



Trends in Adult and Adolescent Upper Extremity Block Utilization at a High-Volume Orthopedic Surgical Center

Maaz Shah Khan MBBS, MD¹, Junying Wang PhD¹, Justine Jorgensen^{1,2}, Renee Ren MD^{1,3,4}, Jashvant Poeran MD PhD^{1,3}, Kathryn DelPizzo, MD^{1,4}, Michelle Carley MD^{1,4}, Alexandra Sideris PhD^{1,4}, Stavros Memtsoudis, MD, PhD^{1,4}, Nicholas Davis MD^{1,4}, Jordan Ruby MD^{1,4}

¹Pain Prevention Research Center Department of Anesthesiology, Critical Care & Pain Management, Hospital for Special Surgery, New York, NY, USA

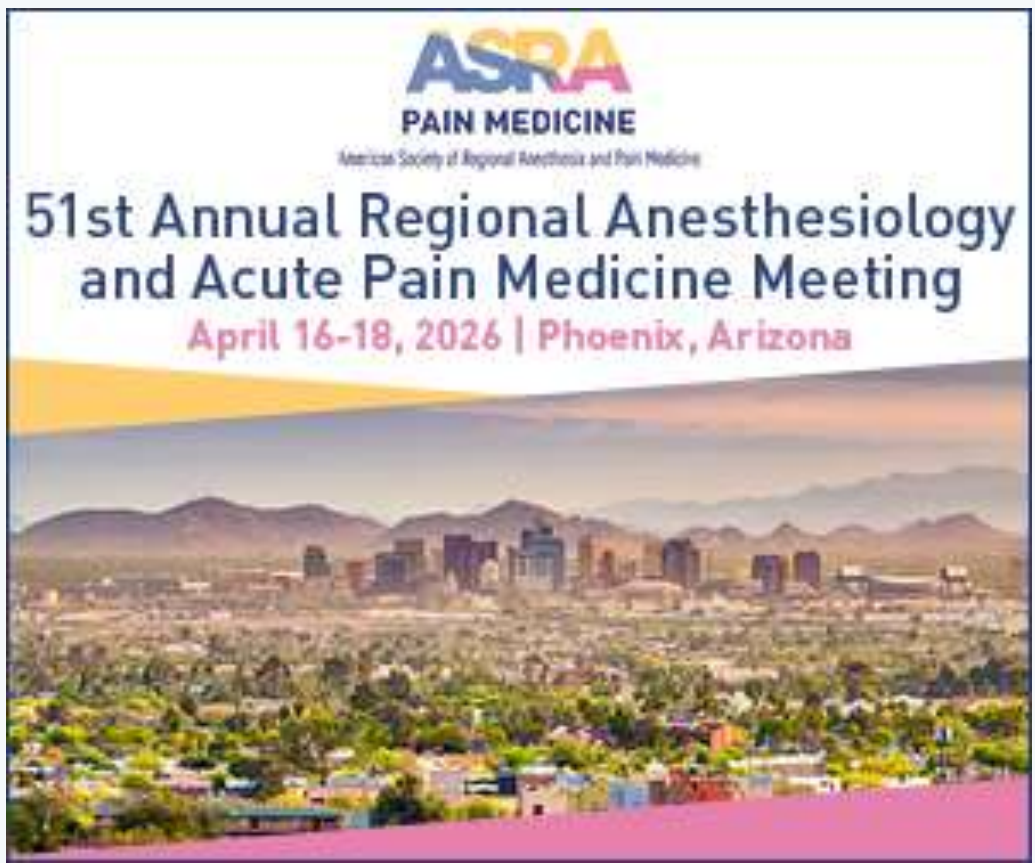
²Rutgers Robert Wood Johnson Medical School, New Brunswick, NJ, USA

