

INTRODUCTION

Surgical site infections (SSIs) are a significant part of neurosurgery complications, representing up to 6.3% of cranial¹ and up to 7.3% of spine cases reported at M&M conferences.² Research has repeatedly shown that institutional and process factors are deeply connected to the incidence of SSIs, from sterilization protocols to checklists in the operating room. As a result, SSIs are uniquely suited for systems-based analysis regimes.³ To treat each neurosurgical SSI as an input in an overall systemic problem, we created an automated method for systems-based analysis of SSIs.

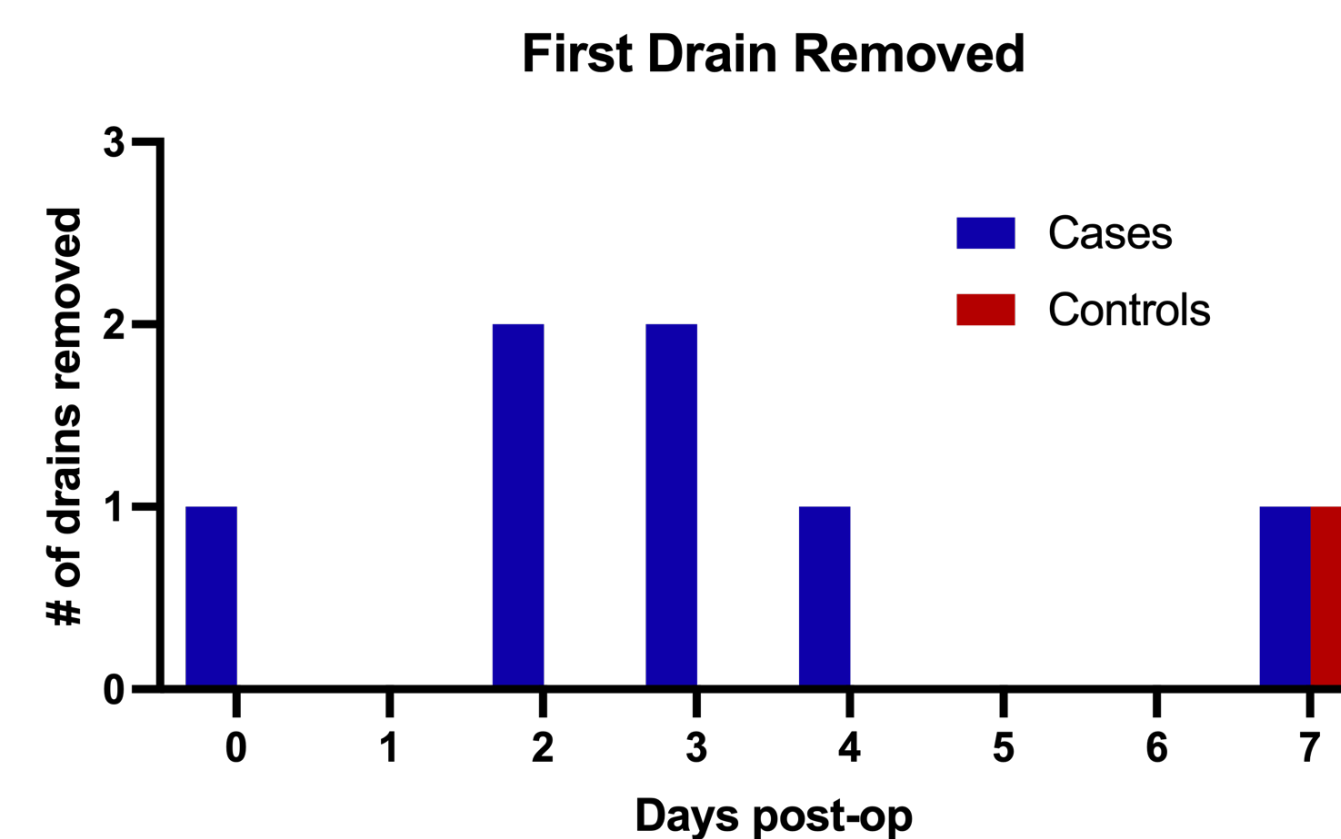
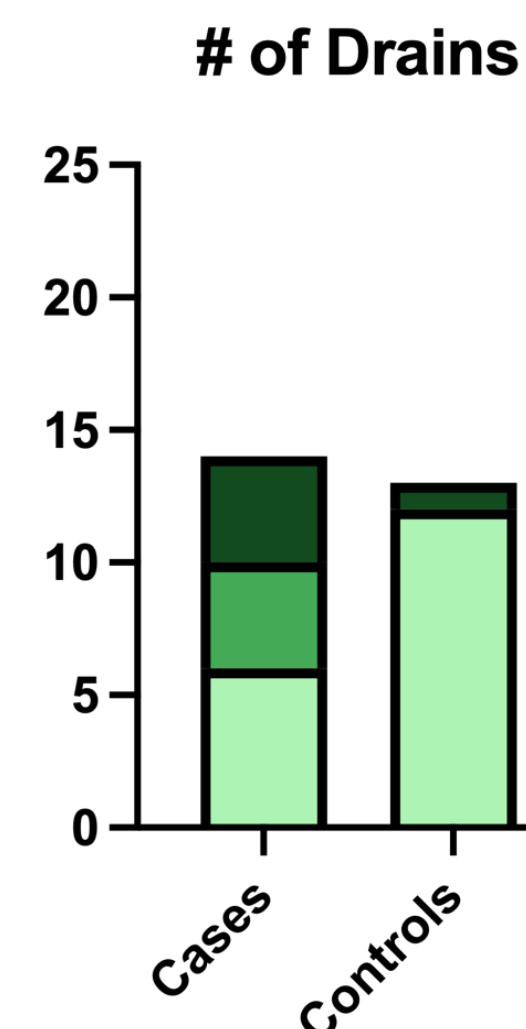
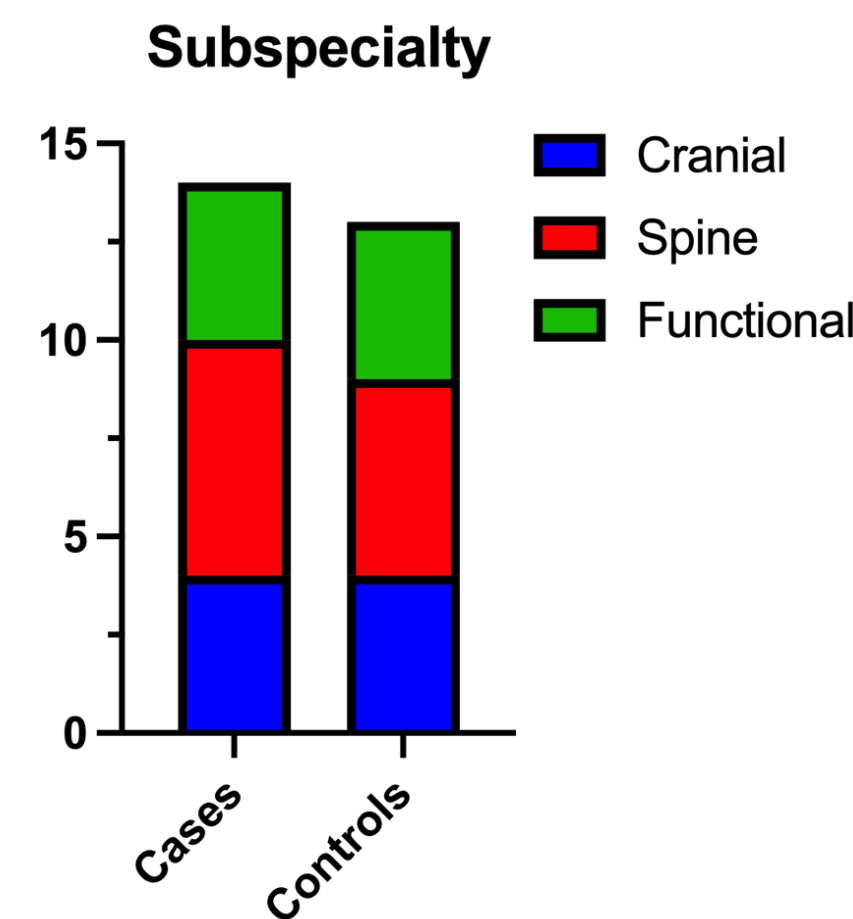
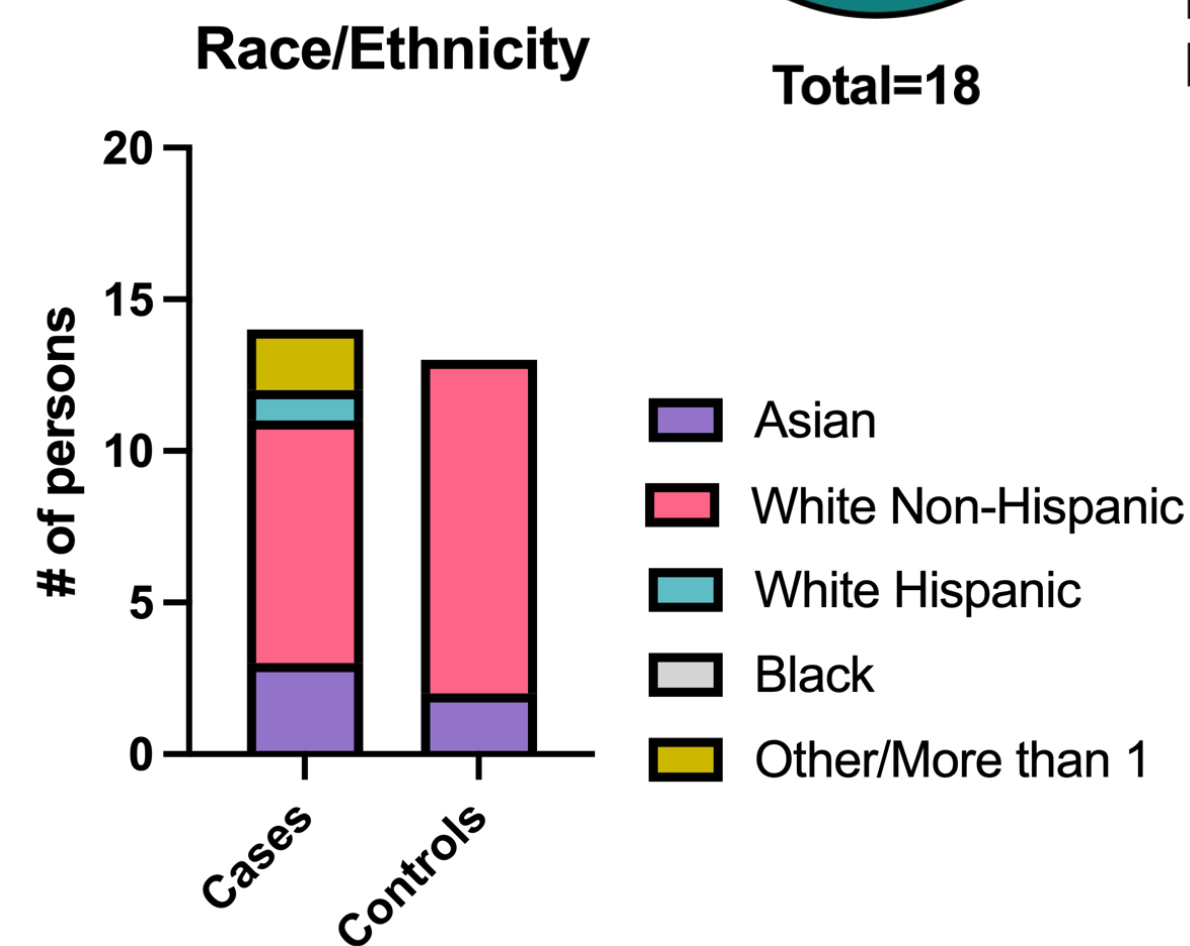
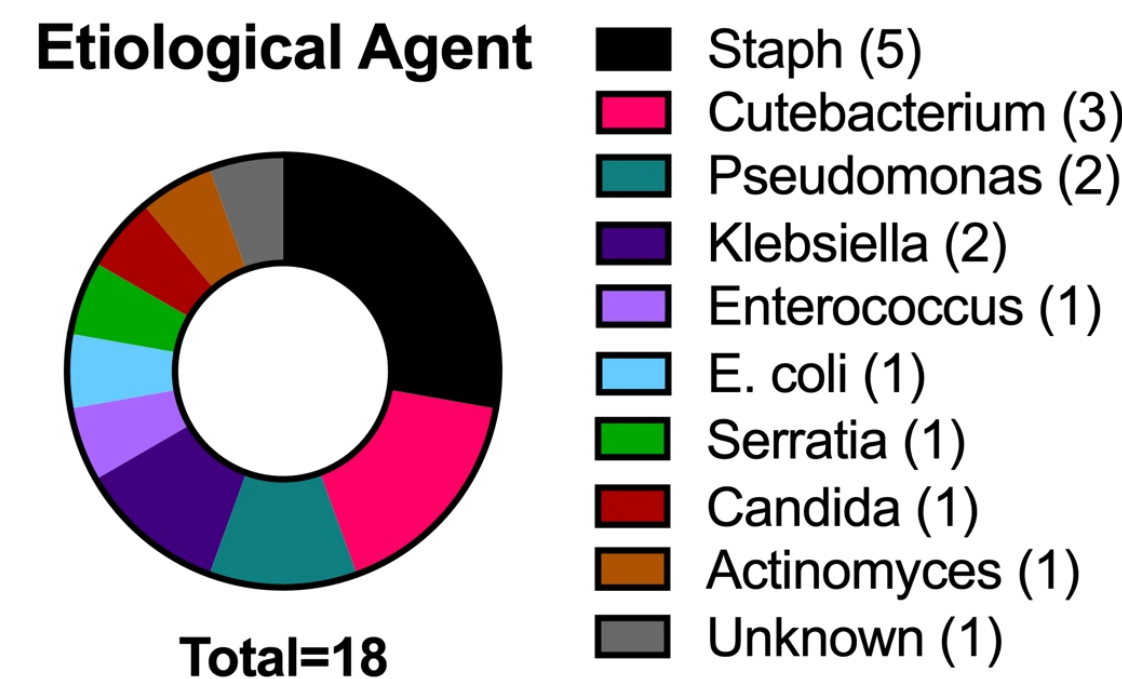
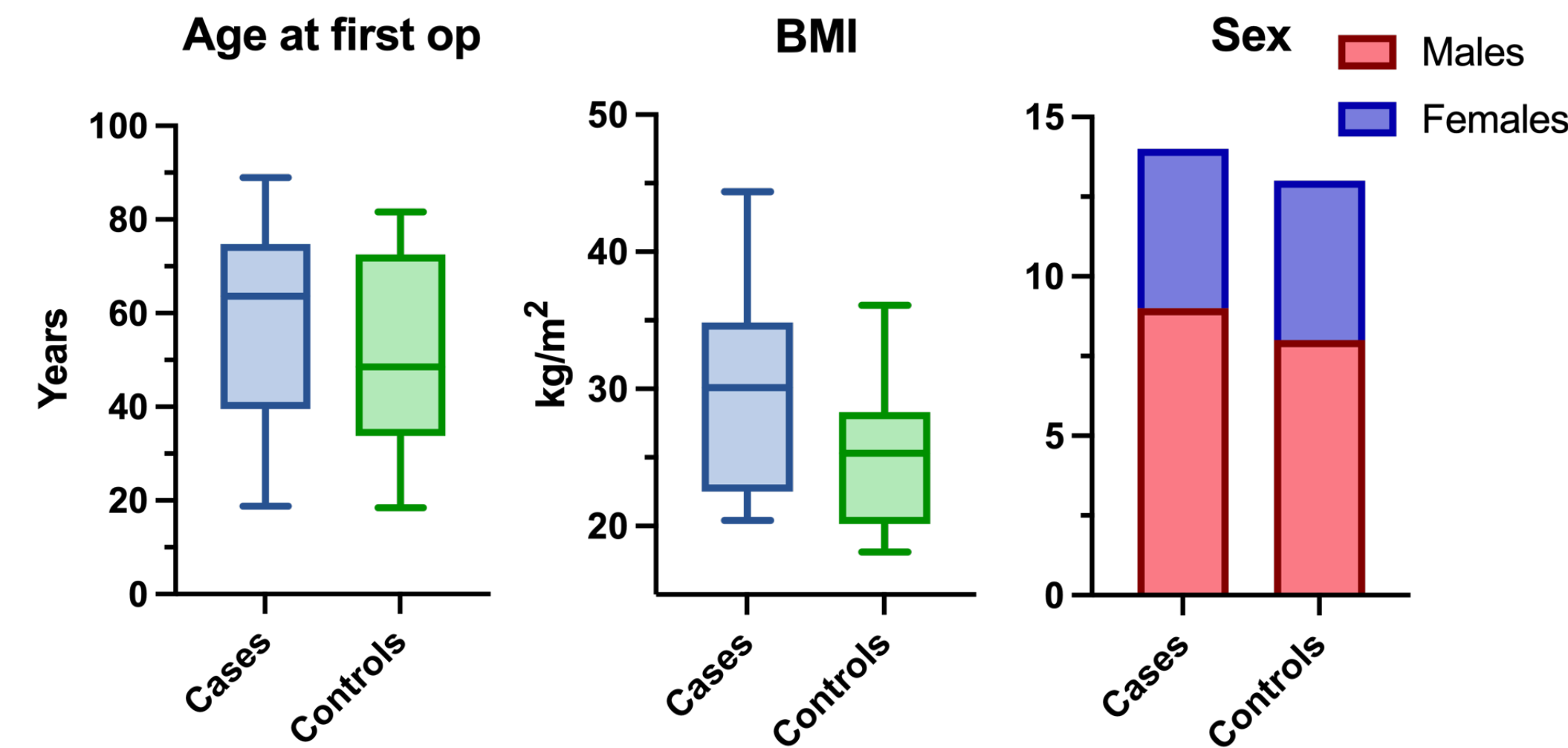
METHODS

Using python, RedCap, and Graphpad PRISM, we created an automated pipeline for bimonthly reports of our institution's neurosurgery SSIs, starting with October of 2023. Inputs included demographic data, level of surgery, and SSI checklist data.^{4,5} Procedure-matched controls were used 2:1. Primary outcome was odds ratio (OR) of developing an SSI. Secondary outcomes included recurrent SSI and mortality. Case-control matching allowed per-specialty and anonymized per-attending/resident reports. To measure the success of the project, we examined the amount of time saved during QI conferences and the insights gained.

