

## Introduction

Periprosthetic joint infections (PJI) affects 2-3% of all total joint replacement cases<sup>1</sup>. In this study, suspected periprosthetic infections of foot and ankle procedures were retrospectively reviewed to determine culture status and applicability of the 2018 International Consensus Meeting on Orthopedic Infections (ICM) classification system in order to understand its clinical utility.

2018 ICM criteria	1 MAJOR or >6
ESR >30	1
Serum CRP >10	2
Synovial WBC >3000	3
PMN >80%	2
Synovial CRP >6.9	1
1 Positive culture	3
2 Positive Cultures	MAJOR
Presence of Sinus tract	MAJOR

Table 1: 2018 ICM classification system criteria

## Aims and Objectives

- Understand the applicability of the ICM classification system on suspected post-surgical ankle infections
- Analyze patient outcomes of cases not meeting threshold vs. infected cases and determine the effectiveness of the ICM classification system.
- Determine if demographics, antibiotic treatment, implant type, emergent/elective, payer, length of stay or complications are associated with culture positive vs. culture negative status as well as types of known organisms in culture positive cases.

## Methods

- Cases of suspected infection based on ICD-9/10 codes, from cases performed at a Level 1, private, academic hospital from October 2014 to November 2019 were reviewed for demographic, surgical, and infection-related data.
- 81 out of 210 cases met inclusion criteria and were given a score based off of the 2018 ICM classification system.
- Cases that met vs did not meet the 2018 ICM definition of infection were compared to determine differences in age, sex, laterality, prior revision status, pre-operative culture status, intraoperative culture status, administration of antibiotics, length of stay, and 30 day readmission rates.

