

INTRODUCTION

- ❖ Cefazolin remains the standard perioperative prophylactic antibiotic for elective TJA.
- ❖ Whether **recent outpatient oral antibiotic exposure** influences postoperative infection risk remains unknown.
- ❖ Oral first-generation cephalosporins (OFGCs) are among the most commonly prescribed antibiotics.

Purpose: To determine whether recent preoperative exposure to oral first-generation cephalosporins is associated with increased risk of Periprosthetic joint infection (PJI).

Hypothesis: Recent OFGC exposure is associated with higher PJI risk and may represent a clinically relevant marker for identifying patients at increased risk.

METHODS

- ❖ **Design:** Retrospective matched cohort study using a national Ortho Database (2010–2023)
- ❖ **Population:** Adults undergoing elective primary THA and TKA excluding trauma/fracture, malignancy, prior PJI, musculoskeletal indications for antibiotic use.
- ❖ **Exposure:** Cephalexin or cefadroxil use within 1 year preoperatively
- ❖ **Propensity Matching:** One to one propensity score matching based on age, sex, Charlson Comorbidity Index, obesity, diabetes, tobacco use (caliper 0.2)
- ❖ **Primary Outcomes:**
 - 90-day PJI cumulative incidence
 - 1-year PJI cumulative incidence
- ❖ **Secondary Outcomes:**
 - PJI-related surgery (DAIR/septic revision)
 - All-cause revision
- ❖ **Subgroup Analyses:**
 - Timing of antibiotic exposure
 - Infection indication
 - Perioperative prophylaxis
 - Extended oral antibiotics

Table 1. Baseline Characteristics

Characteristic	Exposure	No Exposure
Patients, n	247,207	247,207
Mean age (years)	66	66
Female	63%	63%
Mean CCI	1.82	1.82
Obesity	55%	55%
Diabetes	45%	45%
Smoking	40%	40%

RESULTS

- ❖ Prior OFGC exposure increased PJI risk at 90 days (OR 1.35) and 1 year (OR 1.39) (both $P < 0.001$).
- ❖ PJI-related procedures and all-cause revisions were significantly higher in exposed patients at both follow-up intervals.
- ❖ Higher PJI incidence was observed across all infection indications, ranging from 2.31% to 3.98%.
- ❖ Respiratory/ENT infections accounted for the largest proportion of prior antibiotic exposure (33.6%), followed by skin & soft tissue (26.2%) and urinary tract infections (23.5%).

Table 2. Diagnoses associated with antibiotic exposure

Infection Category	Patients (%)	1-Year PJI
No Exposure (Reference)	—	1.89%
Respiratory & ENT	33.6	2.46%
Skin & Soft Tissue	26.2	3.52%
Urinary Tract	23.5	2.72%
Other	12.5	3.98%
Ocular	4.2	2.31%

Table 3. Cumulative Incidence of Periprosthetic Joint Infection & Revision

Outcome	Exposure	No Exposure	OR (95% CI)	P-value
90-Day Outcomes				
PJI	1.49%	1.10%	1.35 (1.29–1.41)	<0.001
PJI Procedures	1.09%	0.78%	1.39 (1.32–1.46)	<0.001
All-Cause Revision	1.14%	0.97%	1.17 (1.11–1.23)	<0.001
1-Year Outcomes				
PJI	2.59%	1.89%	1.39 (1.34–1.44)	<0.001
PJI Procedures	1.89%	1.32%	1.44 (1.38–1.51)	<0.001
All-Cause Revision	2.65%	2.27%	1.17 (1.13–1.22)	<0.001

Conclusions

- ❖ Prior outpatient cephalexin/cefadroxil exposure may represent a **novel preoperative risk marker** for PJI.
- ❖ Increased risk persisted across infection indications and exposure timing.
- ❖ Additional perioperative vancomycin and postoperative extended oral antibiotics did not mitigate this association.
- ❖ Antibiotic history should be considered during preoperative risk stratification and counseling.
- **Limitations:**
 - ❖ Findings demonstrate **association, not causation**, and warrant prospective validation
 - ❖ Administrative claims data lack detailed clinical granularity and microbiological data, limiting assessment of factors that may influence postoperative PJI risk.