

Increasing the Feasibility and Sustainability of Kangaroo Care for Premature Infants in the NICU

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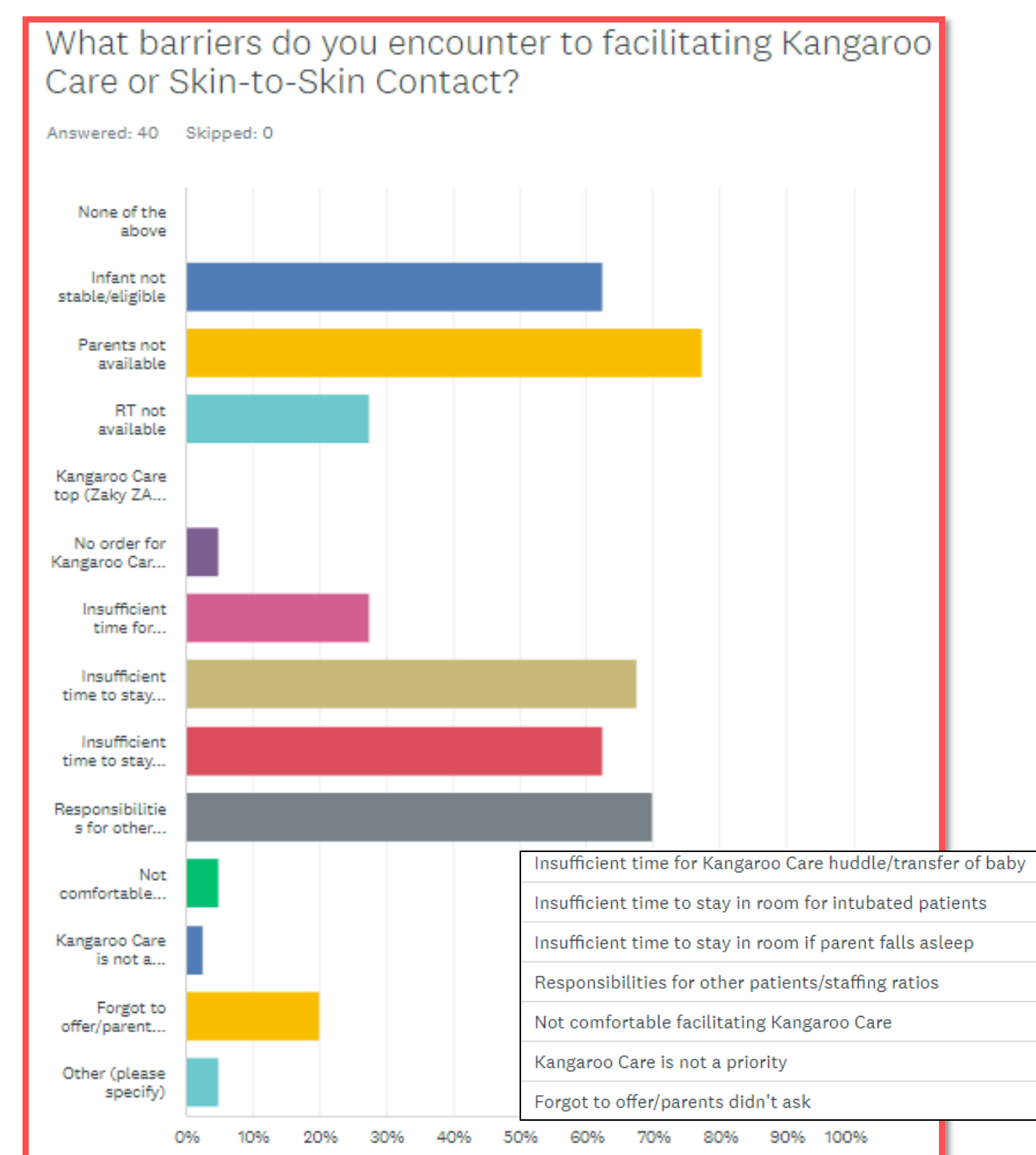
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Introduction

- For premature infants, in the neonatal intensive care unit (NICU), positive sensory experiences can improve sensory development and provide neuroprotection essential to their growth¹⁷.
- Negative stimuli from the environment can disturb neurobiological and sensory pathways, impacting neonatal growth^{33,39}.
- Skin-to-skin care (SSC), also known as kangaroo care (KC), is an important sensory intervention that has shown significant reductions in neonatal stress and improved neurodevelopment and behavior³³.
- At least 60 mins of KC per session is recommended to negate stress and improve health outcomes^{8,35}.
- At the project site, the percentage of NICU patients receiving KC is low, at 4-12%, not meeting the current site goal of 20%.
- For healthcare staff, exposure to cues – visual, auditory, and/or olfactory – can help improve compliance in patient care²¹.

