

Australian Orthopaedic Association National Joint Replacement Registry

2025 SUPPLEMENTARY REPORT

Shoulder Arthroplasty Comparative Analyses: No Difference Observed



Australian
Orthopaedic
Association
National
Joint
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Registry

**Shoulder Arthroplasty Comparative Analyses:
No Difference Observed**

2025 Supplementary Report

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National Joint Replacement Registry**

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Introduction

The following reported tables and figures represent analyses of Shoulder Replacement data from AOANJRR. The comparisons do not find a significant difference between the illustrated cohorts. These additional accounts of Shoulder Replacement revision rates are complimentary records to the AOANJRR Annual Report and Shoulder Replacement in Australia supplementary report.

Revision Arthroplasty Chapter

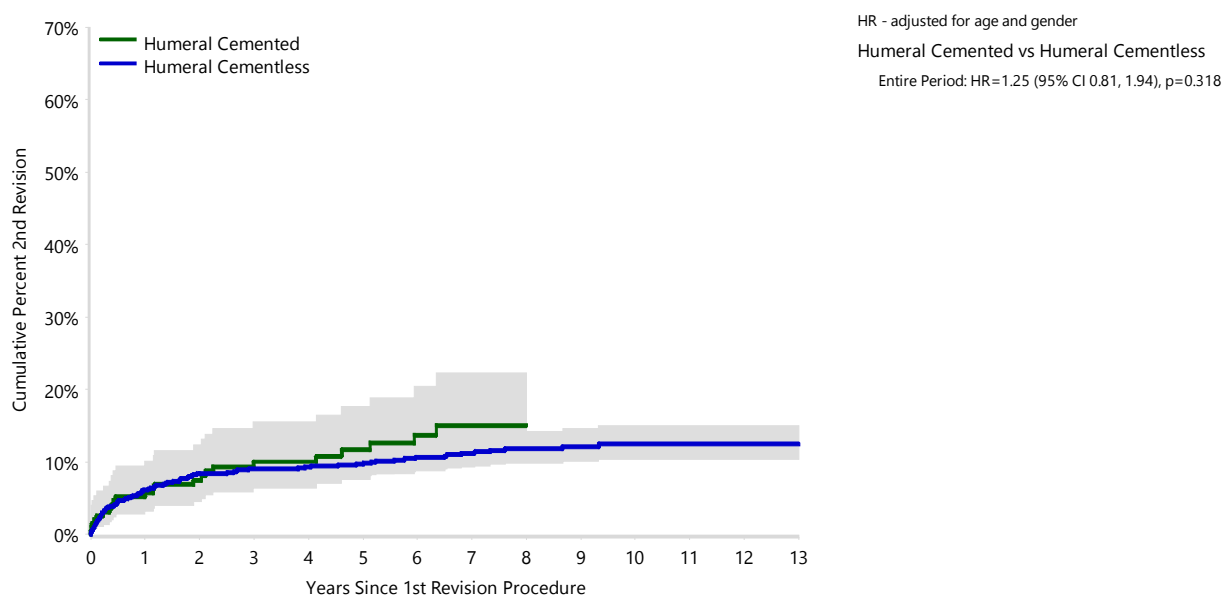
REVISION OF TOTAL STEMMED ANATOMIC SHOULDER REPLACEMENT

Table N100 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Humeral Fixation of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection)

Humeral Fixation in 1st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs
Humeral Cemented	24	197	5.7 (3.2, 10.1)	10.0 (6.4, 15.5)	11.7 (7.6, 17.6)	15.0 (10.0, 22.3)
Humeral Cementless	113	1121	6.2 (4.9, 7.8)	9.0 (7.4, 10.9)	9.7 (8.0, 11.7)	11.2 (9.3, 13.4)
No Humeral component inserted in 1st Revision	122	263	27.8 (22.8, 33.7)	40.5 (34.7, 46.8)	45.2 (39.2, 51.6)	46.7 (40.6, 53.2)
TOTAL	259	1581				

Note: Excluding 1st revisions where no minor or major humeral/glenoid components have been inserted.

Figure N100A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Humeral Fixation of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection)

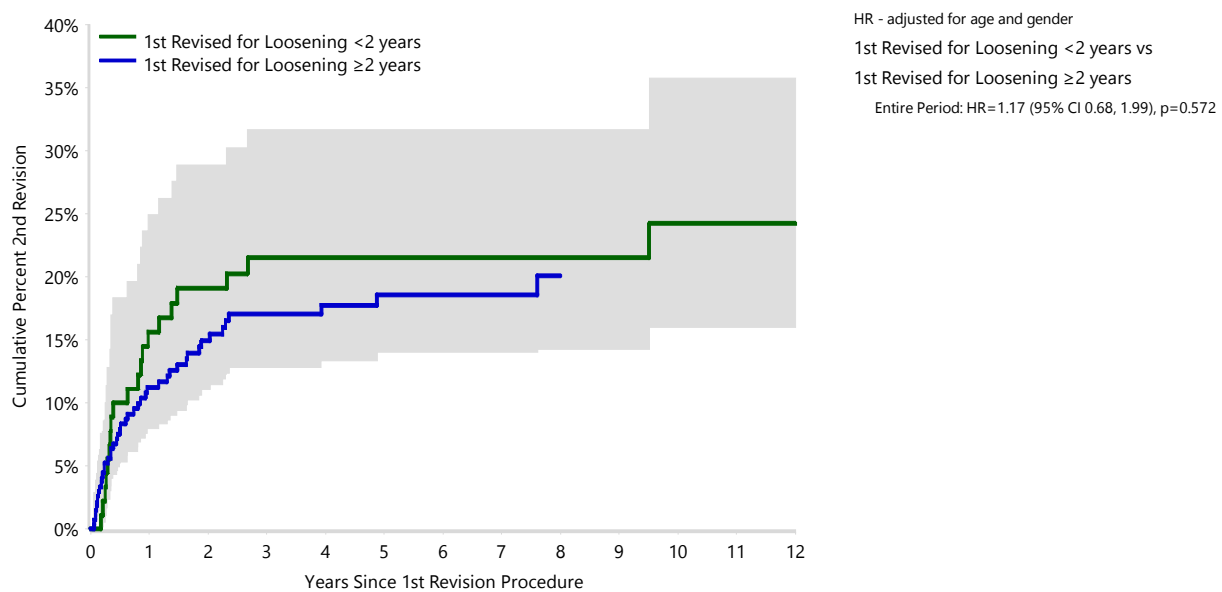


Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs
Humeral Cemented	197	166	132	97	52
Humeral Cementless	1121	954	763	615	443

Table N1 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Time of 1st Revision (All Diagnoses, 1st Revision for Loosening)

Time of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
1 st Revised for Loosening <2 years	20	91	15.6 (9.6, 24.9)	21.5 (14.3, 31.7)	21.5 (14.3, 31.7)	21.5 (14.3, 31.7)	24.2 (16.0, 35.7)
1 st Revised for Loosening ≥2 years	44	274	11.2 (7.9, 15.8)	17.0 (12.8, 22.5)	18.6 (14.0, 24.4)	18.6 (14.0, 24.4)	
TOTAL	64	365					

Figure N103A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Time of 1st Revision (All Diagnoses, 1st Revision for Loosening)

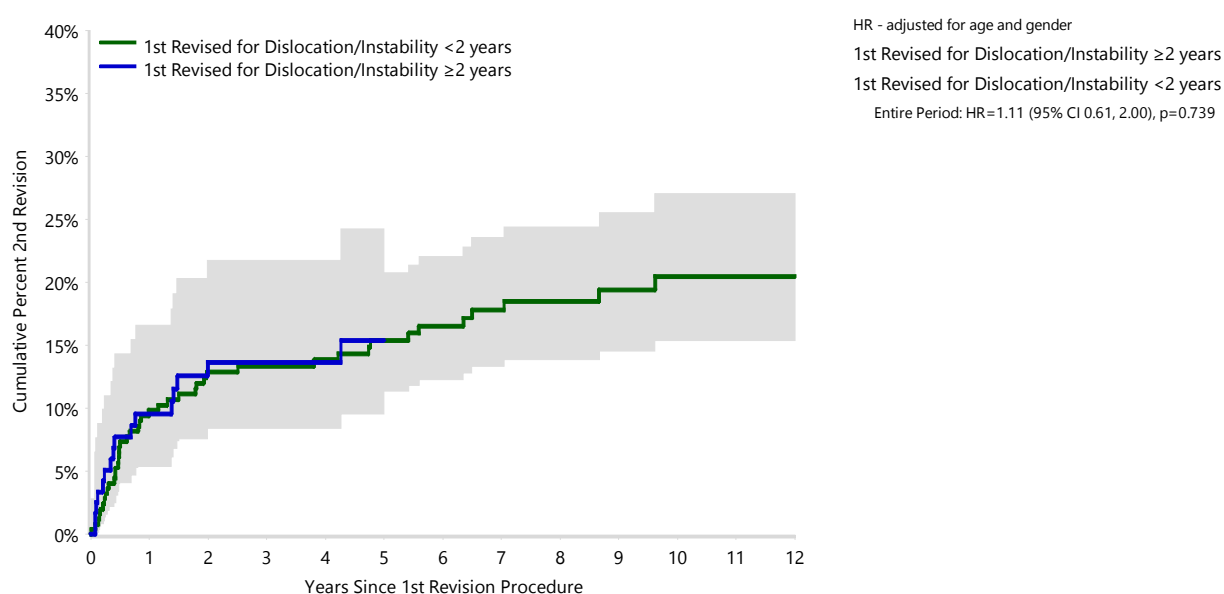


Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
1st Revised for Loosening <2 years	91	75	61	52	44	26
1st Revised for Loosening ≥2 years	274	204	133	97	59	22

Table N2 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Time of 1st Revision (All Diagnoses, 1st Revision for Instability/Dislocation)

Time of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
1 st Revised for Dislocation/Instability <2 years	43	248	9.9 (6.7, 14.3)	13.3 (9.6, 18.4)	15.4 (11.3, 20.8)	17.8 (13.3, 23.6)	20.5 (15.4, 27.0)
1 st Revised for Dislocation/Instability ≥2 years	16	119	9.5 (5.4, 16.6)	13.7 (8.4, 21.7)	15.4 (9.6, 24.2)		
TOTAL	59	367					

Figure N104A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Time of 1st Revision (All Diagnoses, 1st Revision for Instability/Dislocation)



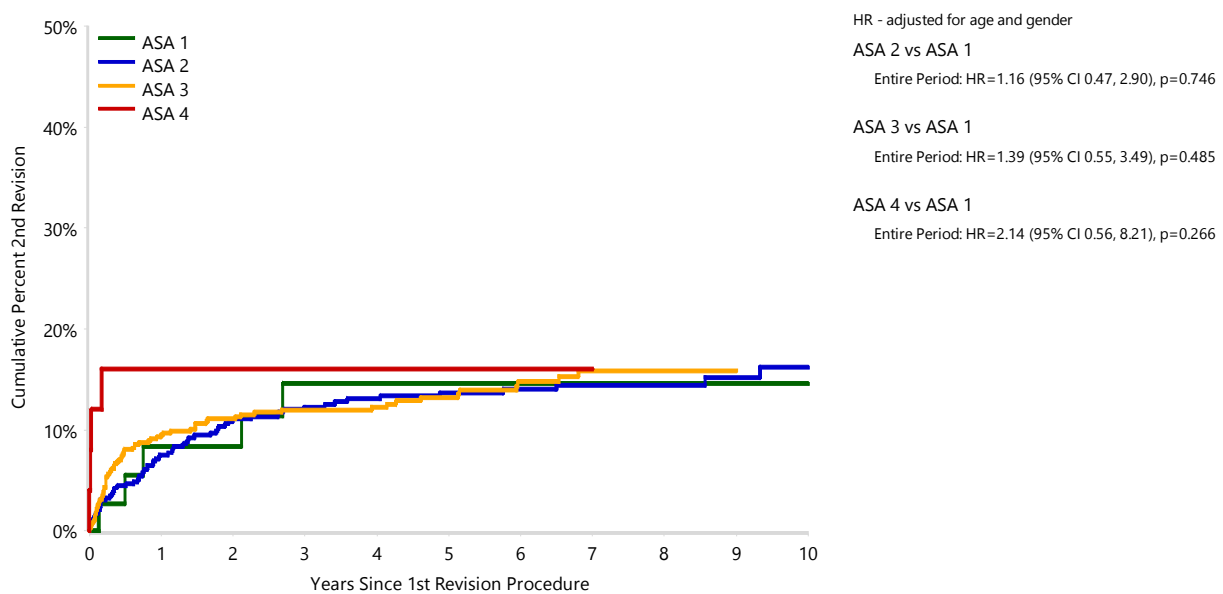
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
1 st Revised for Dislocation/Instability <2 years	248	214	184	159	118	70
1 st Revised for Dislocation/Instability ≥2 years	119	96	68	41	24	8

Table N3 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by ASA (All Diagnoses, Excluding 1st Revision for Infection)

ASA Grade	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
ASA 1	5	37	8.3 (2.8, 23.7)	14.6 (6.3, 31.6)	14.6 (6.3, 31.6)	14.6 (6.3, 31.6)	14.6 (6.3, 31.6)
ASA 2	68	527	7.5 (5.5, 10.2)	12.3 (9.6, 15.6)	13.6 (10.8, 17.1)	14.4 (11.5, 18.1)	16.2 (12.6, 20.7)
ASA 3	78	610	9.5 (7.4, 12.2)	12.0 (9.5, 15.0)	13.2 (10.6, 16.4)	15.9 (12.7, 19.8)	
ASA 4	4	25	16.0 (6.3, 37.2)	16.0 (6.3, 37.2)	16.0 (6.3, 37.2)	16.0 (6.3, 37.2)	
TOTAL	155	1199					

Note: Excludes 1st revisions where no minor or major humeral/glenoid components have been inserted.
Excludes 382 procedures with no ASA score recorded.

Figure 107A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by ASA (All Diagnoses, Excluding 1st Revision for Infection)



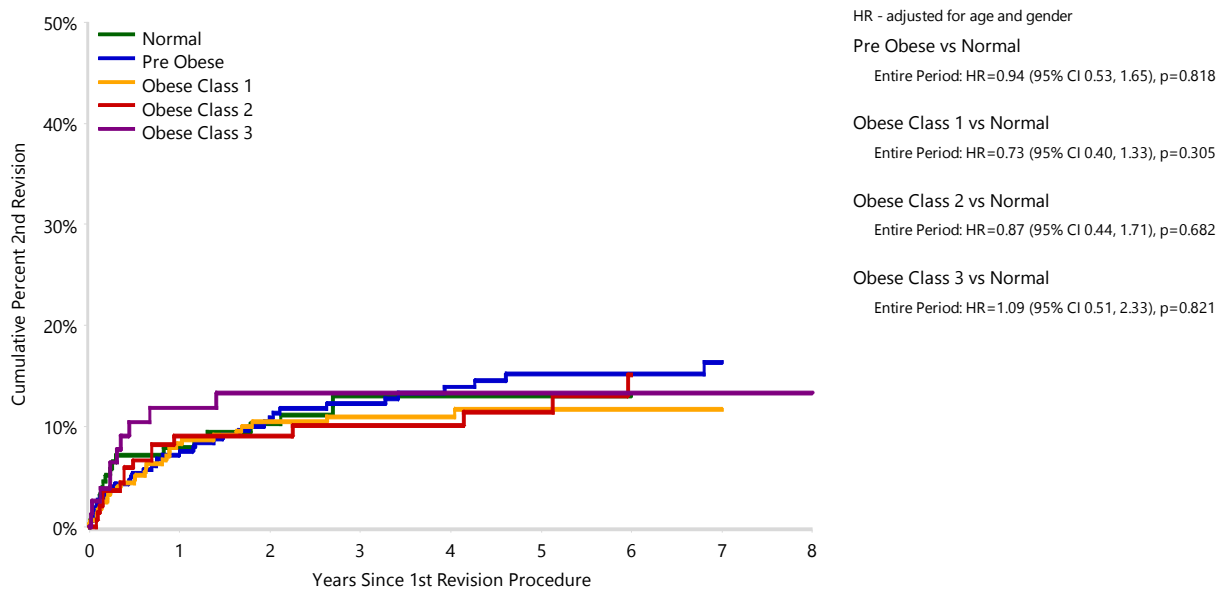
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
ASA 1	37	32	26	23	17	6
ASA 2	527	438	350	273	180	62
ASA 3	610	483	349	246	135	28
ASA 4	25	18	14	9	6	0

Table N4 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by BMI (All Diagnoses, Excluding 1st Revision for Infection)

BMI Category	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Underweight	0	6	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	
Normal	18	157	7.9 (4.6, 13.5)	10.2 (6.3, 16.4)	13.0 (8.3, 19.9)	13.0 (8.3, 19.9)	
Pre Obese	39	303	7.5 (5.0, 11.2)	10.9 (7.7, 15.2)	12.2 (8.8, 16.8)	15.2 (11.2, 20.4)	16.3 (11.9, 22.2)
Obese Class 1	29	283	8.3 (5.5, 12.3)	10.4 (7.3, 14.8)	10.9 (7.7, 15.5)	11.6 (8.2, 16.4)	11.6 (8.2, 16.4)
Obese Class 2	16	141	9.0 (5.2, 15.3)	9.0 (5.2, 15.3)	10.0 (5.9, 16.7)	11.4 (6.8, 18.7)	
Obese Class 3	11	78	11.8 (6.3, 21.5)	13.3 (7.4, 23.3)	13.3 (7.4, 23.3)	13.3 (7.4, 23.3)	13.3 (7.4, 23.3)
TOTAL	113	968					

Note: Excludes 1st revisions where no minor or major humeral/glenoid components have been inserted
Excludes 613 procedures with no BMI recorded.
BMI has not been presented for patients aged ≤19 years.

Figure N108A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by BMI (All Diagnoses, Excluding 1st Revision for Infection)



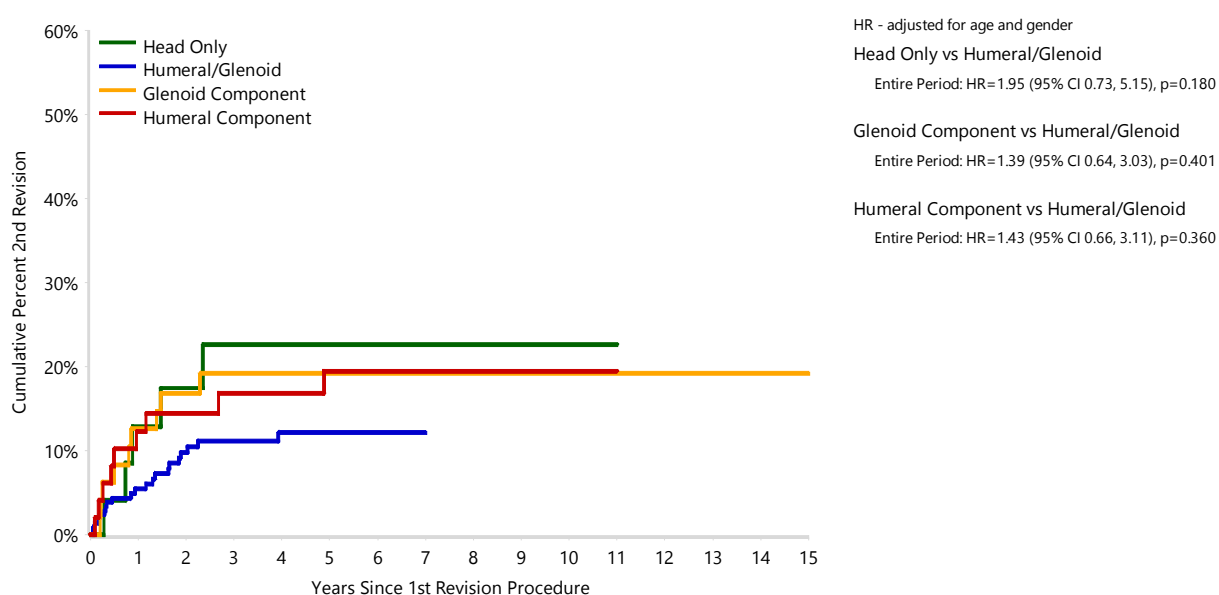
Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Normal	157	124	106	87	58	30
Pre Obese	303	239	205	172	120	66
Obese Class 1	283	228	194	162	108	57
Obese Class 2	141	111	96	75	56	23
Obese Class 3	78	61	58	53	38	18

Table N5 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Type of 1st Revision (All Diagnoses, 1st Revision for Loosening)

Type of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Head Only	5	24	12.9 (4.3, 34.8)	22.6 (10.0, 46.3)	22.6 (10.0, 46.3)	22.6 (10.0, 46.3)	22.6 (10.0, 46.3)
Humeral/Glenoid	23	213	5.5 (3.1, 9.7)	11.2 (7.3, 16.8)	12.1 (8.0, 18.2)	12.1 (8.0, 18.2)	
Glenoid Component	9	48	12.6 (5.9, 25.9)	19.2 (10.5, 33.6)	19.2 (10.5, 33.6)	19.2 (10.5, 33.6)	19.2 (10.5, 33.6)
Humeral Component	9	49	12.3 (5.7, 25.3)	16.8 (8.8, 30.9)	19.5 (10.6, 34.3)	19.5 (10.6, 34.3)	19.5 (10.6, 34.3)
TOTAL	46	334					

Note: Excludes 31 1st revisions with other minor revision types.

Figure N112A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Type of 1st Revision (All Diagnoses, 1st Revision for Loosening)



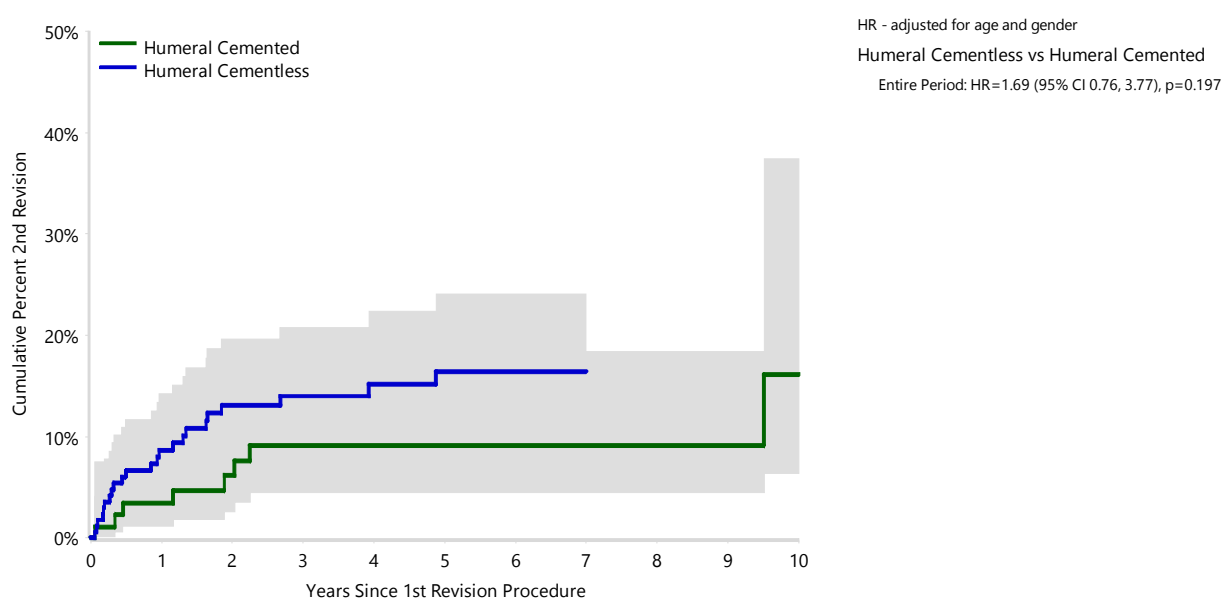
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Head Only	24	19	13	11	10	5
Humeral/Glenoid	213	166	105	74	43	15
Glenoid Component	48	41	34	32	25	15
Humeral Component	49	42	35	30	23	12

Table N6 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Humeral Fixation of 1st Revision (All Diagnoses, 1st Revision for Loosening)

Humeral Fixation in 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs
Humeral Cemented	8	91	3.4 (1.1, 10.2)	9.1 (4.4, 18.4)	9.1 (4.4, 18.4)	9.1 (4.4, 18.4)
Humeral Cementless	24	171	8.7 (5.2, 14.2)	14.0 (9.3, 20.7)	16.4 (11.1, 24.0)	16.4 (11.1, 24.0)
No Humeral component inserted in 1 st Revision	32	103	26.1 (18.6, 35.9)	32.6 (24.3, 42.9)	32.6 (24.3, 42.9)	
TOTAL	64	365				

Note: Excludes 1st revisions where no minor or major humeral/glenoid components have been inserted.

Figure N113A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Humeral Fixation of 1st Revision (All Diagnoses, 1st Revision for Loosening)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs
Humeral Cemented	91	75	54	40	23
Humeral Cementless	171	133	86	64	43

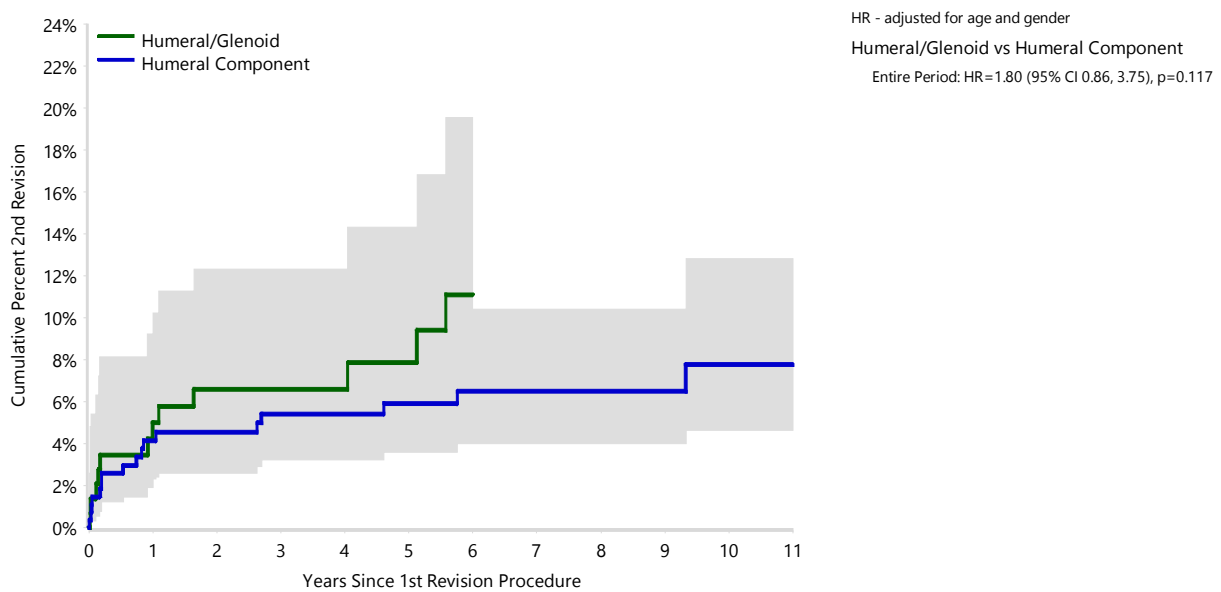
Note: Excludes 1st revisions where no minor or major humeral/glenoid components have been inserted.

