

NICU Kamishibai Card Implementation to Improve Safety and Decrease Unplanned Extubations

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Background/Problem Statement

Problem: A large urban NICU recorded 20 UEs over the past 18 months before implementation, despite having an established Unplanned Extubation Bundle (UEB).

- Unplanned extubations (UEs) in neonatal intensive care units (NICUs) lead to respiratory distress, prolonged hospital stays, and increased morbidity.
- adherence with the UEB varies across shifts, impacting patient outcomes and safety.
- A structured, sustainable method is needed to improve adherence to the UEB and reduce UE occurrences.

Purpose/Goals

Purpose: Implement a Kamishibai card (K-card) system to enhance adherence with the UEB and reduce UEs by 30% over 14 weeks.

Goals:

- Improve adherence to the UEB through real-time feedback and staff accountability.
- Achieve at least 90% adherence with the UEB within the implementation period.
- Reduce UE rates by 30% post-intervention.
- Foster a culture of continuous quality improvement by integrating K-card use into daily workflows.
- Enhance interdisciplinary collaboration by engaging nurses, respiratory therapists, and physicians in the auditing and feedback process.

Methods

Setting: A 50-bed NICU in a large urban hospital.

Participants: 170 healthcare professionals, including nurses, respiratory therapists, and neonatologists.

Intervention:

- K-card system integrated into the daily workflow for intubated neonates.
- Randomized K-card assessments conducted to monitor UEB adherence.
- Training sessions and coaching provided to ensure effective implementation.

