

Increasing Periarticular Injection Use in Total Joint Arthroplasties



Emily Krueger DNP, RN, AGCNS – BC, CNOR | Adam Choryan, BSN, RN | Trinity Health, Grand Rapids, MI

Background

ERAS guidelines:

- 60ml of 0.25% bupivacaine with epinephrine 1:200,000 for all total joint arthroplasties
- 15-30mg ketorolac added to local injection for total knee arthroplasties (TKA).

Goal:

- Surgeon identified goal of 100% overall compliance with periarticular injection (PAI)
- Increase ketorolac for TKAs by 50%.

Barriers identified at interdisciplinary kickoff:

- Lack of guidance for appropriate dosage of ketorolac for surgeons.
- Assumption to avoid ketorolac in all elderly patients.
- Intraoperative nurses unaware of ERAS guidelines.
- Preference card medications not standardized.

Methods

- Dosing guidelines created based on research done by dedicated surgical pharmacists. (Fig 1)
- Multiple Plan Do Study Act (PDSA) iterations undertaken over the project timeline. (Fig 2)

Renal Function and Weight	Ketorolac Dose
Calculated GFR ≥ 50 ml/min & Body Weight ≥50 kg	30mg
Calculated GFR 10-50 ml/min or Body Weight <50 kg	15mg
Calculated GFR < 10 ml/min	Avoid use

Fig 1: Pharmacy guidelines for Ketorolac dosing based on calculated glomerular filtration rate (GFR) and body weight

Fig 2: PDSA steps based on identified barriers.