Table N7 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Type of 1st Revision (All Diagnoses, 1st Revision for Rotator Cuff Insufficiency)

Type of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Humeral/Glenoid	13	144	5.0 (2.4, 10.2)	6.6 (3.5, 12.3)	7.9 (4.2, 14.3)		
Glenoid Component	0	1					
Humeral Component	17	270	4.2 (2.3, 7.4)	5.4 (3.3, 9.0)	5.9 (3.6, 9.7)	6.5 (4.0, 10.4)	7.8 (4.7, 12.8)
TOTAL	30	415					

Note: Excludes 11 1st revisions with other minor revision types.

Figure N115A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Type of 1st Revision (All Diagnoses, 1st Revision for Rotator Cuff Insufficiency)



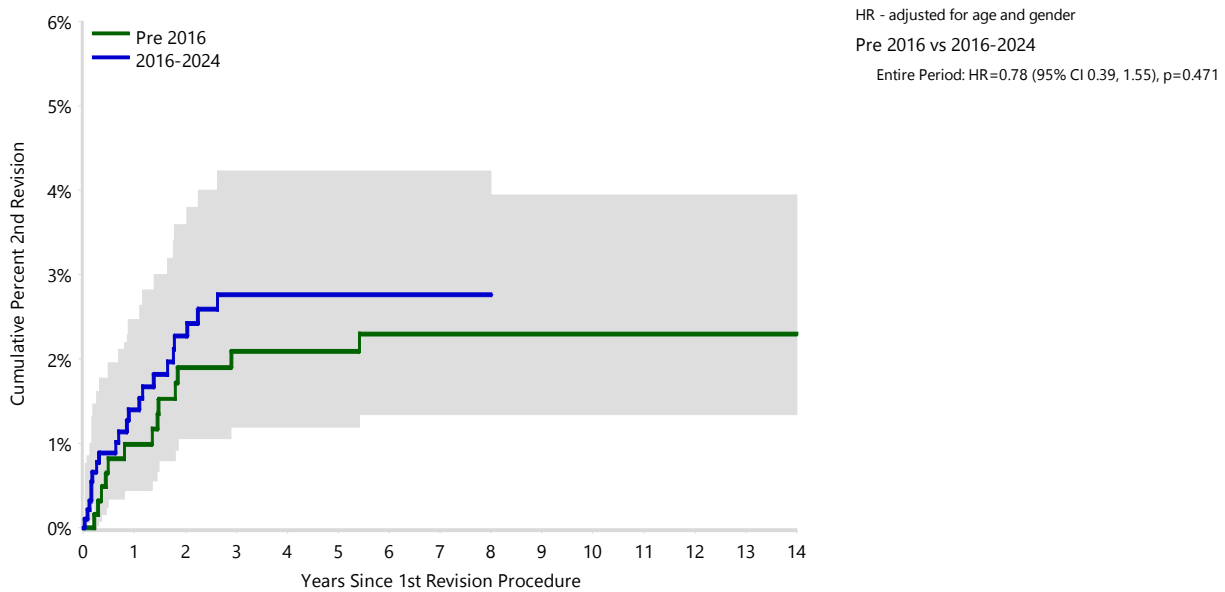
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Humeral/Glenoid	144	123	88	64	31	8
Humeral Component	270	239	213	180	135	62

Table N8 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Infection)

Year of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Pre 2016	13	643	1.0 (0.4, 2.2)	2.1 (1.2, 3.7)	2.1 (1.2, 3.7)	2.3 (1.3, 3.9)	2.3 (1.3, 3.9)	2.3 (1.3, 3.9)
2016-2024	21	938	1.4 (0.8, 2.5)	2.8 (1.8, 4.2)	2.8 (1.8, 4.2)	2.8 (1.8, 4.2)		
TOTAL	34	1581						

Note: Excludes revisions where no minor or major humeral/glenoid components have been inserted.

Figure N118A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Infection)

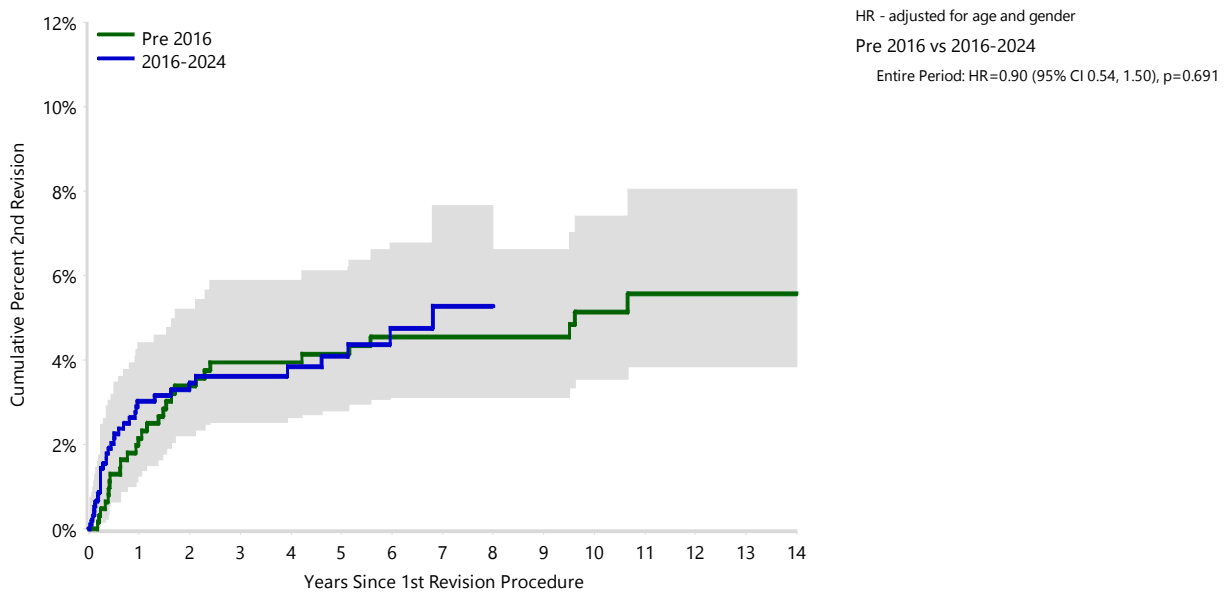


Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Pre 2016	643	566	503	474	431	289	46
2016-2024	938	736	523	347	155	0	0

Table N9 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Loosening)

Year of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Pre 2016	29	643	2.1 (1.3, 3.7)	3.9 (2.6, 5.9)	4.1 (2.8, 6.1)	4.6 (3.1, 6.6)	5.1 (3.6, 7.4)	5.6 (3.8, 8.0)
2016-2024	35	938	3.0 (2.1, 4.4)	3.6 (2.5, 5.1)	4.1 (2.9, 5.8)	5.3 (3.6, 7.7)		
TOTAL	64	1581						

Figure N119A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Anatomic Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Loosening)

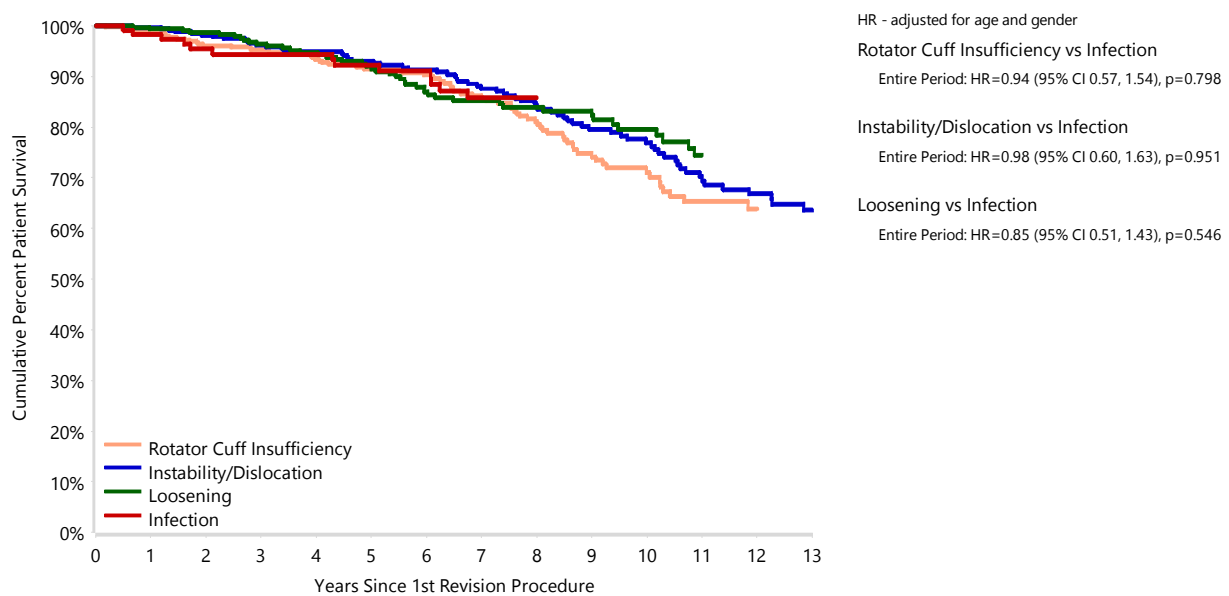


Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Pre 2016	528	461	405	382	347	289	46
2016-2024	1053	841	621	439	239	0	0

Table N10 Cumulative Percent Survival of Patients with Known Primary Total Stemmed Anatomic Replacement since 1st Revised by Reason for 1st Revision

Reason for 1 st Revision	N Deceased	N Total	30 Days	90 Days	1 Yr	3 Yrs	5 Yrs	10 Yrs
Rotator Cuff Insufficiency	76	414	100.0 (100.0, 100.0)	99.8 (98.3, 100.0)	99.0 (97.4, 99.6)	95.2 (92.5, 97.0)	91.4 (87.9, 93.9)	71.0 (64.1, 76.9)
Instability/Dislocation	73	357	100.0 (100.0, 100.0)	100.0 (100.0, 100.0)	99.7 (97.9, 100.0)	96.2 (93.4, 97.8)	92.9 (89.4, 95.3)	76.9 (70.6, 82.1)
Loosening	53	355	100.0 (100.0, 100.0)	100.0 (100.0, 100.0)	99.4 (97.5, 99.8)	96.4 (93.4, 98.0)	91.5 (87.2, 94.4)	79.6 (72.7, 84.9)
Infection	21	116	100.0 (100.0, 100.0)	100.0 (100.0, 100.0)	98.2 (93.2, 99.6)	94.4 (87.9, 97.5)	92.2 (85.0, 96.0)	
TOTAL	223	1242						

Figure N122A Cumulative Percent Survival of Patients with Mortality of Known Primary Total Stemmed Anatomic Replacement since 1st Revised by Reason for 1st Revision

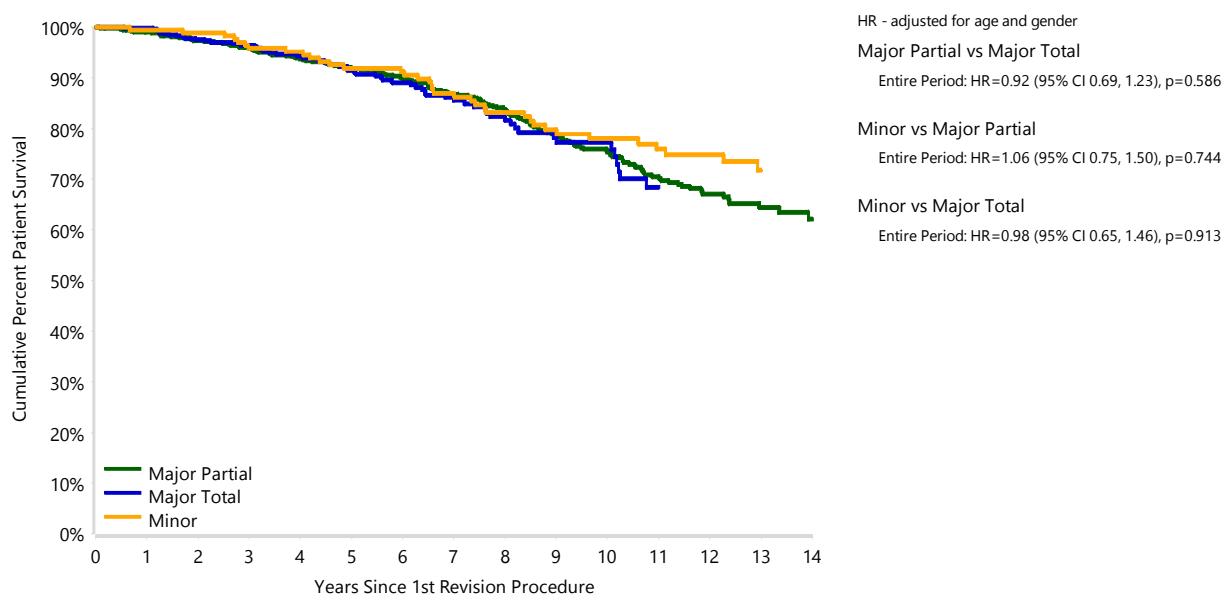


Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Rotator Cuff Insufficiency	414	382	325	266	184	80
Instability/Dislocation	357	334	288	238	183	111
Loosening	355	313	237	191	136	74
Infection	116	111	92	81	59	25

Table N11 Cumulative Percent Survival of Patients with Known Primary Total Stemmed Anatomic Shoulder Procedures since 1st Revised by Reason for 1st Revision (Excluding 1st Revision for Infection)

Type of 1 st Revision	N Deceased	N Total	30 Days	90 Days	1 Yr	3 Yrs	5 Yrs	10 Yrs
Major Partial	175	820	99.9 (99.1, 100.0)	99.8 (99.0, 99.9)	99.0 (98.0, 99.5)	95.9 (94.3, 97.1)	91.9 (89.7, 93.7)	75.4 (71.5, 78.8)
Major Total	64	533	100.0 (100.0, 100.0)	100.0 (100.0, 100.0)	99.8 (98.6, 100.0)	96.5 (94.2, 97.9)	91.5 (88.1, 94.1)	77.2 (70.4, 82.6)
Minor	39	183	100.0 (100.0, 100.0)	100.0 (100.0, 100.0)	99.4 (96.1, 99.9)	95.8 (91.4, 98.0)	91.9 (86.5, 95.2)	78.0 (70.0, 84.1)
TOTAL	278	1536						

Figure N123A Cumulative Percent Survival of Patients with Known Primary Total Stemmed Anatomic Shoulder Procedures since 1st Revised by Reason for 1st Revision (Excluding 1st Revision for Infection)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Major Partial	820	778	693	597	471	263
Major Total	533	457	336	246	148	58
Minor	183	175	156	138	117	81

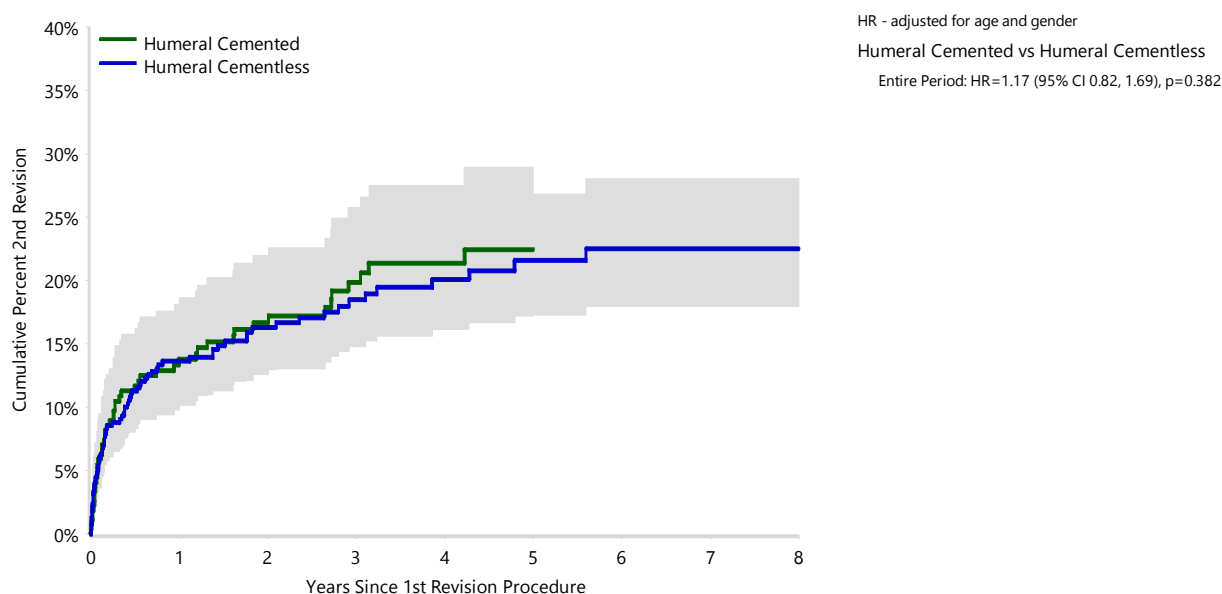
REVISION OF TOTAL STEMMED REVERSE SHOULDER REPLACEMENT

Table N12 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Humeral Fixation of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection)

Humeral Fixation in 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs
Humeral Cemented	51	271	13.8 (10.1, 18.6)	19.9 (15.2, 25.8)	22.4 (17.2, 29.0)	
Humeral Cementless	77	447	13.6 (10.7, 17.3)	18.5 (14.8, 22.9)	21.6 (17.3, 26.8)	22.5 (17.9, 28.0)
No Humeral Component Inserted in 1 st Revision	238	1133	14.9 (12.9, 17.2)	19.6 (17.3, 22.2)	23.5 (20.8, 26.4)	24.7 (21.9, 27.8)
TOTAL	366	1851				

Note: Excluding 1st revisions where no minor or major humeral/glenoid components have been inserted.

Figure N131A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Humeral Fixation of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection)

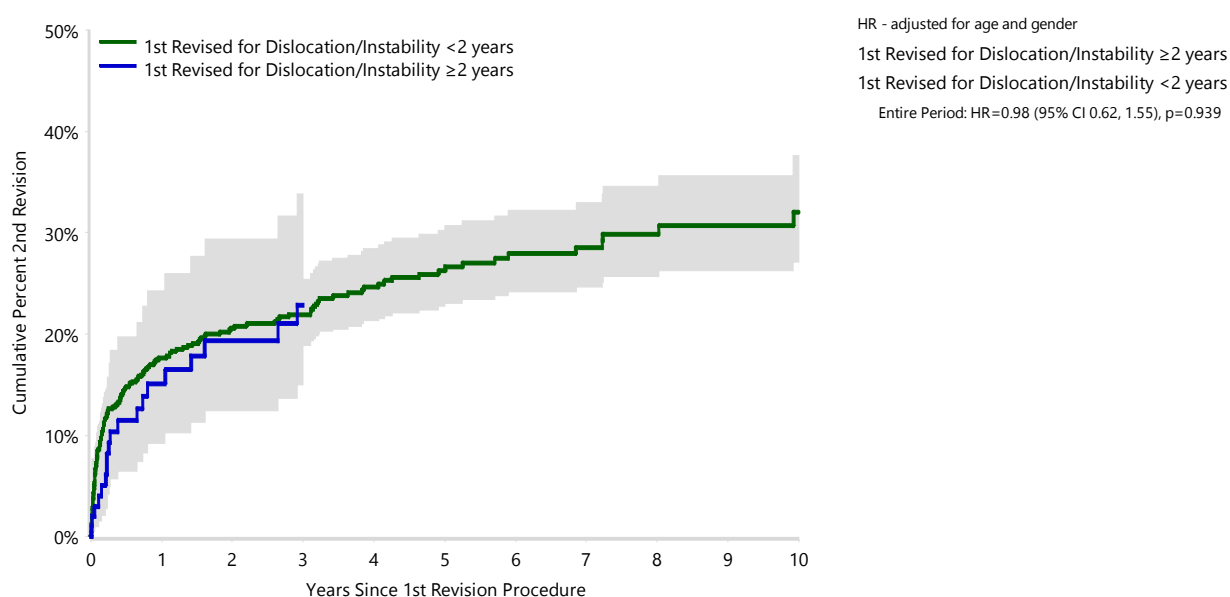


Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs
Humeral Cemented	271	193	114	51	23
Humeral Cementless	447	304	167	95	59

Table N13 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Timing of 1st Revision (All Diagnoses, 1st Revision for Instability/Dislocation)

Timing of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
1 st Revised for Dislocation/Instability <2 years	164	681	17.6 (14.9, 20.8)	21.9 (18.9, 25.4)	26.3 (22.7, 30.3)	28.5 (24.6, 32.9)	32.0 (27.0, 37.6)
1 st Revised for Dislocation/Instability ≥2 years	22	101	15.1 (9.2, 24.3)	22.8 (15.0, 33.8)			
TOTAL	186	782					

Figure N135A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Time of 1st Revision (All Diagnoses, 1st Revision for Instability/Dislocation)

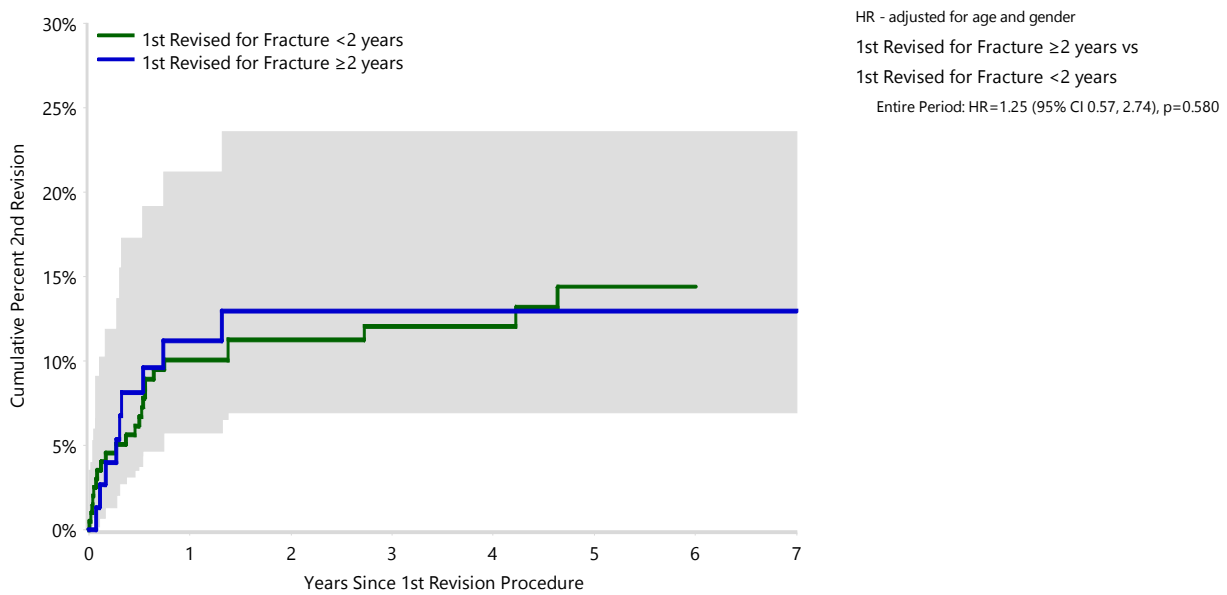


Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
1st Revised for Dislocation/Instability <2 years	681	481	308	198	113	49
1st Revised for Dislocation/Instability ≥2 years	101	64	44	23	11	4

Table N14 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Timing of 1st Revision (All Diagnoses, 1st Revision for Fracture)

Timing of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs
1 st Revised for Fracture <2 years	25	198	10.0 (6.5, 15.3)	12.1 (8.1, 17.8)	14.4 (9.7, 21.2)	
1 st Revised for Fracture ≥2 years	9	75	11.2 (5.8, 21.2)	13.0 (6.9, 23.6)	13.0 (6.9, 23.6)	13.0 (6.9, 23.6)
TOTAL	34	273				

Figure N136A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Time of 1st Revision (All Diagnoses, 1st Revision for Fracture)



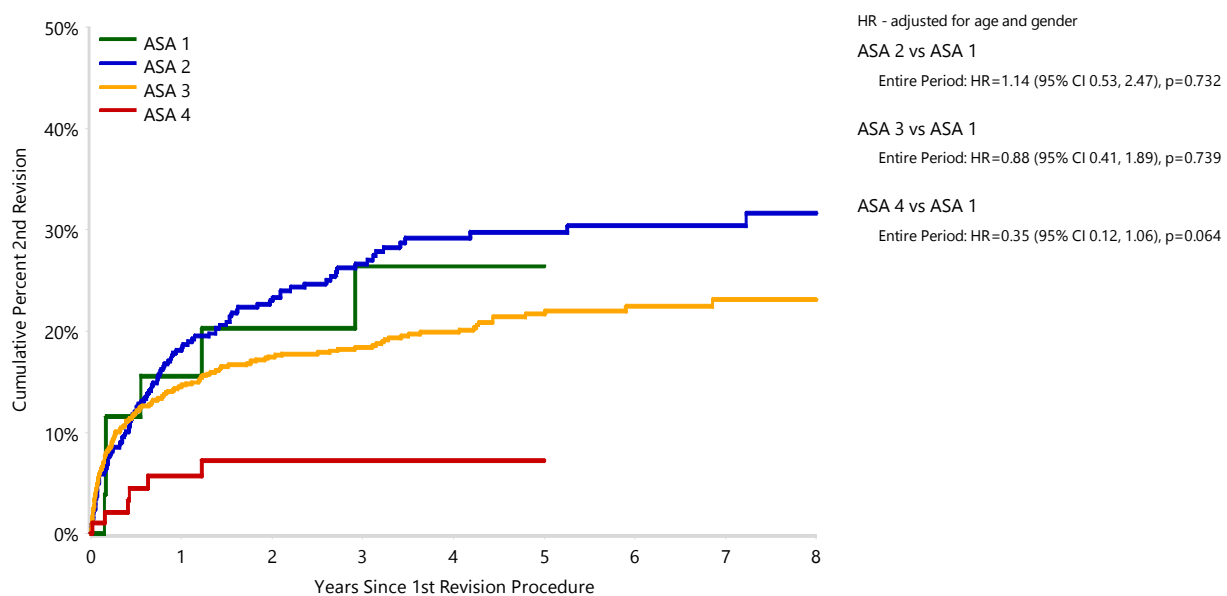
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs
1 st Revised for Fracture <2 years	198	154	105	62	36
1 st Revised for Fracture ≥2 years	75	55	34	20	13

**Table N15 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by ASA
(All Diagnoses, Excluding 1st Revision for Infection)**

ASA Grade	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs
ASA 1	7	28	15.6 (6.1, 36.3)	26.4 (12.5, 50.5)	26.4 (12.5, 50.5)	
ASA 2	110	430	18.1 (14.7, 22.2)	26.6 (22.3, 31.5)	29.7 (25.1, 34.9)	30.4 (25.6, 35.7)
ASA 3	197	1077	14.6 (12.6, 16.9)	18.4 (16.1, 21.0)	21.7 (18.9, 24.7)	23.1 (20.0, 26.6)
ASA 4	6	95	5.7 (2.4, 13.2)	7.2 (3.3, 15.4)	7.2 (3.3, 15.4)	
TOTAL	320	1630				

Note: Excludes 1st revisions where no minor or major humeral/glenoid components have been inserted.
Excludes 221 procedures with no ASA recorded.