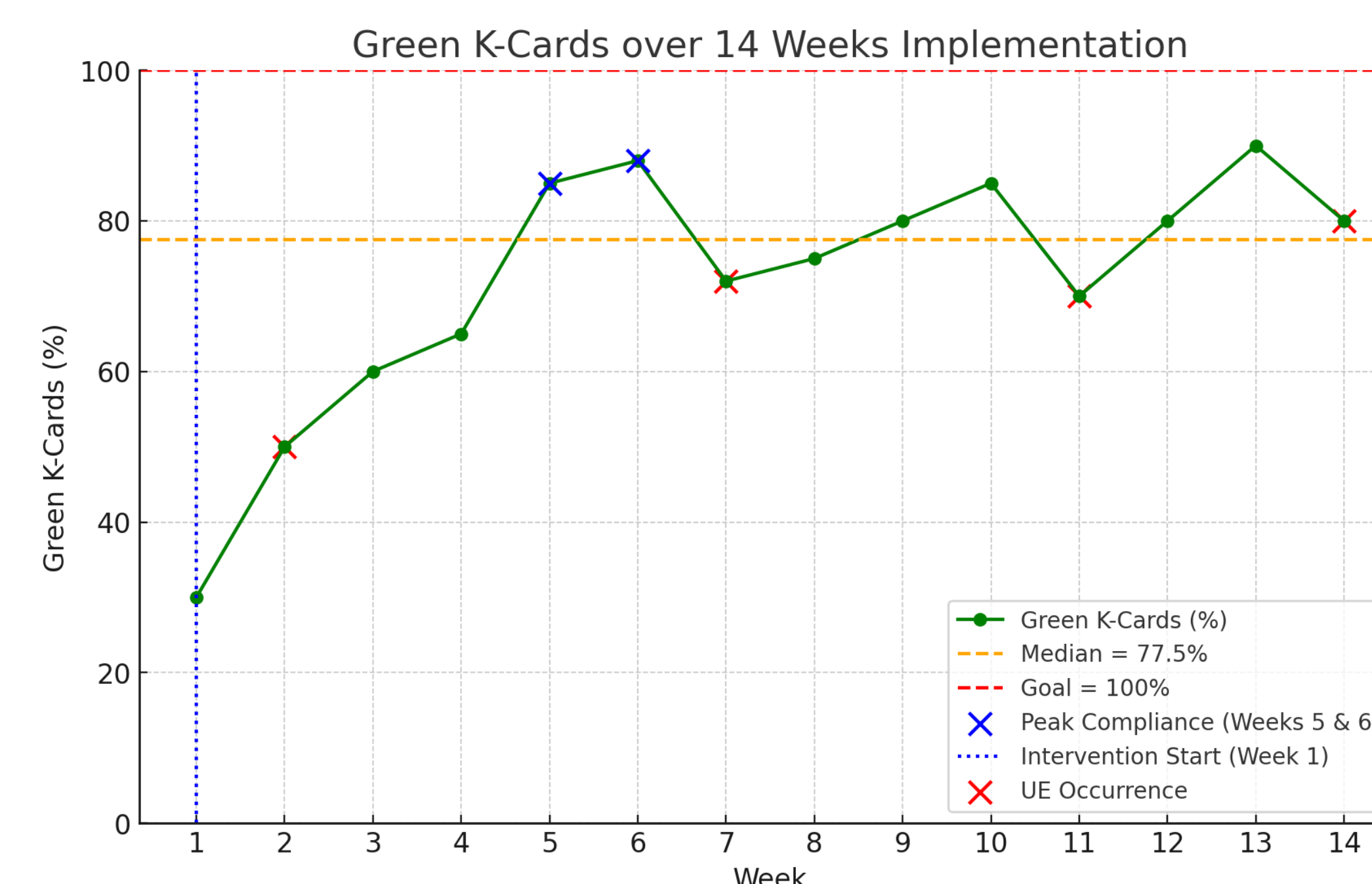
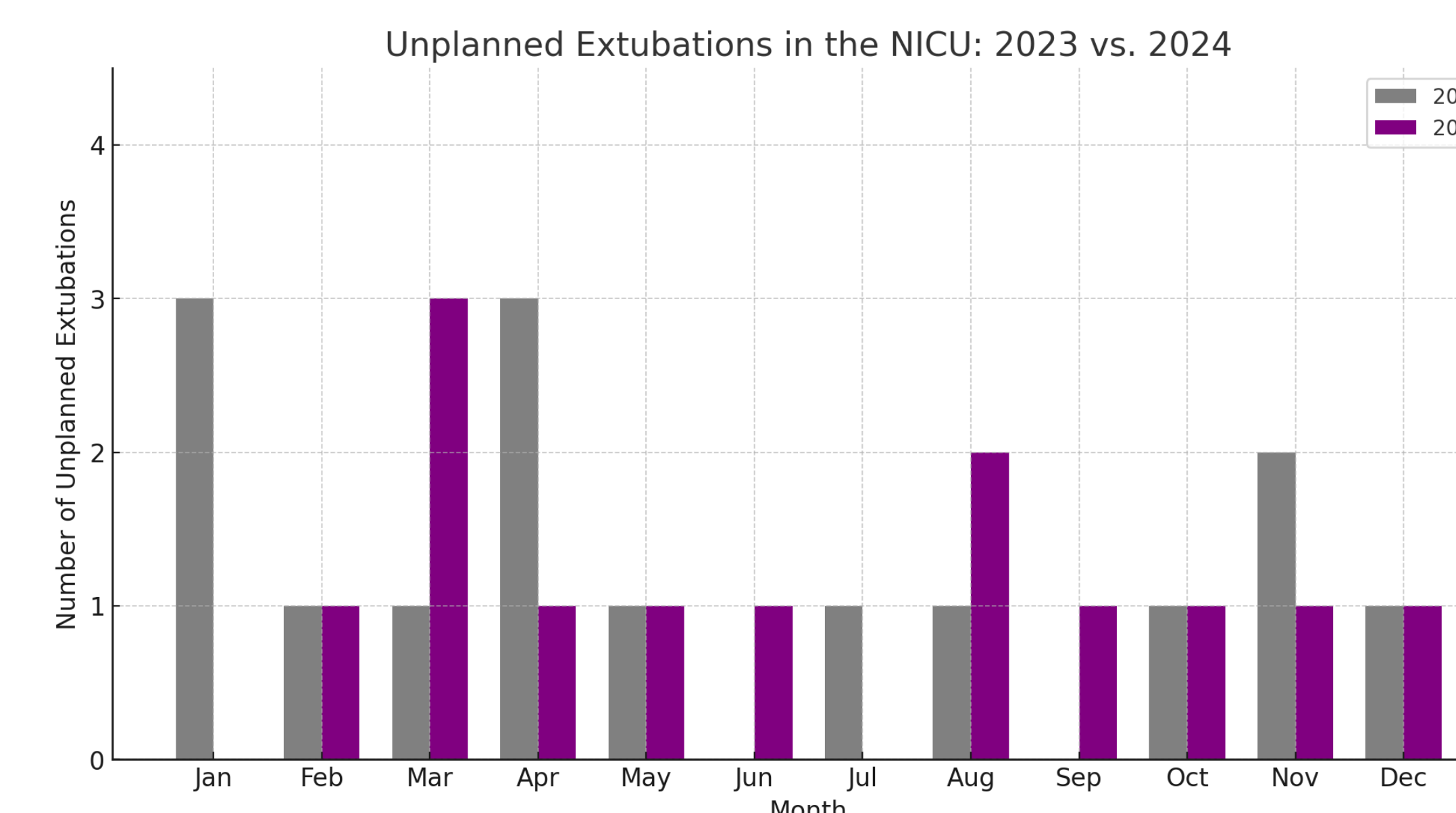
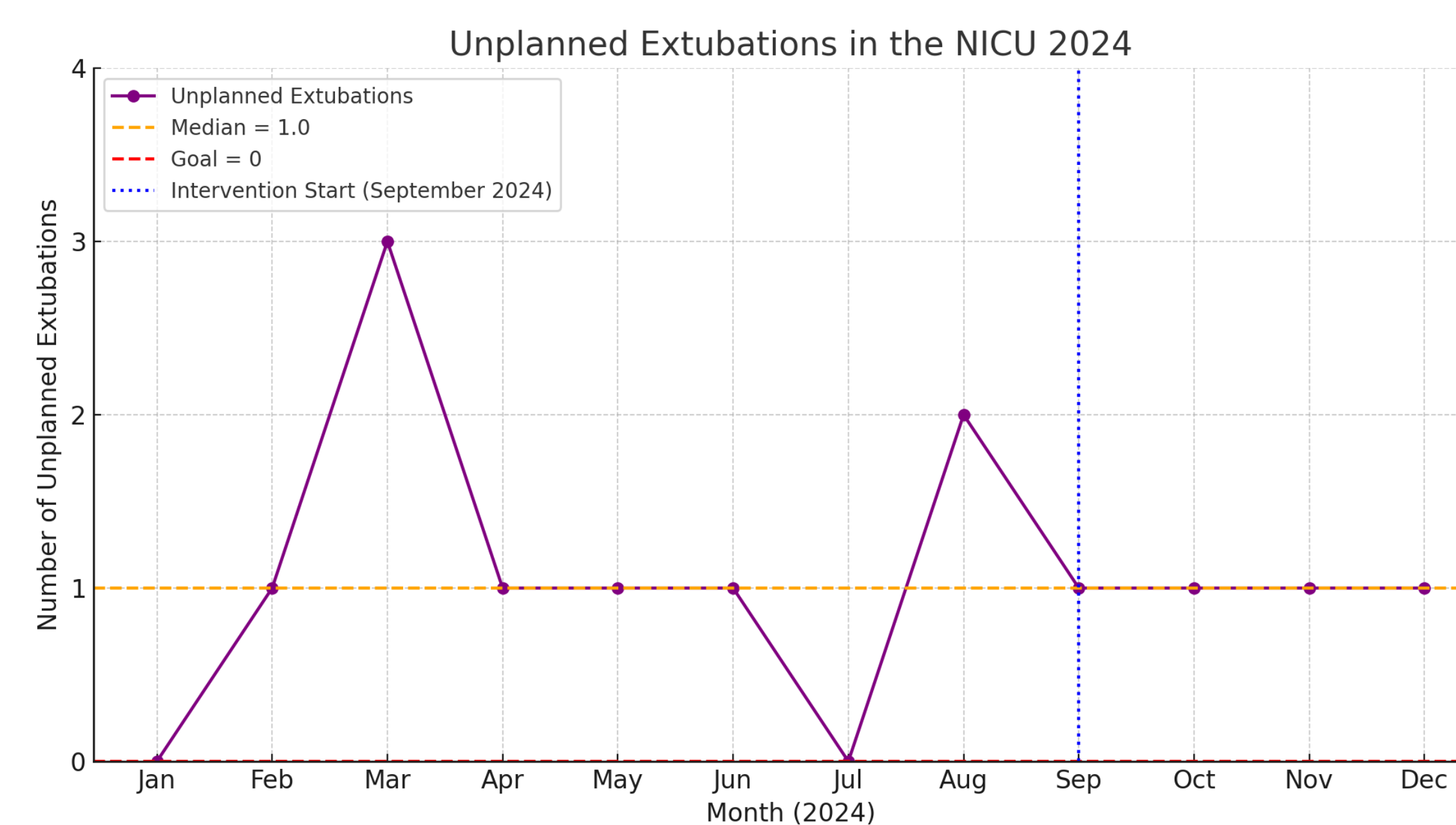
Data Collection:

