

Paving the Road to Enhanced Recovery After Cesarean at a New York City Municipal Hospital: A Quality Improvement Initiative to Optimize Multimodal Analgesia in the First 24 Hours After Cesarean Delivery

Nita Wong, BS¹, Yvonne Choi, MD², Paule Duverger, PhD, RN³, Ngozi Nwankpa, MD², Tania Cossio, MD, MPH⁴

¹ Albert Einstein College of Medicine, Bronx, NY | ² Department of Obstetrics and Gynecology, North Central Bronx Hospital, Bronx, NY

³ Department of Nursing Operations, North Central Bronx Hospital, Bronx, NY | ⁴ Department of Anesthesiology, North Central Bronx Hospital, Bronx, NY

INTRODUCTION

Enhanced Recovery After Cesarean (ERAC) guidelines encourage multimodal analgesia, which has been demonstrated to reduce pain, improve mobility, and decrease opioid use. Standardizing care through protocols has also been shown to contribute to reducing disparities, of particular importance at our safety net hospital where most patients are low-income Black, Indigenous, and People of Color. We seek to optimize the use of multimodal analgesia in preparation for institution-wide ERAC implementation by leveraging data and quality improvement (QI) tools to identify current gaps in performance and design stakeholder-driven interventions.

AIM STATEMENT: To increase the percentage of patients receiving all possible doses of non-opioid analgesics before receiving opioids in the first 24 hours after Cesarean by 50% by September 2024

METHODS

We assessed how well our practice ascribes to ERAC guidelines by conducting a quality assurance review of our use of multimodal analgesia in the first 24 hours after Cesarean in the electronic medical records (EMR) of 151 randomly selected patients out of 310 Cesareans performed in 2023. Results were presented during a multidisciplinary QI meeting that included stakeholders from OB/GYN, anesthesiology, and labor and delivery (L&D) and postpartum nursing. Stakeholders developed a three-pronged intervention. Iterative Plan-Do-Study-Act (PDSA) cycles were used to develop and test interventions between June and September 2024. All 76 Cesareans performed following intervention implementation were included in the post-intervention analysis.

PRIMARY OUTCOME MEASURE: The percentage of patients receiving all possible doses of non-opioid analgesics before receiving opioids in the first 24 hours after Cesarean

PROCESS MEASURES: Intraoperative administration of neuraxial morphine, intraoperative and postoperative administration of non-steroidal anti-inflammatory drugs (NSAIDs) and acetaminophen, placement of standing orders for postoperative nonopioid analgesics, and patient refusal rates

Multidisciplinary Didactics

- Targeted didactic interventions about ERAC guidelines for anesthesiology and OB/GYN clinicians and L&D and postpartum nurses
- Occurring during weekly department meetings and morning huddles and via digital and verbal reminders by specialty-specific champions