**Figure N138A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by ASA
(All Diagnoses, Excluding 1st Revision for Infection)**



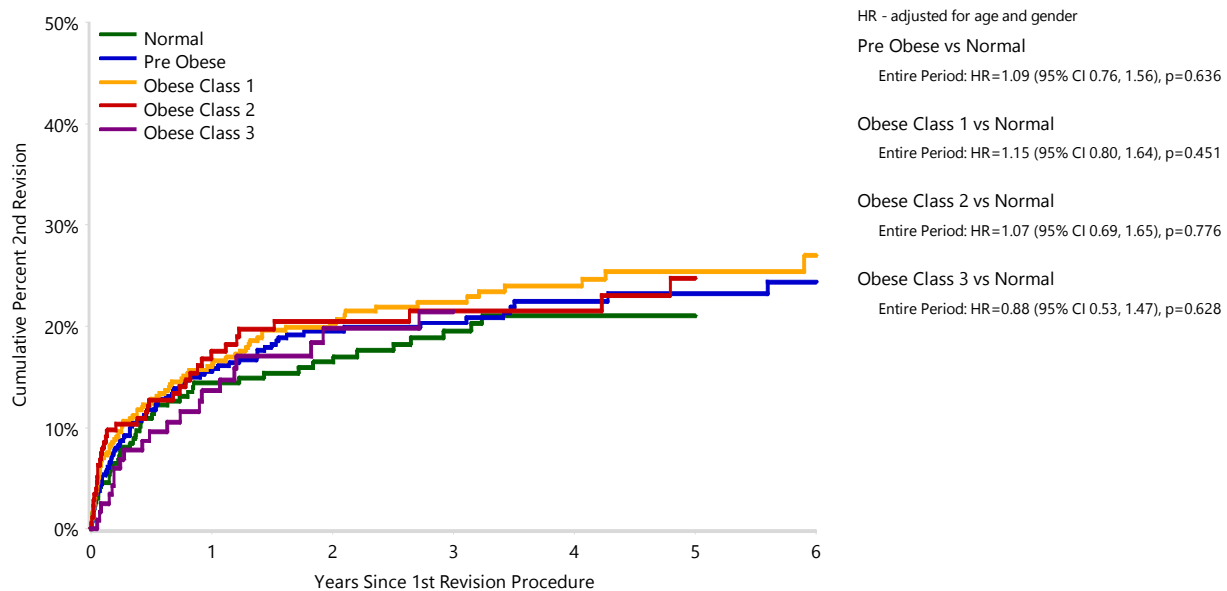
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
ASA 1	28	19	12	5	3	1
ASA 2	430	302	181	110	64	11
ASA 3	1077	745	468	254	108	14
ASA 4	95	68	30	13	6	0

Table N16 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by BMI (All Diagnoses, Excluding 1st Revision for Infection)

BMI Category	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Underweight	2	19	5.3 (0.8, 31.9)	5.3 (0.8, 31.9)	21.1 (4.8, 68.2)			
Normal	48	266	14.4 (10.6, 19.4)	16.5 (12.3, 21.8)	19.6 (14.9, 25.5)	21.0 (16.1, 27.2)	21.0 (16.1, 27.2)	
Pre Obese	84	432	15.5 (12.3, 19.5)	19.5 (15.9, 23.9)	20.3 (16.6, 24.8)	22.5 (18.3, 27.3)	23.2 (18.9, 28.3)	24.4 (19.7, 30.0)
Obese Class 1	85	403	16.0 (12.7, 20.1)	20.3 (16.5, 24.9)	22.4 (18.3, 27.2)	24.0 (19.7, 29.1)	25.4 (20.8, 30.9)	27.0 (21.7, 33.2)
Obese Class 2	36	176	17.5 (12.5, 24.3)	20.5 (15.0, 27.7)	21.5 (15.8, 28.9)	21.5 (15.8, 28.9)	24.8 (18.0, 33.4)	
Obese Class 3	22	122	13.6 (8.4, 21.6)	19.8 (13.1, 29.2)	21.4 (14.3, 31.3)			
TOTAL	277	1418						

Note: Excludes 1st revisions where no minor or major humeral/glenoid components have been inserted.
Excludes 433 procedures are excluded as BMI has not been recorded.
BMI has not been presented for patients aged ≤19 years.

Figure N139A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by BMI (All Diagnoses, Excluding 1st Revision for Infection)



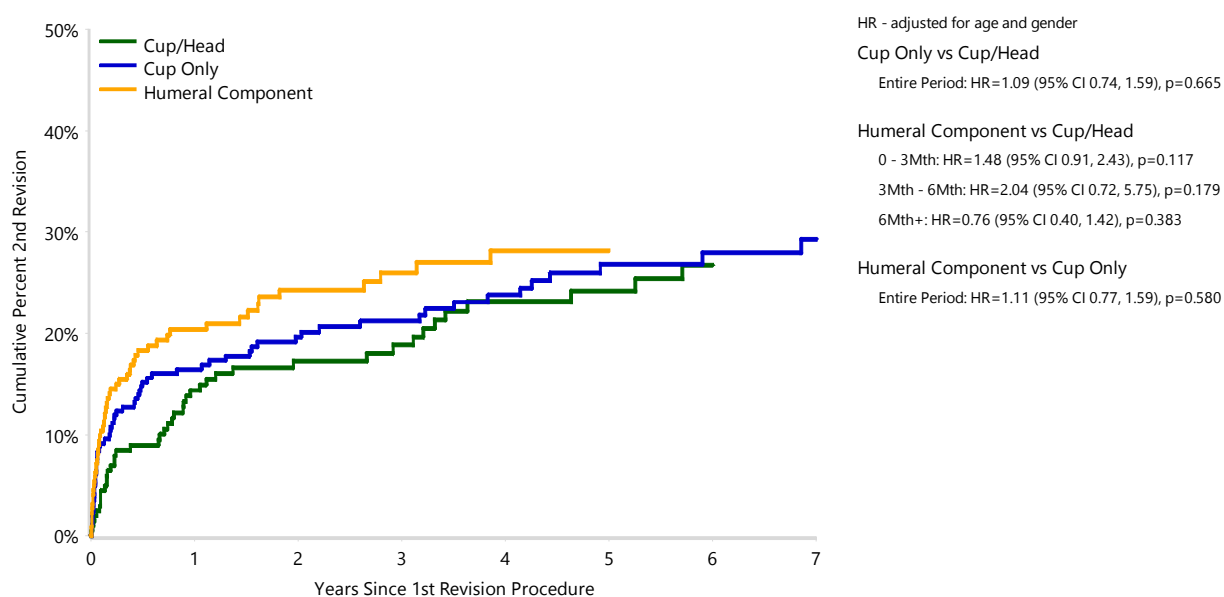
Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Normal	266	184	152	117	83	61	37
Pre Obese	432	295	221	168	116	78	54
Obese Class 1	403	274	208	153	117	75	45
Obese Class 2	176	116	92	68	54	41	28
Obese Class 3	122	80	55	45	36	26	16

Table N17 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Type of 1st Revision (All Diagnoses, 1st Revision for Instability/Dislocation)

Type of 1 st Revision	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Cup/Head	46	204	14.4 (10.1, 20.1)	17.3 (12.6, 23.5)	18.8 (13.8, 25.4)	24.1 (18.1, 31.7)	
Cup Only	65	264	16.4 (12.4, 21.6)	19.6 (15.2, 25.2)	21.2 (16.5, 26.9)	26.8 (21.2, 33.5)	29.3 (23.1, 36.7)
Humeral Component	54	224	20.4 (15.6, 26.4)	24.2 (18.9, 30.8)	26.0 (20.3, 32.9)	28.2 (22.0, 35.6)	
TOTAL	165	692					

Note: Excludes 90 1st revisions with other revision types.

Figure N145A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Type of 1st Revision (All Diagnoses, 1st Revision for Instability/Dislocation)



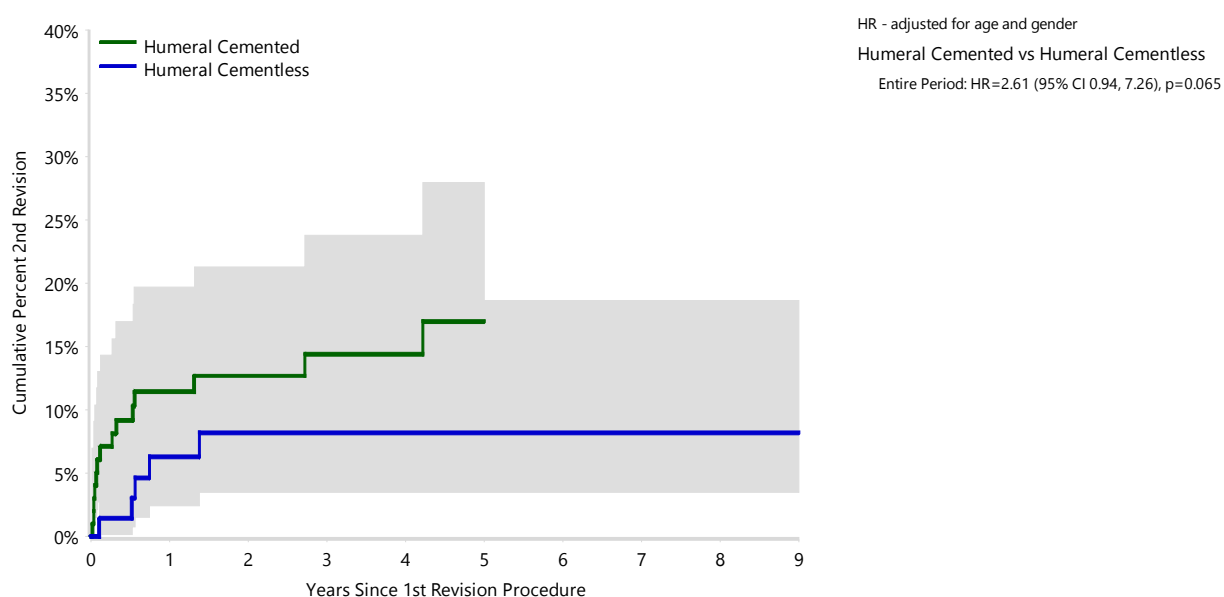
Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Cup/Head	204	155	123	101	64	39
Cup Only	264	191	163	134	83	47
Humeral Component	224	140	106	77	46	26

Table N18 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Humeral Fixation in 1st Revision (All Diagnoses, 1st Revision for Fracture)

Humeral Fixation in 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs
Humeral Cemented	15	99	11.4 (6.5, 19.7)	14.4 (8.5, 23.8)	17.0 (10.0, 28.0)	
Humeral Cementless	5	70	6.3 (2.4, 16.0)	8.2 (3.5, 18.7)	8.2 (3.5, 18.7)	8.2 (3.5, 18.7)
No Humeral component inserted in 1 st Revision	14	104	11.9 (6.9, 20.0)	13.1 (7.8, 21.5)		
TOTAL	34	273				

Note: Excludes 1 humeral component revision with unknown fixation.

Figure N147A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Humeral Fixation in 1st Revision (All Diagnoses, 1st Revision for Fracture)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs
Humeral Cemented	99	72	46	19	8
Humeral Cementless	70	56	37	26	18

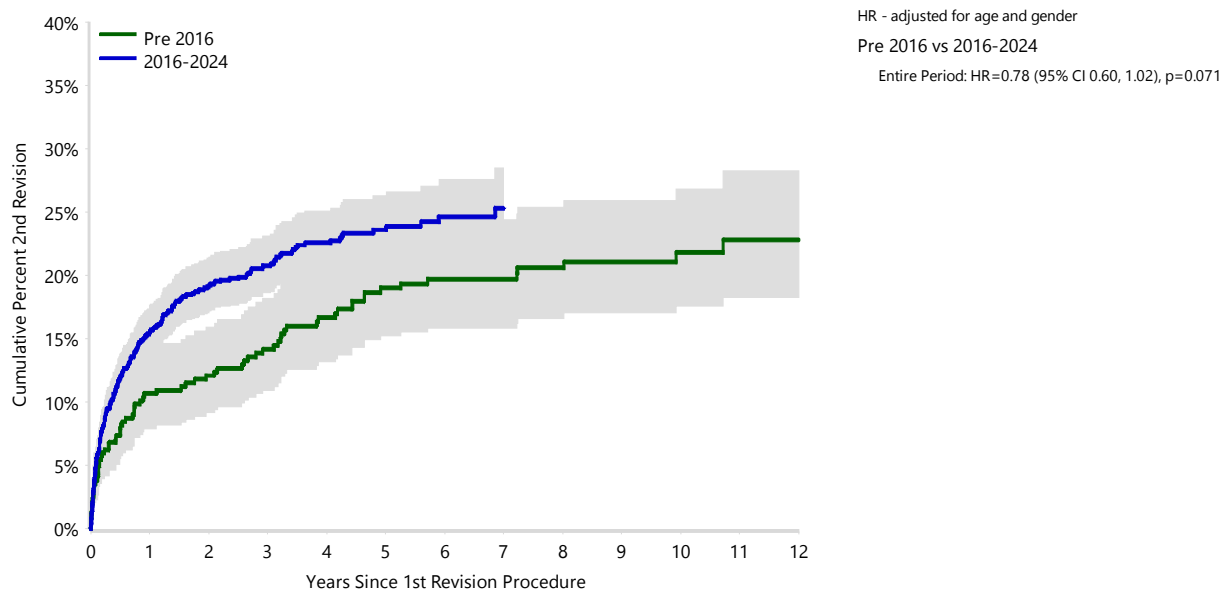
Note: Excludes 1 humeral component revision with unknown fixation.

Table N19 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection)

Year of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Pre 2016	75	368	10.7 (7.9, 14.3)	14.2 (11.0, 18.2)	19.0 (15.2, 23.6)	19.7 (15.9, 24.4)	21.8 (17.6, 26.9)
2016-2024	291	1483	15.5 (13.7, 17.5)	20.8 (18.6, 23.1)	23.6 (21.2, 26.3)	25.3 (22.4, 28.5)	
TOTAL	366	1851					

Note: Excludes revisions where no minor or major humeral/glenoid components have been inserted.

Figure N148A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection)



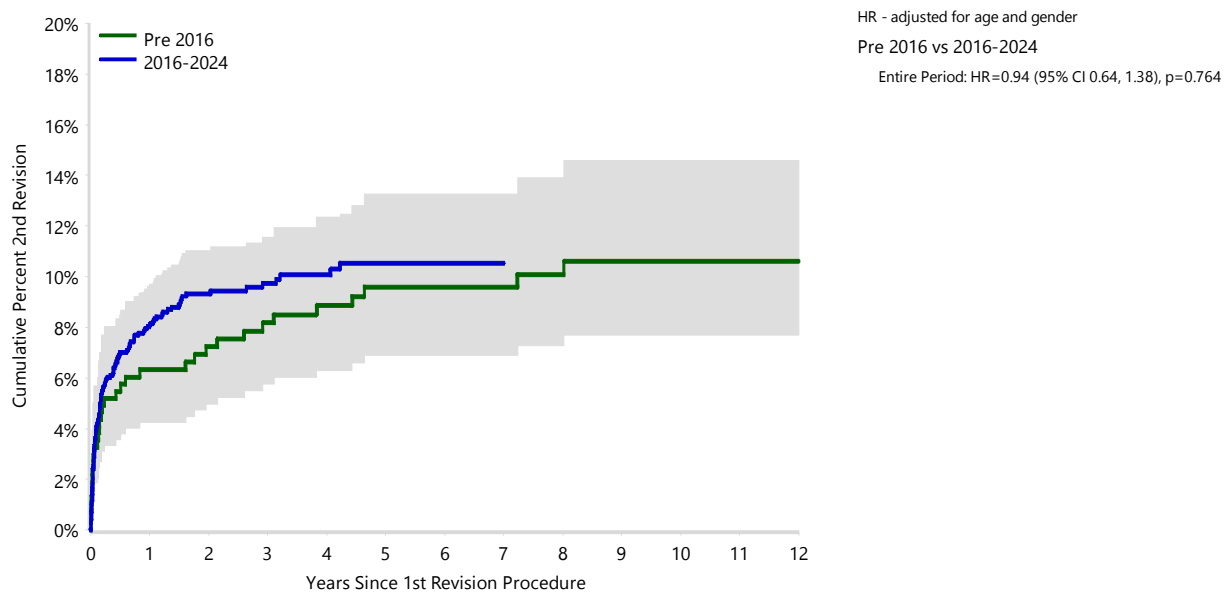
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Pre 2016	368	320	281	234	186	105
2016-2024	1483	1007	579	285	106	0

Table N20 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Dislocation/Instability)

Year of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Pre 2016	35	368	6.3 (4.2, 9.4)	8.2 (5.7, 11.6)	9.6 (6.9, 13.3)	9.6 (6.9, 13.3)	10.6 (7.7, 14.6)
2016-2024	132	1483	8.1 (6.7, 9.6)	9.7 (8.2, 11.5)	10.5 (8.9, 12.5)	10.5 (8.9, 12.5)	
TOTAL	167	1851					

Note: Excludes revisions where no minor or major humeral/glenoid components have been inserted.

Figure N149A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Dislocation/Instability)



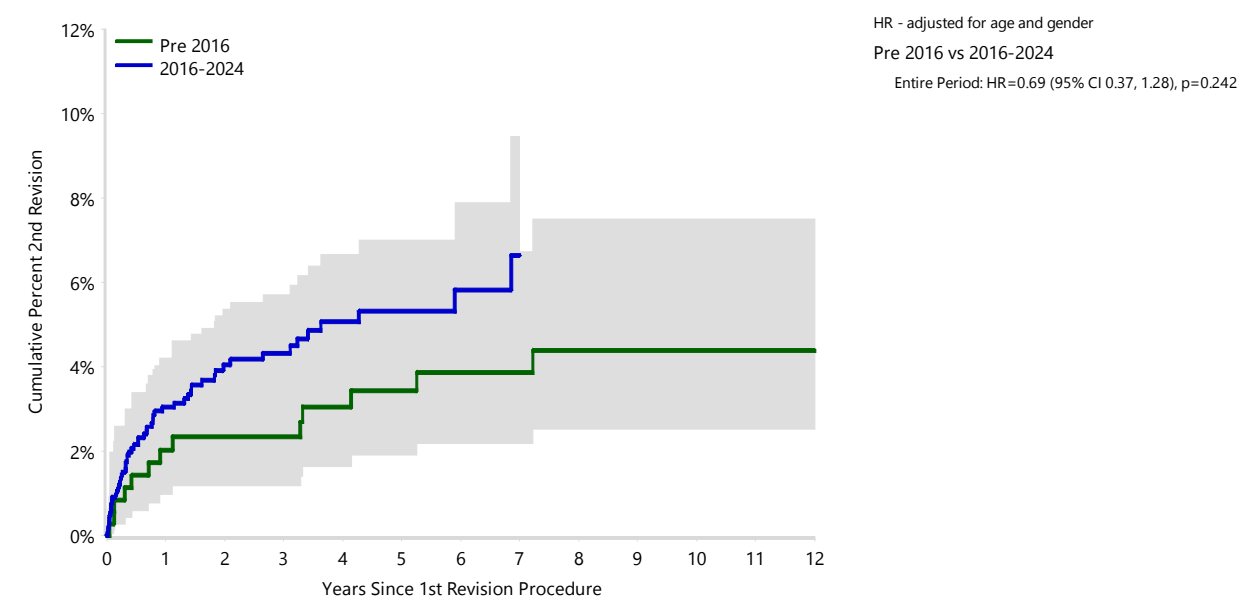
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Pre 2016	368	320	281	234	186	105	22
2016-2024	1483	1007	579	285	106	0	0

Table N21 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Infection)

Year of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Pre 2016	13	368	2.0 (1.0, 4.2)	2.3 (1.2, 4.6)	3.4 (1.9, 6.1)	3.9 (2.2, 6.7)	4.4 (2.5, 7.5)
2016-2024	57	1483	3.0 (2.2, 4.1)	4.3 (3.3, 5.7)	5.3 (4.0, 7.0)	6.6 (4.6, 9.5)	
TOTAL	70	1851					

Note: Excludes revisions where no minor or major humeral/glenoid components have been inserted.

Figure N150A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Infection)



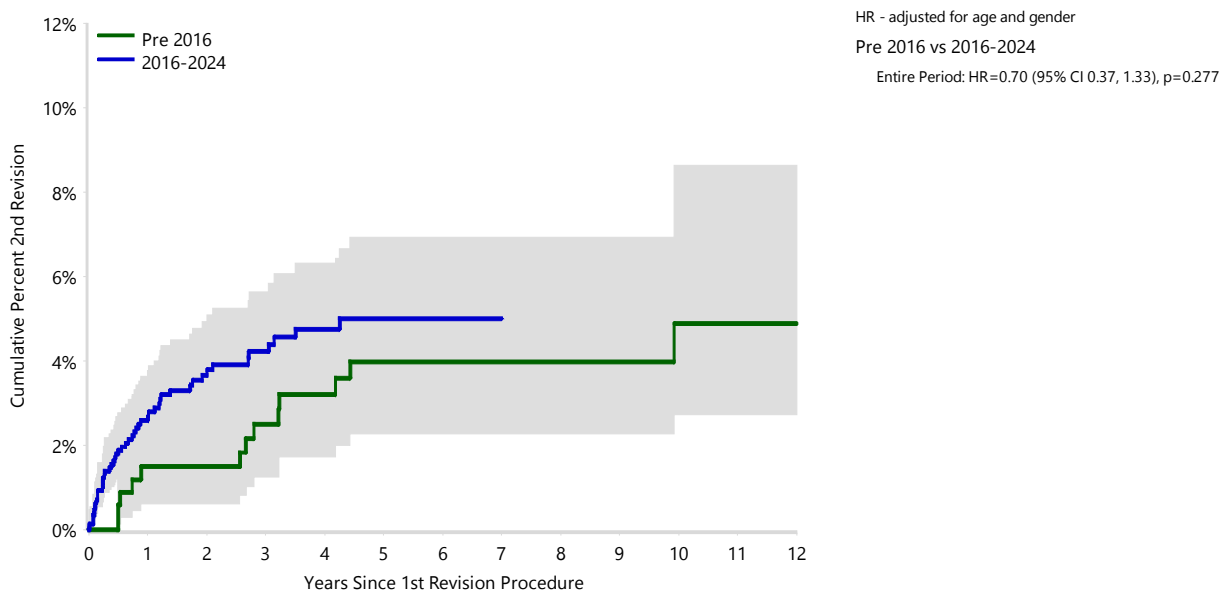
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Pre 2016	368	320	281	234	186	105	22
2016-2024	1483	1007	579	285	106	0	0

Table N22 Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Loosening)

Year of 1 st Revision	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Pre 2016	15	368	1.5 (0.6, 3.6)	2.5 (1.3, 5.0)	4.0 (2.3, 6.9)	4.0 (2.3, 6.9)	4.9 (2.7, 8.6)
2016-2024	51	1483	2.6 (1.9, 3.6)	4.2 (3.2, 5.6)	5.0 (3.8, 6.7)	5.0 (3.8, 6.7)	
TOTAL	66	1851					

Note: Excludes revisions where no minor or major humeral/glenoid components have been inserted.

