

Comparison of Enhanced Recovery after Surgery Protocol and Standard Protocol for Cesarean Delivery

A Two-center, Double-blind, Randomized Controlled Trial

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BACKGROUND



CD is #1 major surgery globally

- US: 1.17M/yr (32.1%)
- China: 44.5%

Only 3 RCTs exist on ERAC

Focus on **length of stay, opioids**

Rarely assess **patient-reported outcomes**

Anesthesiologists lead ERAC teams

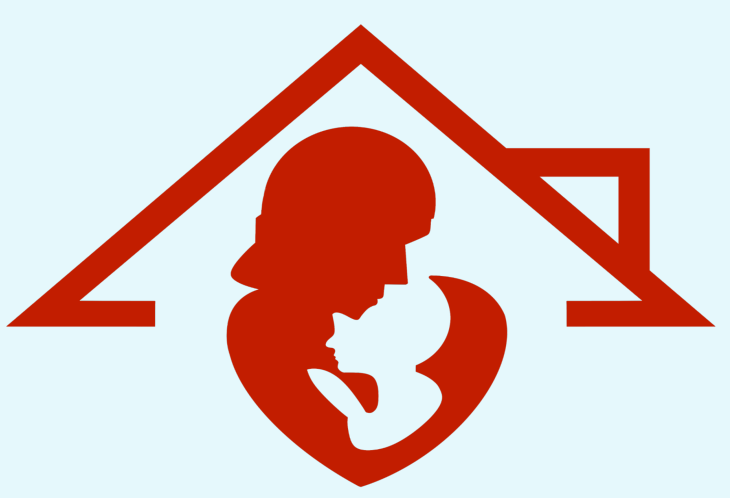
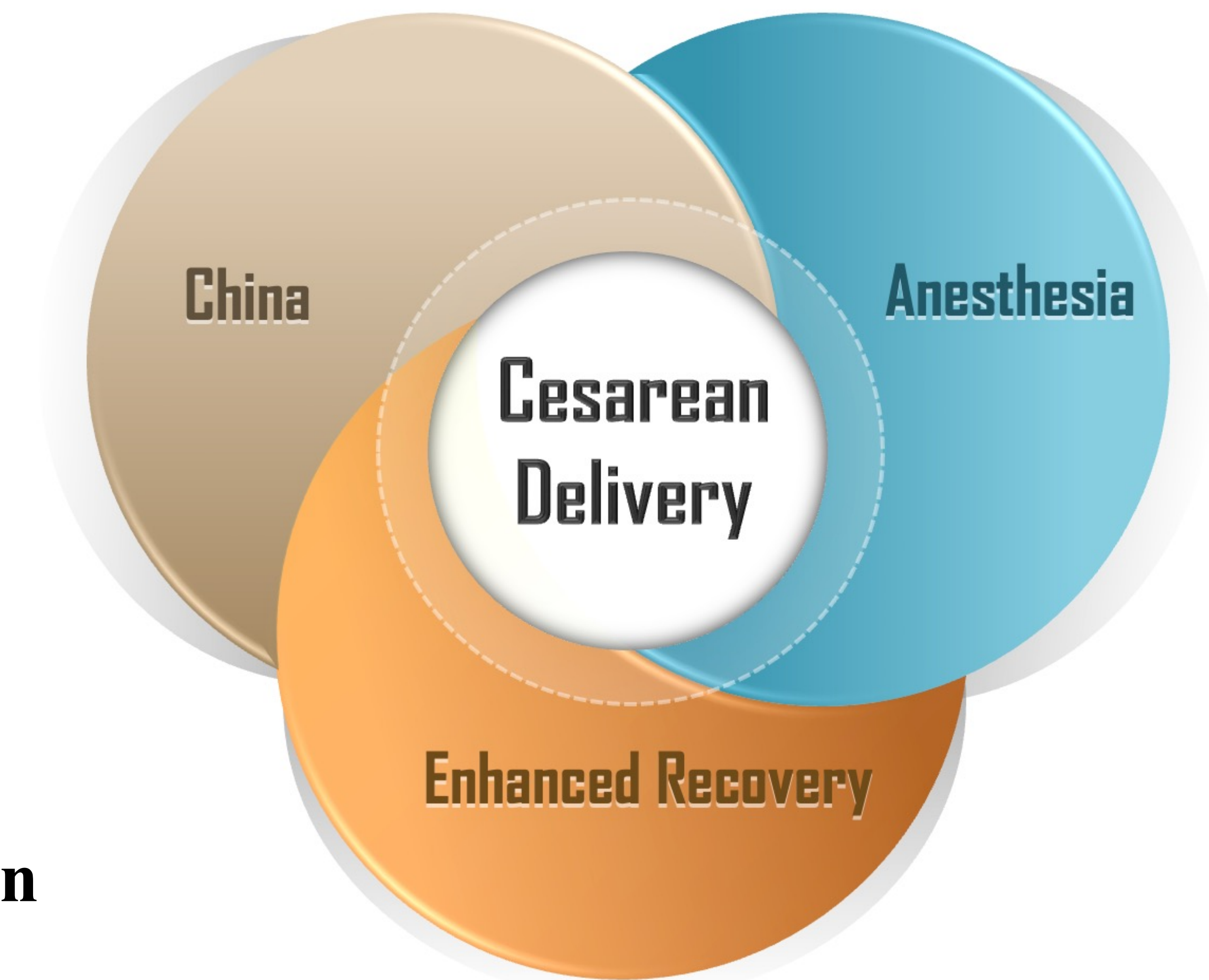
Shift: Pain control → **Holistic recovery**

