Reducing post-operative opioid use after Total Joint Arthroplasty through EPIC order sets

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AIM Statement:

The goal of this project is to create a data-informed, post-operative pain order set to reduce the amount of opioid-containing medications prescribed by orthopaedic surgeons in the HealthPartners system, without compromising patient satisfaction.

Introduction

- Narcotic overdose is leading cause of death in ages < 50
- 80% of current opioid users are introduced through prescriptions
- Orthopaedic surgeons are the 3rd highest prescribers of opioid containing medications in the United States
- Narcotic use after joint arthroplasty is not well quantified
- Prescribing practices vary widely

Methods

- Included all patients undergoing primary or revision total knee (TKA) or hip arthroplasty (THA) as part of a quality measure
  - Included inpatient and outpatient surgery centers
- Patients were asked to complete a questionnaire about pain control at 2, 4, and 6-week clinic appointment weeks post-operatively
- Assessments were identified with demographics and surgery details

We are trying to understand more about our patients' experience with pain after surgery. Your participation will help us improve the care we provide our patients. Thank you for taking a moment to fill out this assessment.

My surgery was approximately (circle): 2 weeks ago 4 weeks ago 6 weeks ago

The number of weeks after surgery I took opioid pain medications (at least once a day) was:

❍ 1 ❍ 2 ❍ 3 ❍ 4 ❍ 5 ❍ 6 ❍ still taking daily

1. The total number of opioid pain pills I've *taken* since my surgery is about: _____

2. Rate the most intense pain you had after surgery.

❍ 0 ❍ 1 ❍ 2 ❍ 3 ❍ 4 ❍ 5 ❍ 6 ❍ 7 ❍ 8 ❍ 9 ❍ 10
No pain at all — Worst pain imaginable

3. How did the amount of pain you experienced compare to what you expected?
❍ I had less pain than I expected ❍ I had as much pain as I expected ❍ I had more pain than I expected

4. How satisfied are you with your pain management after surgery?
❍ 1 Very Dissatisfied ❍ 2 Dissatisfied ❍ 3 Neutral ❍ 4 Satisfied ❍ 5 Very Satisfied

5. The number of pills prescribed was:
❍ Too few ❍ Just right ❍ Too many

6. Did you take opioid pain pills in the two weeks before your surgery?
❍ Yes ❍ No

7. Did you experience any negative side effects from taking the prescription pain medicine?
❍ No → Thank you for completing this questionnaire ❍ Yes → Proceed to question 7

8. If yes, what were they?

Figure 1. Post-operative pain management assessment

Table 1. Patient-reported opioid usage by joint and age

Joint	Median Total Number of Pills	
	Age < 70	Age ≥ 70
	40.5	20
	20	7.5

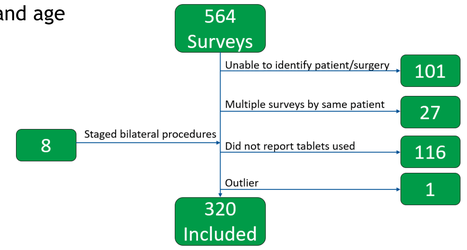

Figure 2. Inclusion Criteria

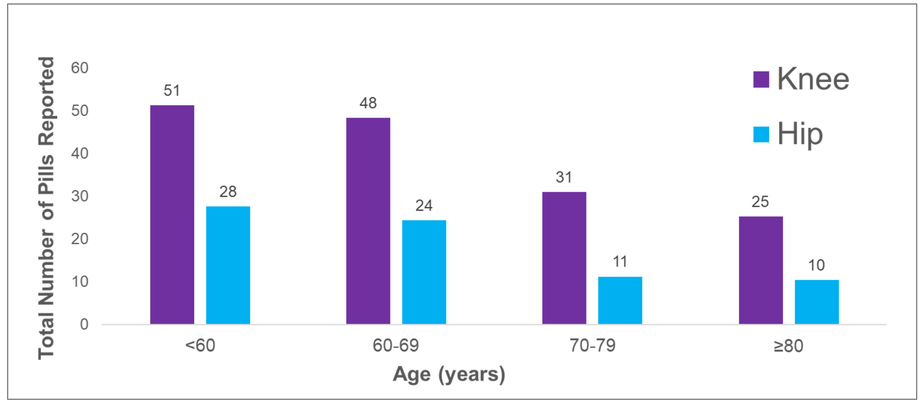

Figure 3. Average total patient-reported number of pills by age and joint

Table 2. Average reported patient satisfaction

How satisfied are you with your pain management after surgery?

5- very satisfied
4- satisfied
3- neutral
2- dissatisfied
1- very dissatisfied

	Knee	Hip	Overall
Opioid Naïve	3.88	4.10	3.98
Opioid Tolerant	4.00	4.38	4.20
Overall	3.89	4.14	

Knees 92.2% opioid naive, hips 86.5% naive

Results

- 564 surveys were collected; 320 were included in the analysis
  - Excluded unidentified assessments or unreported number of pills
- TKA patients reported a mean of 40.8 tablets over three weeks
  - Median of 30 tablets over two weeks
- THA patients reported a mean of 21.7 over two weeks
  - Median of 12 tablets over one week
- Patients less than 70 reported three times as many opioid pills
- Opioid naïve patients used less pills: 31.4 tablets vs 43.44 (p= 0.053)
  - 9.7% of patients reported opioid use in previous two weeks
- No difference in duration of use or number of pills used based on sex

Conclusions

- Patients undergoing TKA used 2-3x as many opioid containing pills as compared to THA
- Patients older than 70 took statistically fewer pills
- Patients undergoing TKA used opioid pills for twice as long
- Narcotic use pre-op results in increased tablets post-op, but resulted in same duration of use
- Overall satisfaction average is 4/5 "satisfied"
- Large differences in mean and average highlighted skewed data

Next Steps

- Compare patient-reported use to amount prescribed
- Meet with surgeon stakeholders to report data and receive input on creation of EPIC order set
- Create a post-operative pain management order set
  - Determine appropriate categories to influence number of tablets
- Implement order set with prescriber orientation
- Initiate post-intervention pain assessment collection

References:

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