Figure N151A Cumulative Percent 2nd Revision of Known Primary Total Stemmed Reverse Replacement by Year of 1st Revision (All Diagnoses, Excluding 1st Revision for Infection, 2nd Revision for Loosening)

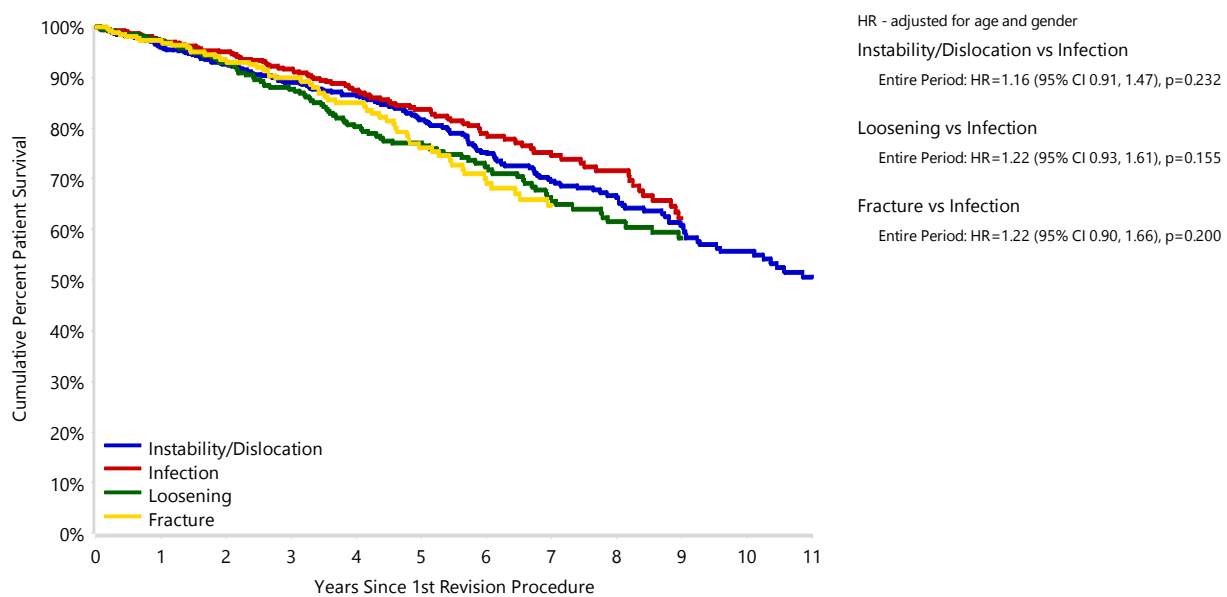


Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Pre 2016	368	320	281	234	186	105	22
2016-2024	1483	1007	579	285	106	0	0

Table N23 Cumulative Percent Survival of Patients with Known Primary Total Stemmed Reverse Replacement since 1st Revised by Reason for 1st Revision

Reason for 1 st Revision	N Deceased	N Total	30 Days	90 Days	1 Yr	3 Yrs	5 Yrs	10 Yrs
Instability/Dislocation	182	765	99.9 (99.1, 100.0)	98.9 (97.9, 99.5)	96.0 (94.2, 97.2)	89.0 (86.3, 91.2)	81.6 (77.9, 84.7)	55.7 (49.3, 61.6)
Infection	107	617	99.7 (98.7, 99.9)	99.2 (98.0, 99.7)	97.2 (95.5, 98.3)	91.7 (88.8, 93.8)	83.6 (79.4, 87.1)	
Loosening	107	395	99.5 (98.0, 99.9)	99.2 (97.6, 99.8)	97.3 (95.0, 98.5)	87.7 (83.5, 90.9)	77.0 (71.4, 81.6)	
Fracture	70	267	100.0 (100.0, 100.0)	99.2 (97.0, 99.8)	97.3 (94.3, 98.7)	89.9 (85.0, 93.3)	76.2 (68.9, 82.0)	
TOTAL	466	2044						

Figure N155A Cumulative Percent Survival of Patients with Known Primary Total Stemmed Reverse Replacement since 1st Revised by Reason for 1st Revision

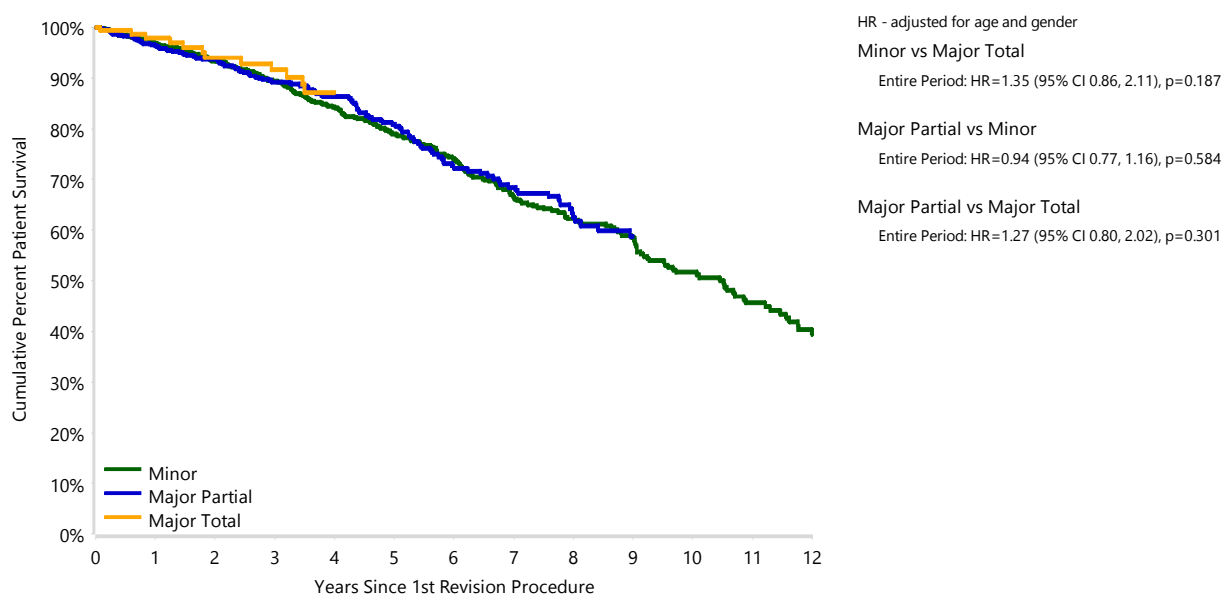


Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Instability/Dislocation	765	655	443	297	170	77
Infection	617	523	343	202	110	33
Loosening	395	336	234	144	92	33
Fracture	267	228	155	97	58	12

Table N24 Cumulative Percent Survival of Patients with Known Primary Total Stemmed Reverse Shoulder Procedures since 1st Revised by Type of 1st Revision (Excluding 1st Revision for Infection)

Type of 1 st Revision	N Deceased	N Total	30 Days	90 Days	1 Yr	3 Yrs	5 Yrs	10 Yrs
Minor	269	933	99.9 (99.2, 100.0)	99.2 (98.4, 99.6)	96.8 (95.4, 97.8)	89.4 (87.0, 91.3)	78.9 (75.6, 81.8)	51.6 (46.3, 56.7)
Major Partial	140	716	99.9 (99.0, 100.0)	99.1 (98.1, 99.6)	96.4 (94.6, 97.6)	89.3 (86.4, 91.6)	80.9 (76.7, 84.4)	
Major Total	21	157	99.4 (95.5, 99.9)	99.4 (95.5, 99.9)	97.9 (93.5, 99.3)	91.6 (84.2, 95.6)		
TOTAL	430	1806						

Figure N156A Cumulative Percent Survival of Patients with Known Primary Total Stemmed Reverse Shoulder Procedures since 1st Revised by Reason for 1st Revision (Excluding 1st Revision for Infection)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Minor	933	815	604	411	241	100
Major Partial	716	591	373	223	119	35
Major Total	157	120	70	37	22	7

Shoulder Replacement Chapter

ASA AND BMI IN SHOULDER REPLACEMENT

Table S1 ASA Score for Shoulder Replacement

ASA Score	Partial		Total		Revision		TOTAL	
	N	Col%	N	Col%	N	Col%	N	Col%
ASA 1	440	12.2	2683	3.6	211	2.9	3334	3.9
ASA 2	1616	44.8	32041	42.6	2514	34.6	36171	42.0
ASA 3	1436	39.8	38435	51.1	4199	57.9	44070	51.2
ASA 4	116	3.2	2063	2.7	333	4.6	2512	2.9
ASA 5	.	.	8	0.0	.	.	8	0.0
TOTAL	3608	100.0	75230	100.0	7257	100.0	86095	100.0

Note: A further 21,486 procedures did not have ASA score recorded

Table S2 BMI Category for Shoulder Replacement

BMI Category	Partial		Total		Revision		TOTAL	
	N	Col%	N	Col%	N	Col%	N	Col%
Underweight (<18.50)	29	1.1	461	0.7	58	1.0	548	0.7
Normal (18.50-24.99)	472	18.6	10957	16.6	1052	17.5	12481	16.8
Pre Obese (25.00-29.99)	883	34.8	22356	34.0	1893	31.5	25132	33.8
Obese Class 1 (30.00-34.99)	648	25.5	18096	27.5	1729	28.7	20473	27.5
Obese Class 2 (35.00-39.99)	317	12.5	8917	13.5	796	13.2	10030	13.5
Obese Class 3 (≥40.00)	190	7.5	5040	7.7	486	8.1	5716	7.7
TOTAL	2539	100.0	65827	100.0	6014	100.0	74380	100.0

Note: BMI has not been presented for patients aged ≤19 years.
A further 33,201 procedures did not have BMI recorded or the patient is aged ≤19 years

Table S3 Usage of CT Scan for Shoulder Replacement

CT Scan Usage	Partial		Total		Revision		TOTAL	
	N	Col%	N	Col%	N	Col%	N	Col%
Yes	1088	53.1	45658	78.1	2064	39.6	48810	74.2
No	913	44.5	12067	20.6	2781	53.3	15761	24.0
Unknown	49	2.4	758	1.3	373	7.1	1180	1.8
TOTAL	2050	100.0	58483	100.0	5218	100.0	65751	100.0

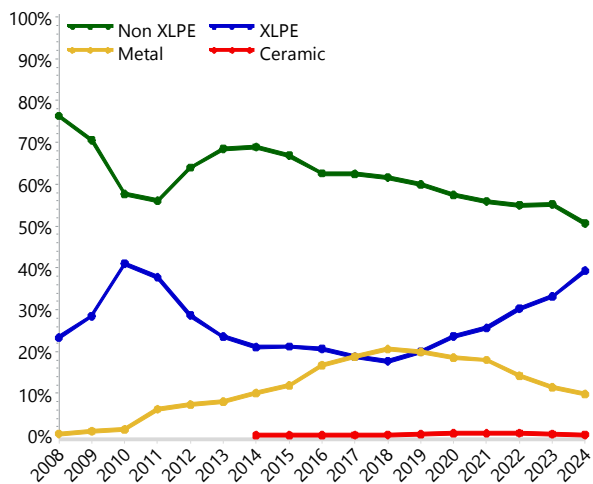
Note: A further 41,830 procedures did not have CT scan usage recorded

Table S4 Glenoid Morphology for Shoulder Replacement

Glenoid Morphology	Partial		Total		Revision		TOTAL	
	N	Col%	N	Col%	N	Col%	N	Col%
A1	552	40.1	22159	43.0	719	39.3	23430	42.8
A2	271	19.7	11606	22.5	561	30.6	12438	22.7
B1	169	12.3	7875	15.3	190	10.4	8234	15.0
B2	284	20.6	7553	14.7	194	10.6	8031	14.7
C	102	7.4	2359	4.6	167	9.1	2628	4.8
TOTAL	1378	100.0	51552	100.0	1831	100.0	54761	100.0

Note: 185 procedures have been excluded where a glenoid morphology of B3 was recorded.
A further 52,635 procedures did not have glenoid morphology recorded

Figure ST3A Primary Total Shoulder Replacement by Bearing Surface



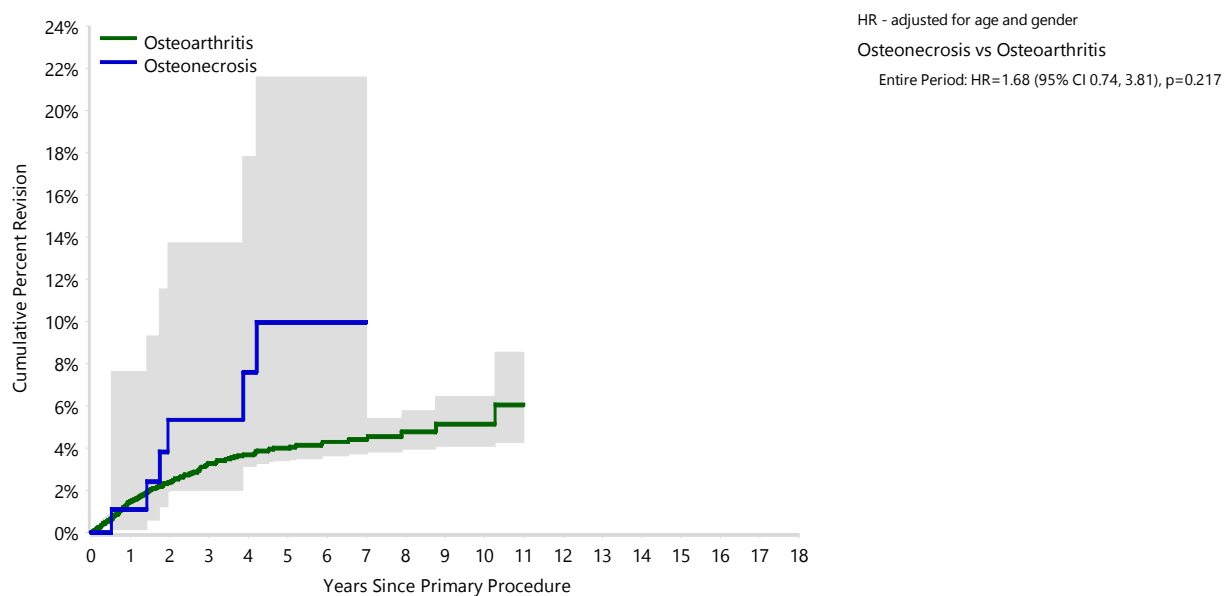
PRIMARY TOTAL STEMLESS ANATOMIC SHOULDER REPLACEMENT

Table ST10 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Osteoarthritis	161	5318	1.5 (1.2, 1.9)	3.3 (2.8, 3.9)	4.0 (3.4, 4.7)	4.4 (3.7, 5.2)	5.2 (4.1, 6.5)	
Osteonecrosis	6	97	1.1 (0.2, 7.6)	5.3 (2.0, 13.7)	10.0 (4.4, 21.6)	10.0 (4.4, 21.6)		
Other (5)	5	132	4.0 (1.7, 9.4)	4.0 (1.7, 9.4)	4.0 (1.7, 9.4)			
TOTAL	172	5547						

Note: Restricted to modern prostheses
Only primary diagnoses with >50 procedures have been listed

Figure ST10A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Primary Diagnoses



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Osteoarthritis	5318	4345	2742	1528	691	116	0
Osteonecrosis	97	81	49	31	11	3	0

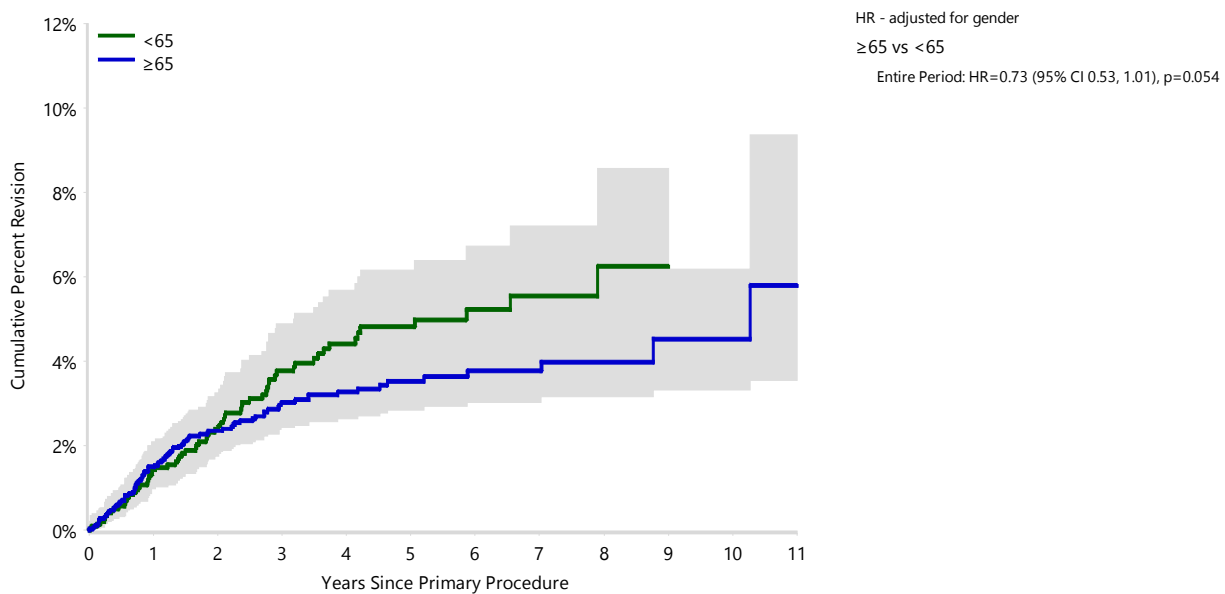
Note: Restricted to modern prostheses
Only primary diagnoses with >50 procedures have been listed

Table ST17 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Age and Gender (Primary Diagnosis OA)

Gender	Age	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Male		70	2699	1.3 (0.9, 1.8)	2.7 (2.0, 3.5)	3.4 (2.7, 4.4)	4.2 (3.2, 5.4)	4.5 (3.4, 5.9)	
	<65	41	1322	1.4 (0.8, 2.2)	3.2 (2.2, 4.6)	4.4 (3.2, 6.1)	5.6 (3.9, 8.0)		
	≥65	29	1377	1.2 (0.7, 2.0)	2.2 (1.5, 3.2)	2.6 (1.7, 3.8)	2.8 (1.9, 4.2)		
Female		91	2619	1.7 (1.2, 2.3)	3.9 (3.2, 4.9)	4.6 (3.7, 5.7)	4.7 (3.8, 5.9)	5.8 (4.2, 8.0)	
	<65	28	733	1.6 (0.8, 2.9)	4.8 (3.2, 7.1)	5.5 (3.8, 8.1)	5.5 (3.8, 8.1)		
	≥65	63	1886	1.7 (1.2, 2.5)	3.6 (2.8, 4.7)	4.2 (3.3, 5.5)	4.4 (3.4, 5.8)	5.3 (3.6, 7.7)	
TOTAL		161	5318						

Note: Restricted to modern prostheses

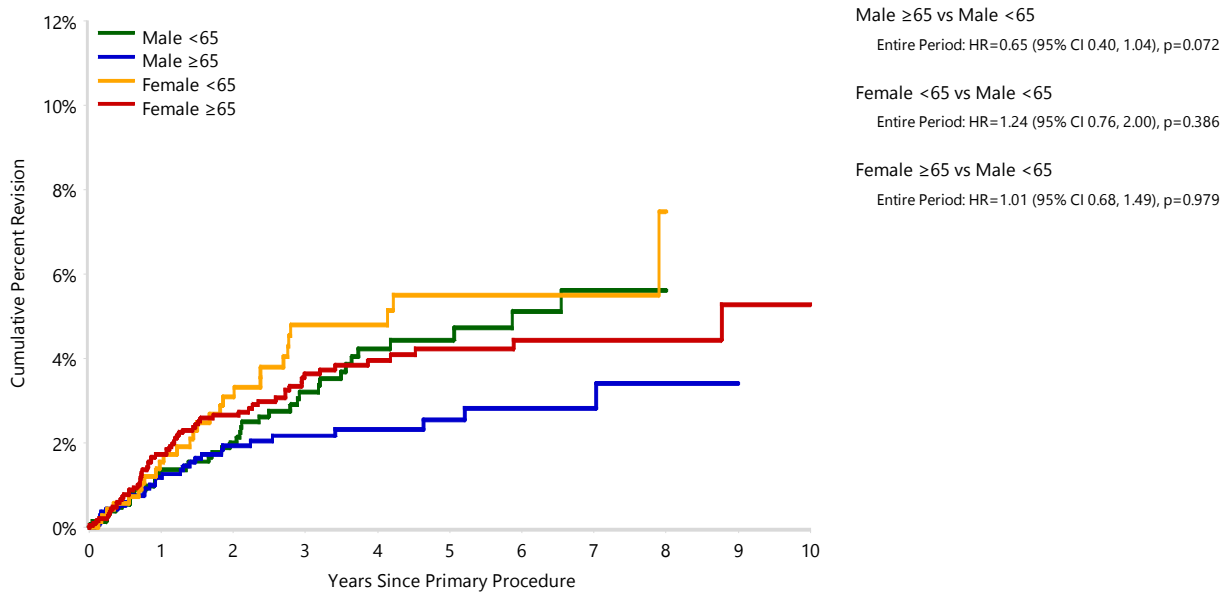
Figure ST17A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Age (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
<65	2055	1628	1014	549	238	32	0
≥65	3263	2717	1728	979	453	84	0

Note: Restricted to modern prostheses

Figure ST17B Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Gender and Age (Primary Diagnosis OA)



Number at Risk		0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Male	<65	1322	1055	649	340	149	20	0
	≥65	1377	1146	718	382	165	29	0
Female	<65	733	573	365	209	89	12	0
	≥65	1886	1571	1010	597	288	55	0

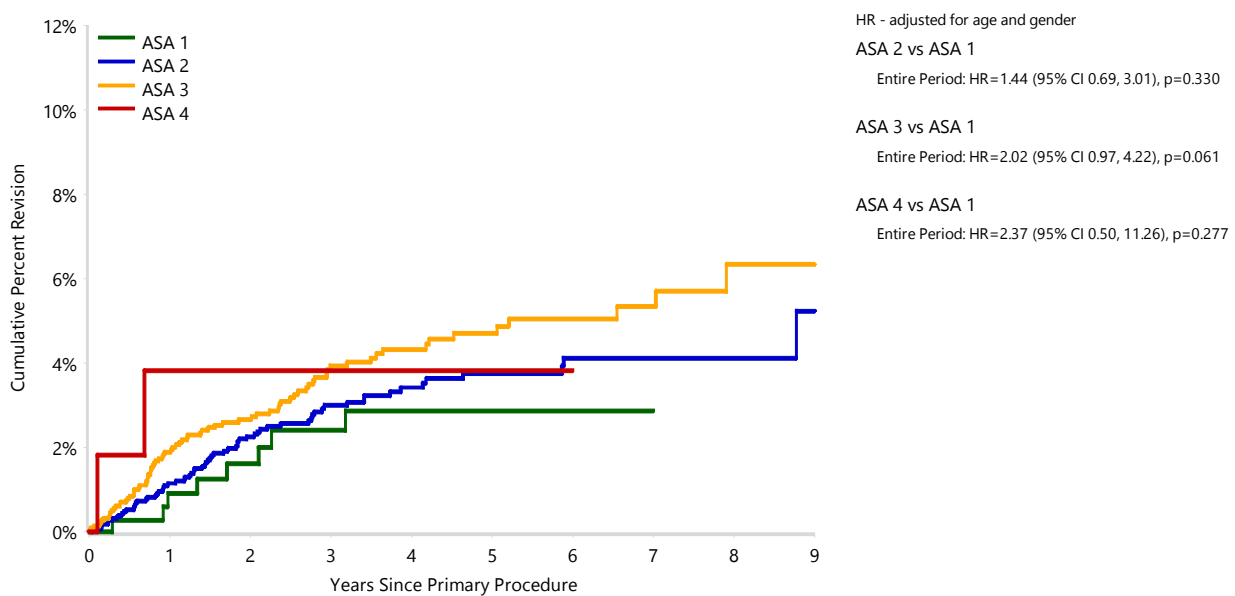
Note: Restricted to modern prostheses

Table ST18 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by ASA Score (Primary Diagnosis OA)

ASA Score	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	8 Yrs
ASA 1	8	361	0.9 (0.3, 2.8)	1.6 (0.7, 3.8)	2.4 (1.1, 5.0)	2.9 (1.4, 5.7)	2.9 (1.4, 5.7)	
ASA 2	70	2600	1.2 (0.8, 1.7)	2.3 (1.7, 3.0)	3.0 (2.3, 3.9)	3.8 (2.9, 4.8)	4.1 (3.2, 5.3)	4.1 (3.2, 5.3)
ASA 3	79	2201	1.9 (1.4, 2.6)	2.7 (2.0, 3.5)	3.9 (3.1, 5.0)	4.7 (3.7, 6.0)	5.3 (4.2, 6.8)	6.3 (4.7, 8.6)
ASA 4	2	56	3.8 (1.0, 14.5)	3.8 (1.0, 14.5)	3.8 (1.0, 14.5)	3.8 (1.0, 14.5)		
TOTAL	159	5218						

Note: Restricted to modern prostheses

Figure ST18A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by ASA Score (Primary Diagnosis OA)



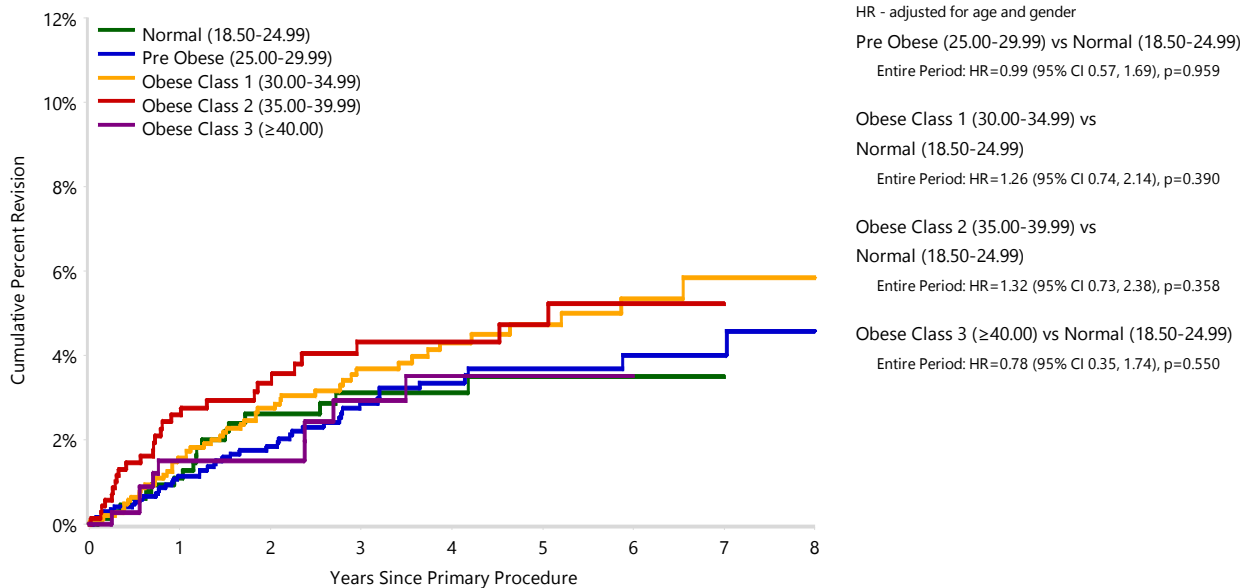
Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	8 Yrs
ASA 1	361	313	257	215	115	44	23
ASA 2	2600	2105	1649	1312	717	300	172
ASA 3	2201	1786	1423	1095	591	263	141
ASA 4	56	43	35	27	16	5	2

Table ST19 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by BMI Category (Primary Diagnosis OA)

BMI Category	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Underweight (<18.50)	0	16	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
Normal (18.50-24.99)	19	697	1.1 (0.5, 2.3)	2.6 (1.6, 4.3)	3.1 (1.9, 5.0)	3.1 (1.9, 5.0)	3.5 (2.2, 5.6)	3.5 (2.2, 5.6)
Pre Obese (25.00-29.99)	45	1758	1.1 (0.7, 1.8)	1.8 (1.3, 2.7)	2.9 (2.1, 4.0)	3.4 (2.5, 4.6)	3.7 (2.7, 5.0)	4.0 (2.9, 5.5)
Obese Class 1 (30.00-34.99)	51	1487	1.6 (1.0, 2.4)	2.7 (2.0, 3.8)	3.7 (2.7, 5.0)	4.3 (3.2, 5.8)	4.7 (3.5, 6.3)	5.3 (3.9, 7.2)
Obese Class 2 (35.00-39.99)	27	715	2.6 (1.6, 4.1)	3.4 (2.2, 5.1)	4.3 (2.9, 6.4)	4.3 (2.9, 6.4)	4.7 (3.2, 7.0)	5.2 (3.5, 7.8)
Obese Class 3 (≥40.00)	9	365	1.5 (0.6, 3.6)	1.5 (0.6, 3.6)	2.9 (1.4, 5.9)	3.5 (1.8, 6.8)	3.5 (1.8, 6.8)	3.5 (1.8, 6.8)
TOTAL	151	5038						

Note: Restricted to modern prostheses
BMI has not been presented for patients aged ≤19 years

Figure ST19A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by BMI Category (Primary Diagnosis OA)