Bundled interventions can reduce **PONV, hypotension, pain**

Hypothesis: Anesthesiologist-led ERAC

↓ Adverse events

↑ **Quality of recovery** (patient-centered)



STUDY DESIGN AND METHODS

Design

- Two-center, Double-blind, RCT

Study Population

- Healthy singleton women requesting elective CD under combined spinal-epidural anesthesia.

Primary Outcomes

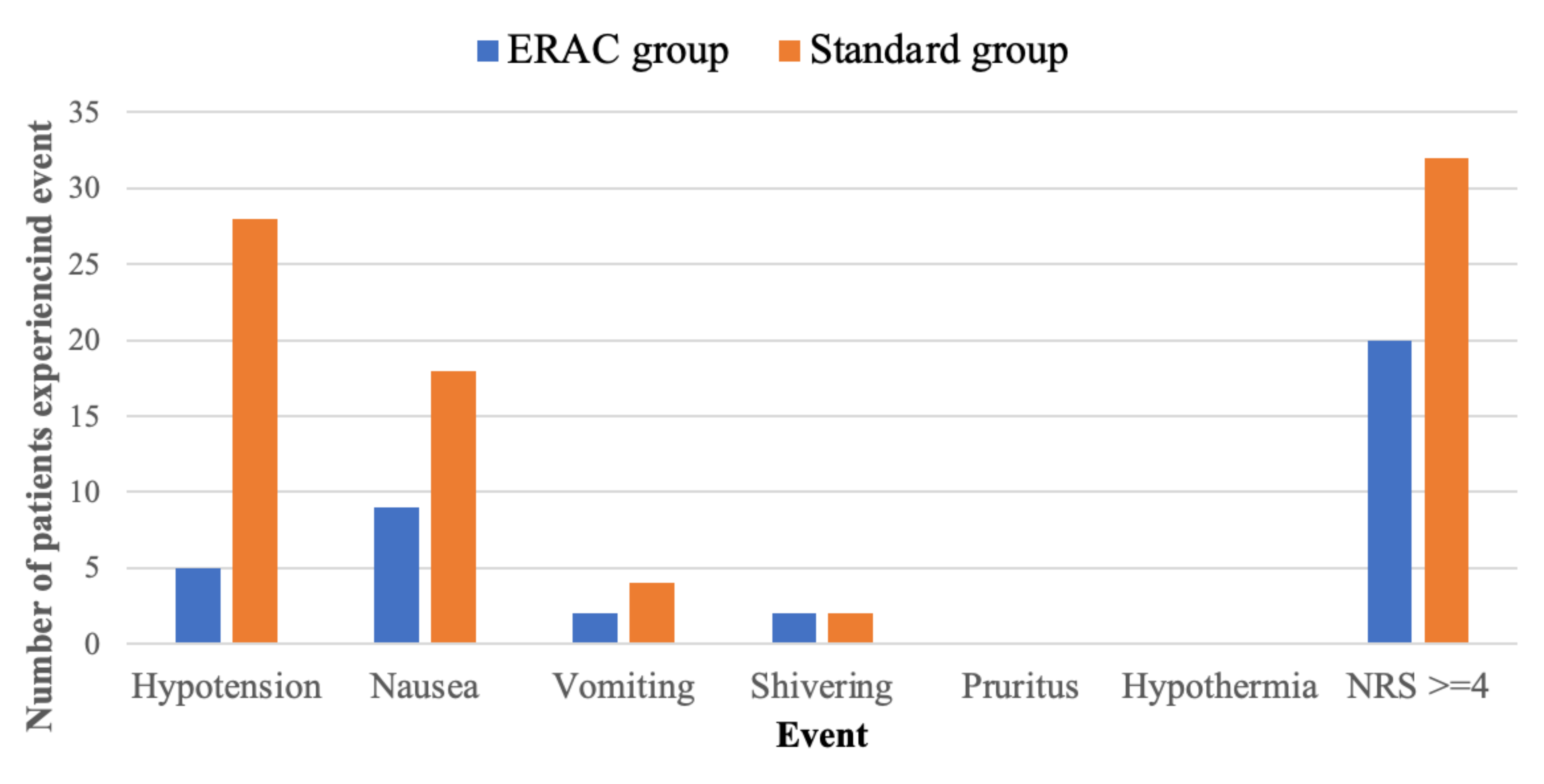
- A composite of adverse events (hypotension, nausea, vomiting, shivering, hypothermia, moderate-to-severe pain).

