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M E D I C I N E

## *How low can we go? An RCT of low-quantity initial opioid prescriptions for shoulder surgery*

*Division of Shoulder Surgery, Department of Orthopaedic Surgery, The Johns Hopkins University SOM, Baltimore, MD*

**Arman Kishan, MBBS**; Zachary Pearson, BS; Steve Li, BA; Zachary Pressman, MD; Uzoma Ahiarakwe, MS; Chathurangi H. Pathiravasan, PhD; Umasuthan Srikumaran, MD, MBA, MPH

# Disclosures



The study was supported by a grant (19119185) from the **American Shoulder and Elbow Surgeons (ASES)**

I (and/or my co-authors) have something to disclose.

More information can be obtained at:

<http://www.aaos.org/disclosure>

# Purpose



- Deaths involving synthetic opioids in the United States increased by 1040% from 2013 to 2019. The economic burden of pain in the United States is estimated to be as high as \$635 billion, which exceeds the cost of heart disease, cancer, and diabetes.
- Orthopaedic surgeons write nearly 8% of all opioid prescriptions, third highest contributor.
- Postoperative opioid prescriptions are often excessive and inconsistent with actual pain management requirements. Given the current opioid addiction crisis, it is critical to limit opioid prescriptions to the lowest effective dose.
- More than 564,000 people died from overdoses of both prescription and illicit opioids.



# Purpose



- Surgical patients who receive larger quantities of opioids upon hospital discharge are more likely to request refills.
- We investigated how the initial opioid prescription after shoulder surgery affects maximum possible opioid consumption.
- **Hypothesis** : Fewer initial pills postoperatively upon discharge will lead to reduced opioid consumption, fewer refill requests, and post-surgery pain-related office contacts at 2 weeks after surgery compared with participants who received more pills in the initial prescription.



# Methods



- This was a single-center, prospective, triple-blinded, randomized controlled clinical trial of 74 adult patients who underwent shoulder surgery and were enrolled from December 1, 2020, to July 31, 2022.
- It was approved by our institutional review board (IRB00248454) and registered with ClinicalTrials.gov [NCT04622839](#)
- Participants were first categorized by type of surgery: shoulder arthroplasty, arthroscopic rotator cuff repair, or other arthroscopic procedures.
- Within each category, participants were randomly assigned to receive postoperative prescriptions of seven 5-mg oxycodone pills (n=20), 15 pills (n=29), or 23 pills (n=25) as their initial postoperative prescription. Randomization was conducted prior to surgery using a random generator on REDCap.



# Methods



- All models were adjusted for age, sex, race, body mass index value, surgery side, and surgery type.
- All patients received multimodal pain medication, including: 1000 mg acetaminophen every 8 hours, 440 mg naproxen every 12 hours, icing every 2 hours, and recliner sleeping
- Participants were advised to contact the principal investigator's (PI's) physician assistants (PAs) for opioid prescription refills as needed.

# Objectives

Primary

Maximum possible opioid consumption within 2 weeks after surgery

Secondary

1. Opioid prescription refill requests
  2. Post-surgery pain-related office contacts and
  3. ASES pain scores
- all within 2 weeks after surgery



# Results: Primary Objective



- Maximum possible opioid consumption increased with the number of pills prescribed postoperatively, with means of:
  - 78 MME for the 7-pill group,
  - 118 MME for the 15-pill group
  - 199 MME for the 23-pill group
 (p<0.001)

Variable	N (%)				P value
	All Patients (N = 74 <sup>1</sup> )	7-Pill Group (N = 20 <sup>1</sup> )	15-Pill Group (N = 29 <sup>1</sup> )	23-Pill Group (N = 25 <sup>1</sup> )	
Requested refill	8/74 (11%)	4/20 (20%)	1/29 (3.4%)	3/25 (12%)	0.20
No. of pills prescribed in refill(s)	2 (8)	3 (8)	1 (4)	3 (10)	0.20
Office contacted (>= 1 time)	27 / 74 (36%)	7 / 20 (35%)	13 / 29 (45%)	7 / 25 (28%)	0.40
Maximum possible opioid consumption, MME	<b>134 (75)</b>	<b>78 (58)</b>	<b>118 (29)</b>	<b>199 (78)</b>	<b>&lt;0.001</b>

