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Longer Hospital Length of Stay After Total Knee Arthroplasty is an Independent Risk Factor for Increased Complication Rates

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Faculty Disclosure Information

- None of the authors have any disclosures.



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Introduction

Hospital length of stay (LOS) following total knee arthroplasty (TKA) continues to decrease due to enhanced recovery pathways and patient selection. While increased LOS following TKA may be a function of patient selection, it remains unclear if postoperative complications rates and patient-reported outcomes (PROMS) are related to LOS.

The objective of this study was to evaluate the influence of LOS on complication rates and PROMS following TKA.



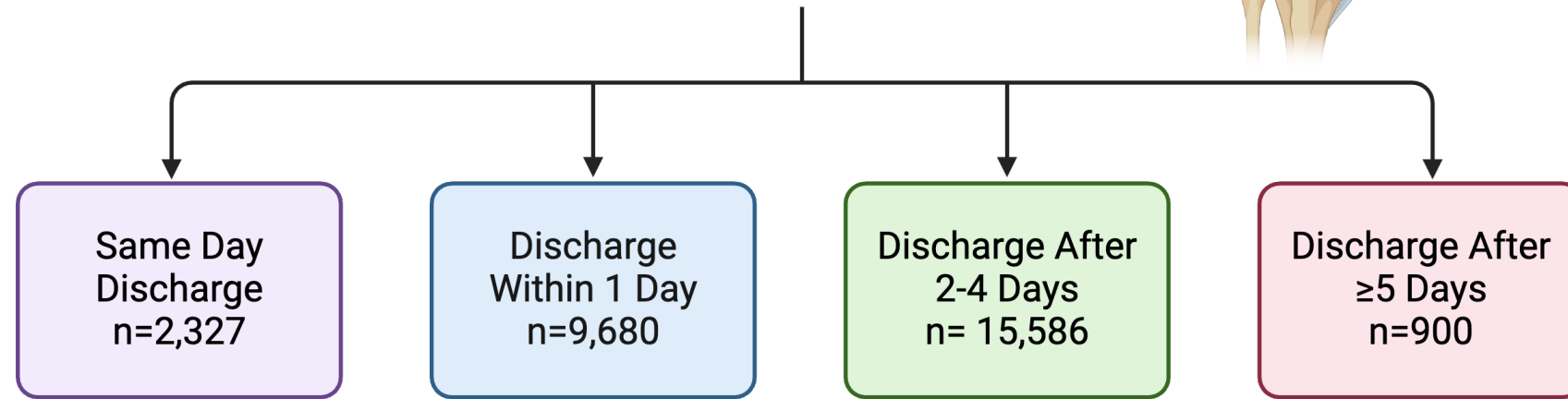
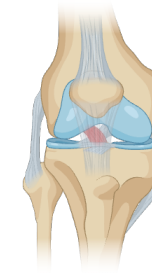
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Methods: Patient Selection

Patients Undergoing TKA n=28,493



Patients who underwent TKA at a large health care system between 2015-2024 were identified and grouped based on LOS:

- **SDD:** Same calendar day discharge (n=2327)
- **1DD:** Discharge within 1 day (n=9680)
- **2-4DD:** Discharge after 2-4 days (n=15586)
- **5DD:** Discharge after 5 or more days (n=900)



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Methods: Data and Analysis

Data collected

- Demographic data
- Complications
- Revisions
- PROMS
- Additional clinical outcomes

Analysis

- Multiple logistic regression was conducted using sex, age, race, ethnicity and Elixhauser Comorbidity Index Score as control variables.
- The linear regression was performed by controlling for the same variables as the logistic regression, but also with the inclusion of Knee Injury and Osteoarthritis Outcome Score (KOOS).



