Post-Cesarean Pain Protocol Opioid Prescribing Trends: A Quality Improvement Initiative at a Community-based Teaching Institution

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INTRODUCTION

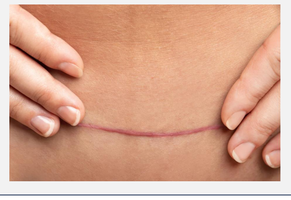
- The cesarean section is the most common abdominal surgery globally, but standardized post-operative pain guidelines only emerged recently.
- McLaren Greater Lansing (MGL) adopted the Enhanced Recovery After Cesarean (ERAC) protocol, supported by the American College of Obstetricians & Gynecologists, to improve maternal outcomes, recovery and maternal-infant bonding.
- The Obstetric Initiative (OBI) Michigan recently released its COMFORT Clinical Practice Guideline (CPG), which utilizes aspects of ERAC and other evidence-based practices to standardize postpartum pain protocols across Michigan. COMFORT CPG was implemented by all MGL providers by March 1, 2024.

Table 1. ERAC and COMFORT protocols for post-operative pain management

Component	ERAC Protocol	COMFORT Protocol
Preop Measures	Education on measures to improve early discharge, multimodal pain control and expectations	Extensive education about pain expectations, opioid risks, use with breastfeeding, interactions, naloxone use, safe storage of opioid medications
Preop Medications	Acetaminophen IV Pepcid IV Bicitra PO	Acetaminophen IV Pepcid IV Bicitra PO
Intraoperative Analgesia	Neuraxial morphine, Ketorolac 30 mg IV after peritoneal closure	Neuraxial morphine
Scheduled Non-Opioid Analgesics	Scheduled Acetaminophen 1000mg Q 6 hours AND Ibuprofen 600mg Q 6 hours	Scheduled Acetaminophen 1000 mg TID **AND** NSAIDs: ◦Ketorolac 15 mg IV q 8 hours (first 24 hours) THEN 800mg ibuprofen TID
Opioid Use	PRN Oxycodone 5mg PO	PRN oxycodone 5 mg PO
Non-Pharmacologic Analgesic Measures	Heat/ice, abdominal binder	Heat/ice, abdominal binder, acupuncture, mindfulness, music, aromatherapy, repositioning
Discharge Opioid protocol	Maximum 20 doses of oxycodone 5 mg based off inpatient and postop use	0-15 doses of oxycodone 5 mg; consider co-prescription of naloxone. Emphasis on shared decision making

OBJECTIVES

This quality improvement project aims to evaluate if implementing the COMFORT CPG improves outcomes or opioid prescribing patterns compared to the prior ERAC protocol in nulliparous, term, singleton, vertex (NTSV) patients status post primary low transverse cesarean section at McLaren Greater Lansing hospital.



METHODS

- **Data collection**: De-identified data was obtained via an "honest broker" approach by data inquiry request with the help of a quality improvement specialist from the OBI Michigan database between 2023-2024.
- **Inclusion criteria**: age ≥18, NTSV presentation, underwent primary low transverse cesarean delivery.
- **Primary outcomes**: discharge opioid prescriptions in oral morphine equivalents (OME) and discharge pain scores.
- **Statistical analyses**: descriptive statistics, independent samples t-tests, and chi-square tests. Statistical significance was set at $p<0.05$.

RESULTS

A total of 845 births at McLaren Greater Lansing were recorded in the OBI Michigan database from 2023-2024, and 242 cesarean births met the inclusion criteria (28.6%).

- 151 of 511 births during the ERAC protocol met the inclusion criteria (29.5%)
- 91 out of 334 births during the COMFORT protocol period met the inclusion criteria (27.2%) (p=0.52).

Opioids prescribed at discharge were significantly (p=0.02) less in the COMFORT group (92.4 ± 16.8 OME) compared to the ERAC group (100.6 ± 37.8 OME) (Figure 1).

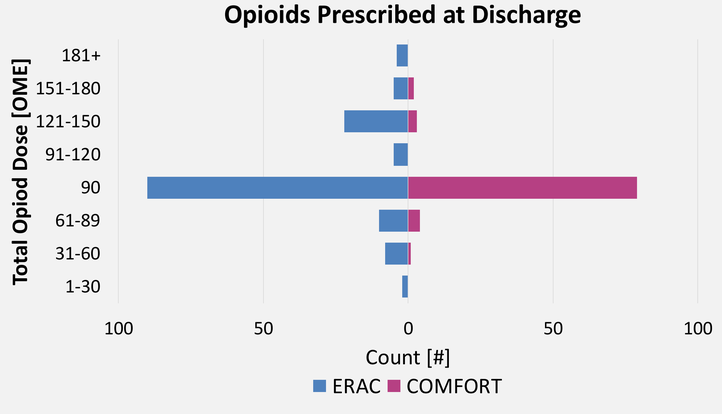


Figure 1. Distribution of total opioid prescription dose in oral morphine equivalents (OME) at discharge across ERAC and COMFORT protocols.

- No significant differences between cohorts in terms of age, admission BMI, pre-pregnancy BMI, alcohol use, or marijuana use (all p>0.05).
- ERAC group found to have greater tobacco use (p<.001).
- No significant differences were found in postpartum ED visits/re-admissions (all p>0.05).
- A trend towards increased rates of chorioamnionitis in the COMFORT group (p=0.068).
- No significant difference (p=0.21) in discharge pain scores between ERAC (pain = 2.8±1.9) and COMFORT (pain = 3.2±2.0).
- Opioids prescribed at discharge were significantly (p=0.02) less in the COMFORT group (92.4±16.8 OME) compared to the ERAC group (100.6±37.8 OME).

DISCUSSION

- The COMFORT CPG significantly reduced opioid prescription dosage compared to the ERAC protocol without compromising pain control.
- COMFORT standardizes postpartum pain management while also emphasizing patient education and shared decision-making, allowing for a more personalized approach within a consistent framework.
- The personalized approach of the COMFORT CPG aligns with the osteopathic principle of treating the whole person, not just the symptom of pain.
- COMFORT CPG enhances maternal safety and supports better long-term outcomes without diminishing maternal comfort and recovery.

CONCLUSIONS

Implementation of the COMFORT CPG at a community-based hospital resulted in comparable post-cesarean delivery pain control and reduced prescription of opioids at discharge.

REFERENCES

1. Ituk U, Habib AS (2018 April 27). Enhanced recovery after cesarean delivery. PMID: 29770203; PMCID: PMC5931266. Retrieved from doi: 10.12688/f1000.
2. OPEN: Opioid Prescribing Engagement Network (2023). Managing Pain After Childbirth Guide. Retrieved from https://doi.org/10.56137/OPEN.000114.
3. Patel K, Zakowski M (2021 March 2). Enhanced Recovery After Cesarean: Current and Emerging Trends. *Curr Anesthesiol Rep*. 2021;11(2):136-144. PMID: 33679253; PMCID: PMC7921280. Retrieved from doi: 10.1007/s40140-021-00442-9.
4. Wesner, Breanna (2024 January 23). COMFORT Measure PowerPlan Enhancements: OB Vaginal Delivery and OB Cesarean Section PowerPlan Enhancements. One McLaren.