- Will visual cues such as a flowchart and bedside prompting, affect the percentage and sustainability of kangaroo care provided for premature infants?**

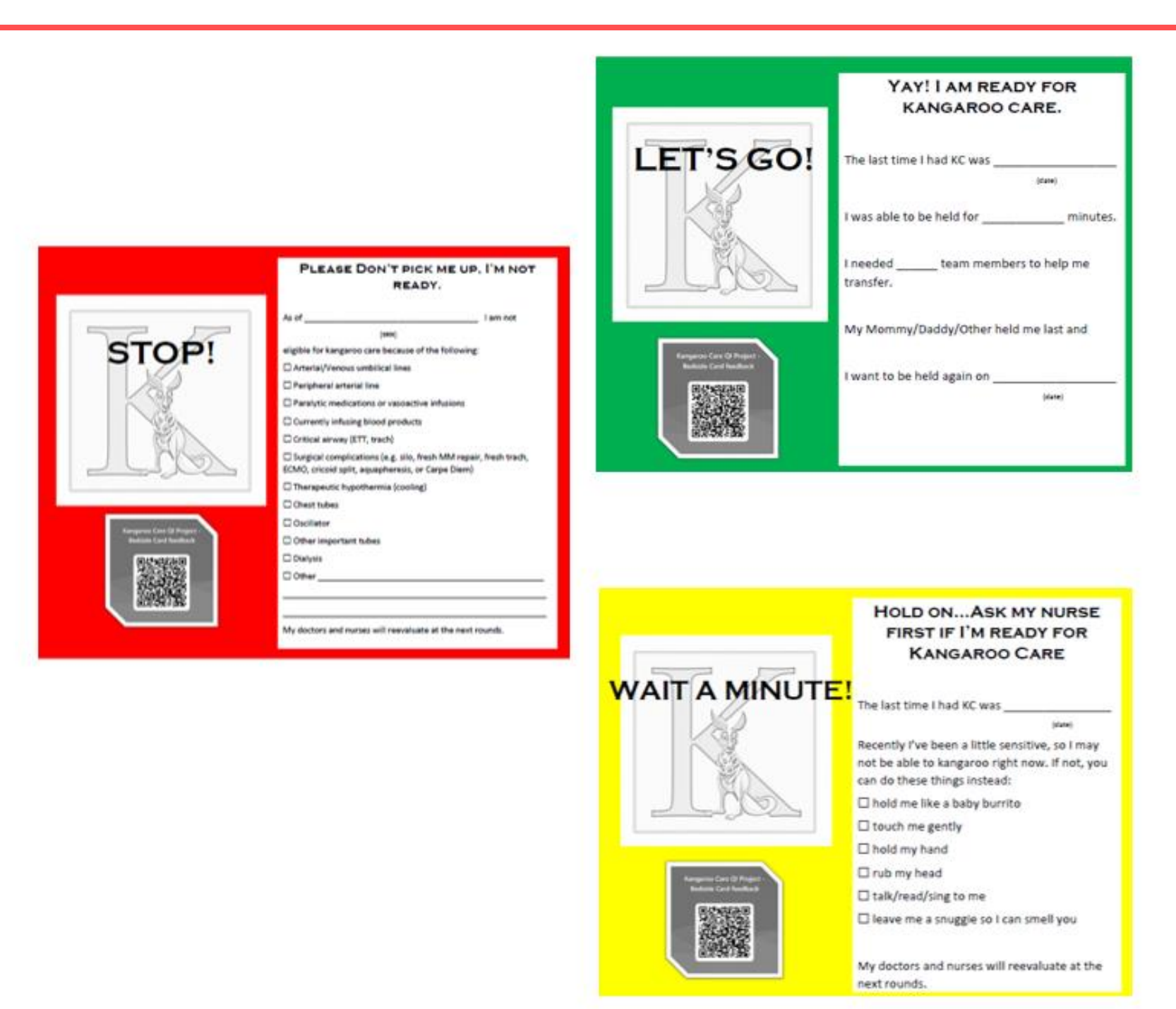


Methods and Materials

- A quality improvement (QI) project was conducted in an 85-bed, level IV NICU at a large academic pediatric hospital from June 1st, 2023 to October 1st, 2023.
- Nurses and parents of infants born ≤ 37 weeks gestational age (GA) and corrected to ≤ 40 weeks GA, and/or a birth weight ≤ 2500 g, participated in interventions designed to increase awareness, frequency, and duration of KC.
- Two interventions were rolled out in Plan-Do-Study-Act (PDSA) ramp cycles, based on the Institute for Healthcare Improvement's (IHI) Model for Improvement:
 - KC color-coded bedside cards (Appendix 1)
 - KC flowchart (Appendix 2)

