Impact of a Modified Enhanced Recovery Protocol for Opioid Dependent Patients on Post-Cesarean Opioid Use and Pain Scores

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BACKGROUND:

Evidence:
- ERAC → (+) Outcomes
- ↑↑Postpartum pain → (-) outcomes
- MOUD → ↑Pain, ↑opioids after CD

MOUD Strategies:
- High-dose neuraxial opioids
- LA techniques
- IV adjuncts

UVMMC 9/1/2022:
- ERAC/mERAC implemented

Pre-mERAC

- NO neuraxial long-acting opioid
- Scheduled APAP/NSAIDs, +/- TAP block
- PO opioids scheduled q4H x24H, then PRN
- SOAP ERAC Essential Elements partially utilized (50%)

ERAC ↙ ↘ mERAC

SOAP ERAC Essential Elements (90%)

Intra-op:
- MSO_4 0.1 mg IT *or* 2 mg EA
- TAP *only* if no neuraxial opioids, APAP or NSAIDs

Post-op:
- Scheduled APAP/NSAIDs
- PRN PO oxycodone 2.5-5 mg

Intra-op:
- HM 0.15 mg IT *or* 1.5 mg EA
- T9 -12 Epidural prior to spinal

Post-op:
- Bupi 0.125% PCEA x12-48H
- Scheduled APAP/NSAIDs
- PRN *only* PO HM 2-4 mg

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AIM:

Assess impact of mERAC protocol implementation on post-cesarean opioid use and pain scores in patients with MOUD.

HYPOTHESIS:

Implementation of mERAC with HDHM and/or low thoracic EA reduces post-CD opioid consumption without increasing pain scores among patients with MOUD.

METHODS:

Study Design: Retrospective Cohort

EMR data: CD in 28 mos before & after mERAC implementation 9/1/22 (manual validation)

Inclusion criteria:
- MOUD (buprenorphine, methadone)
- Post-mERAC: HDHM* and/or T9-12 EA bupi 0.125% ≥12H post-CD

*HDHM: 0.15 mg IT or 1.5 mg EA

Exclusion criteria:
- Cesarean hysterectomy
- General anesthesia
- Incomplete post-mERAC protocol adherence
- Post-CD epidural infusion among pre-mERAC patients

Pre-mERAC Cohort (n=36)	Post-mERAC Cohort (n=25)

Statistical Analyses:
- T- and chi-square tests for demographics
- Linear and logistic regression of primary and secondary outcomes

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RESULTS:

	Pre-mERAC (n = 36)	Post-mERAC (n = 25)
Age at Delivery, *mean*	32.2	33.8
Primary Race		
Black	0	1
White	36	24
Ethnicity		
Hispanic, Latino/a	0	1
Not Hispanic, Latino/a	36	24
BMI	33.4	31.6
Gravidity, *median*	5	4
Parity, *median*	2	2
OUD Treatment*		
Methadone	5	11
Buprenorphine	31	14
Cesarean Delivery		
Primary	19	8
Repeat	17	17
Planned	19	18
Unplanned	17	7

*p-value<0.05

Primary and Secondary Outcomes

	Pre-mERAC (n = 36)	Post-mERAC (n = 25)	p-value
Opioid Consumption* (median OMEs)			
0-12 hours	75	17.9	<0.001
12-24 hours	68.5	20	<0.001
24-48 hours	122.7	37.6	<0.001
48-72 hours	99.7	27.6	<0.001
72+ hours	111.61	24.44	<0.001
Pain Score (median)			
0-12 hours	5.71	2.54	<0.001
12-24 hours	5.46	4.12	0.041
24-48 hours	4.93	3.92	0.053
48-72 hours	4.9	3.83	0.081
Delivery to Discharge Time (mean, hours)	104.5	99	>0.05
Respiratory Depression Rx	0	0	

