



# Opioid Prescribing Patterns for Tonsillectomy in Children

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## Introduction

- Tonsillectomy is one of the most common surgical procedures performed in children in the U.S.<sup>1</sup>
- Pain is both common and expected post-operatively and important to assess and treat.
- Opioids are commonly prescribed<sup>2</sup> but tailored prescribing of opioids for tonsillectomy is not well described.
- We assessed if opioid prescribing patterns vary among providers and if the amount of opioid prescribed is associated with adverse events.

## Methods

- This retrospective cohort study included children (<18 years) who underwent tonsillectomy between January 7, 2014 to March 17, 2020.
- Oxycodone was the primary opioid prescribed postoperatively and discharge prescription data were obtained from the electronic health record.
- Oxycodone dosage was standardized to 0.05 mg/kg/dose.
- Opioid dosing amount variance was subdivided into two categories for comparison:
  - Low dose ( $\leq 20$  doses oxycodone)
  - High dose ( $> 20$  doses oxycodone)
- Adverse outcomes were defined as all-cause emergency department visits within 30 postoperative days.

## Results

- A total of 1,319 children were included in the study with mean age 6.5 years (s.d. 4.2, range 0 –17 years).
- There were a similar number of males (52.9%) and females (47.1%).
- The mean number of oxycodone doses was 53.1 (s.d. 54.3, range 3.7 – 496).
- Overall, 9.9% of patients in the cohort had an adverse event: 5.8% in the low dose group and 10.9% in the high dose group.
- A Cox model (Figure 1) demonstrated that being prescribed 20 or fewer doses was associated with lower rate of all-cause emergency department visits, adjusted hazard ratio (HR) = 0.45 (95% CI:0.26, 0.78).
- No statistical difference was noted between the dosing groups and specific postsurgical complications including postoperative hemorrhage or dehydration related to inadequate pain control.

## Discussion

- Wide variation exists among providers prescribing opioids for children undergoing tonsillectomy.
- A lack of standardization in prescriptions may result in a range of complications.
- In this study, a lower quantity of opioids prescribed after tonsillectomy in children was associated with fewer adverse events postoperatively and did not appear to increase rates of dehydration or inadequate pain control.

Variable	Unadjusted	Adjusted
Low dose	0.52 (0.31,0.88)	0.45 (0.26,0.78)
Age at admission	-	0.97 (0.93,1.02)
Sex = Female	-	0.93 (0.65,1.32)
Race = Hispanic	-	1.55 (0.90,2.67)
Race = Non-Hispanic Black	-	1.02 (0.62,1.70)
Race = Other/Unknown	-	1.10 (0.58,2.08)
Location = Ambulatory based	-	0.61 (0.29,1.28)
County = Local	-	2.19 (1.49,3.22)
Surgical insurance = Private	-	0.84 (0.54,1.32)
Tonsillectomy post 2018/01/01	-	1.17 (0.78,1.77)
Steroid Med = No	-	0.25 (0.04,1.83)
Asthma = Yes	-	1.40 (0.94,2.08)
Tonsillectomy Reason = Tonsillitis	-	1.01 (0.40,2.53)
Length of stay	-	0.78 (0.46,1.32)
Tonsillectomy encounter type = IP/ED/EI visit	-	1.85 (0.57,6.04)
Prior year's encounter count before the tonsillectomy	-	1.00 (0.99,1.02)
ASA score: Normal Healthy	-	1.05 (0.56,1.97)
ASA score: Severe Systemic Disease	-	1.12 (0.72,1.73)

Figure 1: Summary of Hazard Ratio and 95% Confidence Interval for Clinical Factors and Adverse Outcomes

## Conclusions

- Quality improvement efforts focused on reducing and standardizing opioid prescriptions following pediatric tonsillectomy may decrease postoperative adverse outcomes.

## References

1. Hall MJ et al. Ambulatory Surgery Data from Hospitals and Ambulatory Surgery Centers: US, 2010. Natl Health Stat Report. 2017(102):1-15.
2. Qian ZJ et al. Opioid Prescribing Patterns Following Pediatric Tonsillectomy in the US, 2009-2017. Laryngoscope. Oct 2020.