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# Impact of Travel Distance on Short-Term Complications and Readmissions after Periprosthetic Joint Infection (PJI)

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# Faculty Disclosure Information

- Authors have no relevant disclosures

# Background

- PJI is a leading cause of TJA failure, leading to significant patient morbidity and high resource utilization.
- PJI treatment is highly specialized, with outcomes potentially influenced by travel distance to medical facilities.
- **Study objective:** Evaluate the impact of travel distance on complications and readmissions in patients undergoing Total Joint Arthroplasty (TJA) revisions for Periprosthetic Joint Infection (PJI).

# Methods

- Retrospective review of patients who underwent TJA revision for PJI (2016-2024).
- Patients divided into two groups based on travel distance:
  - < 30 miles from hospital of surgery (n=667)
  - > 30 miles from hospital of surgery (n=390)
- Travel distances calculated via zip code analysis using the haversine formula.
- Statistical analysis: Chi-square for categorical and t-tests for quantitative variables.

# Results: Demographic Information

| Demographic Variables | Under 30 Miles (n=667) | Percentage | Over 30 Miles (n=390) | Percentage | P-value |
|---|---|---|---|---|---|
| Men (n) | **346** | 51.87% | **210** | 53.85% | >0.05 |
| Women (n) | **321** | 48.13% | **180** | 46.15% | >0.05 |
| Black (n) | **40** | 6.00% | **7** | 1.79% | **<0.05** |
| White (n) | **622** | 93.25% | **374** | 95.90% | >0.05 |
| Knee Revisions ( n) | **345** | 51.72% | **205** | 52.56% | >0.05 |
| Hip Revisions (n) | **307** | 46.03% | **176** | 45.13% | >0.05 |
| Knee or Hip(n) | **15** | 2.25% | **9** | 2.31% | >0.05 |
| Average Age | **67.08(+/- 11.26)** | | **66.27 (+/- 10.88)** | | >0.05 |
| Average BMI | **36.68 (+/- 8.31)** | | **36.71 (+/- 8.82)** | | >0.05 |

ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11

# Results: Complications and ROM/SOI

| Category | Under 30 Miles (n=667) | Percentage | Over 30 Miles (n=390) | Percentage | P-Value |
|---|---|---|---|---|---|
| Risk of Mortality | | | | | |
| 1 | **340** | 50.97% | **194** | 49.74% | >0.05 |
| 2 | **185** | 27.74% | **110** | 28.21% | >0.05 |
| 3 | **109** | 16.34% | **62** | 15.90% | >0.05 |
| 4 | **33** | 4.95% | **24** | 6.15% | >0.05 |
| Severity of Illness | | | | | |
| 1 | **68** | 10.19% | **21** | 5.38% | **< 0.05** |
| 2 | **376** | 56.37% | **218** | 55.90% | >0.05 |
| 3 | **171** | 25.64% | **108** | 27.69% | >0.05 |
| 4 | **52** | 7.80% | **43** | 11.03% | >0.05 |
| 7 Day Readmit | **35** | 5.25% | **11** | 2.82% | >0.05 |
| 30 Day Readmit | **104** | 15.59% | **60** | 15.38% | >0.05 |
| 90 Day Readmit | **224** | 33.58% | **120** | 30.77% | >0.05 |

