Enhancing Patient Safety Through Objective Neuromuscular Monitoring: The STRONG QI Initiative

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Introduction: Residual neuromuscular blockade (NMB) remains a significant safety concern in the post-anesthesia care unit (PACU), contributing to complications such as airway obstruction and respiratory distress. Despite strong recommendations from major anesthesia societies, objective neuromuscular monitoring remains underutilized.

Identification of the Problem: Though our department has three different methods to assess neuromuscular function, they are underused which places patients at risk for residual blockade. Contributing factors include knowledge gaps, excessive NMB agent antagonist dosing, unfamiliarity with devices, time constraints, and production pressures. Clinicians may assume recovery occurs without complications, despite evidence of persistent impairment.

QI Question/Purpose of the Study: The STRONG (STRategies for Outstanding Neuromuscular blockade manaGement) QI initiative aimed to double the use of objective neuromuscular monitoring to confirm adequate recovery (TOF ratio ≥ 0.9) from 12% to 24% by June 30, 2025, without increasing OR exit time. This aligns our practice with recent anesthesia guidelines.

Methods: A multidisciplinary team implemented targeted interventions including provider education, quarterly feedback, equipment optimization, and incentives. Data from 2,610 surgical cases were analyzed using EMR reports and manual chart reviews. OR exit time was tracked as a counterbalance measure.

Outcomes/Results: As of Q3 2025, adequate quantitative NMB recovery was confirmed in 22% of patients, nearing project target. Average OR exit time decreased, indicating improved efficiency. Key barriers identified included knowledge gaps, equipment variability, and workflow pressures. Interventions such as device-specific recommendations (EMG vs. AMG) and ongoing education addressed these challenges.

Discussion: The STRONG initiative demonstrates that targeted data-driven strategies can improve adherence to safety guidelines without compromising efficiency. Addressing barriers through education and workflow-sensitive solutions is essential for sustained improvement.

Conclusion: The STRONG QI demonstrates that safety and efficiency can coexist. Continued effort, including stakeholder engagement and incentives, are underway to sustain and exceed the target.

Implications for perianesthesia nurses and future research: Perianesthesia nurses are essential to safe recovery from NMB blockade. Standardized monitoring and documentation improve patient outcomes and care consistency. Nurses should advocate for the routine use of quantitative NMB monitoring and pursue ongoing education to enhance competency. Future research should explore nurse-led NMB protocols, long-term outcomes, and strategies to reduce residual block, ensuring sustained improvements in quantitative NMB monitoring across diverse perioperative care settings.