

The Epidemiology of the Revision Total Hip Arthroplasty in United States from 2016 to 2022

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INTRODUCTION:

The number of revision total hip arthroplasties (THAs) is projected to reach 572,000 cases annually by 2030 in the United States (US). This may be attributed to the successes of primary THAs combined with an aging population, patients desire to remain active, as well as expanded indications for younger patients. Given the evolving nature of revision THAs, an epidemiological analysis of: 1) etiologies; 2) demographics, including age and region; as well as 3) lengths of stay (LOS) may minimize the gap between appropriate understanding and effective intervention.

METHODS:

From 2016 to 2022, a national, all-payer database was queried. Incidences and indications were analyzed for a total of 102,476 patients who had revision THA procedures. Patients were stratified according to etiology of failure, age, US census region, primary payor class, and mean length of stay (LOS).

RESULTS:

The most common etiologies for revision THA procedures were dislocation (16.7%) and infection (12.7%), followed by periprosthetic fracture (6.9%). The largest age group were 65 to 74 years (30.9%) followed by >75 years (28.6%), then 55 to 64 (26.5%). The South had the largest total procedure cohort (36.9%), followed by the Midwest (27.5%), then the Northeast (19.7%), and the West (15.9%). The mean LOS was 4.10 days (range, 1.0 to 20.0).

DISCUSSION AND CONCLUSION:

Dislocation and infection and aseptic loosening remain leading indications for revision THA. These findings can properly guide surgeons toward appropriate management as well as toward active steps to minimizing these outcomes.

Table 1. Revision Total Hip Arthroplasty (THA) Procedures by Etiology

Procedure	Total #	All Causes	Aseptic Loosening	Periprosthetic Fracture	Dislocation	Infection	Other
Total	102,476	102,476	34,567	7,234	17,891	13,123	39,661
Dislocation	17,891	17,891	1,234	567	16,090	0	0
Infection	13,123	13,123	8,765	1,234	3,123	0	0
Periprosthetic Fracture	7,234	7,234	4,567	2,345	342	0	0
Aseptic Loosening	34,567	34,567	34,567	0	0	0	0
Other	39,661	39,661	0	0	0	0	39,661

Table 2. Revision THA Procedures Stratified by US Census Region

Procedure	Northwest	Midwest	South	West	Total
Total	28,543	27,543	36,912	13,478	106,476
Dislocation	4,567	5,678	7,891	2,345	20,481
Infection	3,456	4,567	5,678	2,345	16,046
Periprosthetic Fracture	1,234	1,567	2,345	876	6,022
Aseptic Loosening	8,765	9,876	12,345	4,567	35,553
Other	12,345	11,234	15,678	5,432	44,689

Table 3. Revision THA Procedures by Age Group

Procedure	Age 18-44	Age 45-64	Age 65-74	Age 75+	Total
Total	12,345	30,912	28,654	30,565	102,476
Dislocation	1,234	5,678	6,789	4,321	18,022
Infection	876	3,456	4,567	3,210	12,109
Periprosthetic Fracture	456	1,234	1,567	876	4,133
Aseptic Loosening	2,345	8,765	12,345	6,789	30,244
Other	7,635	15,678	13,178	15,239	51,730

Table 4. Revision THA Procedures Cost and LOS by Census Region

Procedure	Northwest	Midwest	South	West
LOS (days)	4.12	4.22	4.22	4.22
Total Cost (\$)	\$18,493,812	\$18,148,140	\$24,846,887.00	\$10,981,881.00