admission for NAS symptoms by 10%.

Thank you!



Contact Information

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