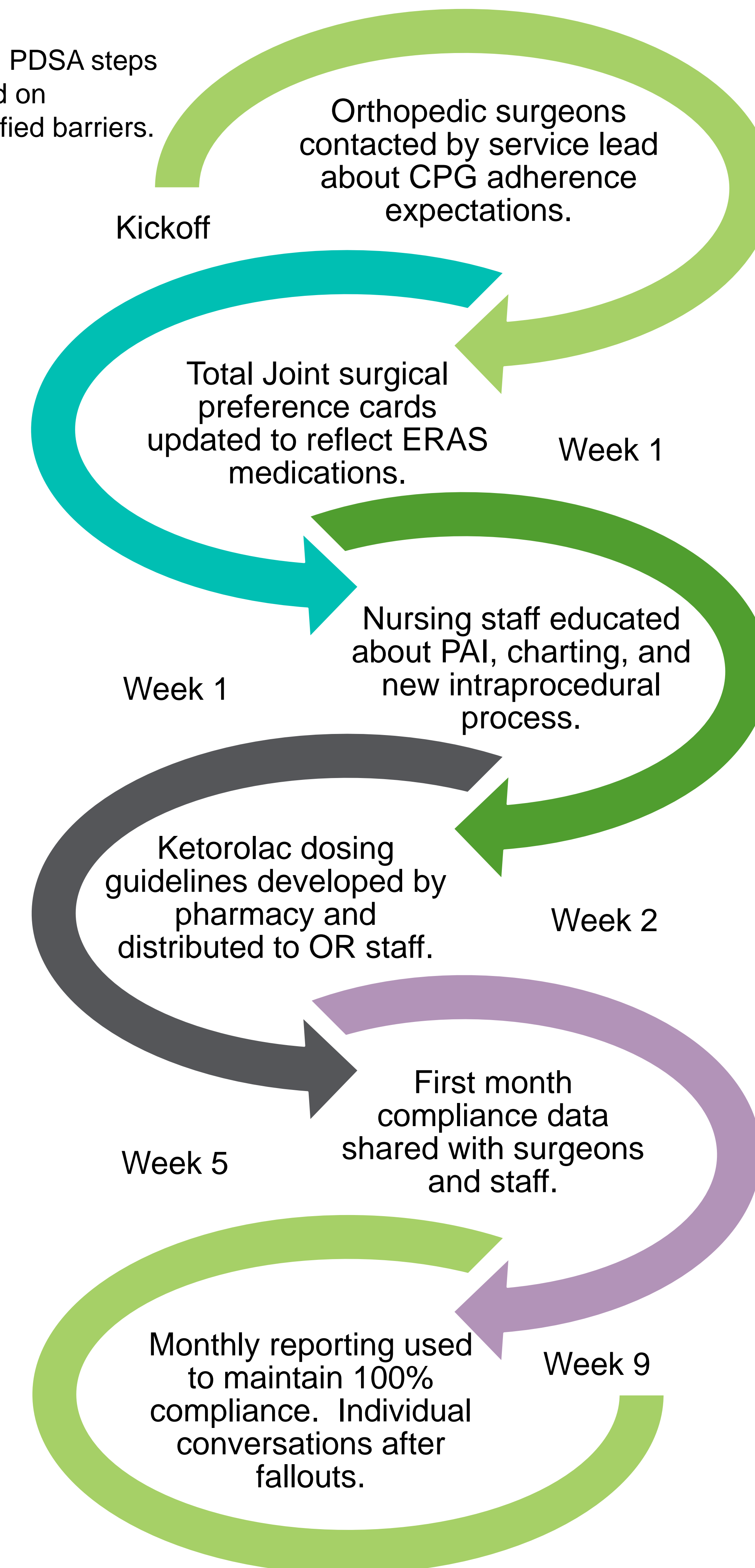


Fig 3 PAI compliance by week

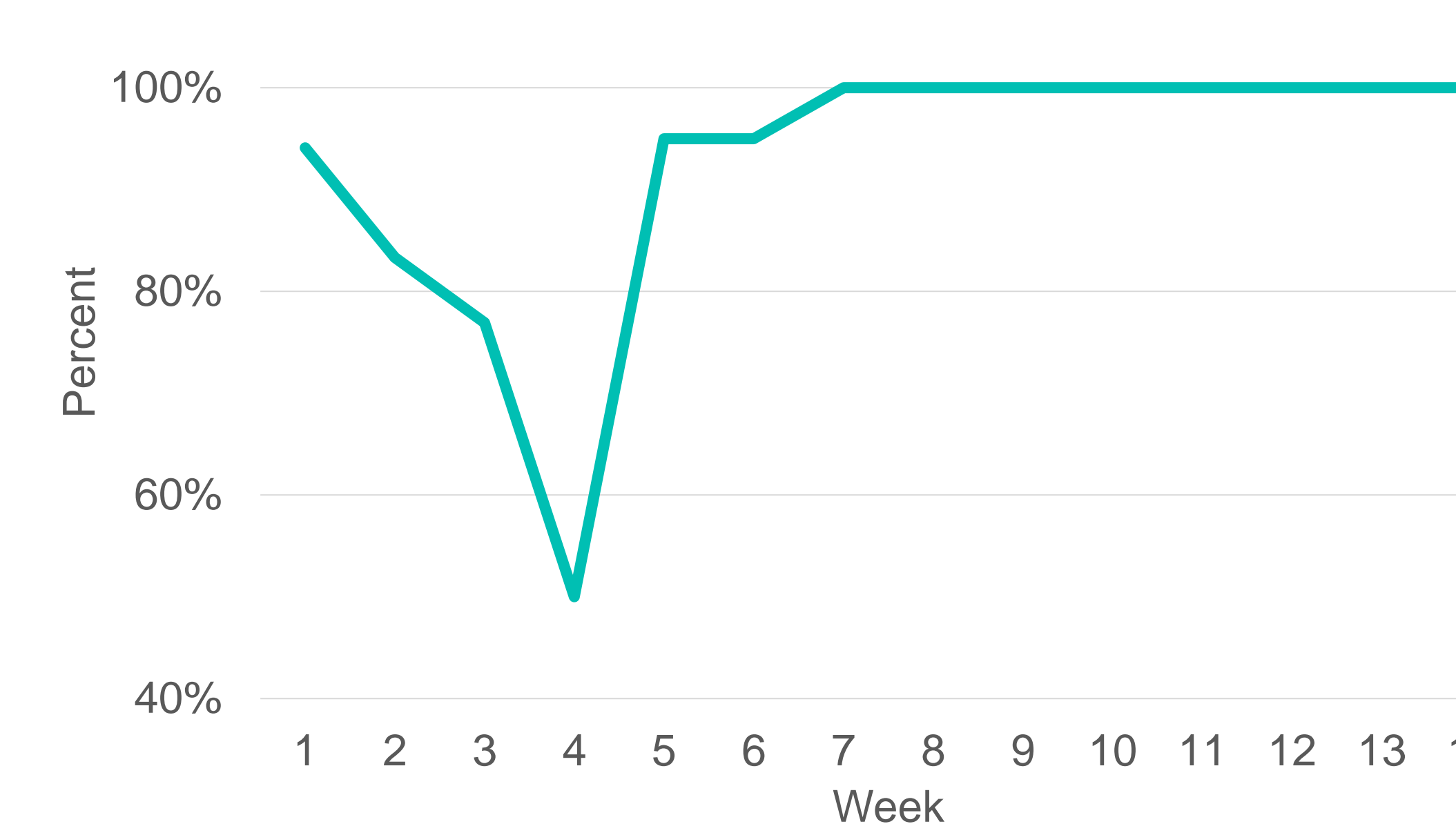


Fig 4 Ketorolac usage for TKAs

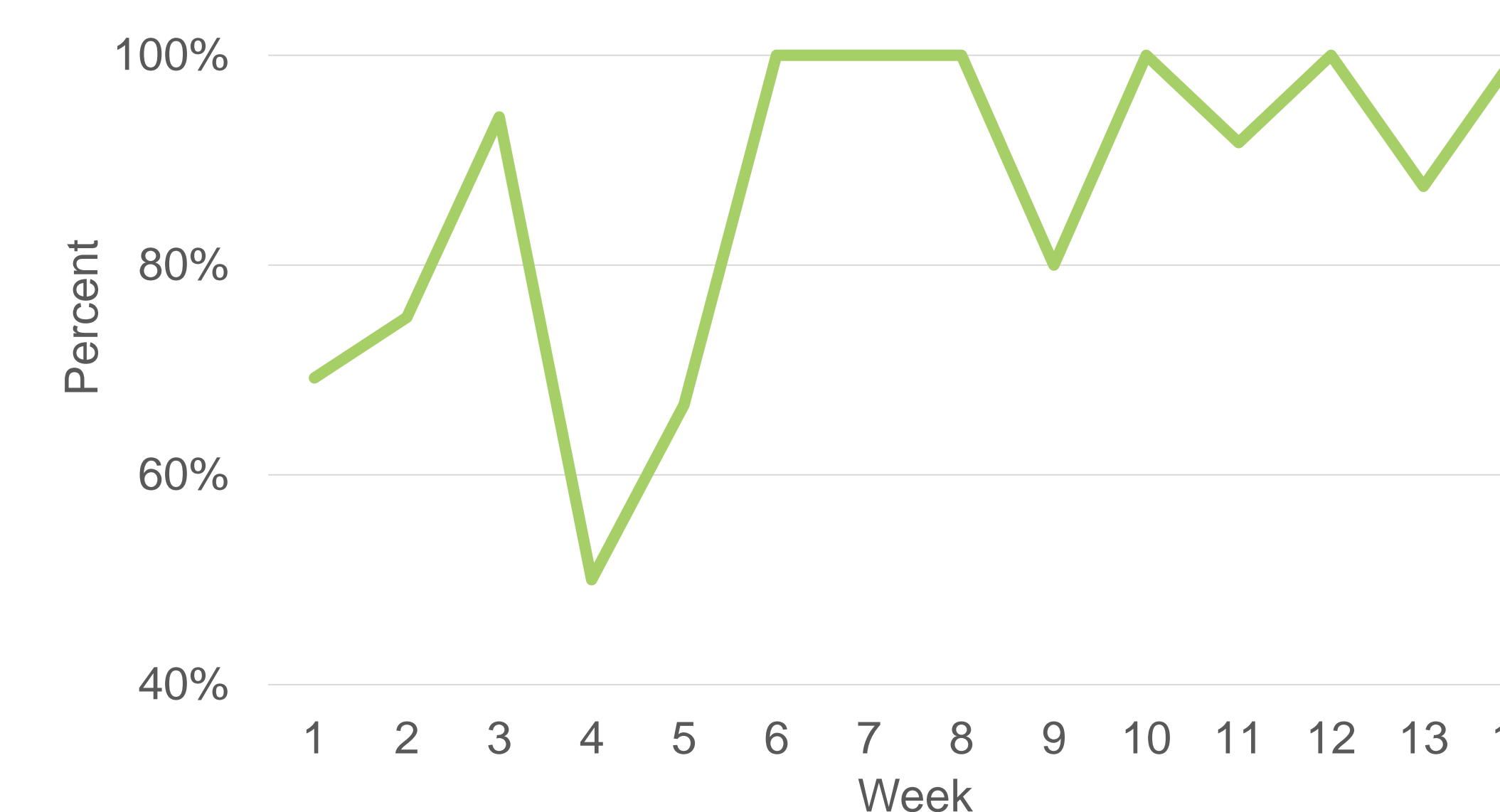
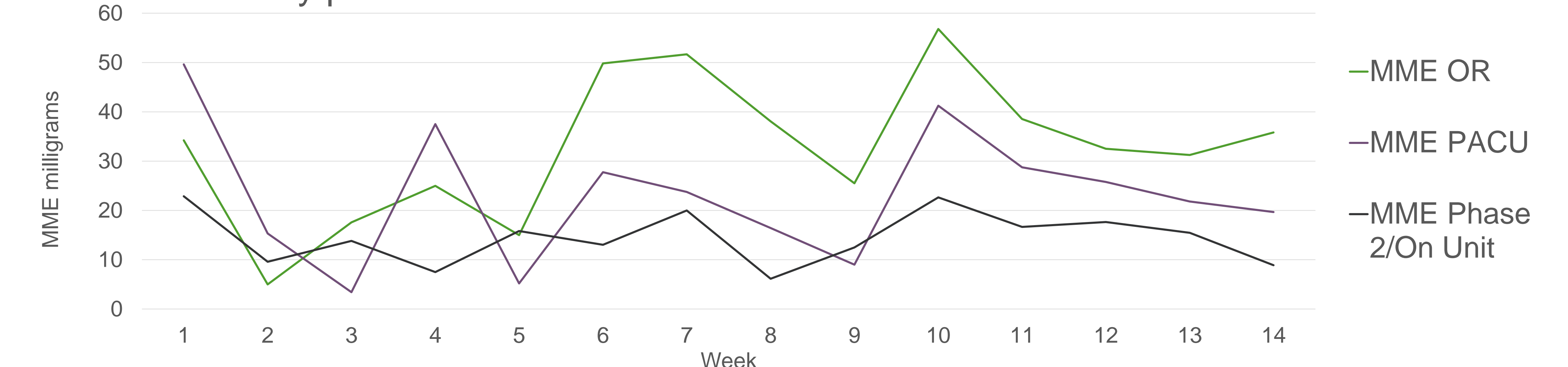


Fig 5 MME by phase of Care for TKAs



Outcomes

- Increased PAI compliance from 60% to 100%. (Fig 3)
- Increased Ketorolac usage from 30% to over 90%. (Fig 4)
- Morphine milligram equivalents (MME) required by patients in all perioperative phases of care began to normalize after standardizing to ERAS guidelines. (Fig 5)
- General Anesthesia used for 86%, 84% and 88% of TKAs after during November, December and January.

Implications for Nursing

- Collaboration between nursing staff and surgeons in the intraoperative setting increased adherence to interdisciplinary clinical practice guidelines.
- Increased education on medication practice guidelines increased compliance.
- Leadership support of nurses to advocate for patient care increased quality outcomes.

References

Deen JT, Erens GA, Lonner JH, et al. Periarticular Injection in Total Joint Arthroplasty: The Clinical Practice Guidelines of the American Association of Hip and Knee Surgeons, American Society of Regional Anesthesia and Pain Medicine, American Academy of Orthopaedic Surgeons, Hip Society, and Knee Society. *The Journal of Arthroplasty*. 2022;37(9):1701-1707. doi:10.1016/j.arth.2022.03.048