

Peripheral Nerve Block Use in Revision Hip and Knee Arthroplasties for Periprosthetic Joint Infections: A 10-Year Trend Analysis

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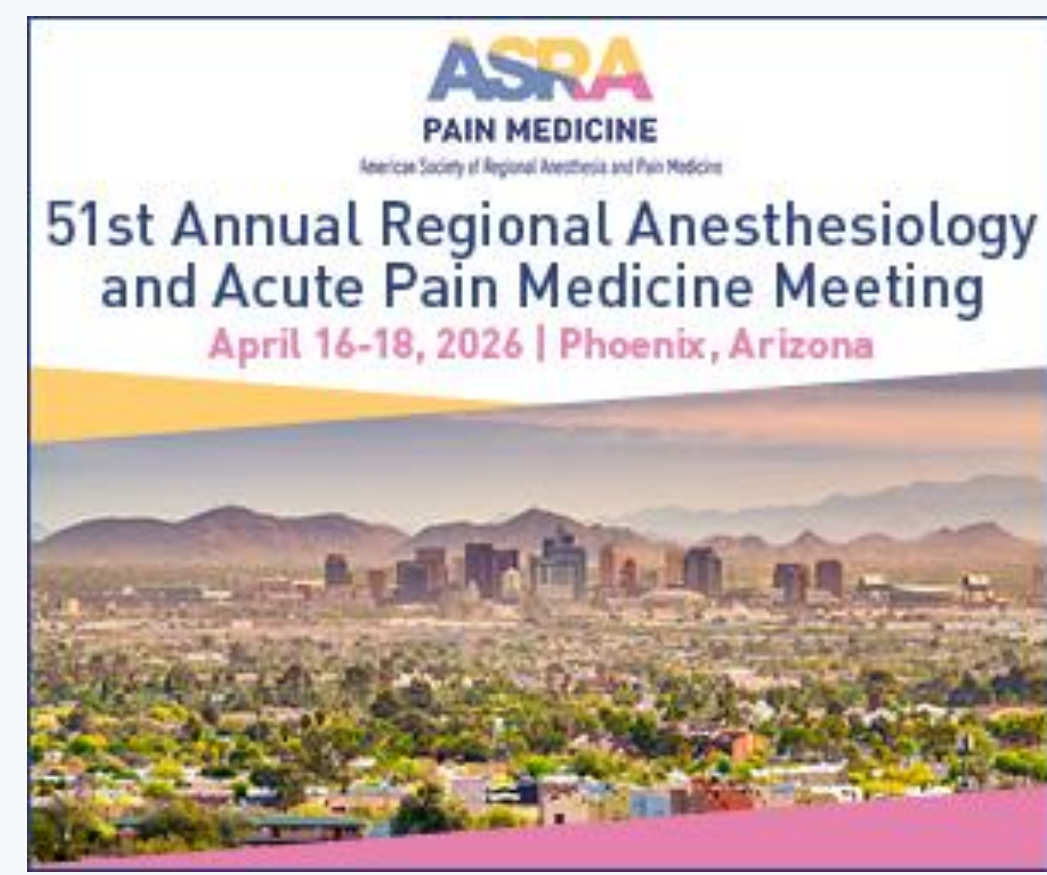
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INTRODUCTION

- Periprosthetic joint infections (PJI) are the most common cause of revision total hip and knee arthroplasty (THA, TKA), and are associated with severe postoperative pain¹
- Peripheral nerve blocks (PNBs) can alleviate pain² but its use in PJI revisions has not been well described³
- Objective: characterize PNB use for PJI revision arthroplasty cases over a 10-year period

METHODS

- IRB #2012-050
- 159,005 revision TKA and 110,797 revision THAs were identified from the 2013-2023 Premier Healthcare Database, of which 50,207 and 22,198 were performed for PJIs, respectively
- PJI was identified using ICD codes present on admission
- Anesthesia type was identified using billing codes
- Descriptive statistics used to summarize demographic data
- Cochran-Armitage trend test used to assess trends of PNB utilization over the years
- Multivariable logistic regression assessed odds of receiving a PNB based on PJI status, after adjusting for age, gender, race, ethnicity, Charlson Comorbidity Index, year, admission type, insurance type, and hospital characteristics, with an interaction term between year and PJI

Figure 1. Trends in Peripheral Nerve Block Use for Periprosthetic Joint Infection versus Aseptic Arthroplasty Revision Cases (TKA, THA)