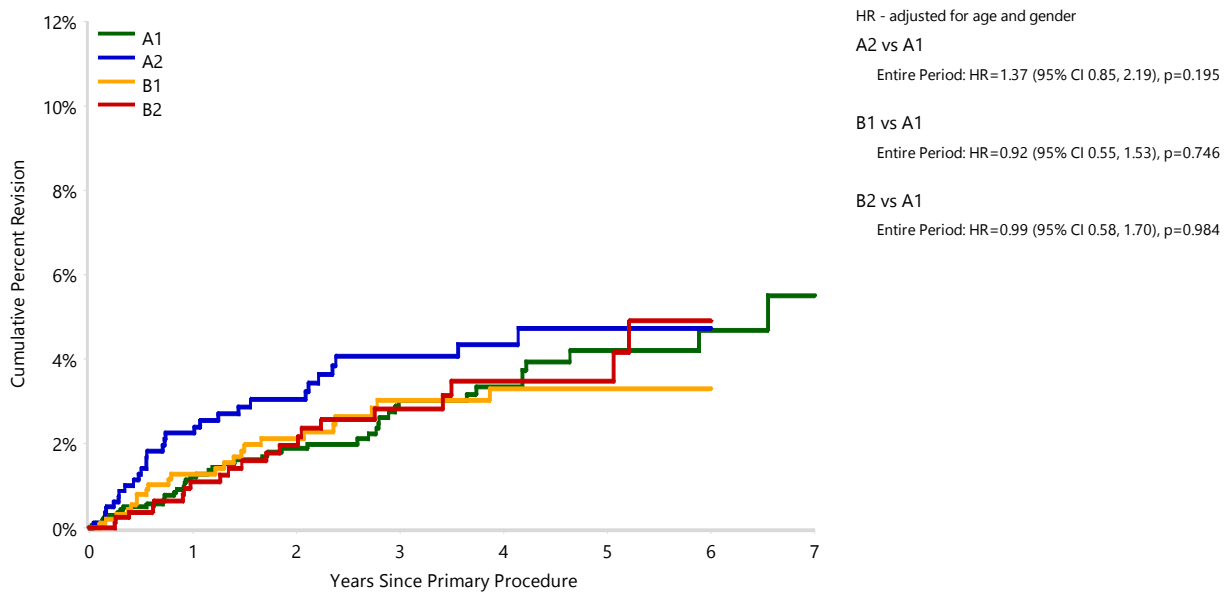
Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Normal (18.50-24.99)	697	567	444	352	270	196	119
Pre Obese (25.00-29.99)	1758	1408	1092	847	634	422	282
Obese Class 1 (30.00-34.99)	1487	1216	965	745	543	381	253
Obese Class 2 (35.00-39.99)	715	573	454	351	269	199	118
Obese Class 3 (≥40.00)	365	299	234	186	145	98	72

Table ST21 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Glenoid Morphology (Primary Diagnosis OA)

Glenoid Morphology	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A1	43	1665	1.2 (0.8, 1.9)	1.9 (1.3, 2.8)	3.0 (2.1, 4.2)	3.3 (2.4, 4.7)	4.2 (3.0, 5.8)
A2	29	820	2.2 (1.4, 3.6)	3.0 (2.0, 4.6)	4.1 (2.8, 5.9)	4.4 (3.0, 6.3)	4.7 (3.2, 6.9)
B1	23	945	1.3 (0.7, 2.3)	2.1 (1.3, 3.4)	3.0 (2.0, 4.6)	3.3 (2.2, 5.0)	3.3 (2.2, 5.0)
B2	21	847	1.1 (0.5, 2.2)	2.0 (1.1, 3.4)	2.8 (1.7, 4.6)	3.5 (2.2, 5.5)	3.5 (2.2, 5.5)
C	2	113	1.2 (0.2, 8.1)	2.4 (0.6, 9.1)	2.4 (0.6, 9.1)		
TOTAL	118	4390					

Note: Restricted to modern prostheses
Excludes 17 procedures where a glenoid morphology of B3 was recorded

Figure ST21A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Glenoid Morphology (Primary Diagnosis OA)



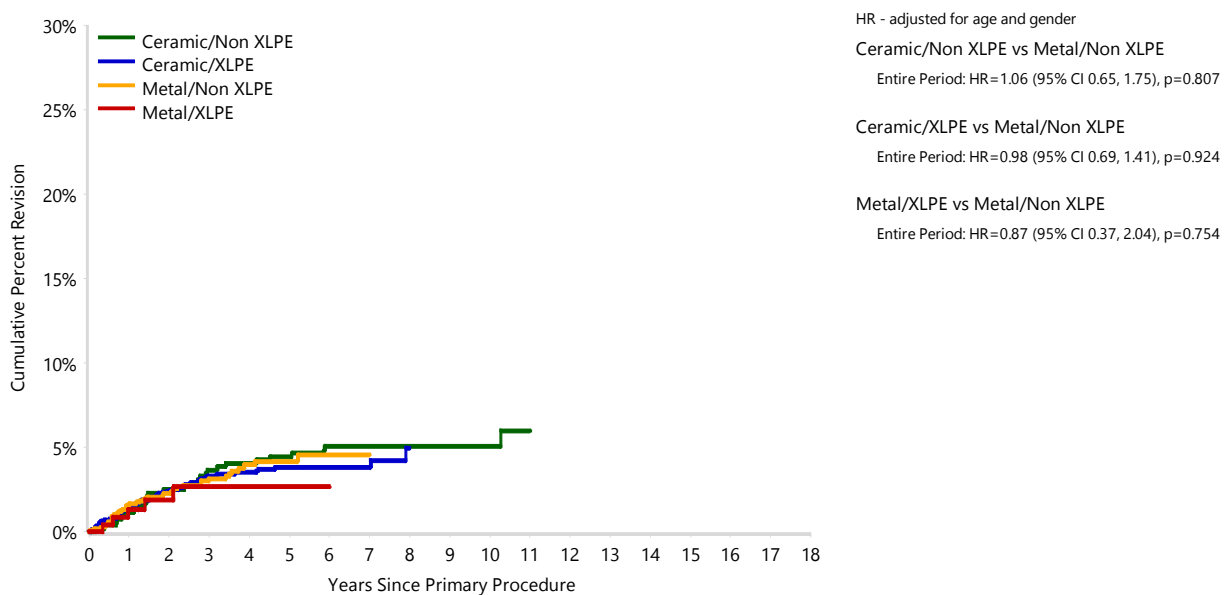
Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A1	1665	1328	986	728	524	331
A2	820	658	507	380	266	167
B1	945	760	602	466	348	233
B2	847	656	499	356	247	145

Table ST24 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Bearing Surface (Primary Diagnosis OA)

Bearing Surface	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Ceramic/Non XLPE	27	523	1.2 (0.5, 2.5)	3.7 (2.4, 5.7)	4.5 (3.0, 6.6)	5.1 (3.5, 7.4)	5.1 (3.5, 7.4)	
Ceramic/XLPE	80	2759	1.5 (1.1, 2.0)	3.3 (2.6, 4.2)	3.8 (3.1, 4.8)	3.8 (3.1, 4.8)		
Metal/Non XLPE	48	1776	1.6 (1.1, 2.4)	3.1 (2.3, 4.3)	4.2 (3.1, 5.7)	4.6 (3.3, 6.3)		
Metal/XLPE	6	260	1.3 (0.4, 4.1)	2.7 (1.1, 6.4)	2.7 (1.1, 6.4)			
TOTAL	161	5318						

Note: Restricted to modern prostheses. Reported as humeral head/glenoid.

Figure ST24A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Bearing Surface (Primary Diagnosis OA)



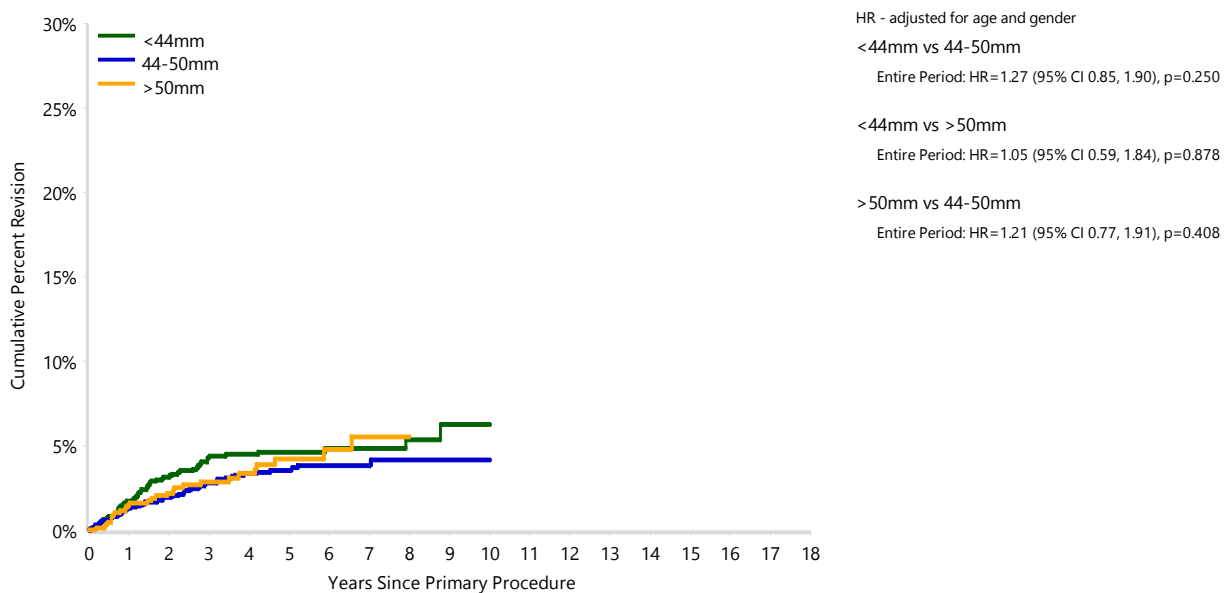
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Ceramic/Non XLPE	523	514	493	473	386	115	0
Ceramic/XLPE	2759	2260	1409	701	251	0	0
Metal/Non XLPE	1776	1365	742	293	40	1	0
Metal/XLPE	260	206	98	61	14	0	0

Table ST25 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Humeral Head Size (Primary Diagnosis OA)

Humeral Head Size	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
<44mm	62	1655	1.7 (1.2, 2.5)	4.4 (3.4, 5.7)	4.6 (3.6, 6.0)	4.9 (3.7, 6.3)	6.2 (4.3, 9.1)	
44-50mm	70	2688	1.3 (0.9, 1.8)	2.8 (2.2, 3.6)	3.6 (2.8, 4.6)	3.8 (3.0, 4.9)	4.1 (3.2, 5.4)	
>50mm	29	970	1.5 (0.9, 2.6)	2.9 (1.9, 4.4)	4.2 (2.8, 6.3)	5.5 (3.5, 8.6)		
TOTAL	161	5313						

Note: Restricted to modern prostheses
Excludes 5 procedures with unknown head size

Figure ST25A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Humeral Head Size (Primary Diagnosis OA)



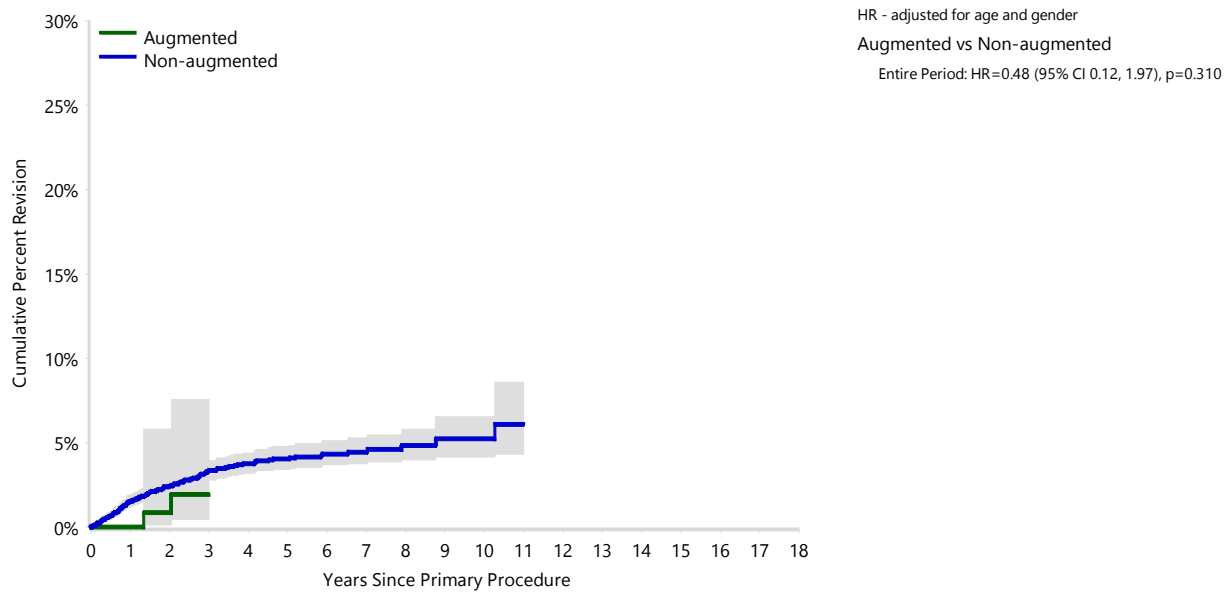
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
<44mm	1655	1357	875	540	280	48	0
44-50mm	2688	2182	1367	728	317	50	0
>50mm	970	803	500	260	94	18	0

Table ST26 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Glenoid Augmentation (Primary Diagnosis OA, Excluding Modular Metal Backed Glenoids)

Glenoid Augmentation	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Augmented	2	163	0.0 (0.0, 0.0)	1.9 (0.5, 7.6)				
Non-augmented	159	5141	1.5 (1.2, 1.9)	3.3 (2.8, 4.0)	4.0 (3.4, 4.8)	4.5 (3.8, 5.3)	5.2 (4.2, 6.5)	
TOTAL	161	5304						

Note: Excludes 941 procedures with unknown glenoid augmentation or glenoid morphology. Restricted to modern prostheses.

Figure ST26A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Glenoid Augmentation (Primary Diagnosis OA, Excluding Modular Metal Backed Glenoids)



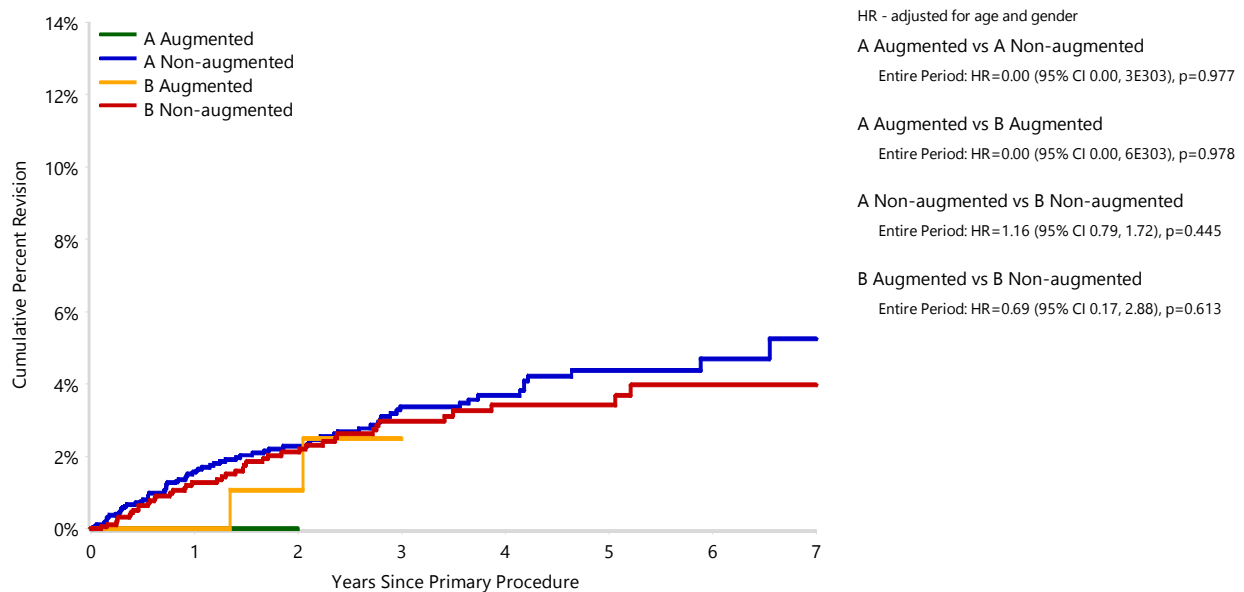
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Augmented	163	129	56	8	0	0	0
Non-augmented	5141	4216	2686	1520	691	116	0

Table ST27 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Glenoid Morphology and Glenoid Augmentation (Primary Diagnosis OA, Excluding Modular Metal Backed Glenoids)

Glenoid Morphology	Glenoid Augmentation	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A	Augmented	0	10	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)			
	Non-augmented	72	2469	1.6 (1.1, 2.2)	2.3 (1.7, 3.0)	3.4 (2.6, 4.3)	3.7 (2.9, 4.7)	4.4 (3.4, 5.6)
B	Augmented	2	129	0.0 (0.0, 0.0)	1.1 (0.2, 7.4)	2.5 (0.6, 9.7)		
	Non-augmented	42	1658	1.3 (0.8, 2.0)	2.1 (1.5, 3.0)	3.0 (2.1, 4.1)	3.4 (2.5, 4.7)	3.4 (2.5, 4.7)
C	Augmented	0	12	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)		
	Non-augmented	2	99	1.4 (0.2, 9.2)	2.7 (0.7, 10.4)	2.7 (0.7, 10.4)	2.7 (0.7, 10.4)	2.7 (0.7, 10.4)
TOTAL		118	4377					

Note: Excludes 941 procedures with unknown glenoid augmentation or glenoid morphology. Restricted to modern prostheses.

Figure ST27A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Glenoid Morphology and Glenoid Augmentation (Primary Diagnosis OA)



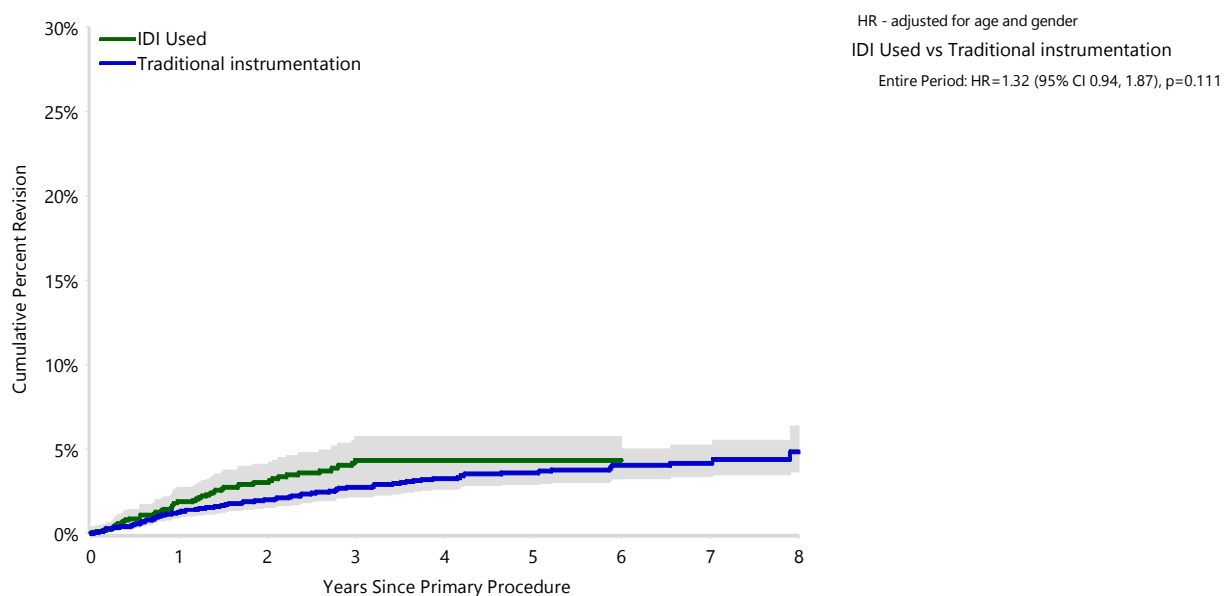
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A	Augmented	10	5	3	1	1	0
	Non-augmented	2469	1981	1490	1107	789	498
B	Augmented	129	101	70	43	16	5
	Non-augmented	1658	1315	1031	779	579	373

Table ST28 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement Since 2016 by IDI Usage (Primary Diagnosis OA)

IDI Use	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
IDI Used	51	1734	1.9 (1.3, 2.7)	3.0 (2.2, 4.1)	4.3 (3.3, 5.8)	4.3 (3.3, 5.8)	
Traditional Instrumentation	95	3331	1.3 (0.9, 1.7)	2.0 (1.5, 2.6)	2.7 (2.2, 3.4)	3.6 (2.9, 4.4)	4.2 (3.3, 5.2)
TOTAL	146	5065					

Note: Restricted to modern prostheses

Figure ST28A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement Since 2016 by IDI Usage (Primary Diagnosis OA)



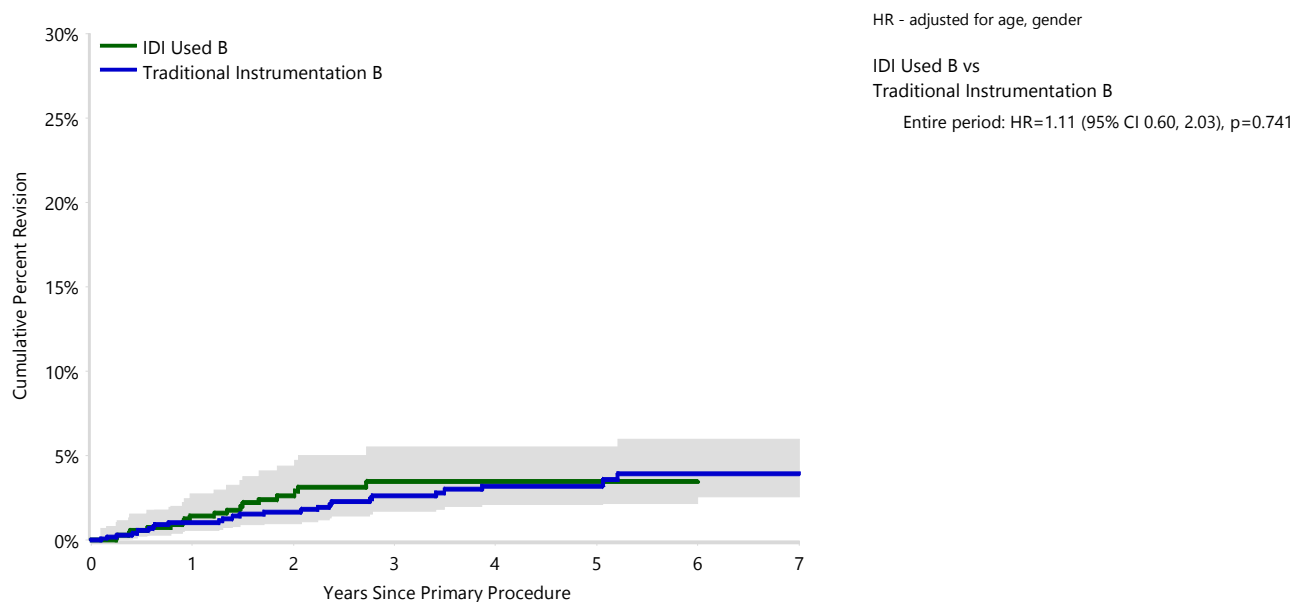
Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
IDI Used	1734	1290	905	597	211	22
No IDI	3331	2806	2310	1908	1093	451

Table ST30 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement Since 2016 by IDI Usage and Glenoid Morphology (Primary Diagnosis OA)

IDI Use	Glenoid Morphology	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
IDI Used	B	18	753	1.4 (0.7, 2.7)	2.7 (1.6, 4.4)	3.5 (2.2, 5.5)	3.5 (2.2, 5.5)	
Traditional Instrumentation	B	26	1039	1.0 (0.6, 1.9)	1.7 (1.0, 2.8)	2.6 (1.7, 4.0)	3.2 (2.1, 4.8)	3.9 (2.6, 6.0)
TOTAL		44	1792					

Note: Restricted to modern prostheses

Figure ST30A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement Since 2016 by IDI Usage (Primary Diagnosis OA)



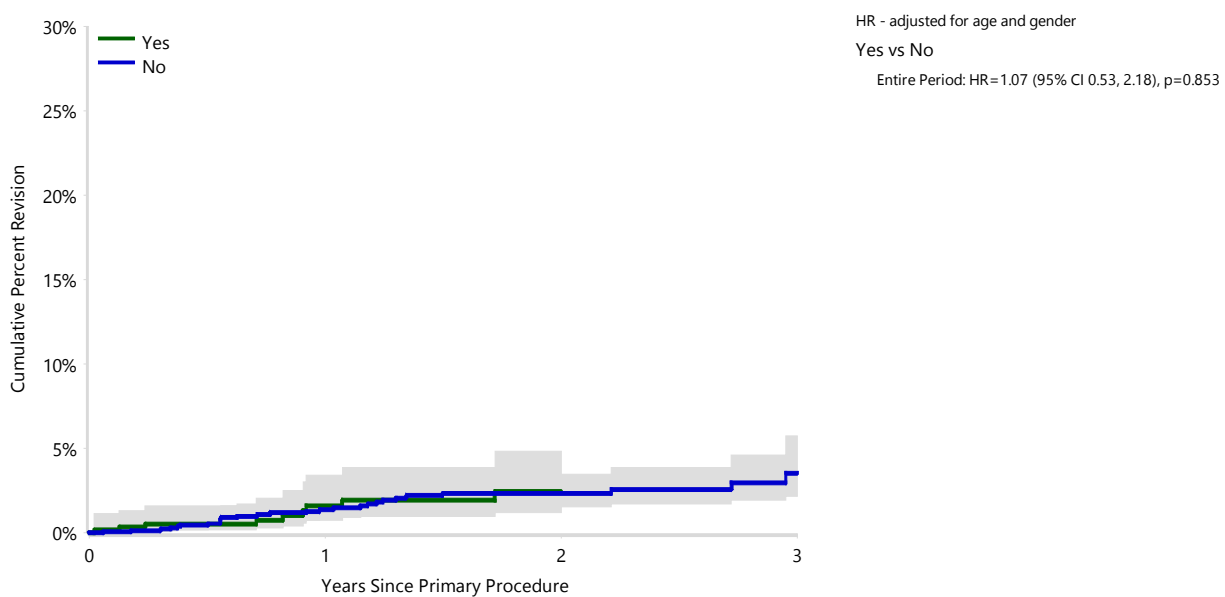
Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
IDI Used B	753	562	404	272	97	7
Traditional Instrumentation B	1039	854	697	550	281	55

Table ST32 Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Rotator Cuff Repair (Primary Diagnosis OA)

Rotator Cuff Repair	N Revised	N Total	1 Yr	3 Yrs	5 Yrs
Yes	11	607	1.6 (0.8, 3.4)	2.4 (1.2, 4.8)	
No	27	1418	1.4 (0.8, 2.3)	2.3 (1.6, 3.5)	3.6 (2.2, 5.7)
TOTAL	38	2025			