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Results

Patients with longer stays have higher odds of having NQF 1550 Complication(s)

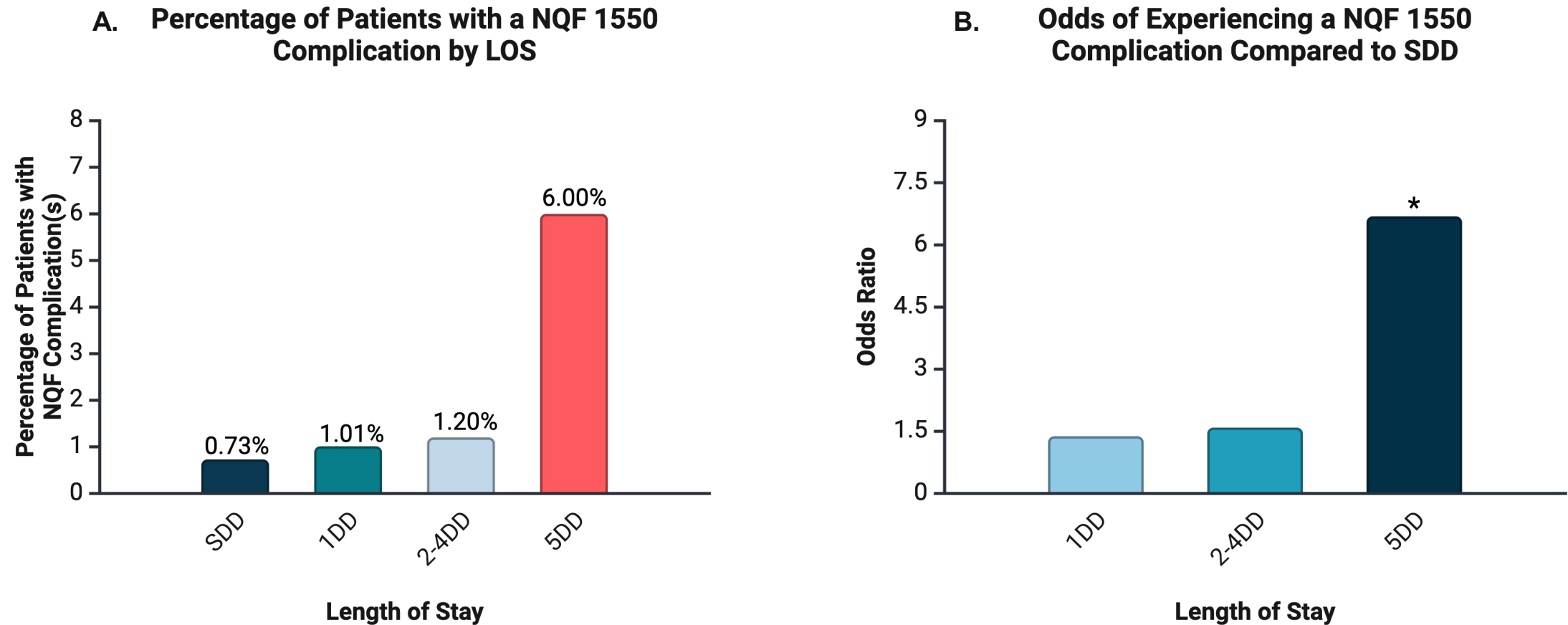


Figure 1. A. The overall percentage of patients who experienced a NQF 1550 Complication increased as length of stay increased. B. 5DD patients had 6.69 times higher odds of having a NQF 1550 complication compared to SDD patients ($p < 0.001$). There were no statistical differences in odds of complications between SDD and 1DD and 2-4DD patients. 1DD: 1.38OR ($p = 0.235$); 2-4DD: 1.59OR ($p = 0.085$).



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Results

Increased LOS is associated with greater odds of surgical revisions and readmissions