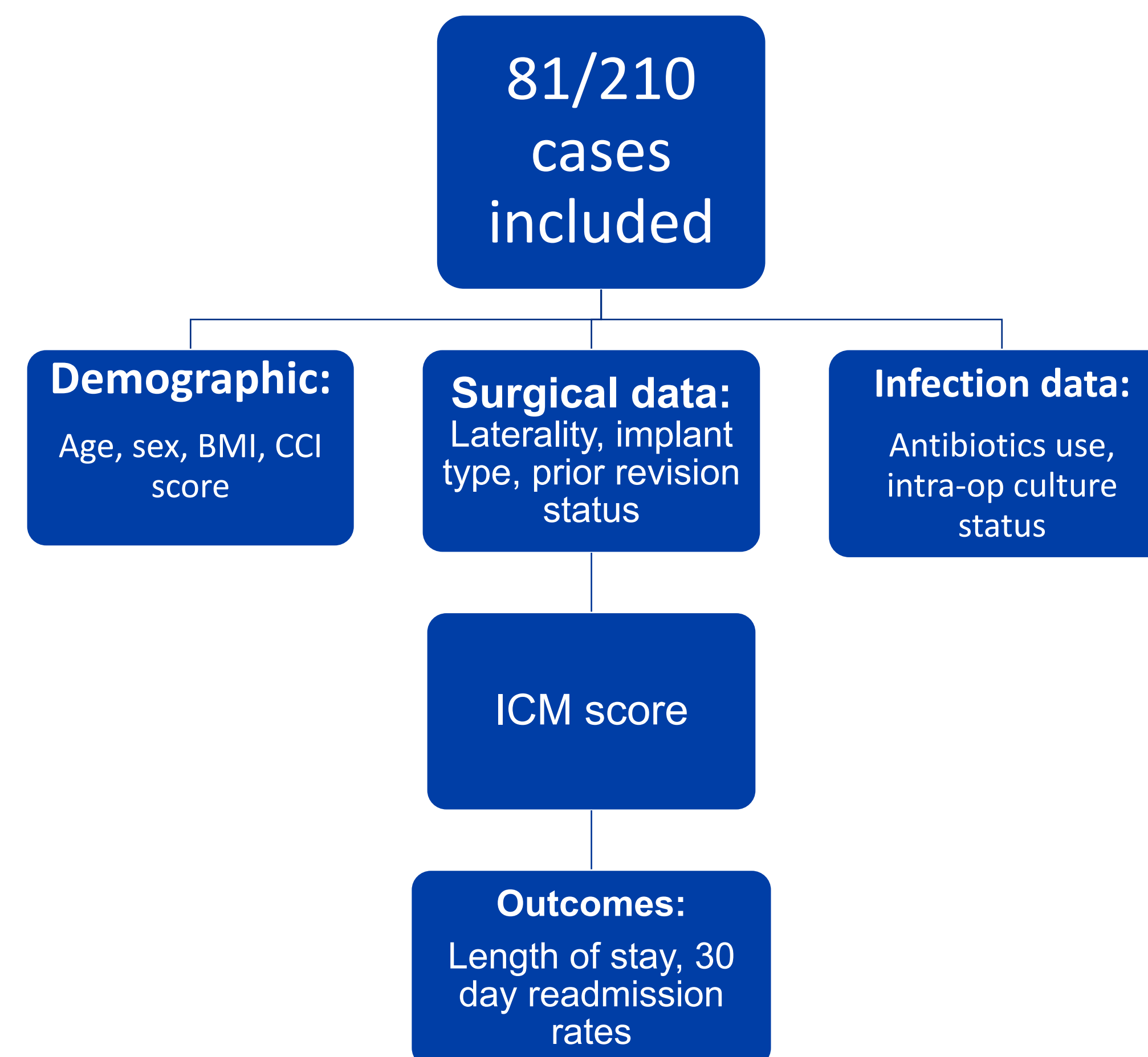


Figure 1: Methodology Framework

## Results

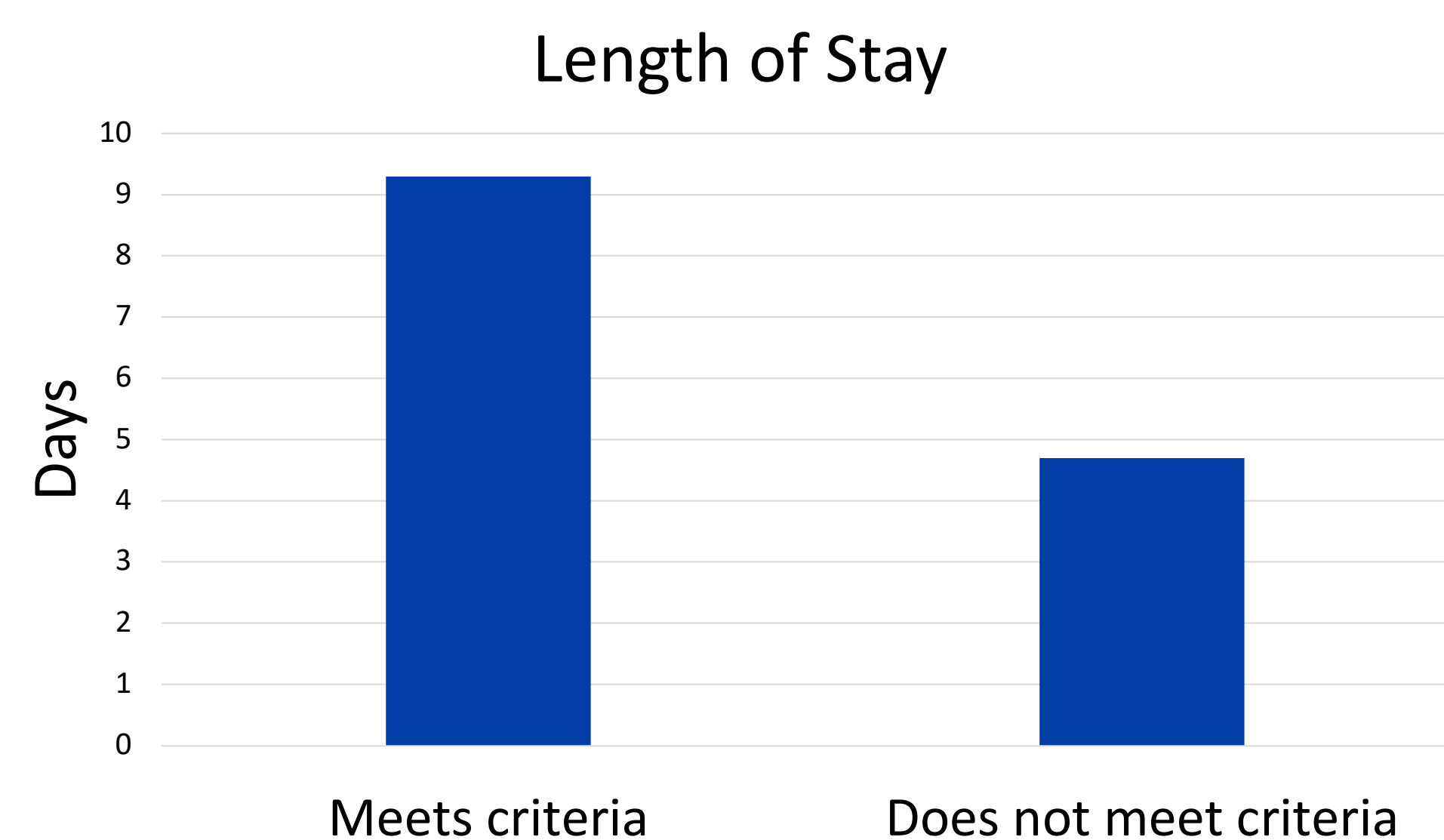


Figure 2: Length of stay was significantly greater in cases defined as infected by the 2018 ICM classification system ( $p \leq 0.001$ ; averages, 9.3 vs. 4.7 days).

Comparing cases that met vs. did not meet the 2018 ICM definition of infection, **Length of stay was significantly greater in cases defined as infected ( $p \leq 0.001$ )**. There were no significant differences between age ( $p=0.522$ ), BMI ( $p=0.747$ ), sex ( $p=0.514$ ), laterality ( $p=0.323$ ), prior revision status ( $p=0.457$ ), or CCI score ( $p=0.511$ ). There were also no significant differences between cases not meeting threshold vs. infected cases in preoperative positive culture status ( $p=1.000$ ), intraoperative positive culture status ( $p=0.235$ ), pre-culture administration of antibiotics ( $p=0.496$ ), cases readmitted within 30 days ( $p=0.232$ ), or cases readmitted for PJI ( $p=0.502$ ).

## Conclusions

Periprosthetic joint infections are a major complication of ankle surgery and can cause significant morbidity. In 10-30% of these cases, the organism is unidentifiable, which may impact treatment planning and outcomes<sup>2</sup>. The 2018 International Consensus Meeting on Orthopedic Infections (ICM) classification system has been established to help clinicians identify these cases using different markers of infection and inflammation. Although this classification system has been well studied in total knee and hip arthroplasty, its utility in ankle arthroplasty has not been adequately studied. This study sought to understand its utility and effectiveness in patients who have undergone ankle surgery with implants and had concern for PJI. **In this small study of 81 patients included in the study, hospital length of stay was significantly higher in those who met inclusion criteria for a joint infection based off of the 2018 ICM Classification system than those that did not.** However, there was no significant difference in the demographics, prior revision status, antibiotic usage or readmission rates. Further data collection and analysis needs to be done in order to assess the correlation between ICM scoring with pre/postoperative treatment and outcomes.

## References

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- Parvizi J., Erkocak O.F., Della Valle C.J. Culture-negative periprosthetic joint infection. J. Bone Joint Surg. Am. 2014;96(5):430-436. doi: 10.2106/JBJS.L.01793.

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