Note: Restricted to modern prostheses

Figure ST32A Cumulative Percent Revision of Primary Total Stemless Anatomic Shoulder Replacement by Rotator Cuff Repair (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs
Yes	608	326	147	35	0
No	1418	936	498	166	12

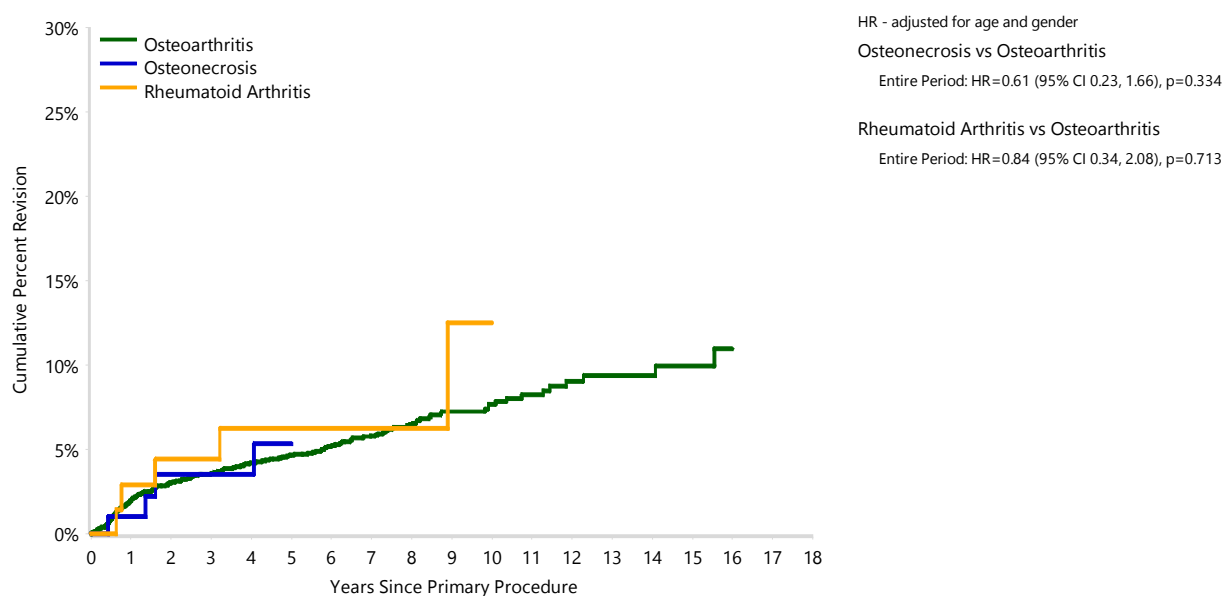
PRIMARY TOTAL STEMMED ANATOMIC SHOULDER REPLACEMENT

Table ST38 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Osteoarthritis	268	5120	2.0 (1.6, 2.4)	3.0 (2.6, 3.6)	3.6 (3.1, 4.1)	4.7 (4.1, 5.4)	5.8 (5.1, 6.6)
Osteonecrosis	4	103	1.0 (0.1, 7.0)	3.5 (1.1, 10.5)	3.5 (1.1, 10.5)	5.3 (2.0, 13.9)	
Rheumatoid Arthritis	5	70	2.9 (0.7, 11.1)	4.4 (1.4, 13.1)	4.4 (1.4, 13.1)	6.3 (2.4, 15.9)	6.3 (2.4, 15.9)
Fracture	5	35	3.1 (0.4, 20.2)	13.4 (5.2, 32.0)	17.0 (7.4, 36.3)	17.0 (7.4, 36.3)	17.0 (7.4, 36.3)
Other Inflammatory Arthritis	4	32	3.1 (0.4, 20.2)	3.1 (0.4, 20.2)	7.0 (1.8, 25.4)	11.7 (3.8, 32.4)	11.7 (3.8, 32.4)
Rotator Cuff Arthropathy	1	30	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	10.0 (1.5, 52.7)
Other (2)	1	23	0.0 (0.0, 0.0)	5.9 (0.9, 35.0)	5.9 (0.9, 35.0)	5.9 (0.9, 35.0)	5.9 (0.9, 35.0)
TOTAL	288	5413					

Note: Only primary diagnoses with >30 procedures have been listed
Restricted to modern prostheses

Figure ST38A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Primary Diagnosis



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Osteoarthritis	5120	4681	4231	3746	2799	1775
Osteonecrosis	103	87	73	60	41	22
Rheumatoid Arthritis	70	67	62	52	37	25

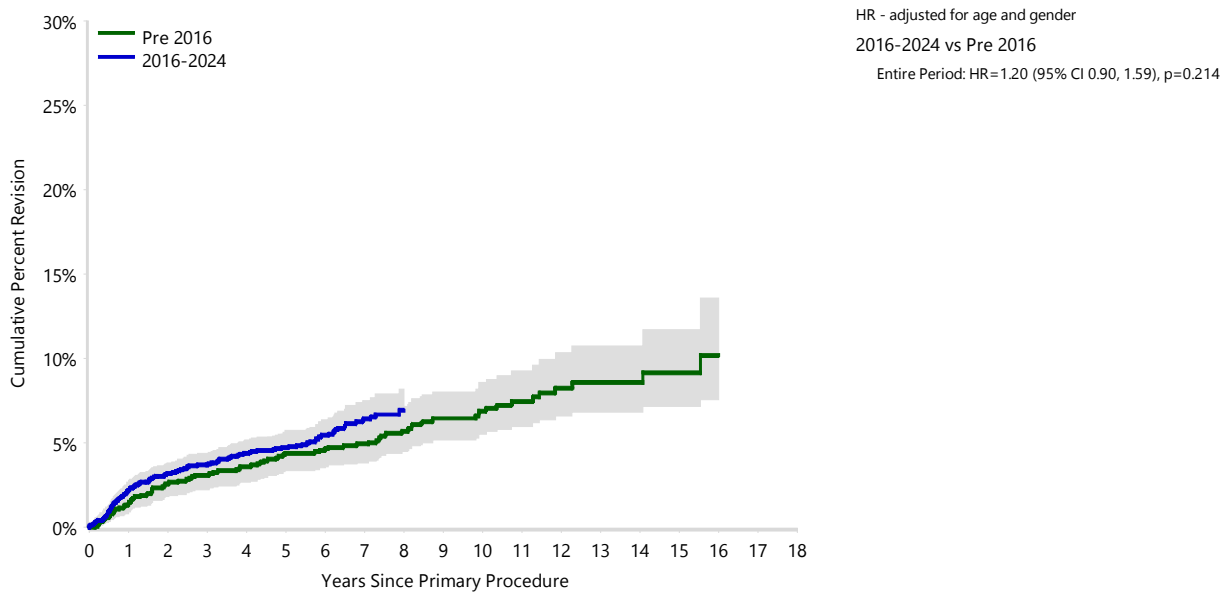
Note: Only primary diagnoses with over 70 procedures have been listed

Table ST45 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement with Polyethylene Glenoid by Procedure Year (Primary Diagnosis OA)

Procedure Year	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Pre 2016	87	1211	1.4 (0.9, 2.3)	2.6 (1.8, 3.7)	3.1 (2.2, 4.2)	4.4 (3.4, 5.7)	4.9 (3.8, 6.3)
2016-2024	181	3909	2.2 (1.7, 2.7)	3.2 (2.7, 3.8)	3.7 (3.1, 4.4)	4.7 (4.0, 5.5)	6.4 (5.5, 7.5)
TOTAL	268	5120					

Note: Restricted to modern prostheses

Figure ST45A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Procedure Year (Primary Diagnosis OA)



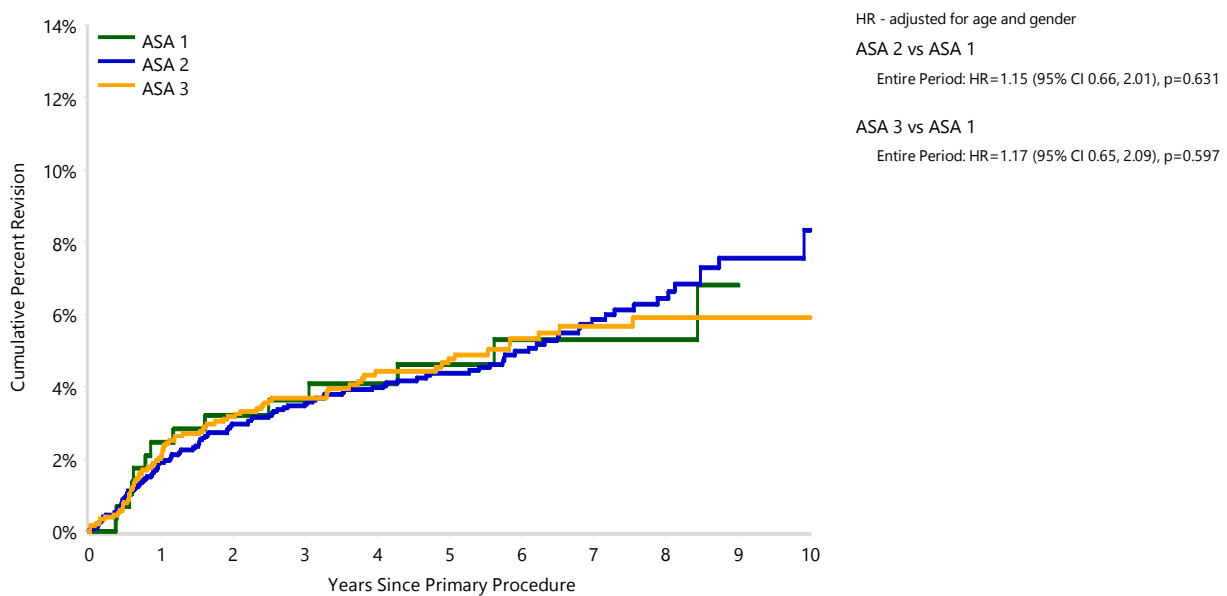
Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Pre 2016	1211	1184	1155	1138	1080	1023
2016-2024	3909	3497	3076	2608	1719	752

Table ST50 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by ASA Score (Primary Diagnosis OA)

ASA Score	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	8 Yrs
ASA 1	14	295	2.5 (1.2, 5.1)	3.2 (1.7, 6.1)	3.6 (2.0, 6.7)	4.6 (2.6, 8.1)	5.3 (3.1, 9.1)	5.3 (3.1, 9.1)
ASA 2	119	2433	1.9 (1.4, 2.6)	3.0 (2.3, 3.8)	3.5 (2.8, 4.4)	4.4 (3.6, 5.4)	5.9 (4.8, 7.1)	6.5 (5.3, 7.9)
ASA 3	77	1757	2.1 (1.5, 2.9)	3.2 (2.4, 4.2)	3.7 (2.9, 4.8)	4.8 (3.8, 6.0)	5.7 (4.5, 7.2)	5.9 (4.7, 7.5)
ASA 4	2	49	2.2 (0.3, 14.4)	2.2 (0.3, 14.4)	2.2 (0.3, 14.4)	2.2 (0.3, 14.4)	8.3 (1.8, 33.3)	
ASA 5	0	1						
TOTAL	212	4535						

Note: Restricted to modern prostheses

Figure ST50A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by ASA Score (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	8 Yrs
ASA 1	295	267	244	211	156	93	71
ASA 2	2433	2229	2018	1792	1293	749	502
ASA 3	1757	1573	1379	1164	814	446	316

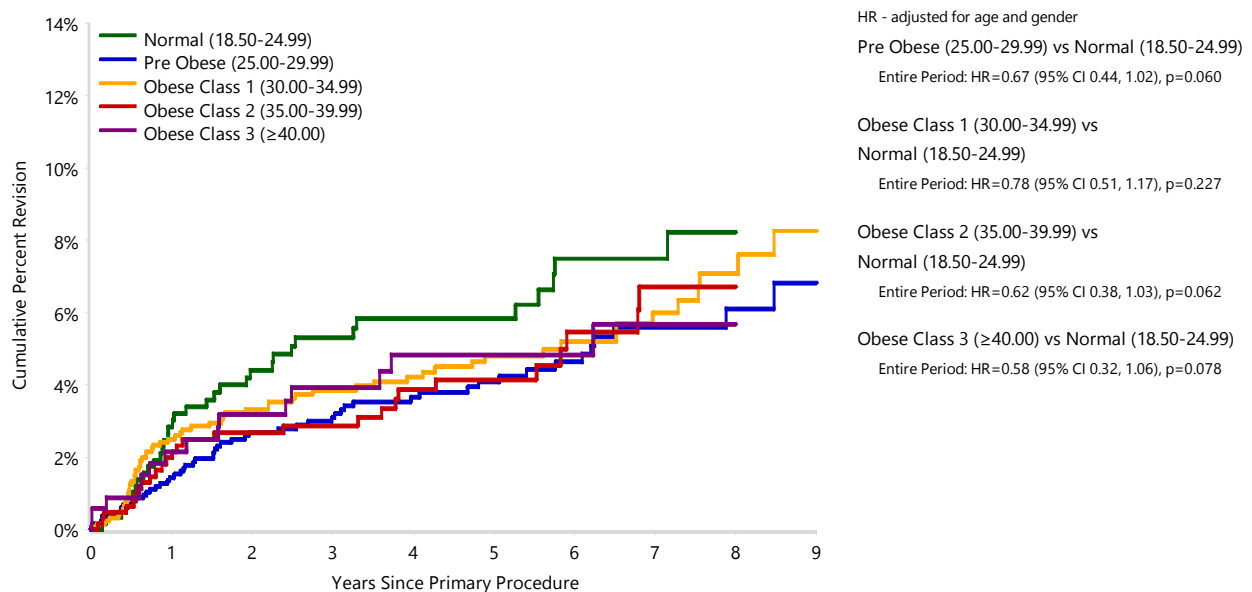
Note: Restricted to modern prostheses

Table ST52 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by BMI Category (Primary Diagnosis OA)

BMI Category	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Underweight (<18.50)	0	13	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	
Normal (18.50-24.99)	37	590	2.8 (1.8, 4.6)	4.4 (3.0, 6.5)	5.3 (3.7, 7.6)	5.8 (4.1, 8.3)	5.8 (4.1, 8.3)	7.5 (5.3, 10.5)
Pre Obese (25.00-29.99)	53	1291	1.4 (0.9, 2.3)	2.7 (1.9, 3.8)	3.1 (2.2, 4.3)	3.7 (2.7, 5.0)	4.1 (3.0, 5.5)	4.6 (3.5, 6.2)
Obese Class 1 (30.00-34.99)	61	1241	2.5 (1.8, 3.6)	3.3 (2.4, 4.5)	3.9 (2.9, 5.1)	4.2 (3.2, 5.6)	4.8 (3.7, 6.3)	5.2 (4.0, 6.8)
Obese Class 2 (35.00-39.99)	27	633	2.0 (1.1, 3.5)	2.7 (1.6, 4.3)	2.9 (1.8, 4.6)	3.9 (2.5, 5.9)	4.2 (2.7, 6.3)	5.5 (3.6, 8.2)
Obese Class 3 (≥40.00)	15	341	2.2 (1.0, 4.5)	3.2 (1.7, 5.8)	3.9 (2.2, 6.8)	4.8 (2.9, 8.1)	4.8 (2.9, 8.1)	4.8 (2.9, 8.1)
TOTAL	193	4109						

Note: Restricted to modern prostheses
BMI has not been presented for patients aged ≤19 years

Figure ST52A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by BMI Category (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Normal (18.50-24.99)	590	524	458	381	304	263	199
Pre Obese (25.00-29.99)	1291	1168	1036	896	751	608	439
Obese Class 1 (30.00-34.99)	1241	1121	985	842	728	593	456
Obese Class 2 (35.00-39.99)	633	571	511	437	358	291	200
Obese Class 3 (≥40.00)	341	299	268	237	196	157	126

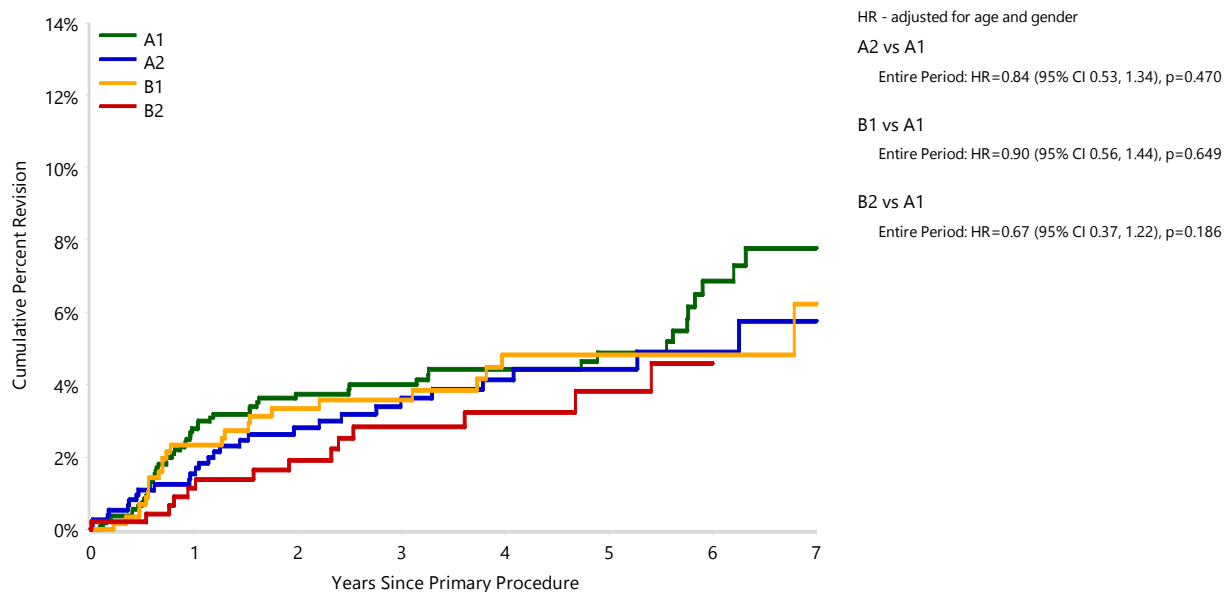
Note: Restricted to modern prostheses
BMI has not been presented for patients aged ≤19 years

Table ST54 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Glenoid Morphology (Primary Diagnosis OA)

Glenoid Morphology	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A1	54	1084	2.8 (1.9, 4.0)	3.7 (2.7, 5.1)	4.0 (2.9, 5.4)	4.4 (3.3, 6.0)	4.9 (3.6, 6.6)
A2	28	748	1.5 (0.9, 2.8)	2.8 (1.8, 4.4)	3.6 (2.4, 5.4)	4.1 (2.8, 6.1)	4.4 (3.0, 6.5)
B1	25	589	2.3 (1.4, 4.0)	3.4 (2.1, 5.3)	3.6 (2.3, 5.6)	4.8 (3.2, 7.3)	4.8 (3.2, 7.3)
B2	14	474	1.1 (0.5, 2.7)	1.9 (1.0, 3.8)	2.8 (1.6, 5.1)	3.2 (1.8, 5.7)	3.8 (2.2, 6.7)
C	1	88	1.2 (0.2, 8.4)	1.2 (0.2, 8.4)	1.2 (0.2, 8.4)	1.2 (0.2, 8.4)	1.2 (0.2, 8.4)
TOTAL	122	2983					

Note: Restricted to modern prostheses
Excludes 3 procedures with a recorded glenoid morphology of B3

Figure ST54A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Glenoid Morphology (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A1	1084	973	837	680	536	404
A2	748	653	540	436	327	233
B1	589	510	441	355	284	219
B2	474	410	346	276	216	156

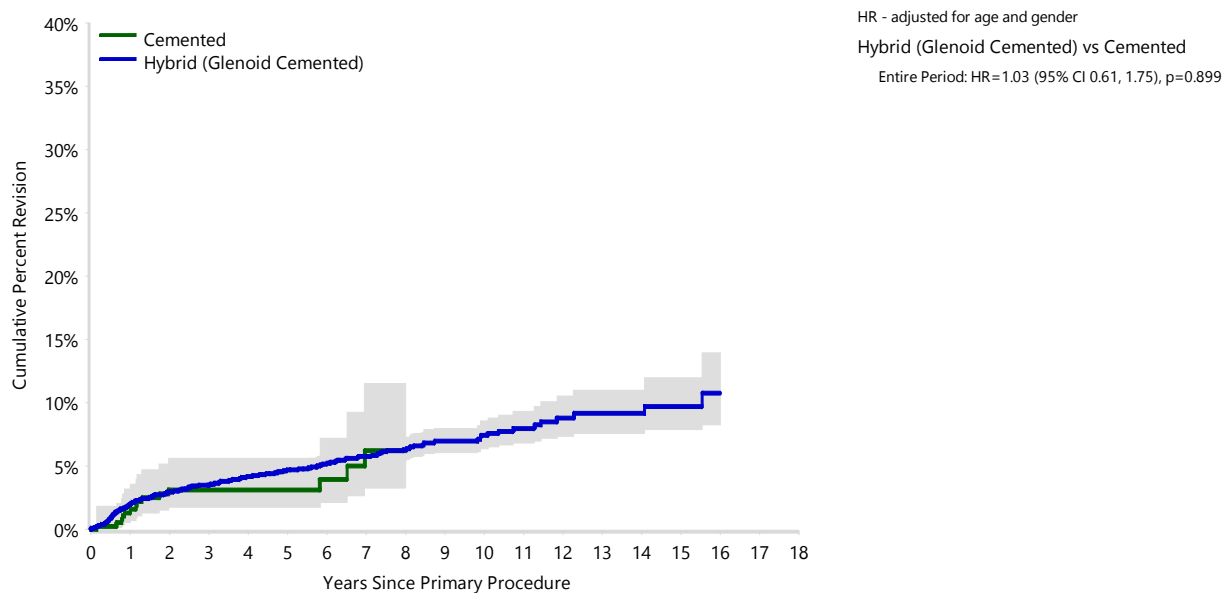
Note: Restricted to modern prostheses
Excludes 3 procedures with a recorded glenoid morphology of B3

Table ST55 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Fixation (Primary Diagnosis OA)

Fixation	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Cemented	15	393	1.3 (0.6, 3.2)	3.1 (1.8, 5.6)	3.1 (1.8, 5.6)	6.2 (3.3, 11.5)		
Cementless	10	65	6.5 (2.5, 16.5)	10.2 (4.7, 21.3)	13.0 (6.3, 25.8)	13.0 (6.3, 25.8)		
Hybrid (Glenoid Cemented)	243	4662	2.0 (1.6, 2.4)	3.5 (3.0, 4.1)	4.7 (4.1, 5.4)	5.8 (5.0, 6.6)	7.4 (6.4, 8.6)	9.1 (7.6, 11.0)
TOTAL	268	5120						

Note: Restricted to modern prostheses

Figure ST55A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Fixation (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Cemented	393	352	238	155	77	20	4
Hybrid (Glenoid Cemented)	4662	4274	3471	2615	1672	577	155

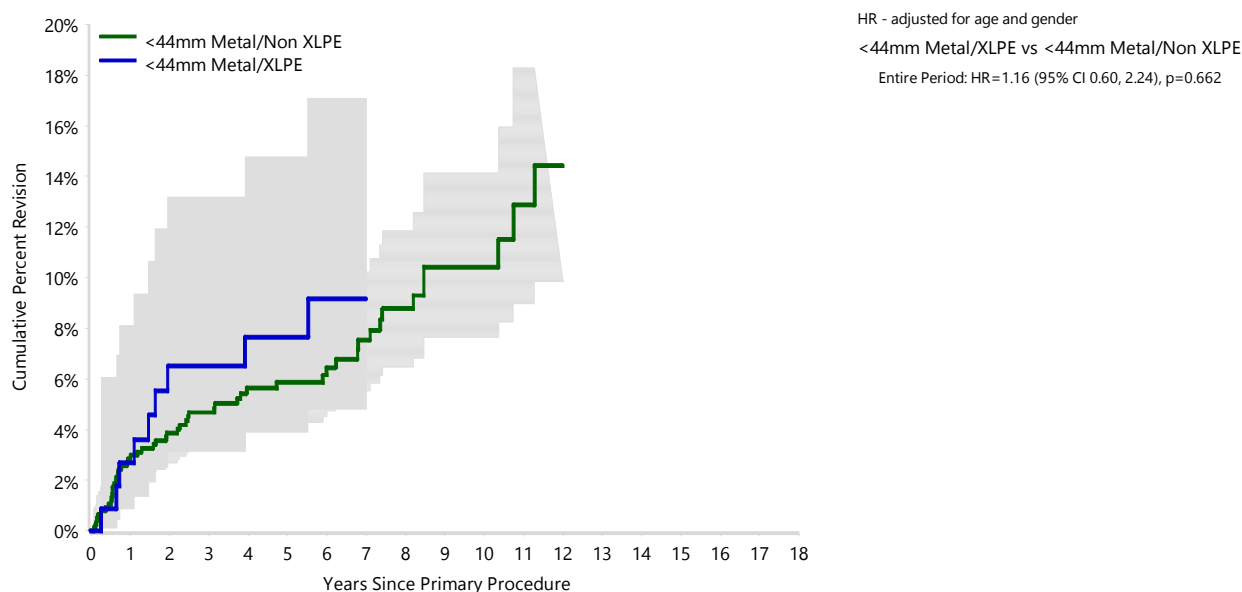
Note: Only fixations with over 100 procedures have been listed

Table ST59 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Humeral Head Size and Bearing Surface (Primary Diagnosis OA)

Humeral Head Size	Polyethylene Type	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
<44mm	Ceramic/XLPE	1	1						
	Metal/Non XLPE	54	764	2.8 (1.9, 4.3)	4.7 (3.3, 6.5)	5.9 (4.3, 8.0)	7.5 (5.5, 10.2)	10.4 (7.7, 14.1)	
	Metal/XLPE	11	114	2.7 (0.9, 8.1)	6.5 (3.2, 13.2)	7.7 (3.9, 14.8)	9.2 (4.8, 17.1)		
44-50mm	Metal/Non XLPE	115	1856	2.1 (1.5, 2.8)	3.9 (3.1, 5.0)	5.6 (4.6, 6.9)	7.2 (5.9, 8.8)	10.5 (8.4, 13.1)	
	Metal/XLPE	43	1149	1.6 (1.0, 2.6)	2.8 (2.0, 4.0)	3.4 (2.4, 4.7)	4.1 (3.0, 5.6)	4.6 (3.3, 6.2)	5.3 (3.6, 7.7)
>50mm	Metal/Non XLPE	32	717	1.9 (1.1, 3.2)	3.2 (2.1, 4.8)	4.1 (2.8, 6.1)	5.3 (3.6, 7.9)	7.8 (5.1, 11.7)	
	Metal/XLPE	12	517	1.2 (0.5, 2.7)	2.1 (1.1, 3.9)	2.6 (1.5, 4.6)	2.6 (1.5, 4.6)		
TOTAL		268	5118						