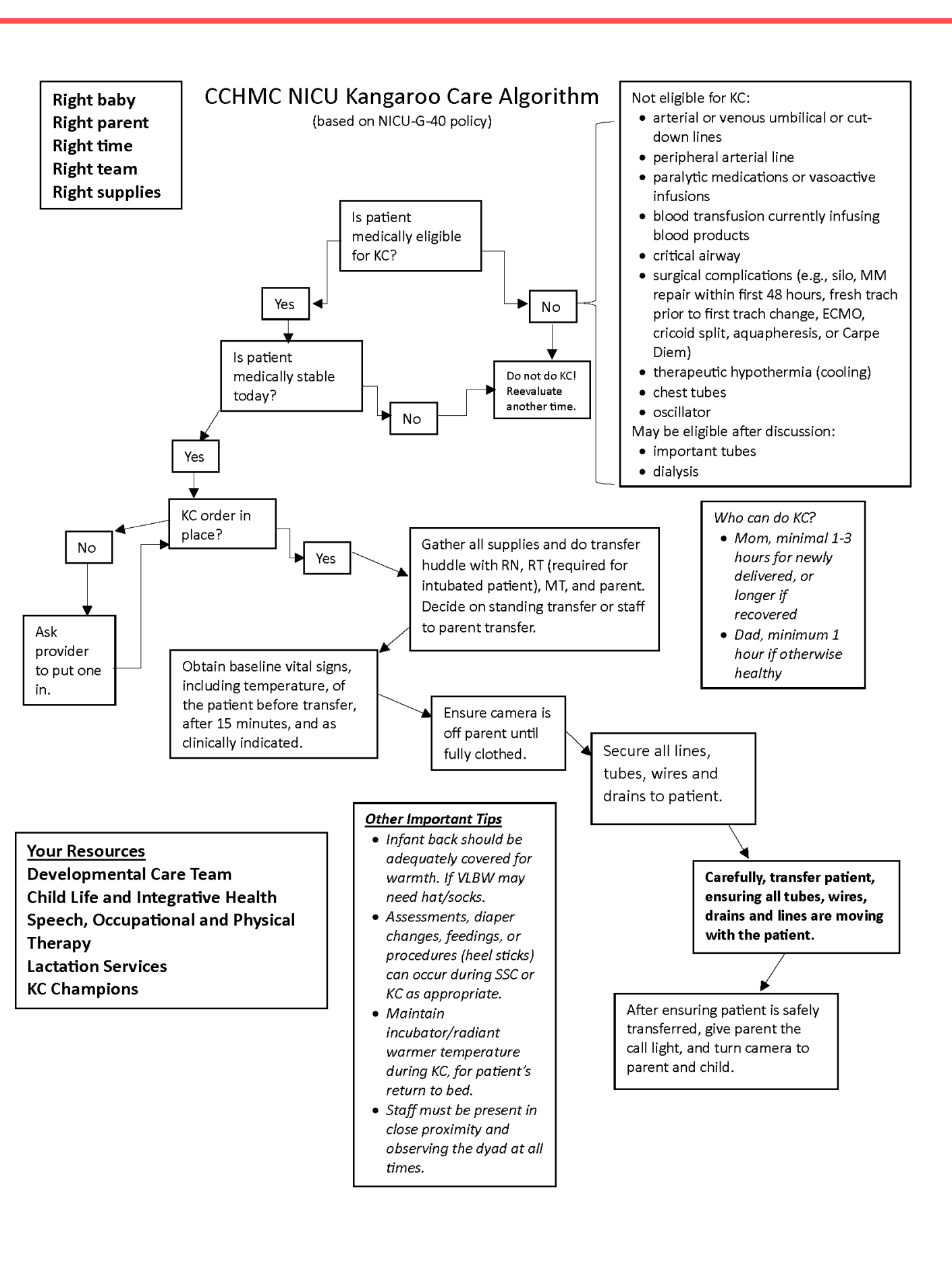
- Data Collection:
- Intervention feedback was anonymously collected using Microsoft surveys
 - Run charts, monitoring frequency and duration of KC
 - Assessment of knowledge was gathered anonymously through pre/post surveys via QR code through REDCap
 - Nursing staff KC experience and demographics were collected