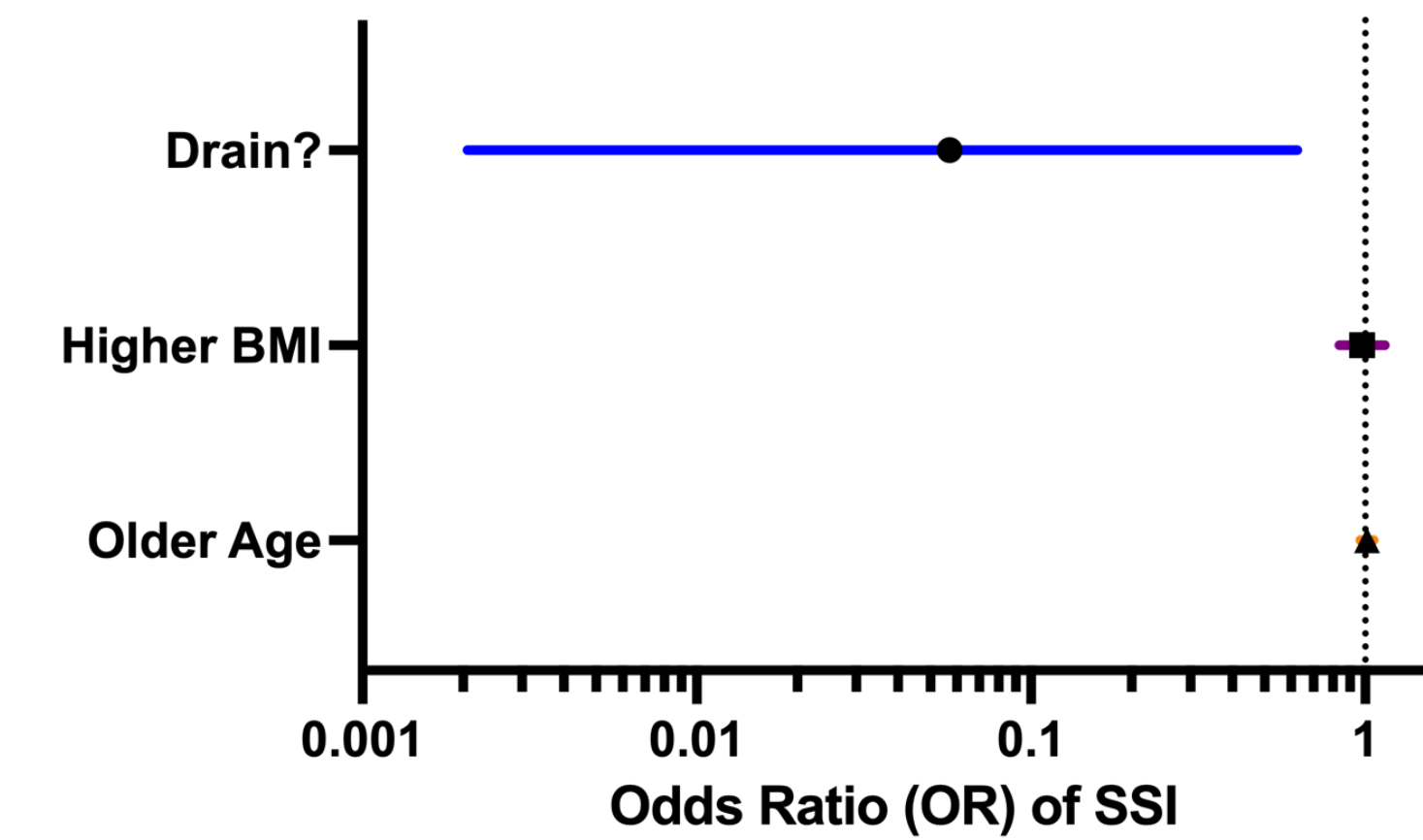
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²Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

RESULTS



Logistic Regression



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CONCLUSIONS

Since October 2023, 29% (18 patients) of recorded neurosurgery complications involved an infectious component. Of the studied factors, only drain placement has been significantly associated with developing an SSI. The present study, however, is likely underpowered to detect this effect, and this result will be revisited as sample size increases and controls are doubled. By presenting bulk SSIs instead of individual cases, we have saved 3.5 hours of conference time over 4 months. We have also confirmed a pre-existing suspicion that, compared to typical cranial infections,⁶ *Cutibacterium acnes* may play an outsized role in spinal infections in our institution, leading to the implementation of a Benzoyl-peroxide wash before each spinal fusion procedure.⁷ This pipeline/ database will also allow us to evaluate the success of that protocol.

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