Standard Group	ERAC Group
PRE-OP	
• Standard preanesthetic consultation	• Personalized and information-based consultation
INTRO-OP	
• Bolus to treat hypotension	• Prophylactic phenylephrine infusion + bolus for hypotension
• Pre-hydration	• Rapid co-hydration
• Blankets only	• Intravenous fluid warming
• At anesthetist's discretion	• Mandatory PONV prophylaxis
• Epidural hydromorphone 0.4-0.6 mg	• Epidural hydromorphone 0.4-0.6 mg
	• Non-opioid analgesia
POST-OP	
• Acetaminophen 500 mg IV q6h*4	• Ketorolac 30 mg IV q6h*4
• Intravenous PCA (oxycodone)	• Acetaminophen 500 mg IV q6h*4
	• Intravenous PCA (oxycodone)

RESULTS

Primary Outcome

Secondary Outcome



ERAC Group vs. Standard Group

Highest pain in 24h



Motion pain in 24h



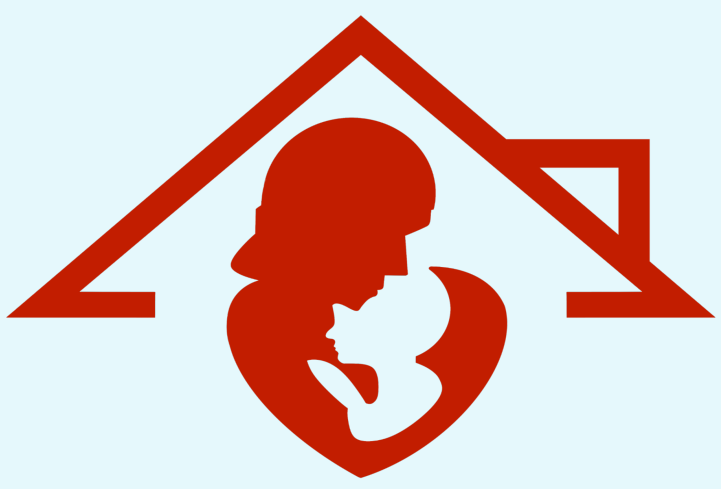
Median delivered PCA bolus



Median requested PCA bolus



ObsQoR-11 score





Key Findings

- **Anesthesiologist led-ERAC improves recovery quality**
 - ↓ Lower composite adverse outcomes
 - ↑ Higher ObsQoR-11 recovery scores
 - ↓ Reduced worst pain, movement pain & PCA boluses
- **ObsQoR-11 = Gold standard PROM?**

Our scores: 60-65 vs. Western studies: 80-100

"Doing the month" → rest, confinement ≠ ERAC early mobilization



Further Directions

- **Culturally-adapted protocols**
- **Long-term outcomes**
- **Digital tools**