Appendix 1: KC Color-Coded Bedside Cards



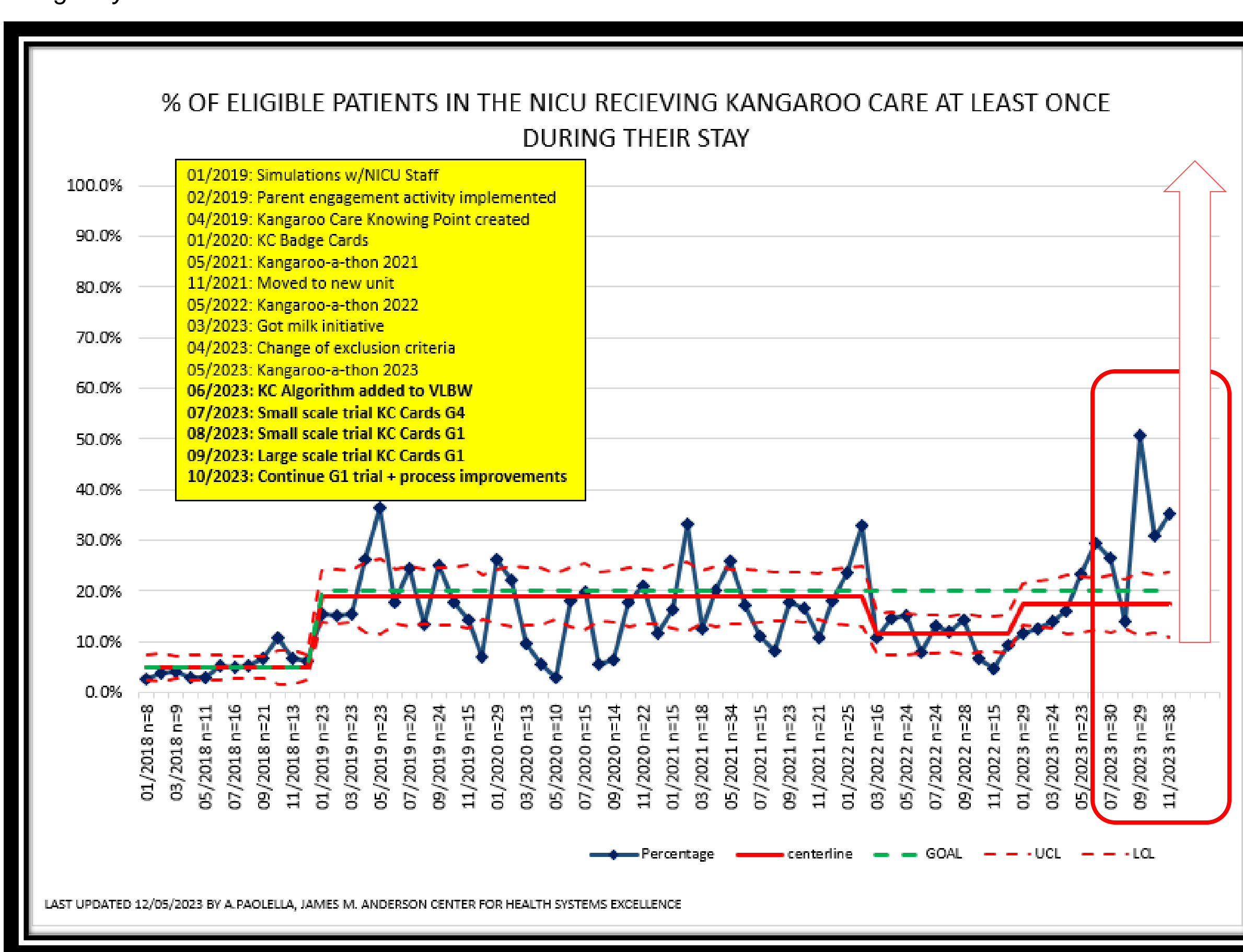
The basis of these interventions came from the NICU KC Policy and developmental guidelines in the very low birth weight (VLBW) resource binder. The cards (Appendix 1) were modeled after the airway alert cards used within the NICU (i.e. green for stable airway, red for critical airway or airway alert). The flowchart (Appendix 2) was designed to be a process flow diagram to help staff determine if they had everything needed to provide safe and effective kangaroo care.