Note: Restricted to modern prostheses

Figure ST59A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Humeral Head Size and Bearing Surface (Primary Diagnosis OA)



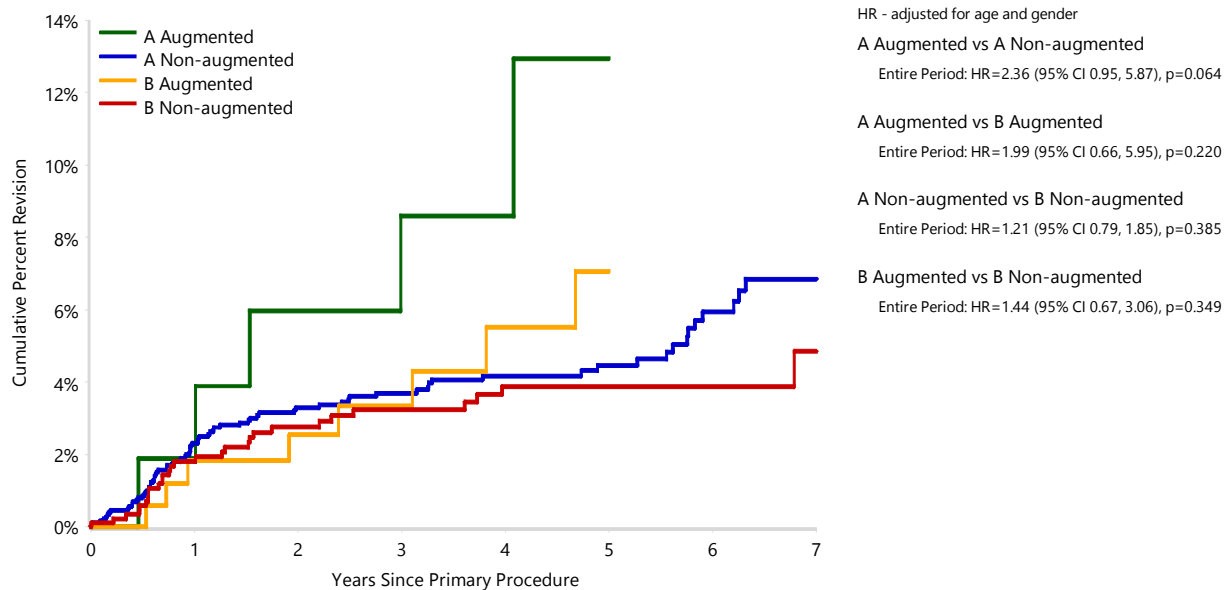
Number at Risk		0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
<44mm	Metal/Non XLPE	764	688	539	397	236	101	21
	Metal/XLPE	114	104	91	66	45	15	7

Table ST61 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Glenoid Morphology and Glenoid Augmentation (Primary Diagnosis OA)

Glenoid Morphology	Glenoid Augmentation	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A	Augmented	5	54	1.9 (0.3, 12.6)	6.0 (2.0, 17.4)	8.6 (3.3, 21.5)	8.6 (3.3, 21.5)	12.9 (5.3, 29.9)
	Non-augmented	77	1767	2.3 (1.7, 3.1)	3.3 (2.5, 4.3)	3.7 (2.9, 4.8)	4.2 (3.3, 5.3)	4.5 (3.5, 5.7)
B	Augmented	9	179	1.8 (0.6, 5.6)	2.5 (1.0, 6.6)	3.3 (1.4, 7.9)	5.5 (2.6, 11.5)	7.1 (3.4, 14.3)
	Non-augmented	30	881	1.8 (1.1, 3.0)	2.8 (1.8, 4.2)	3.2 (2.2, 4.8)	3.9 (2.7, 5.6)	3.9 (2.7, 5.6)
C	Augmented	0	25	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
	Non-augmented	1	63	1.7 (0.2, 11.4)	1.7 (0.2, 11.4)	1.7 (0.2, 11.4)	1.7 (0.2, 11.4)	1.7 (0.2, 11.4)
TOTAL		122	2969					

Note: Restricted to modern prostheses
Excludes 2,151 procedures with unknown glenoid augmentation or glenoid morphology

Figure ST61A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Glenoid Morphology and Glenoid Augmentation (Primary Diagnosis OA)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A	Augmented	54	49	44	35	22	13
	Non-augmented	1767	1574	1333	1081	841	624
B	Augmented	179	156	136	103	77	58
	Non-augmented	881	764	651	528	423	317

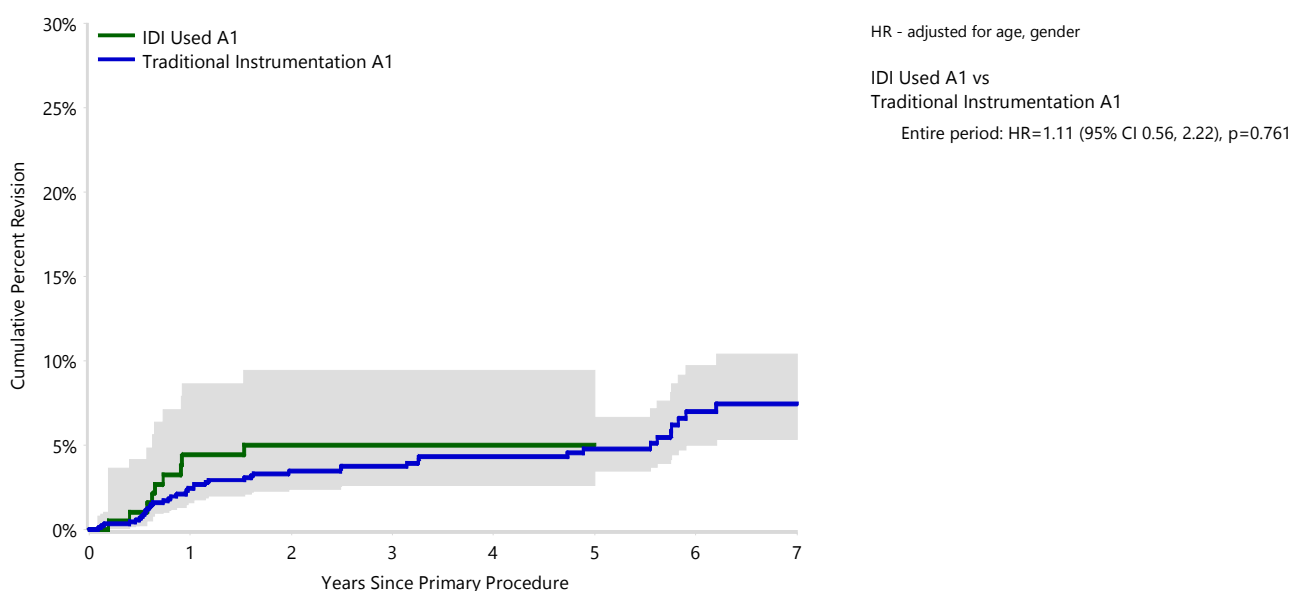
Note: Restricted to modern prostheses
Excludes 2,151 procedures with unknown glenoid augmentation or glenoid morphology

Table ST64 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement Since 2014 by IDI Usage and Glenoid Morphology (Primary Diagnosis OA)

IDI Use	Glenoid Morphology	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	8 Yrs	9 Yrs
IDI Used	A1	10	195	4.4 (2.2, 8.6)	5.0 (2.6, 9.4)	5.0 (2.6, 9.4)	5.0 (2.6, 9.4)			
	A2	12	199	3.2 (1.4, 7.0)	4.4 (2.2, 8.6)	5.3 (2.8, 10.1)	8.1 (4.3, 14.9)			
	B1	10	137	3.9 (1.7, 9.2)	3.9 (1.7, 9.2)	4.9 (2.2, 10.7)				
	B2	8	170	2.6 (1.0, 6.8)	3.4 (1.4, 8.1)	5.3 (2.5, 10.8)	7.2 (3.4, 14.7)			
	C	0	34	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)			
Traditional Instrumentation	A1	44	889	2.5 (1.6, 3.7)	3.5 (2.4, 5.0)	3.8 (2.7, 5.3)	4.8 (3.5, 6.7)	7.5 (5.3, 10.4)		
	A2	16	549	1.0 (0.4, 2.3)	2.2 (1.2, 4.0)	3.0 (1.8, 5.1)	3.3 (2.0, 5.5)	4.3 (2.4, 7.7)		
	B1	15	452	1.9 (0.9, 3.7)	3.2 (1.9, 5.4)	3.2 (1.9, 5.4)	3.6 (2.1, 6.1)	5.3 (2.6, 10.8)		
	B2	6	304	0.4 (0.1, 2.5)	1.1 (0.4, 3.4)	1.6 (0.6, 4.2)	2.2 (0.9, 5.2)			
	C	1	54	2.0 (0.3, 13.4)	2.0 (0.3, 13.4)	2.0 (0.3, 13.4)	2.0 (0.3, 13.4)			
TOTAL		122	2983							

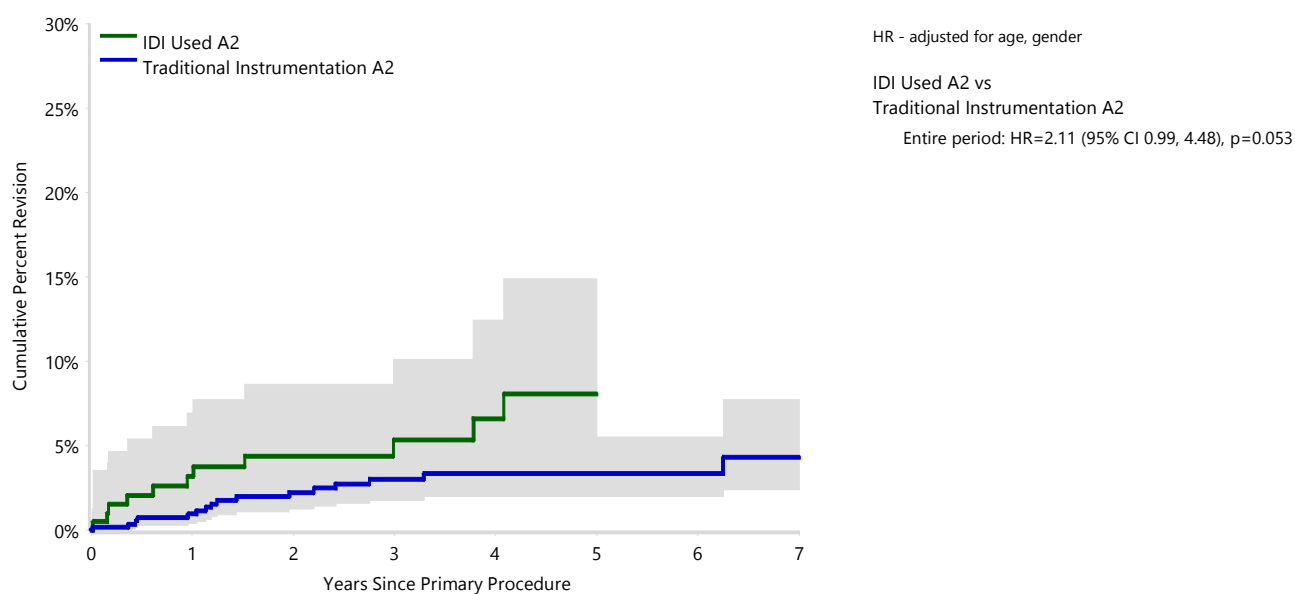
Note: Restricted to modern prostheses

Figure ST64A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement Since 2014 by IDI Usage and Glenoid Morphology (Primary Diagnosis OA)



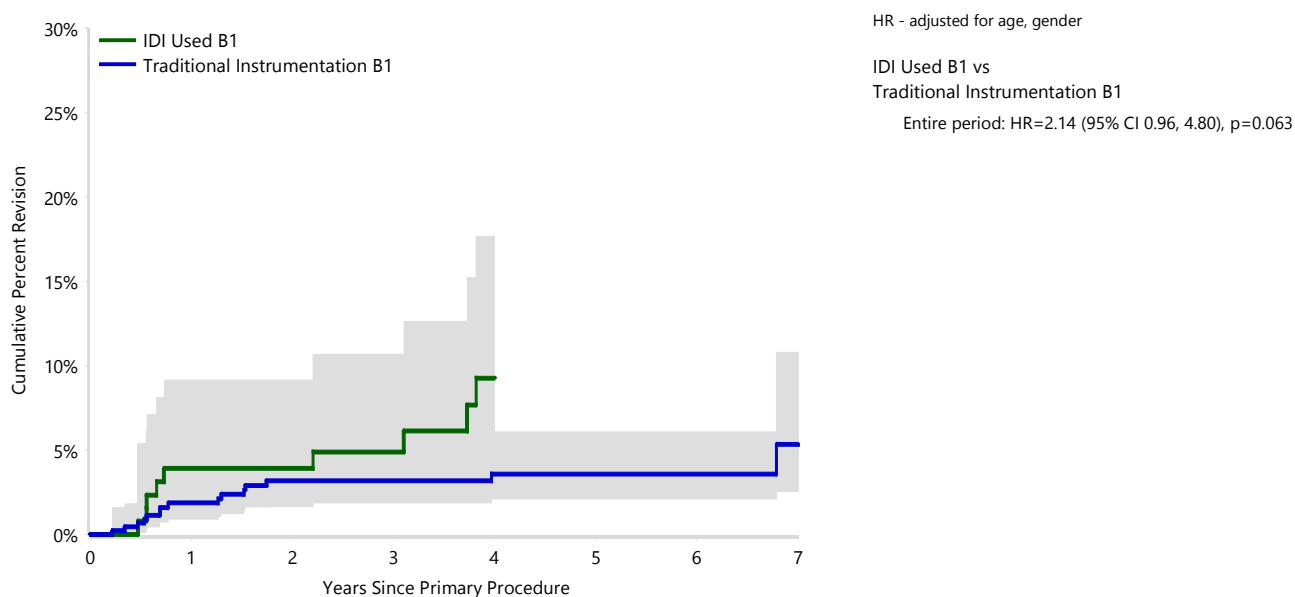
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	8 Yrs	9 Yrs
IDI Used	A1	195	165	144	108	44	9	0	0
Traditional Instrumentation	A1	889	808	693	572	360	94	0	0

Figure ST64B Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement Since 2014 by IDI Usage and Glenoid Morphology (Primary Diagnosis OA)



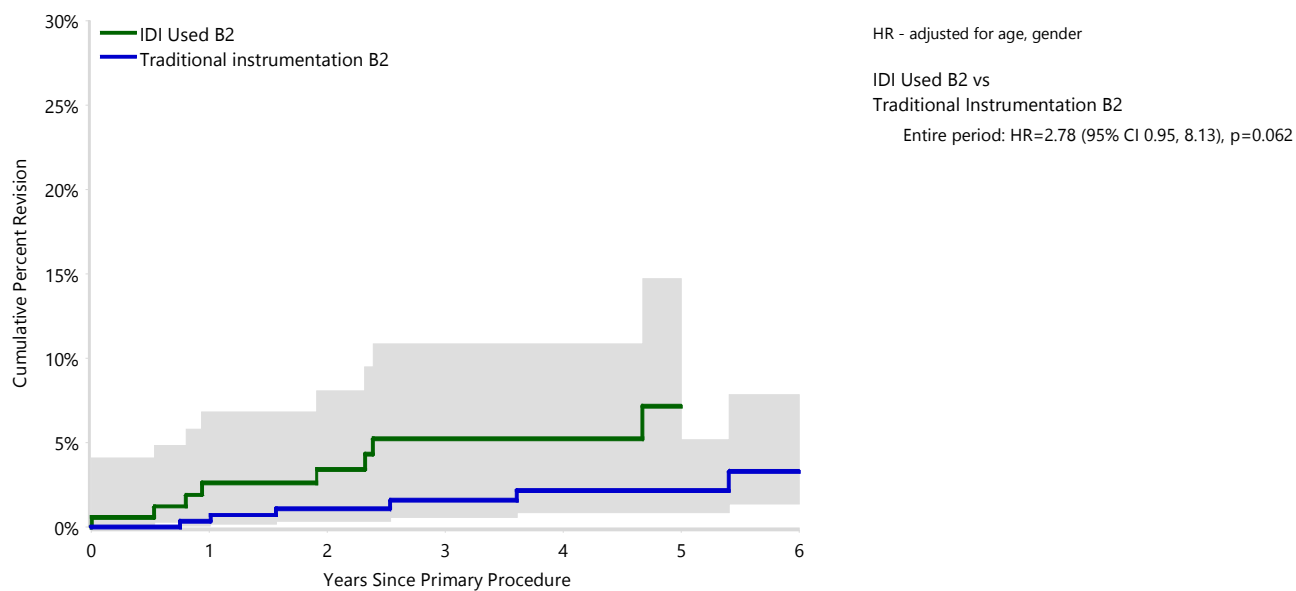
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	8 Yrs	9 Yrs
IDI Used	A2	199	169	135	102	44	7	0	0
Traditional Instrumentation	A2	549	484	405	334	189	45	0	0

Figure ST64C Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement Since 2014 by IDI Usage and Glenoid Morphology (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	8 Yrs	9 Yrs			
IDI Used			B1	137	118	100	80	38	10	0	0
Traditional Instrumentation			B1	452	392	341	275	181	40	1	1

Figure ST64D Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement Since 2014 by IDI Usage and Glenoid Morphology (Primary Diagnosis OA)



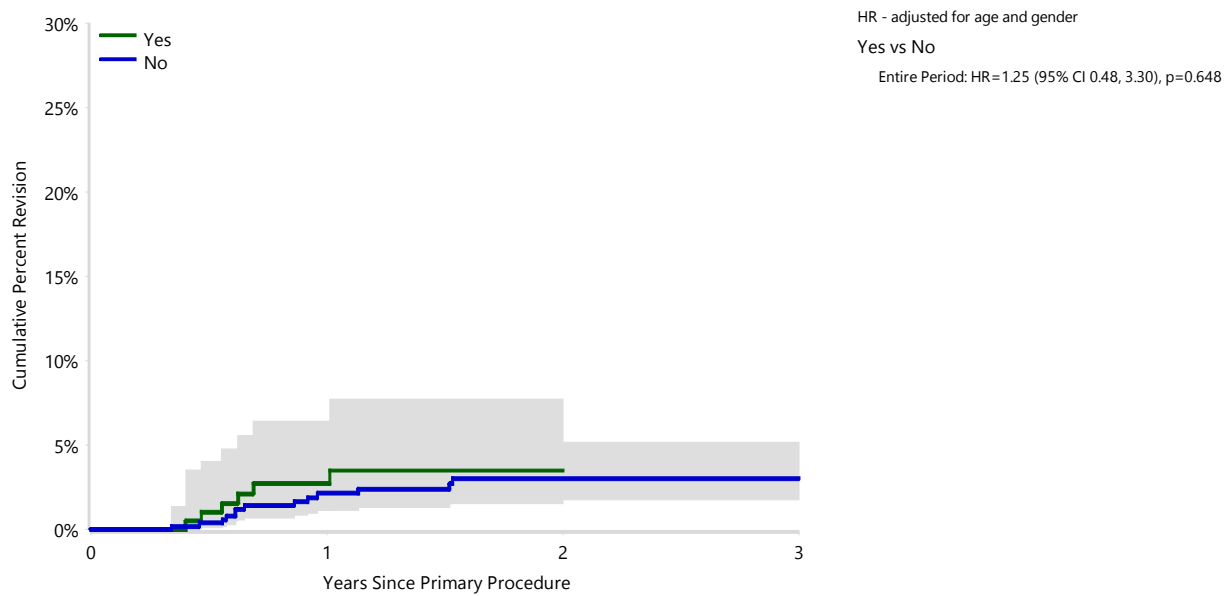
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs	8 Yrs	9 Yrs
IDI Used	B2	170	138	117	83	45	6	0	0
Traditional Instrumentation	B2	304	272	229	193	111	28	0	0

Table ST65 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Rotator Cuff Repair (Primary Diagnosis OA)

Rotator Cuff Repair	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Yes	6	226	2.7 (1.1, 6.5)					
No	13	566	2.1 (1.2, 4.0)	3.0 (1.8, 5.2)				
TOTAL	19	792						

Note: Restricted to modern prostheses

Figure ST65A Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement by Rotator Cuff Repair (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs
Yes	226	126	69	14	0
No	566	406	232	75	4

Note: Restricted to modern prostheses

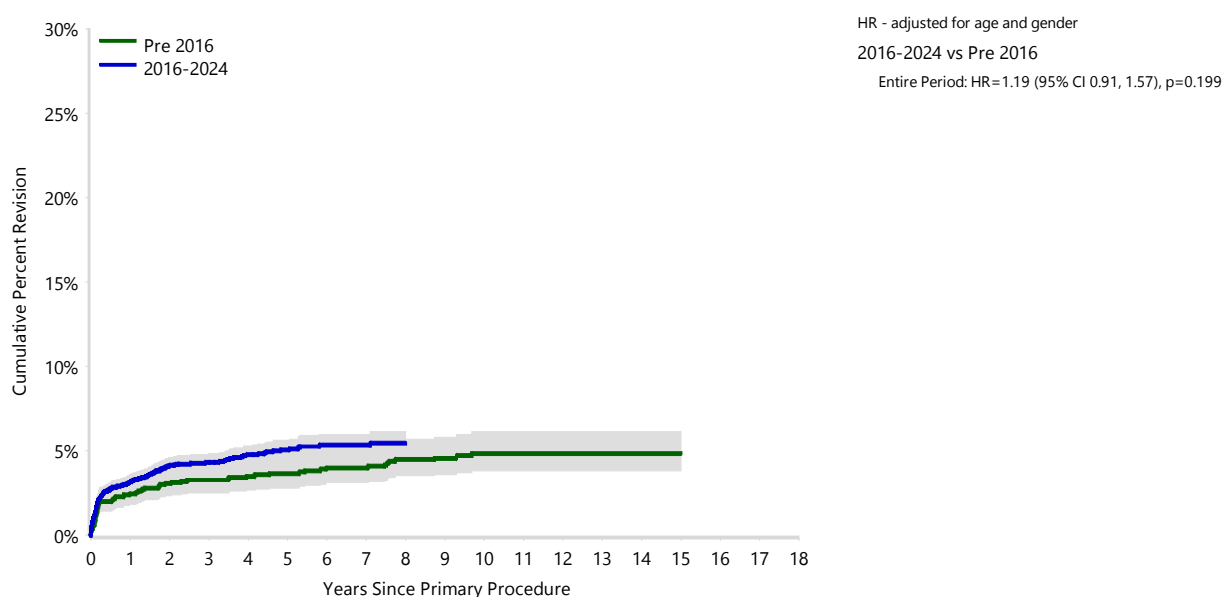
PRIMARY TOTAL STEMMED REVERSE SHOULDER REPLACEMENT

Table ST82A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Procedure Year

Primary Diagnosis	Procedure Year	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Osteoarthritis	Pre 2016	277	4923	2.6 (2.2, 3.1)	3.7 (3.2, 4.2)	4.2 (3.7, 4.9)	4.9 (4.3, 5.6)	5.8 (5.2, 6.6)	7.1 (6.2, 8.3)
	2016-2024	621	23011	1.7 (1.5, 1.8)	2.8 (2.5, 3.0)	3.3 (3.0, 3.5)	3.9 (3.6, 4.3)		
Rotator Cuff Arthropathy	Pre 2016	217	3703	2.8 (2.3, 3.4)	4.1 (3.5, 4.8)	5.0 (4.3, 5.8)	5.4 (4.7, 6.2)	6.2 (5.4, 7.0)	6.7 (5.8, 7.7)
	2016-2024	668	20419	2.2 (2.0, 2.4)	3.4 (3.1, 3.7)	3.9 (3.6, 4.3)	4.5 (4.2, 4.9)		
Fracture	Pre 2016	68	1592	2.5 (1.8, 3.4)	3.3 (2.5, 4.3)	3.7 (2.8, 4.7)	4.0 (3.1, 5.1)	4.8 (3.8, 6.1)	4.8 (3.8, 6.1)
	2016-2024	338	7997	3.2 (2.8, 3.6)	4.3 (3.9, 4.8)	5.1 (4.5, 5.7)	5.3 (4.8, 6.0)		
TOTAL		2189	61645						

Note: Restricted to modern prostheses.

