Quality Improvement Studies in Pediatric Tonsillectomy: A Systematic Review

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Introduction

Tonsillectomies are one of the most common surgical procedures, with an estimated 500,000 performed in the US each year.[1] Quality improvement (QI) is an increasingly popular approach hospitals utilize to design interventions to address issues in surgical care, such as iatrogenic error, adverse events, and high readmission rates and length of stay (LOS).[2] QI initiatives involve systematic, data-driven approaches and often utilize specific tools such as six sigma, lean, clinical practice guidelines (CPGs) and the plan, do, study, act (PDSA).[2, 3] AAO-HNSF has released guidelines to inform future QI efforts in pediatric tonsillectomy.[4] The objective of this project is to review the literature for existing QI programs focused on pediatric tonsillectomy and identify ways to improve perioperative management of children undergoing tonsillectomy.

Methods

In alignment with PRISMA 2020 guidelines, we searched for articles using PubMed, EMBASE, and the Web of Science databases from Jan 2000-June 2025. Search keywords were developed utilizing previous reviews of quality improvement in other specialties.[5] Articles were included if they were specific to pediatric tonsillectomy, studied an intervention involving a QI tool or QI, and reported measurable patient outcomes.

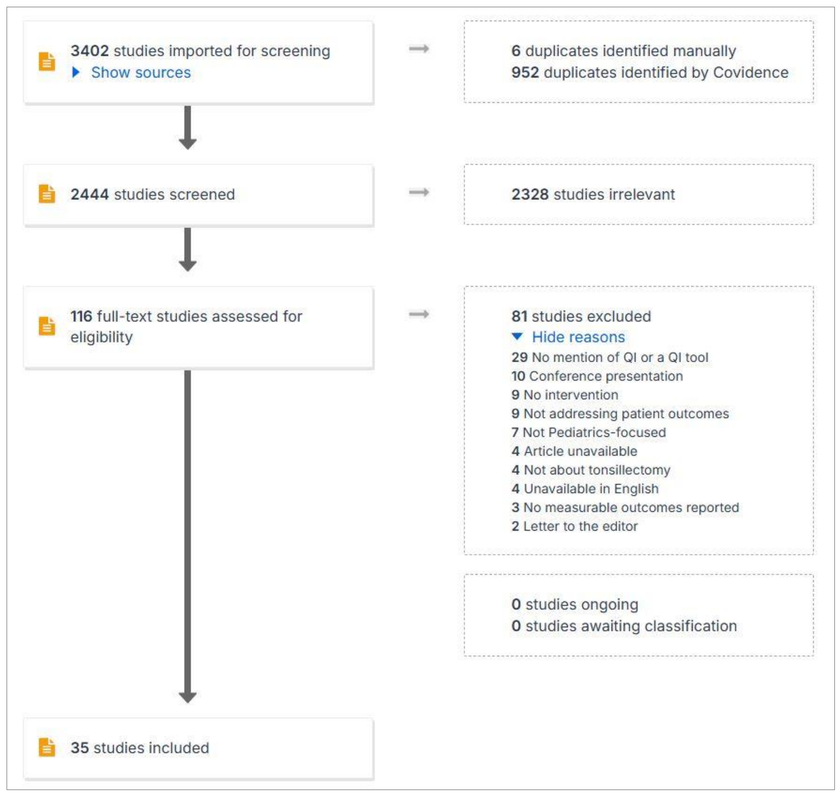

Figure 1. PRISMA Flow Diagram

Results

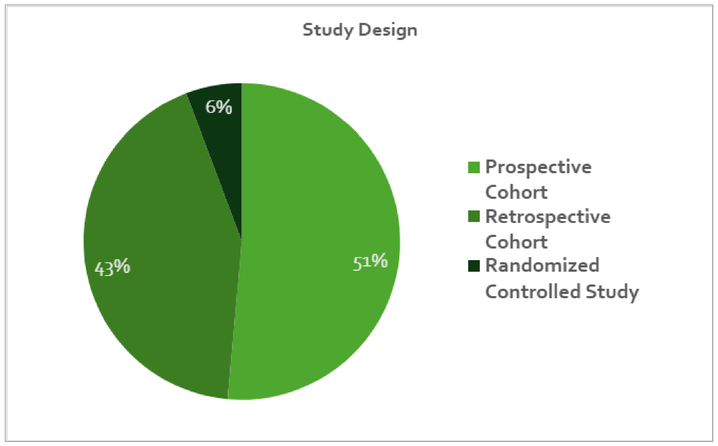

Figure 2. The most common study design was a prospective cohort study (n=18) followed by a retrospective cohort study (n=15). Most retrospective cohort studies evaluated patient outcomes in both the post- and pre-intervention time period (n=14) while one study only evaluated the post-intervention period.

