# 30-Day Readmission after Pediatric Upper Extremity Surgery: Analysis of the NSQIP Database

Stephanie Thibaudeau, MD, Jason B. Anari, MD, Nicholas Carducci, BS, Robert B. Carrigan, MD

## Introduction

- With increasing focus on cost reduction and quality of health care delivery, 30-day readmission rates serve as a key parameter to assess quality of care.
- The goal of this study is to determine the incidence and risk factors for complications, re-operations, and 30-day unplanned readmission after pediatric upper extremity (UE) surgery.

## Methodology

- Retrospective analysis of the 2013 ACS–NSQIP database.
- Data collected for CPT codes of primary UE procedures (*n* = 4370) .
- A univariate & multivariate analysis to identify patient and surgery related risk factors for complications, re-operations & 30-day unplanned readmissions.

## Results

- UE pediatric surgeries have low complication (1.70%), re-operation (0.5%) and re-admissions rates (0.78%).

**Comparison of Patient & Operative Characteristics Requiring Readmission**

| Characteristics | | Readmit (%) | p |
|---|---|---|---|
| Total Number | | 9 (1.9) | 0.005 |
| One Comorbidity | | 5 (1.3) | 0.24 |
| Multiple Comorbidities | | 4 (4.3) | <0.001 |
| Medical History | | | |
| | Cardiac | 3 (3.2) | 0.008 |
| | Respiratory | 6 (2.9) | <0.001 |
| | Gastrointestinal | 3 (4.0) | 0.002 |
| | CNS | 4 (2.2) | 0.026 |
| Pre-mature | | 4 (2.3) | 0.025 |
| BMI | | | 0.35 |
| | >18.5 | 9 (1.1) | |
| | <18.5 | 19 (0.8) | |
| Procedure | | | 0.022 |
| | Inpatient | 17 (1.2) | |
| | Outpatient | 17 (0.6) | |
| Wound Class | | | 0.908 |
| ASA Classification | | | 0.315 |
| Post-Operative Infection | | | <0.001 |
| | No SSI | 20 (0.5) | |
| | Superficial SSI | 6 (15.4) | |
| | Deep SSI | 4 (57.1) | |
| | Organ/space infection | 4 (100.0) | |
| Re-operation | | | <0.001 |
| | No Reoperation | 22 (0.5) | |
| | Reoperation | 12 (54.6) | |

**Reason for Readmission**

| Reason | | Number (%) |
|---|---|---|
| Total | | 34 |
| Surgical | | 18 (52.9) |
| | Superficial SSI | 4 (11.8) |
| | Deep SSI | 4 (11.8) |
| | Organ/space infection | 4 (11.8) |
| | Hardware Complication | 2 (5.9) |
| | Cellulitis | 2 (5.9) |
| | Pyogenic Arthritis | 1 (2.9) |
| | Sepsis | 1 (2.9) |
| Medical | | 16 (47.1) |
| | Pneumonia | 2 (5.9) |
| | Fracture | 3 (8.8) |
| | Dehydration | 2 (5.9) |
| | GI Infection | 1 (2.9) |
| | Asthma | 1 (2.9) |
| | Other | 7 (20.6) |

## Conclusion

- Pediatric UE surgery is associated with low complication and readmission rates.
- Algorithms focusing on decreasing surgical site infection and optimizing medical problems may decrease complication and readmission rates.

The Children's Hospital of Philadelphia and The Department of Orthopedic Surgery, Hospital of the University of Pennsylvania