*adjusted for OUD treatment

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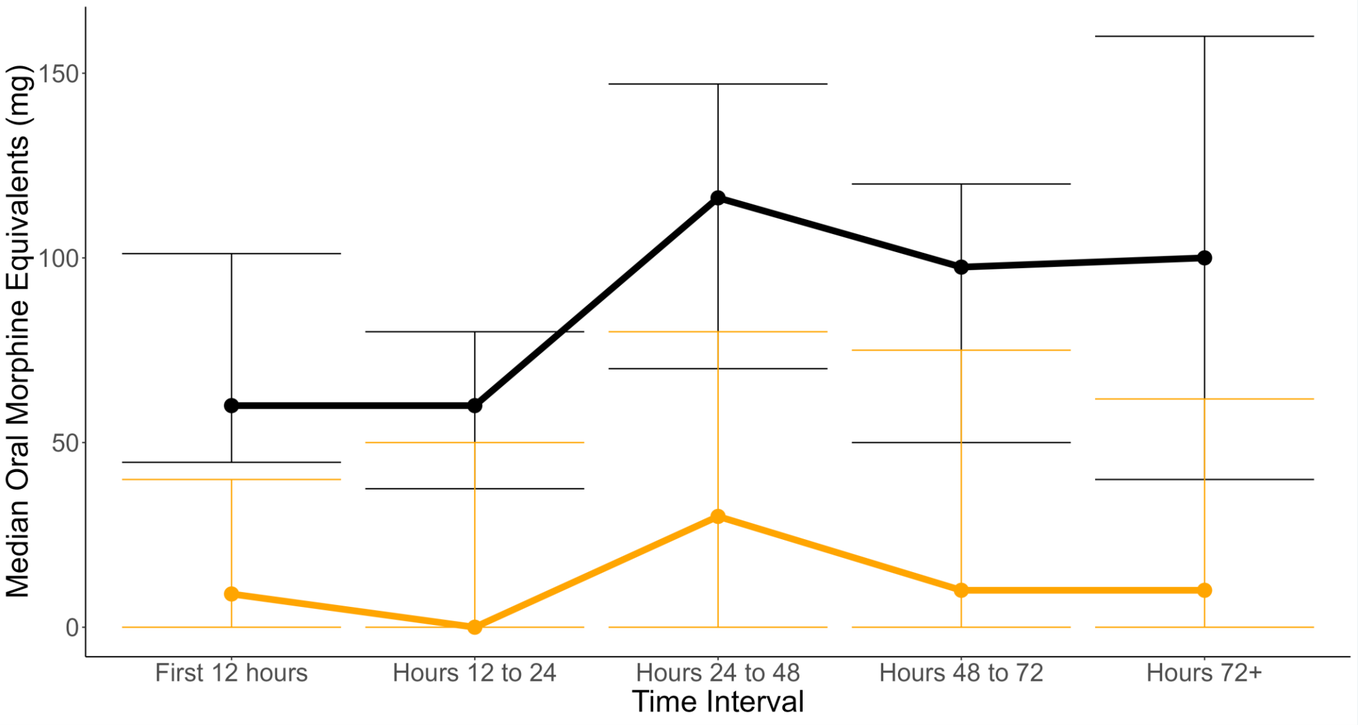
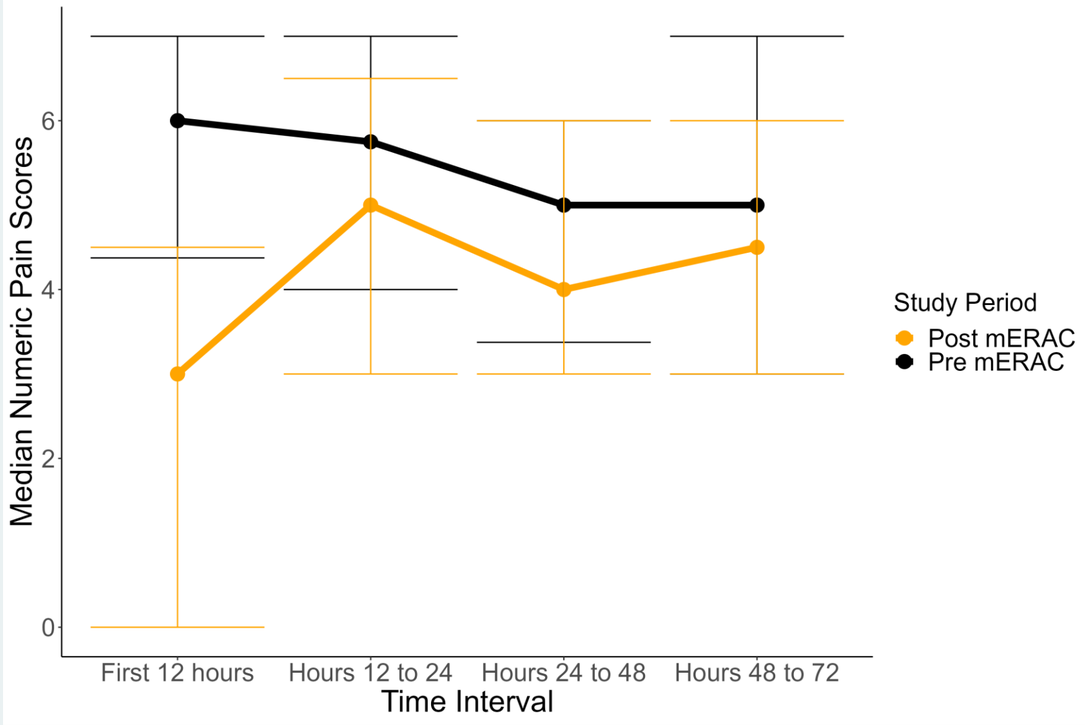
RESULTS:



Post-mERAC: significant reduction in opioid use at all time intervals post-delivery



Post-mERAC: reduction in pain scores at all time intervals post-delivery

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CONCLUSIONS:

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- A novel mERAC protocol incorporating high dose neuraxial hydromorphone and/or post-operative low thoracic epidural was safely implemented for patients with MOUD.
- mERAC protocol was associated with **reduced opioid consumption following delivery without an increase in pain scores** for patients with MOUD.

Limitations:

- Small cohort sizes
- Unknown impact of change from *scheduled* PO opioids x24H pre- to *PRN only* post-mERAC
- Lack of a standard ERAC protocol group with low dose morphine or HM for comparison

Future Directions:

- Analysis of mERAC impact on time to ambulation, foley removal and breastfeeding
- Analysis of impact of HDHM alone vs. with T9-12 EA on opioid use and pain scores
- Possible pilot study comparing standard ERAC to mERAC among patients with MOUD

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