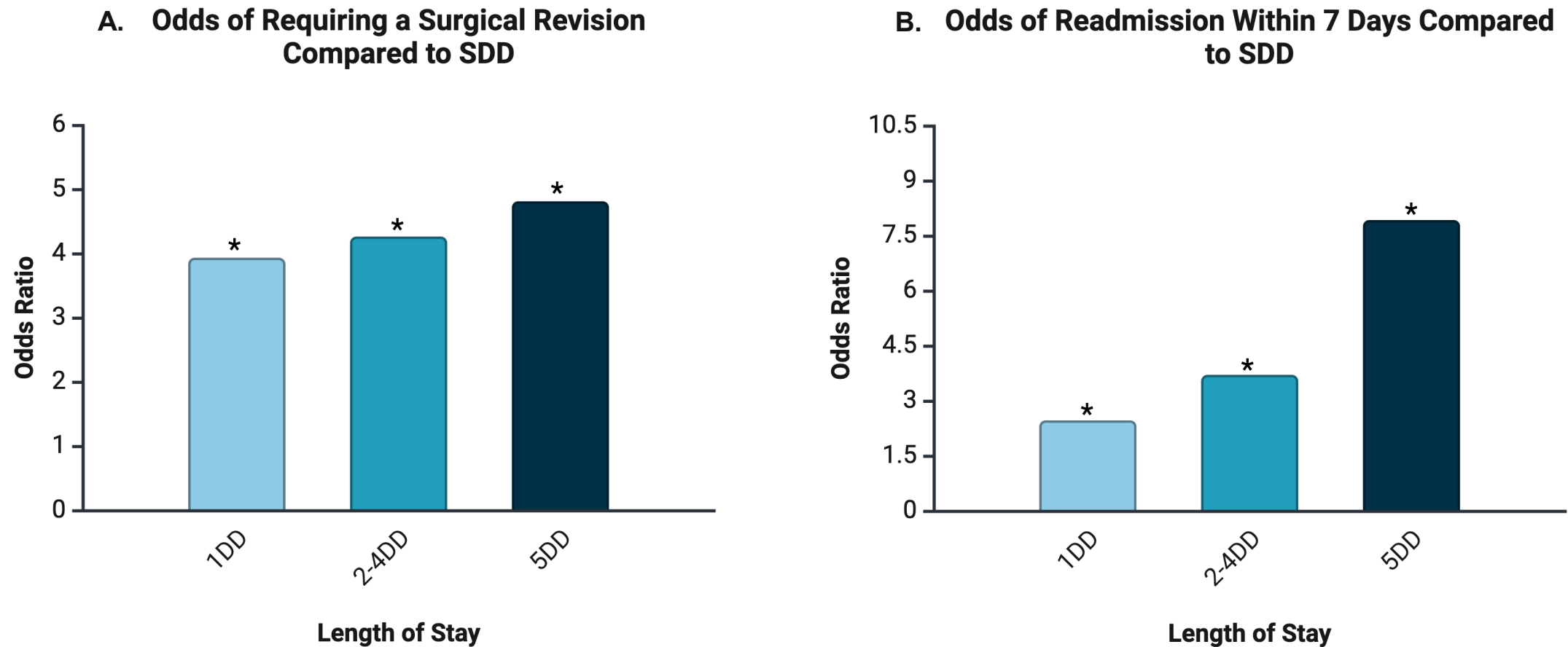


Figure 2. A. The odds of requiring a surgical revision was greater in all groups when compared with SDD patients. 1DD: 3.94OR ($p=0.001$); 2-4DD: 4.27OR ($p<0.001$); 5DD: 4.82 OR ($p=0.004$). **B.** The odds of readmission within 7 days was greater in all groups when compared with SDD patients. 1DD: 2.48OR ($p=0.034$); 2-4DD: 3.72OR ($p=0.002$); 5DD: 7.94 OR ($p<0.001$).



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Results

KOOS Scores and Patient Reported Outcomes

KOOS Scores:

- 1DD patients had an average 2.34-point score increase compared to SDD patients.
- 2-4DD patients had an average 1.58-point increase compared to SDD patients.
- There were no significant differences in KOOS scores between SDD and 5DD patients

PROMIS 10 Global Physical Scores

- 1DD patients had an average 0.66-point score increase compared to SDD patients.
- 2-4DD patients had an average 0.73-point increase compared to SDD patients.
- There were no significant differences in KOOS scores between SDD and 5DD patients

Other Outcomes

PROMIS 10 Global Mental Health scores ,in-house mortality rates, and surgical site infections were not associated with LOS.



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Conclusions

- Between 2016-2024, the mean LOS after THA decreased from 2.75 days to 1.26 days.
- When controlling for sex, age, race, ethnicity and Elixhauser Comorbidity Index Score, increased LOS after TKA is associated with greater odds of complications, readmissions, and revisions.
- While KOOS and PROMIS10 Global Physical scores were statistically different in some groups, these differences were not clinically significant.
- Patients with shorter LOS had lower complication and revision rates.
- Patient preoptimization and in-hospital resources should be directed toward decreasing patient LOS as even patients with higher comorbidity classes may benefit from earlier discharge if medically and functionally possible.



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References

- All figures created using BioRender.com



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