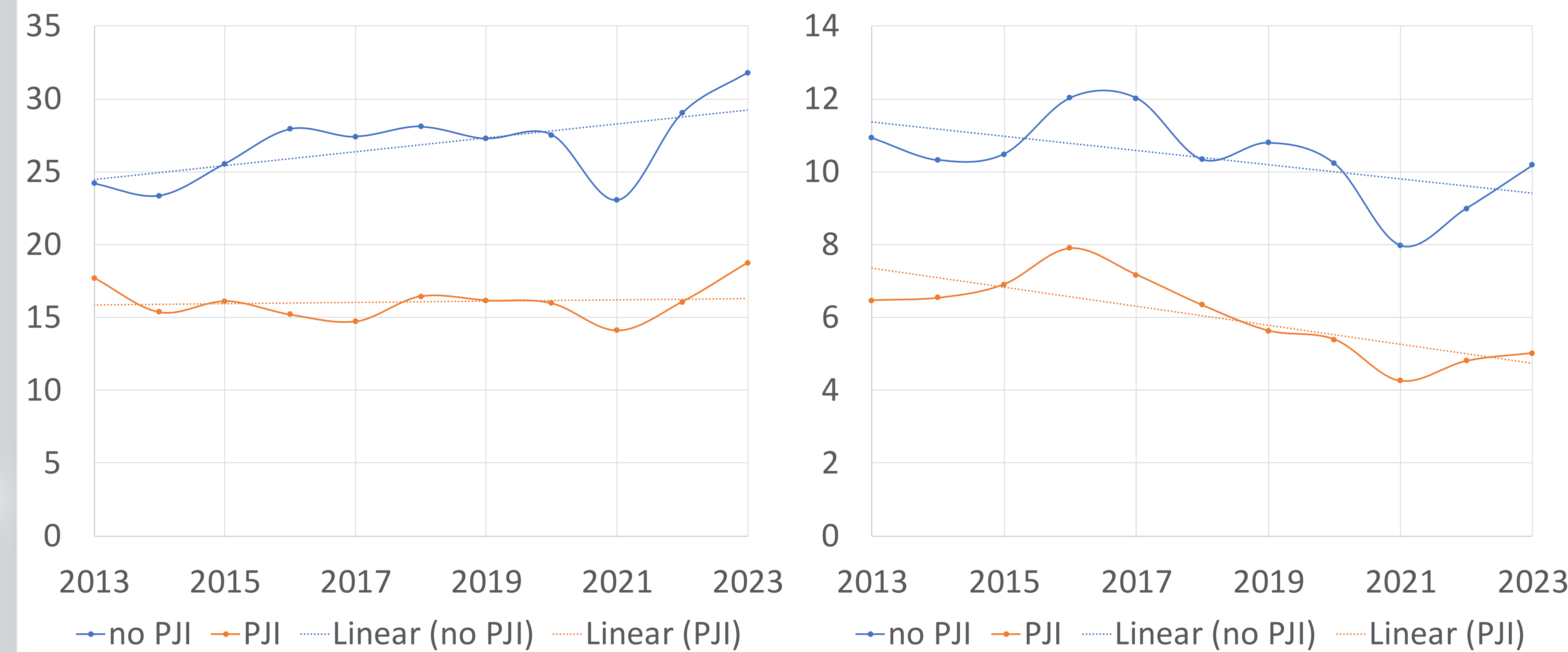
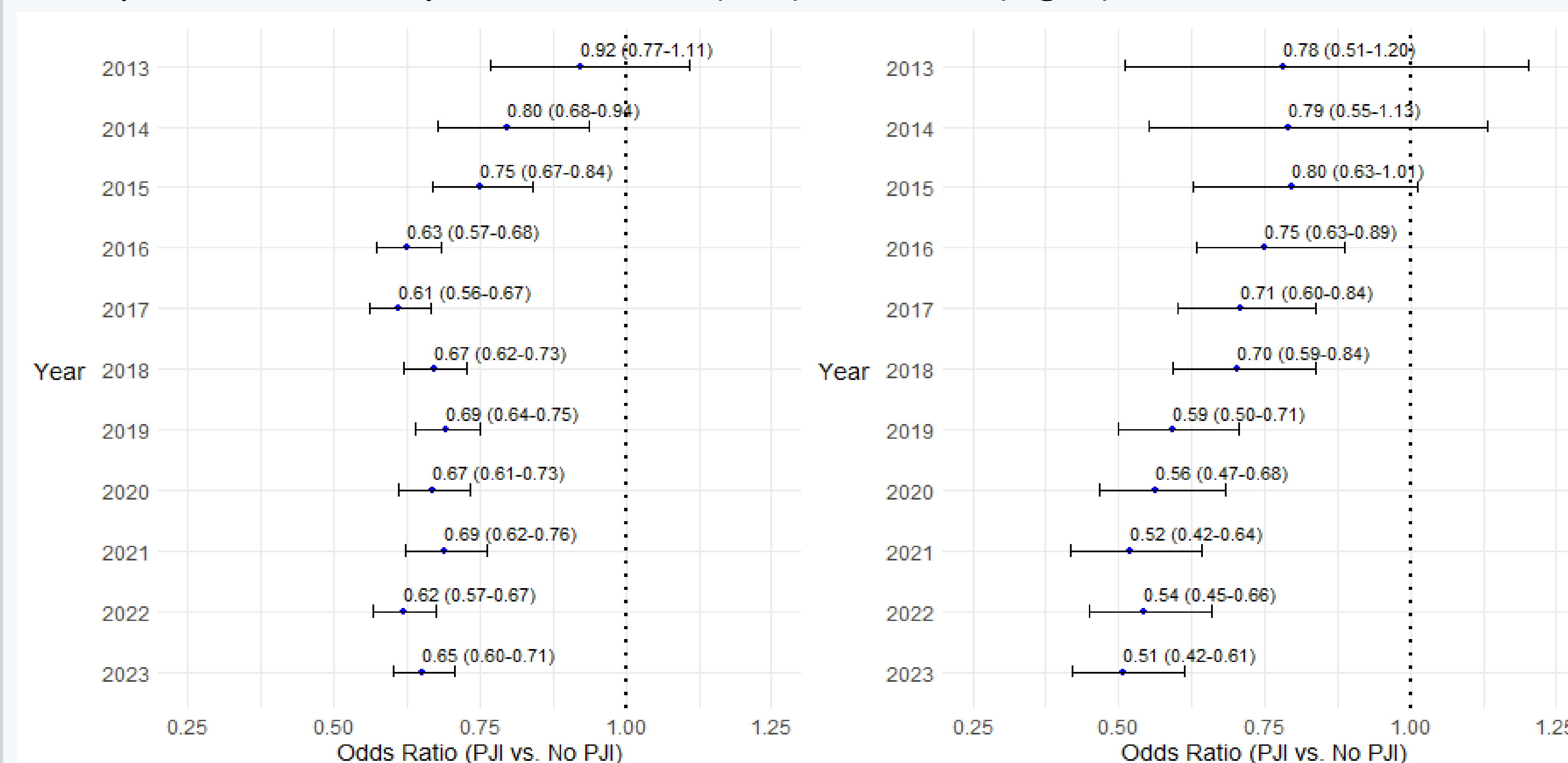


