

Enhanced Recovery After Surgery for Cesarean Section

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Background

Enhanced Recovery After Surgery (ERAS) guidelines provide evidence-based, standardized perioperative care and have been applied in many different specialties. ERAS has been shown to improve postoperative pain, and to decrease use of opiates, length of stay, and other postoperative complications (Kleiman et al., 2020). For some patients, cesarean delivery may serve as the first introduction to opioids for pain control with the potential for becoming persistent opioid users (Landau et al., 2023). The purpose of this quality improvement initiative was to improve outcomes for patients undergoing cesarean section at Salinas Valley Health Medical Center, specifically to reduce opioid usage (goal of 50% reduction), and decrease length of time to first ambulation, removal of indwelling catheter, and incidence of nausea and vomiting.

Methods

We conducted a review of the recommended guidelines provided by the ERAS Society and Society for Obstetric Anesthesia and Perinatology. Key stakeholders were then brought together to formalize a plan, including physicians, nurse leaders, and nurse champions.

Based on the recommended guidelines, the implementation plan included (see Figure 1 for complete guideline):

- Patient pre-op teaching updates to reflect changes to fasting timelines and addition of pre-surgery clear carbohydrate drink
- Ordering and stocking of chewing gum and clear carbohydrate drink
- Order sets were updated and approved
- Perinatal staff education through HealthStream®
- Physician education and notification sent out
- Compiled pre-implementation data (August 2023 to January 2024) on opioid use, and length of time to first ambulation and Foley removal
- Go-live date February 7, 2024

Using the Plan-Do-Study-Act cycle methodology for this quality improvement project, after the planning and implementation phases, the data were tracked and feedback was elicited from the staff. Challenges were identified, such as with the electronic health record, and addressed.



Figure 1

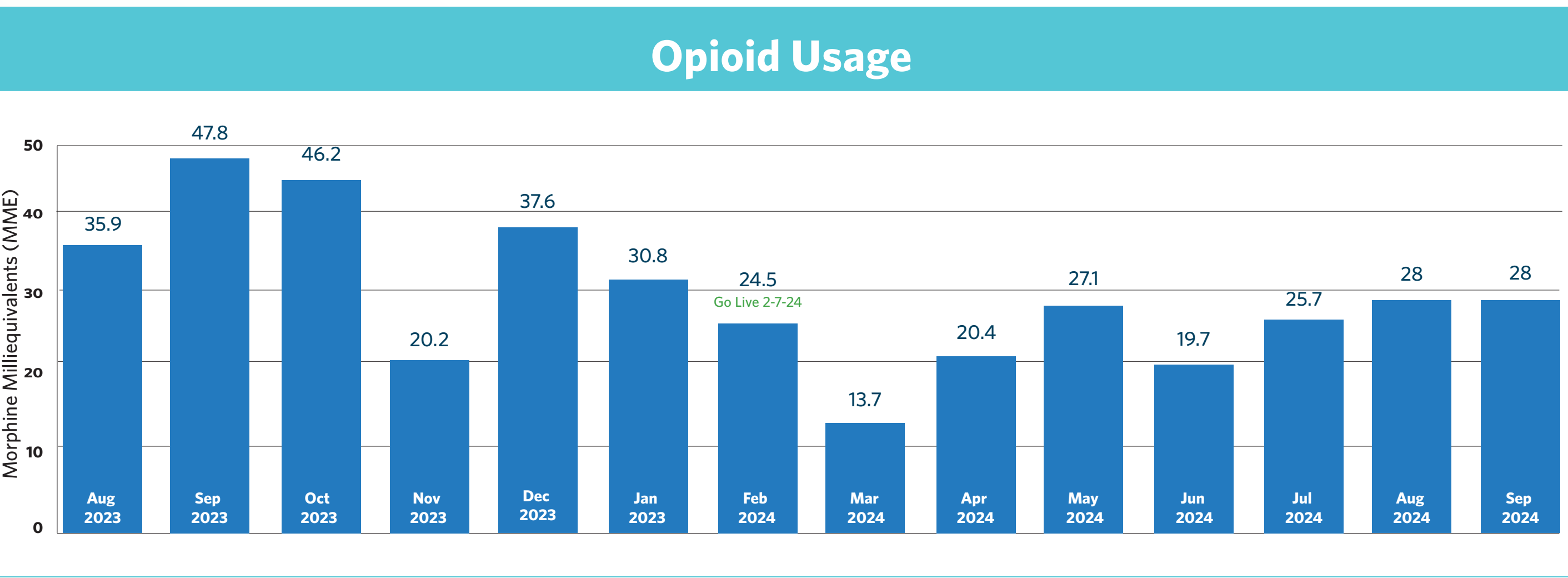
Salinas Valley Health Perinatal Services ERAS Guideline
Pre-Op
<i>Patients will receive education and flier at pre-op appointment explaining what to expect.</i> May eat light meal up to 8 hr before scheduled surgery start time May have water up to 3 hr before scheduled surgery start time 3 hr before scheduled start time: drink clear carbohydrate pre-surgery drink <ul style="list-style-type: none">▪ Given at pre-opp appointment
Intra-Op
Anesthesia ERAS protocol (went live January 1, 2023)
Post-Op
<i>The following orders will be pre-checked on the Cesarean Section Post-Op order set:</i> Diet: <ul style="list-style-type: none">▪ Initiate gum chewing in PACU, continue q2-4 hr until passage of flatus▪ Regular diet – diet now (pt may begin eating regular diet within 2 hr)<ul style="list-style-type: none">◦ Begin ice chips and water in PACU Activity: <ul style="list-style-type: none">▪ Activity as ordered – dangle at bedside by 6 hr post-op, ambulate to bathroom by 8 hr post-op. Urinary cath removal: <ul style="list-style-type: none">▪ 8-12 hr post-op – Remove 8-12 hr post-op if able to ambulate to bathroom. Notify MD if not out by 12 hr post-op. Analgesics: <ul style="list-style-type: none">▪ Acetaminophen 1000-mg IV q8 hr scheduled (x24 hr or 3 doses)▪ Acetaminophen 1000-mg PO q8 hr scheduled (begin 8 hr after last IV dose of acetaminophen)▪ Toradol 30-mg IV q8 hr scheduled (either x24 hr or x3 doses)▪ Ibuprofen 600-mg PO q6 hr scheduled (begin 6 hr after last IV Toradol dose)▪ Moderate pain (pain scale 4-6)<ul style="list-style-type: none">◦ Oxycodone 5-mg PO q4 hr prn pain▪ Severe pain (pain scale 7-10)<ul style="list-style-type: none">◦ Oxycodone 10-mg PO q4 hr prn pain