Appendix 2: KC Color-Flowchart



Results

Figure 1: Eligibility

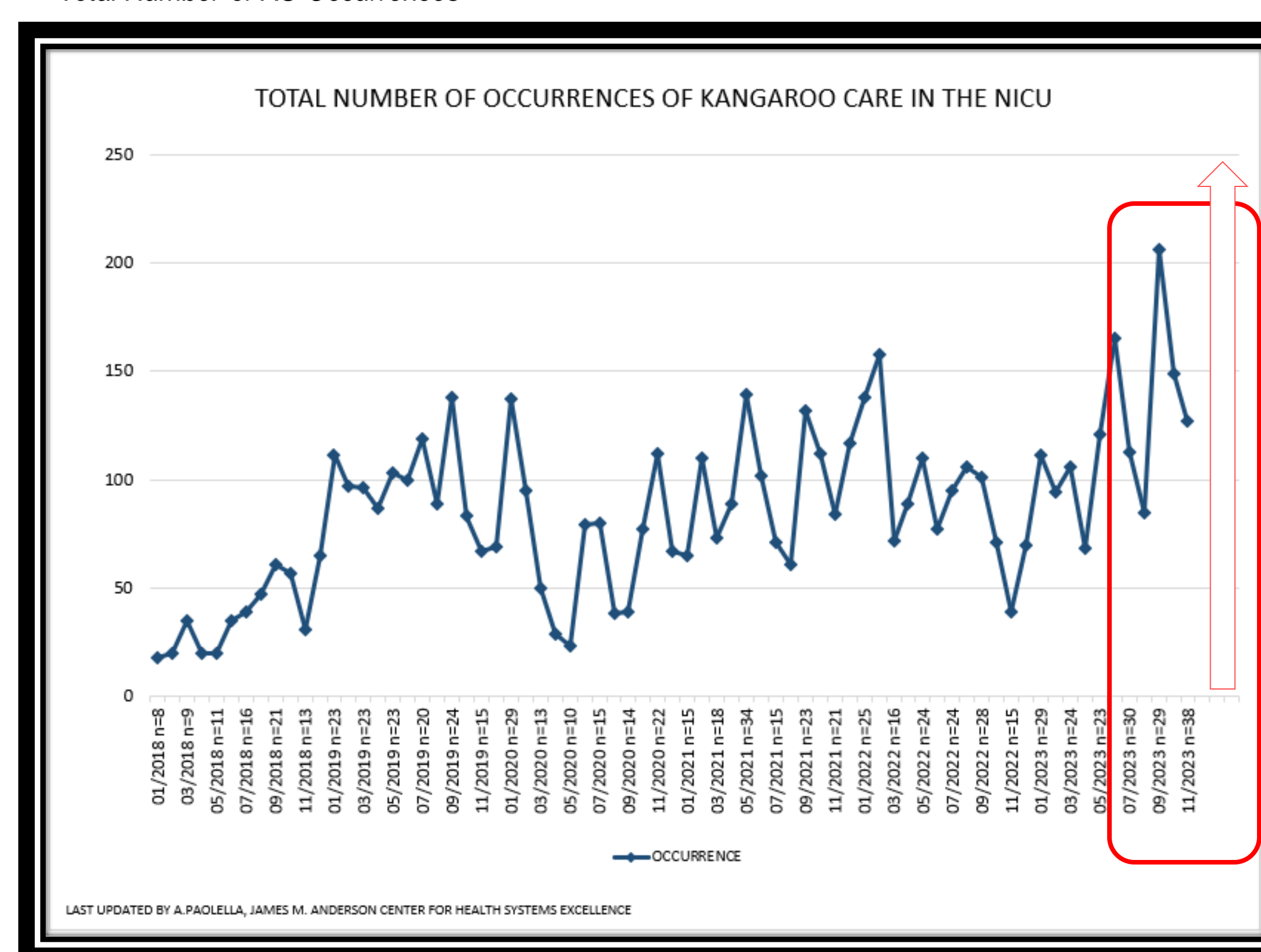


The NICU is currently housed in the critical care tower and is on 2 floors – G1 and G4. G4 consists of 5 wings – 4NW, 4SW, 4NE, 4SE and 4 Central – while G1 consists of 3 wings – G1SE, G1NW, and G1SW. Each wing houses approximately 12 beds. Patients can be in any wing depending on their admission diagnosis, severity of illness and other medical needs.

