Advancing Perioperative Excellence Through a High-Reliability Nursing-Led Nerve Block Model

Melanie Gaspard MSN, BSN, RN, APRN, FNP-BC

Claire Nichols MHA, BSN, RN, NE-BC, CCRN

Northeast Georgia Health System

Introduction

High-reliability perioperative systems require standardized workflows, clear role accountability, and effective interdisciplinary communication. Perianesthesia nurses are uniquely positioned to lead these efforts through coordination, procedural preparation, and real-time operational oversight.

This quality improvement project describes the development and impact of a **high-reliability, nursing-led peripheral nerve block model** designed to improve workflow consistency, procedural throughput, and perioperative performance within a growing Robotic Center of Excellence.

Purpose

The purpose of this project was to evaluate the impact of implementing a **high-reliability, nursing-led peripheral nerve block model** on perioperative throughput, workflow coordination, and team communication while maintaining patient safety and satisfaction. Rapid growth in surgical volume, increasing procedural complexity, and expansion of regional anesthesia utilization created heightened variability within the preoperative block process.

Standardization was necessary to reduce workflow inconsistency, mitigate delays, support interdisciplinary coordination, and ensure predictable performance as regional anesthesia demand continued to increase. This project examined whether a structured, team-based model—with clearly defined roles, volume-based staffing thresholds, and standardized communication pathways—could support reliable, scalable nerve block delivery in a high-acuity perioperative environment.

Research

Quantitative Data

Growth in Regional Anesthesia Volume (Pre- and Post-Program Implementation): the collection of data compared the number of blocks our facility performed before the nerve block team was established to the number of blocks after the implementation of the nerve block team.

First Case Delays: the collection of data from department reports compared first case delays before and after implementing the nerve block team.

Qualitative Data

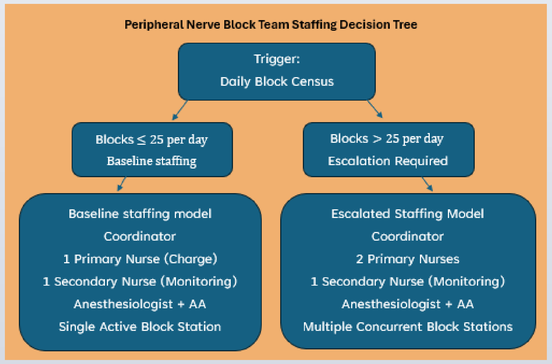
Anesthesia Block Process Survey: A survey was administered to anesthesiologists to evaluate preferences for a nursing-led block team versus an anesthesia-led approach. It was directed at gathering the preferences of the anesthesiologist on the team. The survey consisted of a 5-question questionnaire that captured efficiency, communication, organization and value-added performance. The sample consisted of 21 anesthesiologists from the practice.

Methods

A standardized staffing and workflow model was implemented in 2018, anchored by the block coordinator role, a dedicated perianesthesia nurse responsible for daily operational oversight of the preoperative block area and team.

Key Components of the High-Reliability Model Include:

- Daily block volume forecasting and staffing activation thresholds
- Clearly defined nursing, anesthesia, and monitoring roles
- Standardized communication pathways with anesthesia and OR teams
- Real-time coordination of block flow and procedural sequencing
- Continuous metrics including first-case on-time starts, regional anesthesia volume trends, qualitative provider feedback, and postoperative patient satisfaction measures



High-Reliability Team Structure

Block Coordinator
- Oversees daily throughput and staffing alignment
- Forecasts block volume and triages procedural flow
- Coordinates anesthesia movement and OR readiness
- Standardizes communication and escalates clinical issues

Primary Nurse (Procedural/Sedation Nurse)
- Conducts pre-sedation assessment and procedural time-out
- Administers sedation per protocol
- Documents medications, time points, physiologic data
- Functions as charge nurse for the block hall

Secondary Nurse (Monitoring Nurse)
- Provides continuous post-block monitoring
- Documents recovery parameters
- Facilitates handoff to the OR team