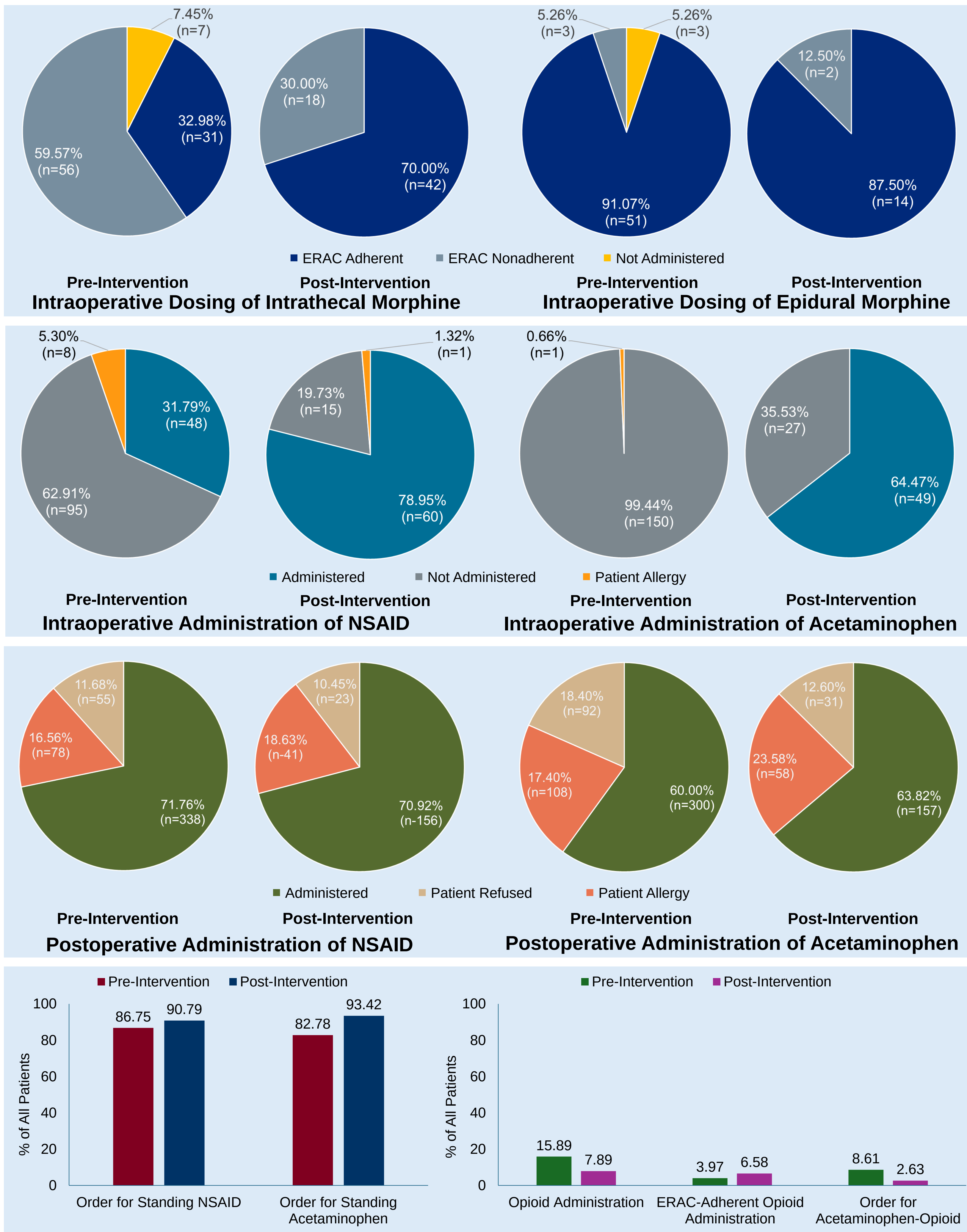
Patient Education

- Postpartum nurse training on counseling patients about standing, non-opioid pain orders
- Synergistic analgesic effect of conjunctive acetaminophen and NSAID administration
- Adverse effects of opioid use in the postpartum period

EPIC Order Set Revision

- Revision of post-Cesarean EMR orders to comply with ERAC guidelines
- Appropriate postoperative NSAID scheduling
- Transition to a combined NSAID-acetaminophen administration schedule
- Elimination of orders for acetaminophen-opioid medications and opioids for mild pain

RESULTS



DISCUSSION

Our results show improvements in the integration of evidence-based practices at multiple levels of patient care over the four-month intervention period. However, there is still room for progress.

- Increase in ERAC-Adherent Dosing of Intrathecal Morphine:** ERAC-adherent dosages of intrathecal morphine provide extended analgesia and reduce postoperative reliance on systemic opioids. Although intrathecal morphine administration rates improved, ERAC-adherent epidural morphine dosing decreased slightly. We will continue to monitor these rates and continue didactics with the anesthesiologists and CRNAs.
- Increase in Intraoperative Administration of Nonopioid Analgesics:** The markedly improved rates of intraoperative nonopioid analgesic administration align with our goal of promoting nonopioid alternatives for effective pain management.
- Increase in Standing Orders for Nonopioid Analgesics:** The increased placement of standing orders for postoperative nonopioid analgesics indicates a systemic shift towards prioritizing nonopioid options within our pain management protocols. We will continue to work toward a 98% order rate.

Our primary outcome measure—the percentage of patients receiving all possible doses of non-opioid analgesics before receiving opioids in the first 24 hours after Cesarean—increased by nearly 60%. This illustrates the success of the collaboration among anesthesiology, OB/GYN, and nursing teams in implementing a comprehensive pain management strategy.

While these results are promising, patient refusal rates for postoperative nonopioid analgesics remained largely unchanged. This emphasizes the critical need for targeted patient education and suggests that translating key clinical concepts to patients may require a more prolonged effort and additional resources. Future PDSA cycles will investigate the root causes underlying patient refusals. Upcoming PDSA cycles will also explore the sustainability of our practices throughout hospitalization with a focus on multimodal analgesia beyond the initial 24 hours after Cesarean.

CONCLUSIONS

The implementation of ERAC protocols has been shown to lead to significant improvements in patient outcomes while reducing disparities in care. Operationalization in clinical settings is complex, necessitating a multifaceted strategy to implement and sustain best practices. Our findings reinforce the importance of a multidisciplinary approach, as highlighted by the ERAS Society Handbook for OB/GYN. Our educational intervention demonstrates promise as an approach to increasing ERAC adherence. These results may inform ERAC adoption across the NYC municipal hospital system. We look forward to the imminent addition of a revised EPIC order set to our efforts.

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