# Results: Complications and Travel Distance

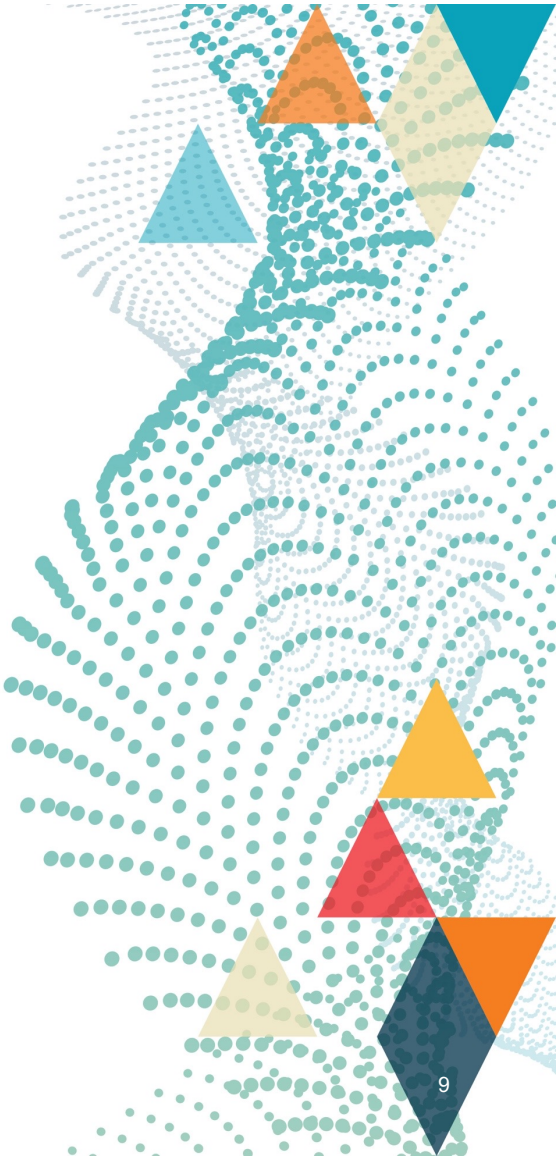
| Complications (n) | Under 30 Miles (n=667) | Percentage | Over 30 Miles (n=390) | Percentage | P-value |
|---|---|---|---|---|---|
| **NQF 1550 Complication** | **200** | 29.99% | **120** | 30.77% | 0.07 |
| **NQF 1550 AMI** | **0** | 0.00% | **1** | 0.26% | >0.05 |
| **NQF 1550 DEATH** | **6** | 0.90% | **6** | 1.54% | >0.05 |
| **NQF 1550 Mechanical** | **40** | 6.00% | **21** | 5.38% | >0.05 |
| **NQF 1550 PE** | **9** | 1.35% | **2** | 0.51% | >0.05 |
| **NQF 1550 Pneumonia** | **6** | 0.90% | **6** | 1.54% | >0.05 |
| **NQF 1550 Sepsis** | **105** | 15.74% | **71** | 18.21% | >0.05 |
| **NQF 1550 Surgical Site Bleed** | **0** | 0.00% | **0** | 0.00% | >0.05 |
| **NQF 1550 Wound Infection** | **68** | 10.19% | **35** | 8.97% | >0.05 |
| **Surgical Ste Infection (SSI)** | **15** | 2.25% | **5** | 1.28% | >0.05 |
| **Blood transfusion** | **196** | 29.39% | **109** | 27.95% | >0.05 |
| **1 year Mortality** | **37** | 5.55% | **19** | 4.87% | >0.05 |

# Results: Number of Revisions and Travel Distance

| Number of Revisions for Infection | Under 30 Miles (n=667) | Percentage | Over 30 Miles (n=390) | Percentage | P-Value |
|---|---|---|---|---|---|
| 1 | **546** | 81.86% | **341** | 87.44% | **<0.05** |
| 2 | **102** | 15.29% | **41** | 10.51% | **<0.05** |
| 3 | **17** | 2.55% | **4** | 1.03% | >0.05 |
| 4 | **2** | 0.30% | **3** | 0.77% | >0.05 |
| 5 | **0** | 0.00% | **1** | 0.26% | >0.05 |

# Conclusion

- Travel distance does not significantly impact short-term complications and readmissions after PJI-related TJA revisions.
- More patients closer to hospital of care are having two revision surgeries compared to one, with similar outcomes reported.
- Differences in severity of illness and racial composition observed but did not affect outcomes.
- Further research is needed to explore socioeconomic factors and transportation barriers for distant patients.



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