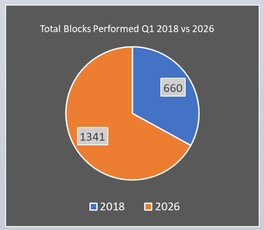
Anesthesiologist / Anesthesia Assistant (AA)
- Perform nerve block procedures
- Provide advanced airway and rescue support
- Deploy to block stations as directed by the coordinator

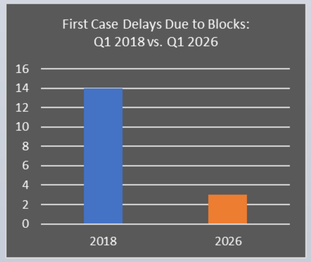
Reliability Strategy: Block team structure adjusts with demand to reduce variability and delays.

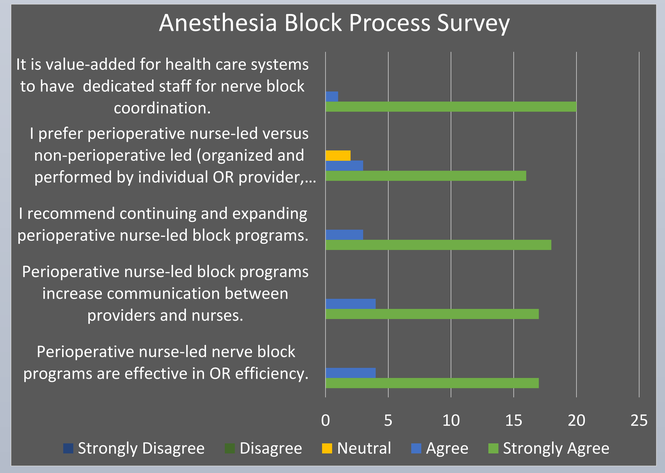
Results

Impact of a Nursing-Led Peripheral Nerve Block Model

- Sustained increase in total peripheral nerve blocks following implementation of the block team (2018–present)
- Improved perioperative efficiency (first-case starts, workflow coordination)
- Performed double the number of blocks in 2026 compared to 2018 and have decreased the delays to 1/5 the amount after implementing the team, with ratios showing the department 10 times more successful in decreasing delays due to blocks.
- No increase in block-related complications
- High patient and provider satisfaction







NGHS Block Team

The NGHS Block Team

Discussion

Establishing a dedicated block coordinator role and team allowed proactive forecasting of daily block volume, real-time triage of procedural flow, and consistent coordination between anesthesia, nursing, and OR teams. This operational improvement reduced ambiguity around responsibility for block readiness and sequencing—an issue commonly cited by perioperative teams when delays occur.

Despite increased block volume and throughput, there was no increase in block-related complications, and both patient and provider satisfaction remained high. Anesthesiologists reported that clearly defined nursing roles and centralized coordination improved efficiency, communication, and reliability without limiting clinical decision-making. The nursing team functions as the stabilizing force, ensuring consistency while allowing anesthesia providers to focus on procedural performance.

The longevity of the observed improvements—paired with continued growth in regional anesthesia utilization—demonstrates that the model is scalable and adaptable. Because staffing thresholds and workflows adjust based on volume demand, the system maintains reliability during both high- and low-acuity periods. This flexibility is fundamental to high-reliability organizing and supports long-term integration into perioperative operations.

Conclusion

Establishing the **high-reliability, nursing-led peripheral nerve block model** contributed to the growing body of evidence supporting expanded nursing roles in perioperative process design. Perianesthesia nurses are uniquely positioned at the intersection of patient care, anesthesia readiness, and OR flow. Leveraging this position through clearly defined leadership roles enables proactive problem-solving, reduces variability, and promotes interdisciplinary trust. The findings suggest that similar institutions experiencing growth in regional anesthesia services may achieve meaningful improvements in efficiency and reliability by adopting a nursing-led peripheral nerve block model.

References

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