Results

The primary outcomes tracked pre- and post-implementation were opioid usage, converted to morphine milliequivalents (MME) postoperatively, and length of time to first ambulation and Foley catheter removal. Data were evaluated for 6 months prior to implementation (August 2023 to January 2024) and post-implementation (February 2024 to September 2024).

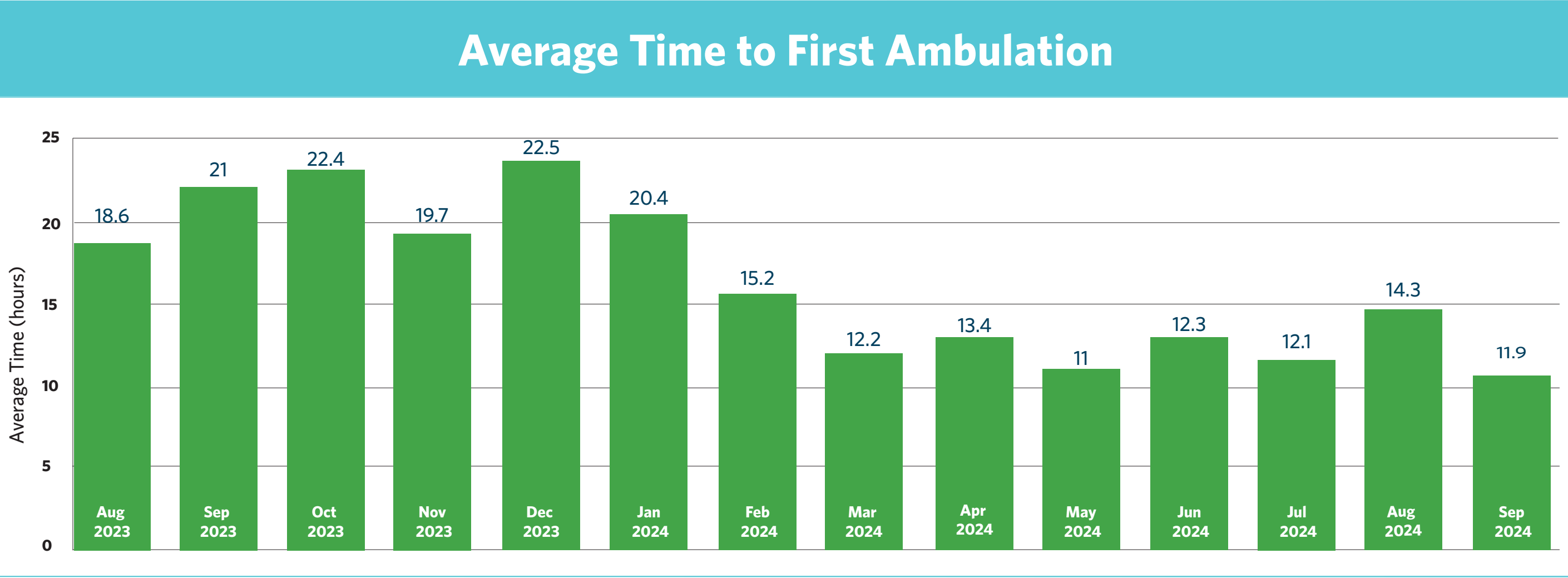
Pre-implementation, average opioid usage by MME was 36.4 and post-implementation was 23.4, which represents a 36% decrease in opioid usage (see Figure 2). Additionally, the number of patients requiring no narcotics during their postoperative stay increased. Prior to ERAS, 19% of cesarean section patients required no narcotics, compared to 33% post-implementation.