³Icahn School of Medicine at Mount Sinai, New York, NY, USA

⁴Department of Anesthesiology, Weill Cornell Medicine, New York, NY, USA



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INTRODUCTION

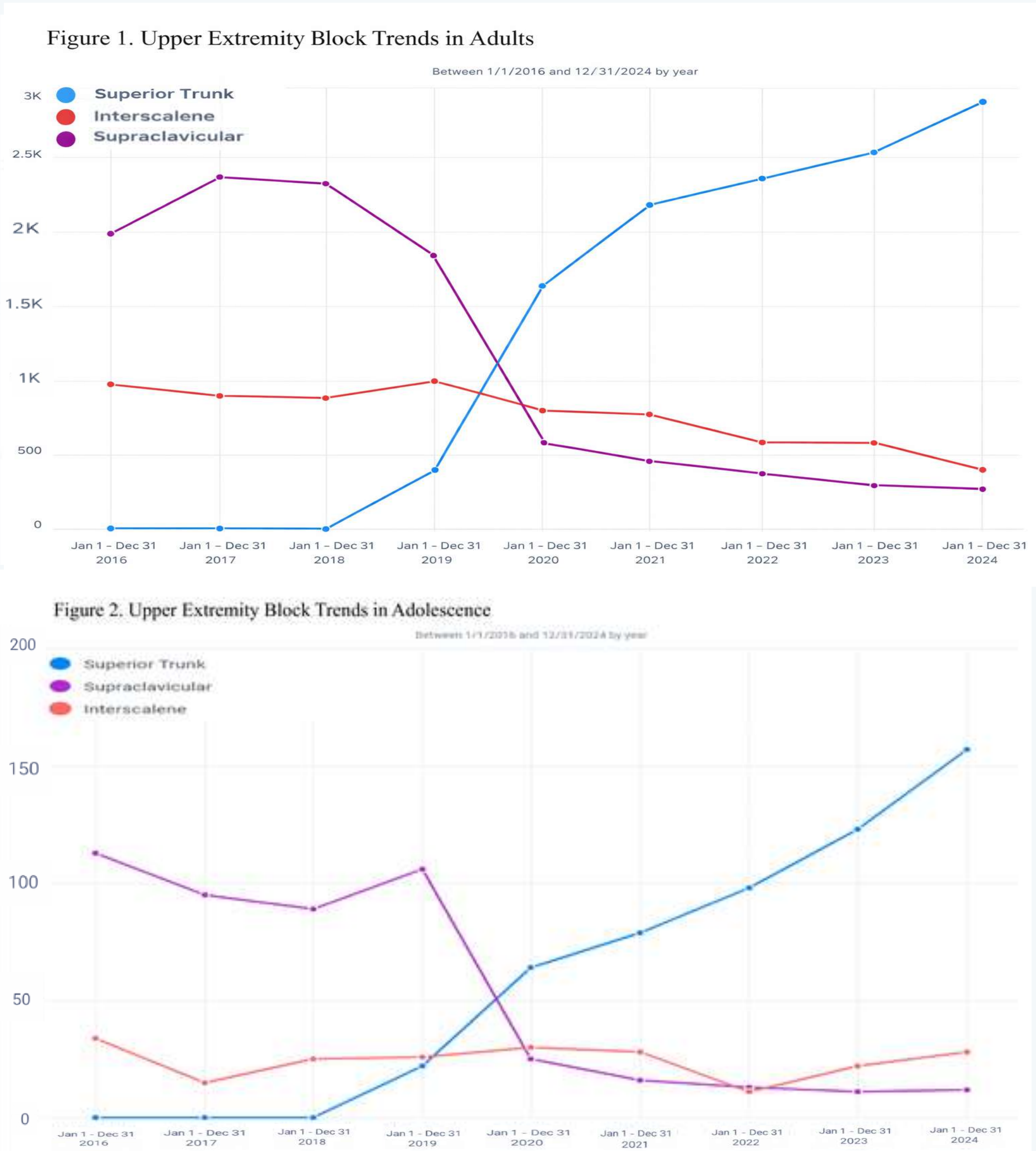
- Post-shoulder surgery pain commonly managed with interscalene (ISB) or supraclavicular blocks (SCB), carry a high risk of hemidiaphragmatic paralysis ^{1,2}.
- Superior trunk block (STB) offers similar analgesia with better diaphragmatic sparing and lower paralysis rates.
- Our study evaluates trends in adult and adolescent STB, ISB and SCB utilization in a high-volume orthopedic hospital evaluating differences in block uptake between the different age groups.

METHODS

- After IRB approval (IRB#2024-1639 and IRB#2016-436), we retrospectively queried Epic anesthesia records (01/01/2016 – 12/31/2024), facilitated by SlicerDicer, for patients < 18 years and patients 18-80 years receiving an STB, ISB or SCB.
- Data extracted included block type, procedure, demographics, and ASA status.
- This study was in accordance with STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) guidelines³.

Table 1: Frequency table for adult and adolescent by block

Block Type by age	Jan 1-Dec 31 2016	Jan 1-Dec 31 2017	Jan 1-Dec 31 2018	Jan 1-Dec 31 2019	Jan 1-Dec 31 2020	Jan 1-Dec 31 2021	Jan 1-Dec 31 2022	Jan 1-Dec 31 2023	Jan 1-Dec 31 2024
Superior Trunk <18 years	0	0	0	22	64	79	98	123	157
Superior Trunk ≥18 years	0	0	0	437	1668	2201	2365	2562	2905
Supraclavicular <18 years	113	95	89	106	25	16	13	11	12
Supraclavicular ≥18 years	2023	2396	2352	1836	520	418	345	253	262
Interscalene <18 years	34	15	25	26	30	28	11	22	28
Interscalene ≥18 years	997	920	904	1035	792	764	578	603	377



RESULTS

- From 2019-2024, adult STB use rose ~7 times from 437 to 2905 while in adolescents (mean age 15.9), STB use rose from 22 to 157.
- Despite the benefits of STB, ISB utilization declined only in adults; adolescent utilization remained stable over time (Figure 1,2 & Table 1).
- ISB declined only in adults, remaining stable in adolescents, suggesting a lag in adoption in adolescents due to limited evidence, clinician comfort, or institutional inertia.
- Trends for STB, ISB and SCB are plotted in Figures 1 & 2.

DISCUSSION

- We highlight increasing institutional adoption of STB for adult and adolescent upper-extremity surgeries and present the first evaluation of STB use in adolescents.
- Interestingly, ISB declined in adults but remained stagnant in adolescents.
- Diaphragmatic function was not assessed, however rising adolescence use reflects confidence in STB's diaphragm-sparing benefits, supporting recovery, lower opioid use, and same-day discharge versus ISB.
- Limits include retrospective design and lack of granular outcomes; prospective studies are needed.

References →



Disclaimer: Microsoft co-pilot was used to improve the resolution of Figure 1 & 2 for this presentation