Figure 2. Adjusted Odds of PNB Use in Periprosthetic Joint Infection versus Aseptic Revisions by Year, for TKA (left) and THA (right)



RESULTS

- From 2013-2023, PJIs as the reason for revision surgery increased (TKA: 24.0% to 34.0%; THA: 14.4% to 24.8%).
- PNB use was significantly lower for PJI vs aseptic revisions**
 - TKA:** 16.0% vs 27.5%, $p < 0.001$
 - THA:** 5.9% vs 10.5%, $p < 0.001$.
- From 2013-2023, PNB use remained relatively stable across both PJI and aseptic revision procedures, with a slight increase in rTKA and a slight decrease in rTHA (all $p < 0.01$; Figure 1)
- PJI status was independently associated with significantly lower odds of PNB utilization** from 2014 onward for TKA, and 2016 onward for THA (Figure 1)
- Increasing surgical year was associated with lower odds of PNB use for rTKAs ($p = 0.0006$) and rTHA ($p = 0.004$)

DISCUSSION

- Trends showed relatively stable PNB use, with slight divergence between rTKA and rTHA
- PNB use remained consistently lower in PJI versus aseptic revisions, even after adjustment.
 - This pattern persisted across the decade, which may reflect clinician hesitancy and perceived contraindications in infected cases.
- Findings outline evolving practice patterns and establish baseline data for future studies.

References