Figure 2



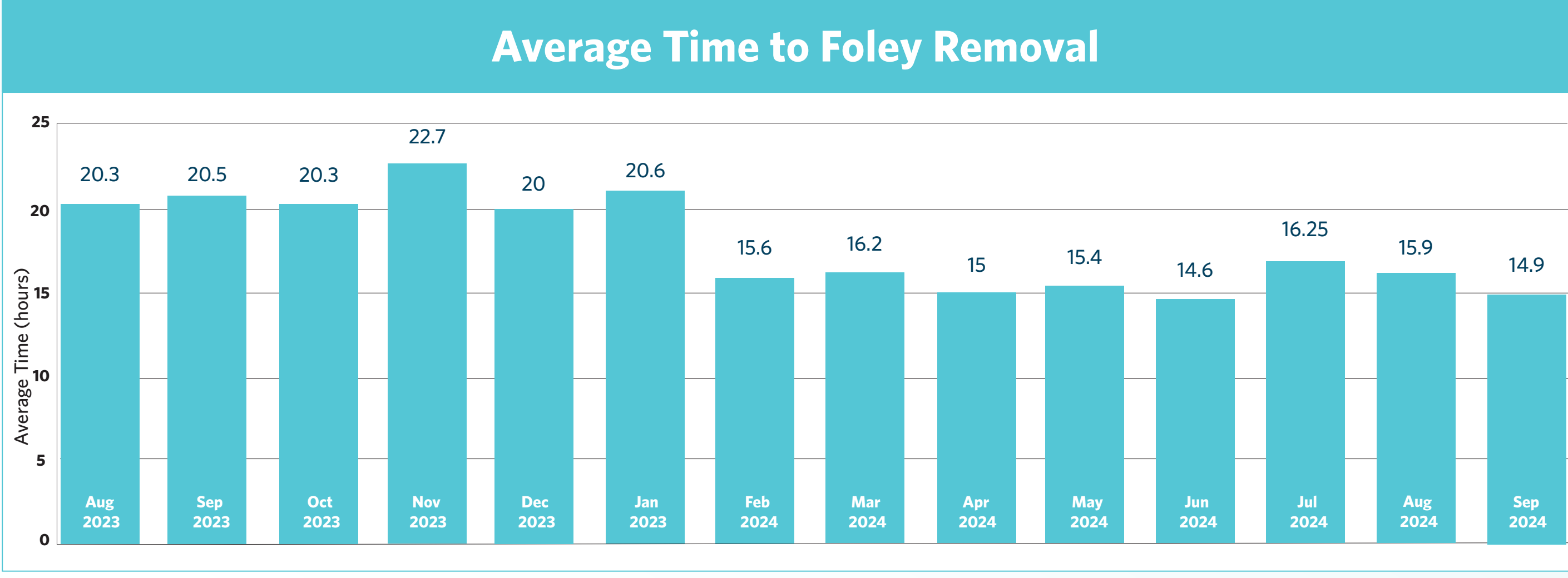
Pre-implementation, average time to first ambulation was 20.7 hr and post-implementation average was 12.8 hr (see Figure 3).

Figure 3



Pre-implementation, the average time between delivery and Foley removal was 20.7 hr and post-implementation average was 15.6 hr (see Figure 4).

Figure 4



Conclusions

Implementing the ERAS guidelines for cesarean section patients at Salinas Valley Health Medical Center led to improved outcomes for our postoperative patients. Opioid usage decreased by 36%, time to first ambulation decreased by an average of 8 hours, and time to Foley removal decreased by an average of 5.1 hours. Our goal was a 50% reduction in opioid usage, so we are continuing to refine the process and track data. One challenge we encountered was with the electronic health record and difficulty tracking the doses of Toradol and Tylenol in the OR, PACU, and postpartum unit. One recommendation for an additional outcome to track is the amount of outpatient opioids prescribed at hospital discharge.

References

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