UCL = Upper control limit
LCL = Lower control limit

- The KC Algorithm added in June of 2023 resulted in an increase in KC care of nearly 5%.
- Addition of the KC Color-Coded Bedside Cards resulted in an increase in KC from 15% to nearly 50%, supporting that visual cues are effective in influencing adequate patient care interventions.

Figure 1: Total Number of KC Occurrences



- Upon review of the run chart, there is clear improvement in total occurrences of KC implementation across the unit.

Conclusions

The findings of this project have demonstrated the effectiveness of simple visual cues, and how they can serve as education and reminders for nursing staff to provide KC, impacting the use of the therapy in the NICU. Interventions which introduced the use of visual cues for KC increased the percentage of patients receiving KC in the NICU to over 50%, the highest the NICU has seen in years. This is based on the most recent run chart provided by the data center. Prior to the last month of the project, the average was roughly 18%.

Limitations:

- There were many changes throughout this project. Due to the QI nature of the KC group on the unit, interventions were being implemented as the project was awaiting IRB approval. Additionally, only 2 of the initial 5 proposed interventions were completed due to timeframe constraints, personnel changes or other process obstacles.

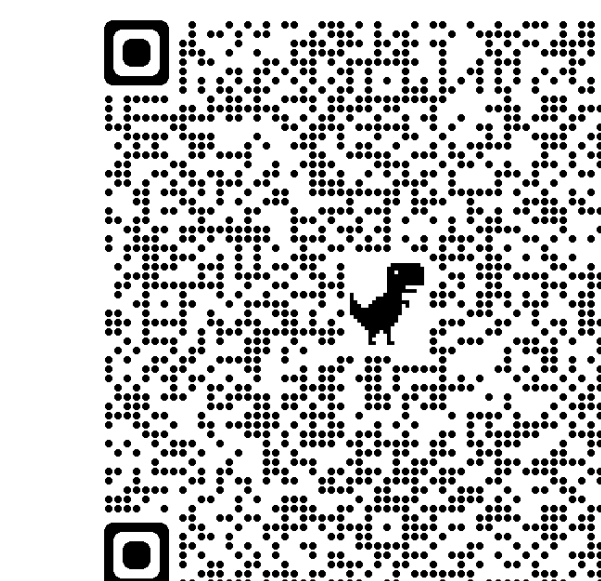
Next steps:

- Continuing to roll the KC Color-Coded cards out to the rest of the unit. The process by which the cards are placed in patient rooms and the frequency of updating the cards needs to be further discussed; as there is no process currently in place outside of this project and would require adding new responsibilities to some of the healthcare personnel.
- The project team would like to create a KC champion group, KC simulation and KC appointment scheduling as well. These interventions, unfortunately, were not able to be completed during the project timeframe but are supported by the KC team at the project site as viable next steps. The project team is currently working revamping a KC education day that had not been used since 2019, which included an online module, videos, sign up for KC champions and an in-person simulation.

Discussion

- Sustaining the use of KC as a therapy to improve growth and development can be accomplished by identifying barriers to implementation and continued education. Concerning staff belief in the task, it is important that efforts continue to be made to emphasize the importance of this therapy to both the nursing staff and the parents of the premature infants. Buy-in from these two stakeholders is vital to the sustainability of KC therapy on the unit. By specifically addressing some of the largest identified barriers to implementation, the hope is to bridge the gap in the pathway, so that increased KC will continue to be carried out in the future. NICU patients and parents will only continue to benefit from increased kangaroo care therapy.
- Other large barriers to implementation such as patient eligibility, inability to stay with the infant and/or staffing ratios are being discussed within the KC group. The team is addressing eligibility through the use of the KC Color-Coded cards and flowchart as they are quick visual explanations and helpful in making care decisions. In addition, the team is discussing a plan to utilize nurse-led rounds to address eligibility on a day-to-day or weekly basis so that the cards and staff are up to date. Nurse-led rounds is currently being trialed throughout the NICU as well. In addition, utilizing other healthcare staff members such as PCA's/MT's has been suggested as an alternative to the nurse staying with the patient for KC as a mediator for being unable to stay in the room. Currently management is not agreeable with this idea.

Literature Cited/Appendices



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