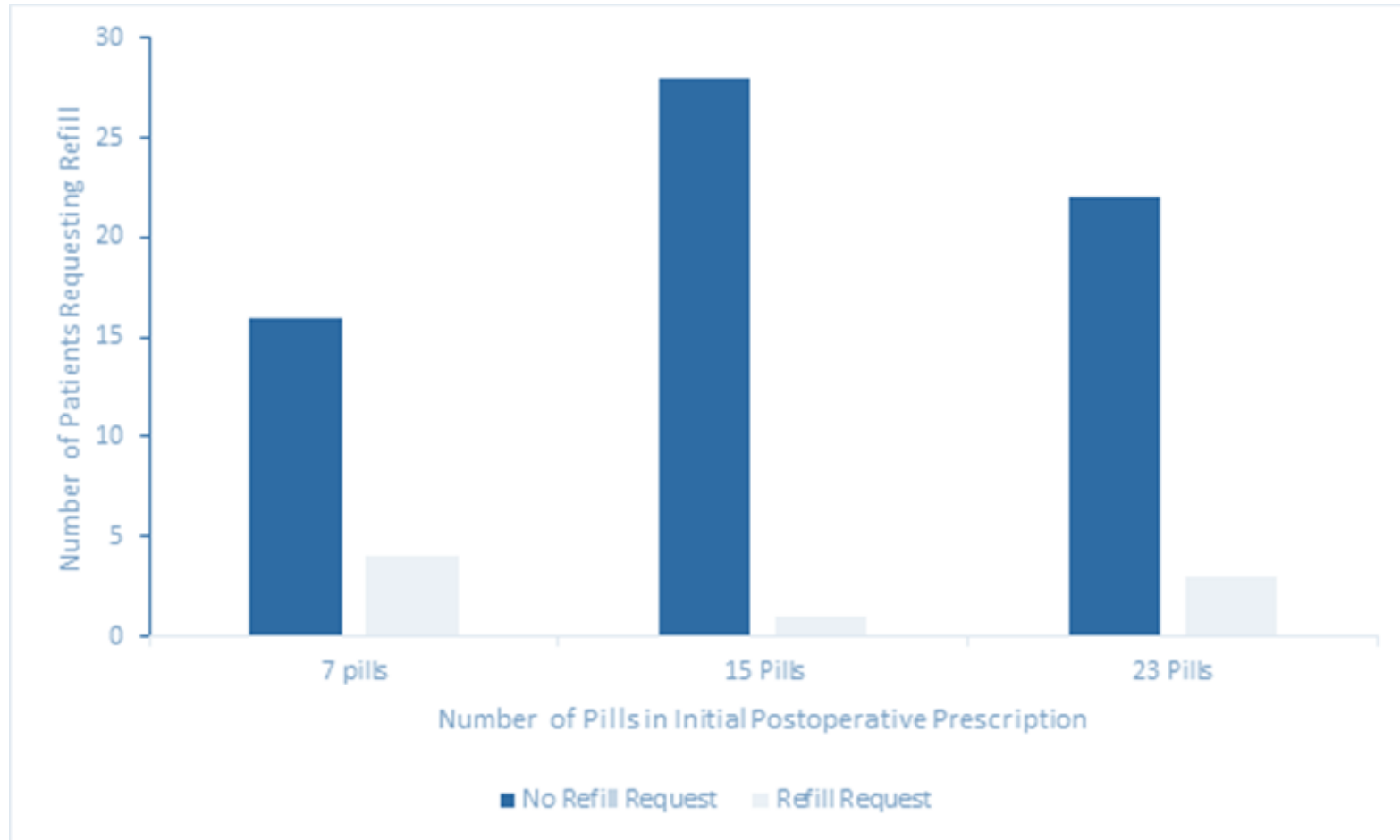


# Results: Secondary Objectives



- The number of post-surgery pain-related office visits ( $\geq 1$  time) showed no significant difference among 7, 15, and 23-pill groups ( $p=0.4$ ). The proportions of patients with at least 1 office contact were 35% in the 7-pill group, 45% in the 15-pill group, and 28% in the 23-pill group ( $p=0.43$ ).
- Refill request rates did not differ significantly among 7, 15, and 23-pill groups ( $p=0.2$ ). Refill request rates were 20% for the 7-pill group, 3.4% for the 15-pill group, and 12% for the 23-pill group ( $p=0.20$ ).
- Similarly, ASES pain scores did not significantly differ among the 7, 15, and 23-pill groups ( $p=0.2$ ). Mean ASES pain scores were 49 in the 7-pill group, 44 in the 15-pill group, and 40 in the 23-pill group ( $p=0.20$ ).
- **Indicating that lower quantities were adequately controlling postoperative pain and that prescribing higher quantities did not lead to fewer patients requesting refills.**

Of the 74 participants who underwent shoulder surgery at The Johns Hopkins Howard County Medical Center (December 1, 2020 through July 31, 2022), 8 requested opioid refills after the initial postoperative prescription. The percentage of participants requesting refills differed according to whether the initial prescription was for 7, 15, or 23 pills. ( $p= 0.2$ )



# Conclusion



- This Level 1 clinical trial study shows that after shoulder surgery, an initial prescription of fewer opioid pills was correlated with lower maximum possible opioid consumption.
- An initial postoperative prescription of fewer 5-mg oxycodone pills may be equally or more effective compared with larger quantities for most patients.
- A lower initial opioid prescription did not lead to increased administrative burden in the form of refill requests or the rate of office contacts.
- By implementing these measures, orthopaedic surgeons can reduce opioid prescribing rates, thus decreasing the risk for opioid abuse, misuse, and diversion.



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