

# Timing and Trends of Periprosthetic Joint Infections Following Over 1.5 million Total Knee and Hip Arthroplasty Cases

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## INTRODUCTION:

Periprosthetic joint infections (PJI) following primary total knee arthroplasty (TKA) and total hip arthroplasty (THA) have been studied, but a contemporary analysis of incidence and trends on a larger scale has not been performed. The purpose of this study was to assess PJI timing and trends for TKA and THA using a national database.

## METHODS:

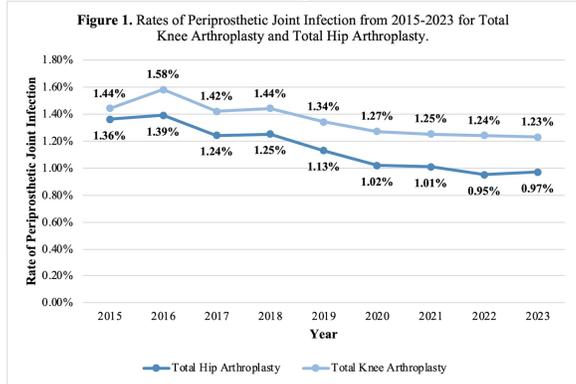
The Epic Cosmos (Epic Systems Corporation, Verona, Wisconsin) database was retrospectively queried over an eight-year period for patients who underwent TKA or THA. The current procedural terminology (CPT) codes for inclusion were 27130 (THA) and 27447 (TKA). PJI rates were calculated for 30-day, 90-day, six-month, and one-year. PJI timing and year-by-year trends were analyzed using linear regression.

## RESULTS:

From 2015-2023, 962,967 TKA and 600,225 THA cases were identified. The associated PJI rates for THA were 0.46% for 30-day, 0.91% for 90-day, 1.09% for six-month, and 1.28% for one-year. The associated PJI rates for TKA were 0.25% for 30-day, 0.69% for 90-day, 0.91% for six-month, and 1.19% for one-year. The majority of PJIs occurred within 90 days for both TKA (57.9%) and THA (71%). The one-year mortality rate for TKA from 2015-2023 ranged from 1.23-1.58%. There was a 17% reduction in PJI between 2015 and 2023 ( $P=0.001$ ). Similarly, the one-year PJI progression for THA 1.36, 1.39, 1.24, 1.25, 1.13, 1.02, 1.01, 0.95, and 0.97%; there was a 40% reduction in PJI between 2015 and 2023 ( $P<0.001$ ).

## DISCUSSION AND CONCLUSION:

A significant reduction in PJI after TKA and THA was observed the last decade. The majority of PJIs after TKA and THA occur within 90 days postoperatively so further study should be aimed at factors that may mitigate early risk of infection. Insights into the underlying reasons for the reduction of PJI rates in primary hip and knee arthroplasty may also inform standardized protocols for PJI centers of excellence.



Procedure (CPT)	Count	Periprosthetic Joint Infection							
		30-Day		90-Day		6-Month		1-Year	
		N	%	N	%	N	%	N	%
TKA (27445)	962967	3360	0.3	6691	0.7	8727	0.9	11505	1.2
THA (27130)	600225	2756	0.5	5435	0.9	6527	1.1	7659	1.3