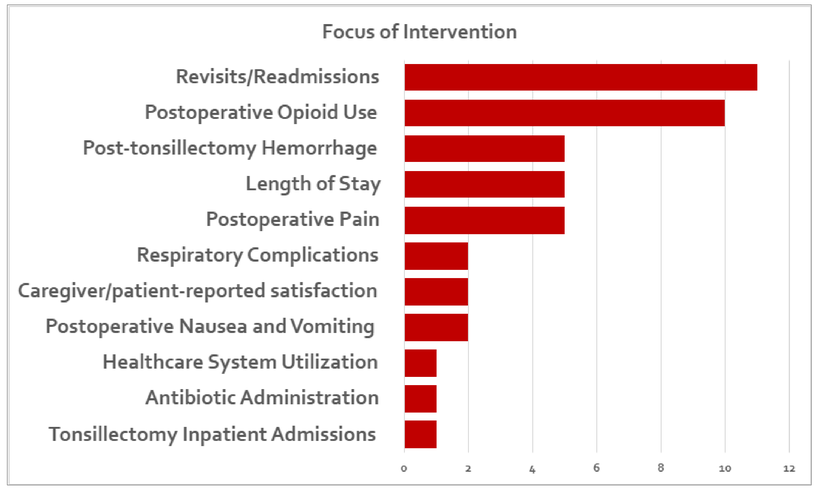

Figure 3. The most common objective addressed in the interventions was reducing hospital revisits/readmissions (n=11), followed by reducing postoperative opioid use (n=10)

- Opioid use was commonly measured by the number of opioid prescriptions written, prescription fill rates, or the percentage of physicians who wrote postoperative opioid prescriptions.
- Post-tonsillectomy hemorrhage (PTH) was commonly operationalized as revisits or return to the OR for PTH.
- Postoperative pain was typically measured by caregiver or patient-reported pain scores.
- "Length-of-stay studies" includes a study measuring improvements in same-day discharge rates.

Results

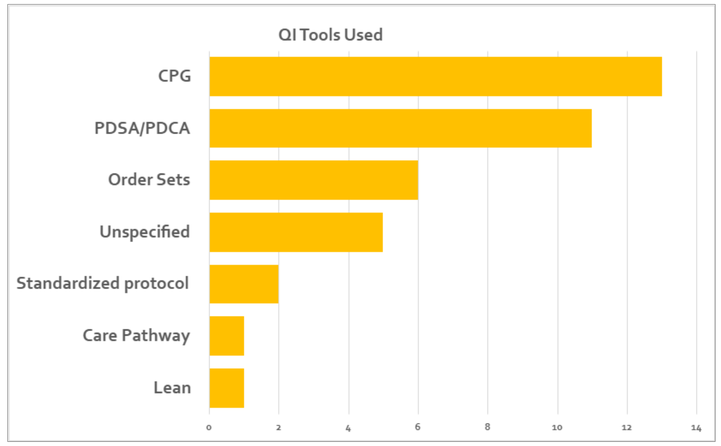

Figure 4. The most common QI tools mentioned were CPGs, written by either national organizations (i.e. AAO-HNSF, AAP) or a specific institution. Institution-specific CPGs were commonly combined with PDSA/PDCA. Some studies (n=5) did not specify use of a QI tool and were referred to as a "QI study" or received approval from the institution's QI board.

Discussion & Conclusion

- Most QI studies (33/35) reported significant improvement in the primary outcome metric
- Nature of interventions were diverse, including efforts such as clinician education, order sets for postoperative pain, and standardized anesthetic protocols
- While most studies utilized institution-specific data, one study, of CPGs, queried the TriNetX database.
- Comparing interventions is hindered by heterogeneity in outcome reporting timelines as well as in duration of intervention implementation
- **Standardized evaluation metrics of QI programs in Otolaryngology should be developed and released**

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References