- Weekly documentation of K-card adherence and UE rates via REDCap.
- Analysis of adherence trends to identify gaps and provide targeted feedback.

Results

Findings:

- 100% of involved disciplines received education materials of K-card implementation and UEB education. 85% of nurses and respiratory therapists completed the education.
- 100% adherence achieved for critical elements such as two-clinician tube handling and standardized taping technique.
- Lower adherence (64.3%) noted for ensuring ETT positioning matches documentation.
- UEB adherence increased from 43% at baseline to 78% within the first five weeks



Discussion

- The K-card system has enhanced safety culture and awareness of best practices.
- Real-time feedback has been effective in improving UEB adherence.
- Challenges include sustaining engagement and addressing barriers to adherence.
- Future research should explore sustained impact on UE rates and staff perceptions of the K-card system.

Barriers to UEB Adherence:

- Staff resistance to adopting new practices if perceived as added workload
- Acuity/complexity of patient diagnosis
- Agency staff/travel nurses unfamiliar with policies and protocols

Conclusions

- The use of real-time feedback mechanisms has increased awareness and adherence to best practices, contributing to a culture of safety.
- Data suggests that adherence to the UEB improved significantly, though further monitoring is necessary to evaluate sustained impact on UE rates.
- Staff engagement and ongoing training play a crucial role in maintaining and reinforcing adherence improvements.
- Future efforts should focus on long-term sustainability, addressing barriers, and expanding the use of K-cards to other quality improvement initiatives or units, such as PICU.
- Continued collaboration and interdisciplinary teamwork will be essential for optimizing patient safety outcomes and ensuring the success of the K-card implementation in the NICU.

References/Acknowledgement

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Scan for complete reference list