Figure ST82A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnoses and Procedure Year (Primary Diagnosis Fracture)



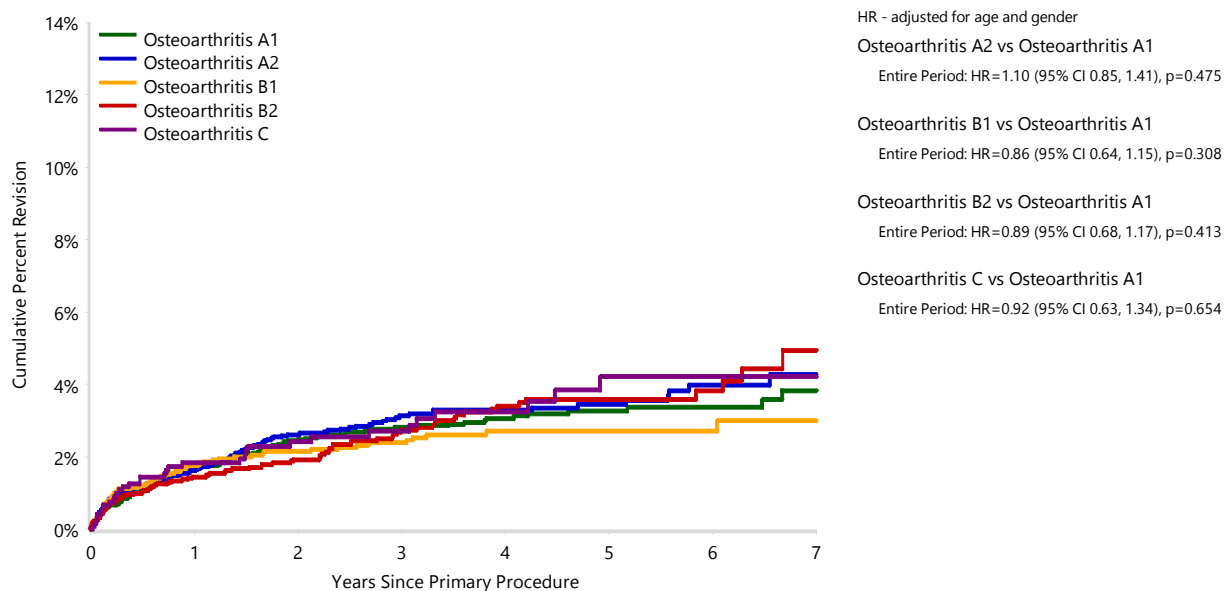
Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Pre 2016	1592	1498	1351	1198	1035	589	75
2016-2024	7997	6377	3937	2074	781	0	0

Table ST89 Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenoid Morphology

Primary Diagnosis	Glenoid Morphology	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Osteoarthritis								
	A1	122	4786	1.6 (1.3, 2.1)	2.4 (2.0, 3.0)	2.8 (2.3, 3.4)	3.1 (2.5, 3.7)	3.3 (2.7, 3.9)
	A2	123	4533	1.6 (1.3, 2.1)	2.6 (2.2, 3.2)	3.1 (2.6, 3.8)	3.3 (2.7, 3.9)	3.4 (2.9, 4.2)
	B1	69	3133	1.7 (1.3, 2.3)	2.1 (1.7, 2.8)	2.4 (1.9, 3.1)	2.7 (2.1, 3.5)	2.7 (2.1, 3.5)
	B2	93	3740	1.4 (1.1, 1.9)	1.9 (1.5, 2.5)	2.7 (2.2, 3.4)	3.4 (2.7, 4.3)	3.6 (2.9, 4.5)
	C	34	1231	1.8 (1.2, 2.8)	2.4 (1.6, 3.5)	2.7 (1.9, 3.9)	3.2 (2.3, 4.6)	4.2 (2.9, 6.1)
Rotator Cuff Arthropathy								
	A1	262	8336	2.1 (1.8, 2.4)	2.8 (2.5, 3.3)	3.3 (2.9, 3.8)	3.8 (3.3, 4.3)	4.0 (3.5, 4.5)
	A2	129	4046	2.3 (1.8, 2.8)	3.3 (2.8, 4.0)	3.6 (3.0, 4.3)	3.8 (3.2, 4.5)	3.9 (3.3, 4.7)
	B1	65	2364	1.9 (1.4, 2.6)	2.8 (2.1, 3.6)	3.1 (2.4, 4.0)	3.1 (2.4, 4.0)	3.5 (2.6, 4.6)
	B2	51	1806	1.9 (1.4, 2.7)	2.6 (1.9, 3.5)	3.2 (2.4, 4.3)	3.6 (2.7, 4.8)	3.9 (2.9, 5.2)
	C	20	673	2.3 (1.4, 3.8)	2.9 (1.8, 4.6)	3.2 (2.0, 5.0)	3.2 (2.0, 5.0)	4.5 (2.7, 7.5)
Fracture								
	A1	181	4792	3.0 (2.5, 3.5)	3.9 (3.3, 4.5)	4.0 (3.5, 4.7)	4.3 (3.7, 5.0)	4.7 (4.0, 5.5)
	A2	19	518	2.4 (1.4, 4.2)	3.6 (2.2, 5.9)	3.6 (2.2, 5.9)	4.8 (2.9, 7.8)	4.8 (2.9, 7.8)
	B1	9	248	3.0 (1.4, 6.1)	3.7 (1.8, 7.5)	3.7 (1.8, 7.5)	4.9 (2.4, 9.8)	4.9 (2.4, 9.8)
	B2	8	148	3.5 (1.5, 8.3)	5.5 (2.6, 11.3)	5.5 (2.6, 11.3)	7.0 (3.4, 14.0)	
	C	1	55	1.9 (0.3, 12.9)	1.9 (0.3, 12.9)	1.9 (0.3, 12.9)	1.9 (0.3, 12.9)	1.9 (0.3, 12.9)
TOTAL		1186	40409					

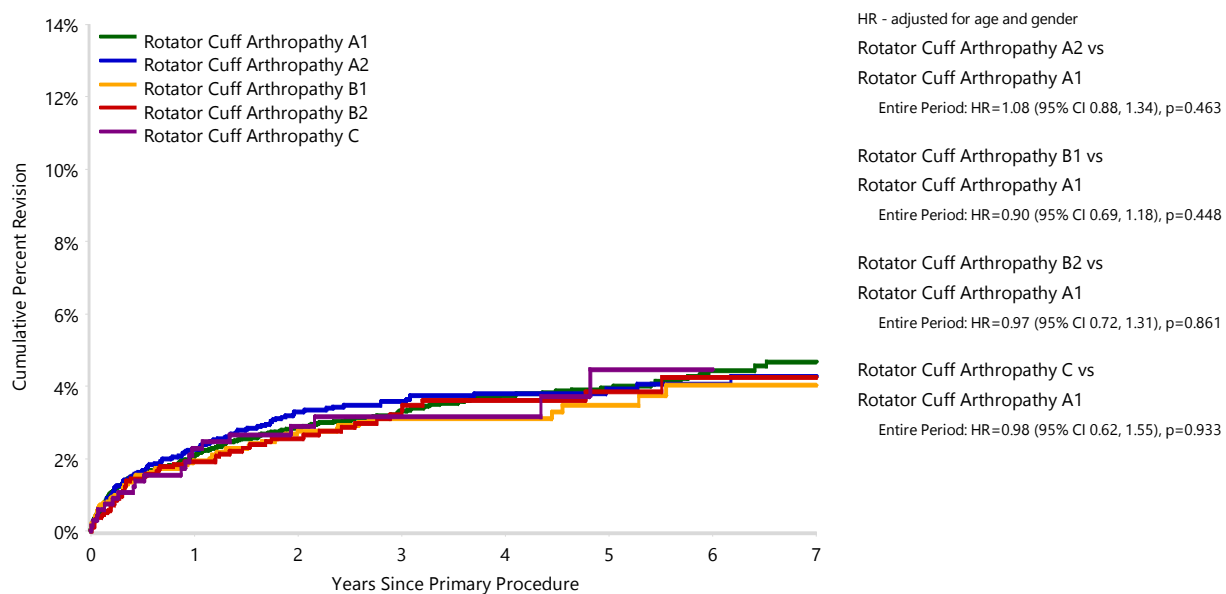
Note: Restricted to modern prostheses
Excludes 119 procedures with a recorded glenoid morphology of B3

Figure ST89A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenoid Morphology (Primary Diagnosis OA)



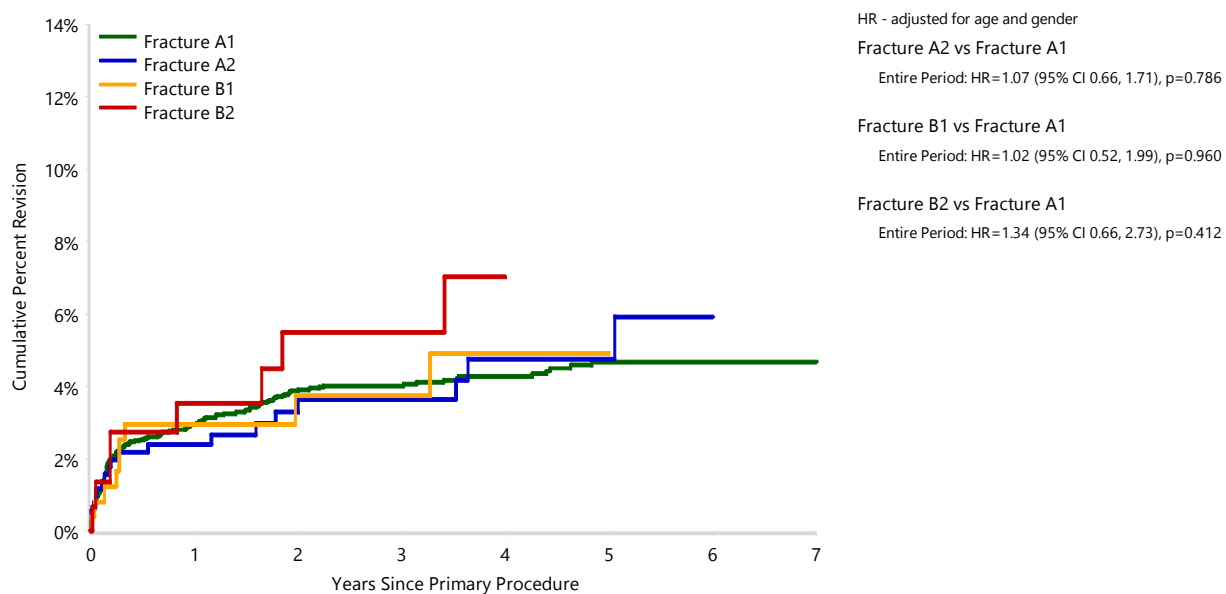
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Osteoarthritis	A1	4786	3803	2937	2281	1637	1134
	A2	4533	3538	2697	2032	1433	961
	B1	3133	2412	1833	1384	964	609
	B2	3740	2831	2119	1596	1071	703
	C	1231	973	750	566	395	249

Figure ST89B Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenoid Morphology (Primary Diagnosis Rotator Cuff Arthropathy)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Rotator Cuff Arthropathy	A1	8336	6607	5158	3993	2868	1944
	A2	4046	3182	2428	1827	1261	846
	B1	2364	1817	1328	966	666	429
	B2	1806	1380	1021	766	527	338
	C	673	533	406	298	193	118

Figure ST89C Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenoid Morphology (Primary Diagnosis Fracture)



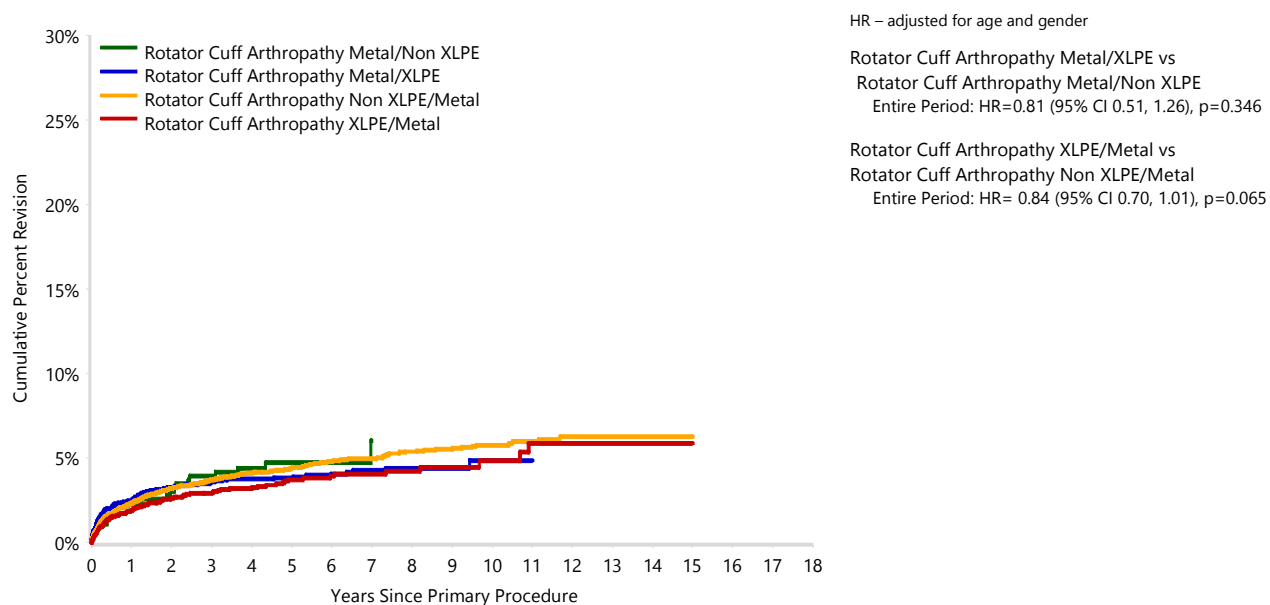
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Fracture	A1	4792	3721	2857	2113	1471	928
	A2	518	385	279	213	141	83
	B1	248	174	121	92	65	45
	B2	148	115	90	66	45	33
	C	55	39	31	24	17	13

Table ST91 Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Bearing Surface

Primary Diagnosis	Bearing Surface	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Osteoarthritis									
	Ceramic/Non XLPE	0	5	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)			
	Ceramic/XLPE	3	75	1.4 (0.2, 9.6)	4.7 (1.5, 13.9)				
	Metal/Non XLPE	19	502	1.2 (0.5, 2.7)	3.1 (1.9, 5.1)	3.3 (2.0, 5.3)	4.2 (2.6, 6.7)		
	Metal/XLPE	128	4490	2.0 (1.6, 2.4)	2.9 (2.5, 3.5)	3.1 (2.6, 3.7)	3.1 (2.6, 3.7)	3.9 (2.9, 5.1)	
	Non XLPE/Metal	604	16522	2.0 (1.8, 2.2)	3.2 (2.9, 3.5)	3.8 (3.5, 4.1)	4.6 (4.2, 5.0)	5.6 (5.0, 6.1)	7.1 (6.0, 8.3)
	XLPE/Metal	144	6331	1.5 (1.2, 1.8)	2.2 (1.8, 2.6)	2.7 (2.3, 3.3)	3.3 (2.7, 4.0)	3.9 (3.2, 4.9)	5.1 (3.7, 7.0)
Rotator Cuff Arthropathy									
	Ceramic/Non XLPE	0	10	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)			
	Ceramic/XLPE	1	71	0.0 (0.0, 0.0)	1.5 (0.2, 10.3)	1.5 (0.2, 10.3)			
	Metal/Non XLPE	22	467	2.4 (1.3, 4.2)	3.9 (2.5, 6.1)	4.7 (3.1, 7.2)	6.0 (3.5, 10.1)		
	Metal/XLPE	139	3804	2.5 (2.0, 3.1)	3.6 (3.0, 4.2)	3.8 (3.2, 4.5)	4.3 (3.6, 5.1)	4.9 (3.8, 6.2)	
	Non XLPE/Metal	579	14493	2.3 (2.1, 2.6)	3.7 (3.4, 4.0)	4.4 (4.0, 4.8)	4.9 (4.5, 5.4)	5.8 (5.2, 6.4)	6.3 (5.5, 7.0)
	XLPE/Metal	144	5265	1.9 (1.6, 2.3)	2.9 (2.5, 3.5)	3.7 (3.1, 4.5)	4.1 (3.3, 4.9)	4.8 (3.8, 6.2)	5.9 (4.3, 8.1)
Fracture									
	Ceramic/XLPE	0	4	0.0 (0.0, 0.0)					
	Metal/Non XLPE	13	285	1.8 (0.7, 4.2)	3.6 (2.0, 6.7)	5.0 (2.9, 8.6)	5.0 (2.9, 8.6)		
	Metal/XLPE	85	1592	4.0 (3.2, 5.2)	5.4 (4.3, 6.7)	5.7 (4.6, 7.1)	6.1 (4.9, 7.6)	6.1 (4.9, 7.6)	
	Non XLPE/Metal	242	5631	3.0 (2.5, 3.4)	4.0 (3.5, 4.6)	4.7 (4.2, 5.4)	5.1 (4.5, 5.8)	6.2 (5.3, 7.4)	6.2 (5.3, 7.4)
	XLPE/Metal	65	2065	2.7 (2.1, 3.5)	3.4 (2.7, 4.4)	3.8 (3.0, 4.9)	3.8 (3.0, 4.9)	3.8 (3.0, 4.9)	
TOTAL		2188	61612						

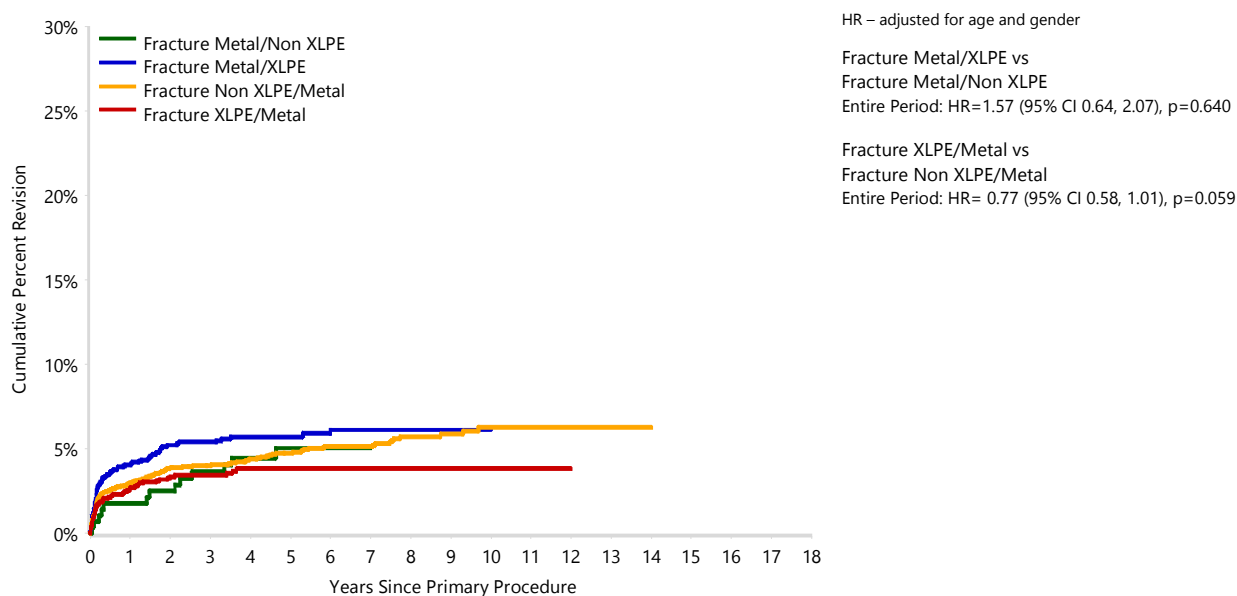
Note: Restricted to modern prostheses. Reported as humeral cup/glenosphere. Excludes procedures with unknown bearing surface

Figure ST91A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Bearing Surface (Primary Diagnosis Rotator Cuff Arthropathy)



Number at Risk		0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Rotator Cuff Arthropathy	Metal/Non XLPE	467	449	413	244	73	4	0
	Metal/XLPE	3804	3316	2397	1504	771	146	2
	Non XLPE/Metal	14493	12324	8671	5698	3249	1181	145
	XLPE/Metal	5265	3808	2052	1097	590	234	56

Figure ST91B Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Bearing Surface (Primary Diagnosis Fracture)



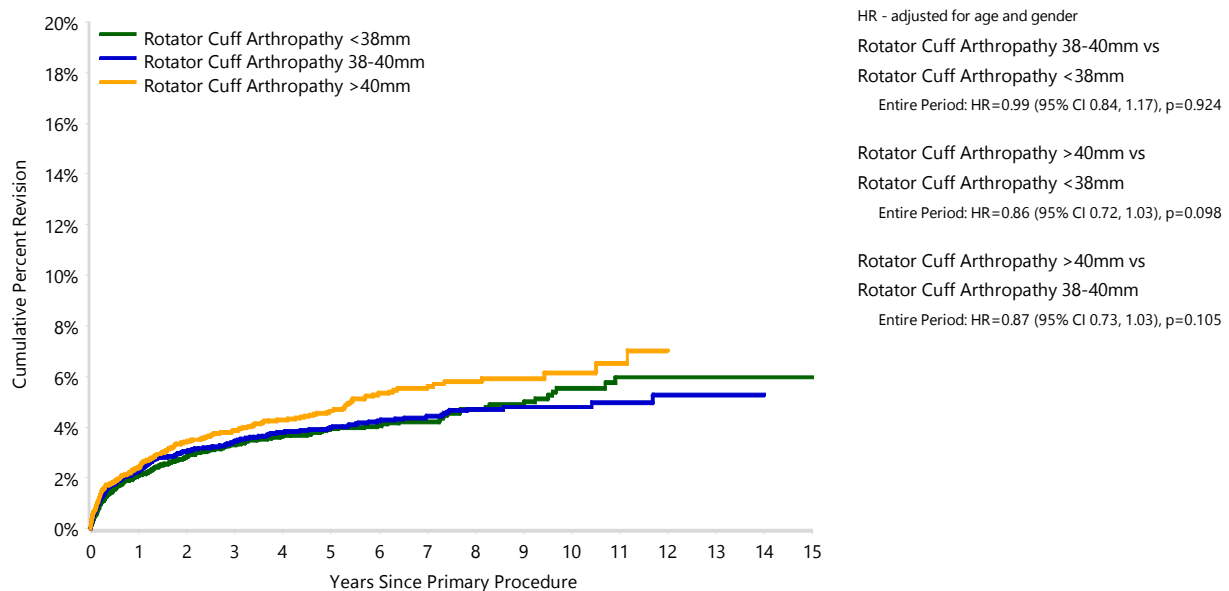
Number at Risk		0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Fracture	Metal/Non XLPE	285	271	246	154	49	0	0
	Metal/XLPE	1592	1341	921	567	278	66	1
	Non XLPE/Metal	5631	4689	3221	2013	1153	378	41
	XLPE/Metal	2065	1559	889	530	328	142	33

Table ST92 Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Glenosphere Size (Primary Diagnosis OA)

Primary Diagnosis	Glenosphere Size	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	5 Yrs	8 Yrs	10 Yrs
Osteoarthritis	<38mm	306	9868	1.7 (1.5, 2.0)	2.4 (2.1, 2.8)	2.8 (2.5, 3.2)	3.4 (3.0, 3.9)	4.3 (3.8, 4.9)	4.7 (4.1, 5.4)
	38-40mm	314	10127	1.7 (1.4, 2.0)	2.3 (2.0, 2.6)	2.7 (2.4, 3.0)	3.1 (2.7, 3.5)	4.1 (3.6, 4.6)	5.0 (4.3, 5.8)
	>40mm	237	6199	2.3 (1.9, 2.7)	3.0 (2.6, 3.5)	3.5 (3.0, 4.0)	4.0 (3.5, 4.6)	4.9 (4.2, 5.6)	5.3 (4.5, 6.1)
Rotator Cuff Arthropathy	<38mm	283	8378	2.1 (1.8, 2.5)	2.9 (2.5, 3.3)	3.3 (2.9, 3.8)	4.0 (3.5, 4.5)	4.7 (4.1, 5.4)	5.5 (4.7, 6.5)
	38-40mm	314	8635	2.3 (2.0, 2.6)	3.1 (2.7, 3.5)	3.4 (3.1, 3.9)	4.0 (3.5, 4.5)	4.7 (4.2, 5.3)	4.8 (4.2, 5.4)
	>40mm	250	5811	2.4 (2.1, 2.9)	3.4 (3.0, 3.9)	3.9 (3.4, 4.4)	4.6 (4.1, 5.3)	5.8 (5.1, 6.7)	6.2 (5.3, 7.2)
Fracture	<38mm	135	4078	2.3 (1.8, 2.8)	3.0 (2.5, 3.7)	3.2 (2.7, 3.8)	3.8 (3.2, 4.6)	4.7 (3.9, 5.7)	4.7 (3.9, 5.7)
	38-40mm	153	3658	3.1 (2.6, 3.7)	3.8 (3.2, 4.5)	4.0 (3.4, 4.7)	4.5 (3.8, 5.3)	5.0 (4.2, 5.9)	5.9 (4.7, 7.4)
	>40mm	105	1442	5.1 (4.1, 6.4)	6.6 (5.4, 8.1)	7.0 (5.7, 8.5)	8.0 (6.6, 9.6)	8.6 (7.0, 10.4)	8.6 (7.0, 10.4)
TOTAL		2097	58196						

Note: Excludes procedures with unknown glenosphere sizes
Restricted to modern prostheses

Figure ST92A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenosphere Size (Primary Diagnosis Rotator Cuff Arthropathy)



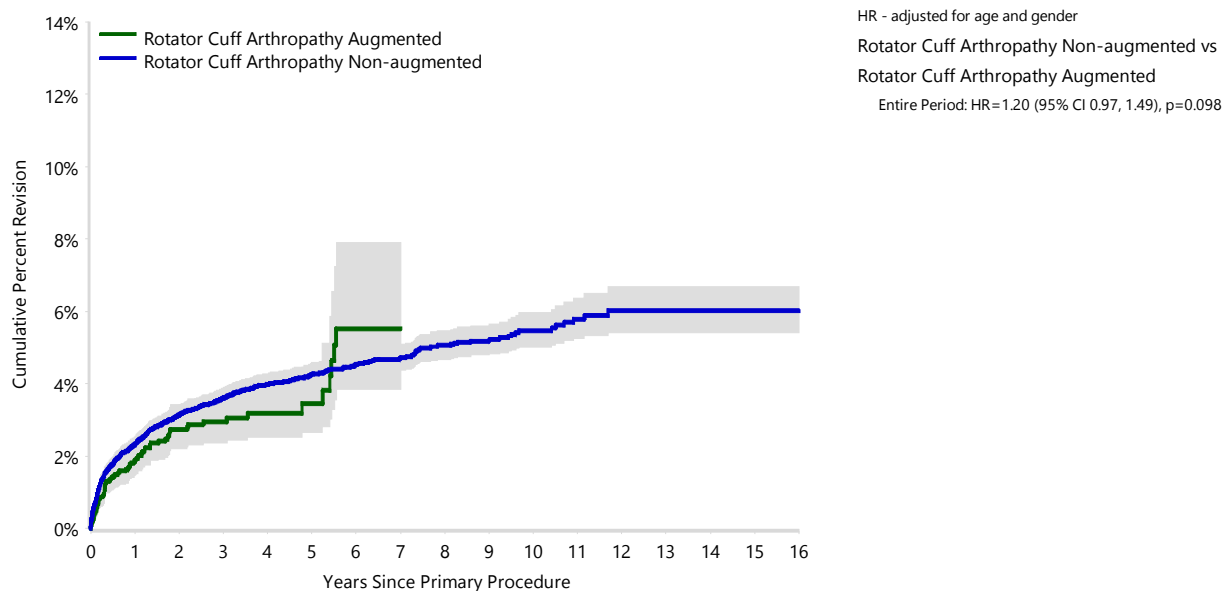
Number at Risk		0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Rotator Cuff Arthropathy	<38mm	8378	6828	4479	2836	1600	595	104
	38-40mm	8635	7382	5228	3442	1964	646	78
	>40mm	5811	4983	3575	2210	1127	325	21

Table ST93 Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenoid Augmentation

Primary Diagnosis	Glenoid Augmentation	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Osteoarthritis	Augmented	105	4765	1.5 (1.2, 1.9)	1.9 (1.5, 2.4)	2.5 (2.0, 3.1)	3.1 (2.5, 3.9)	3.6 (2.8, 4.5)
	Non-augmented	792	23154	1.9 (1.7, 2.1)	2.6 (2.4, 2.8)	3.0 (2.8, 3.3)	3.3 (3.1, 3.6)	3.5 (3.2, 3.8)
Rotator Cuff Arthropathy	Augmented	93	3800	1.9 (1.5, 2.4)	2.7 (2.2, 3.4)	3.0 (2.4, 3.7)	3.2 (2.5, 4.0)	3.4 (2.7, 4.5)
	Non-augmented	792	20316	2.3 (2.1, 2.6)	3.1 (2.9, 3.4)	3.6 (3.3, 3.9)	4.0 (3.7, 4.3)	4.3 (4.0, 4.6)
Fracture	Augmented	18	771	1.9 (1.1, 3.3)	2.9 (1.7, 4.9)	2.9 (1.7, 4.9)	4.0 (2.1, 7.6)	
	Non-augmented	388	8816	3.1 (2.8, 3.5)	4.0 (3.6, 4.5)	4.2 (3.8, 4.7)	4.6 (4.1, 5.1)	4.8 (4.4, 5.3)
TOTAL		2188	61622					

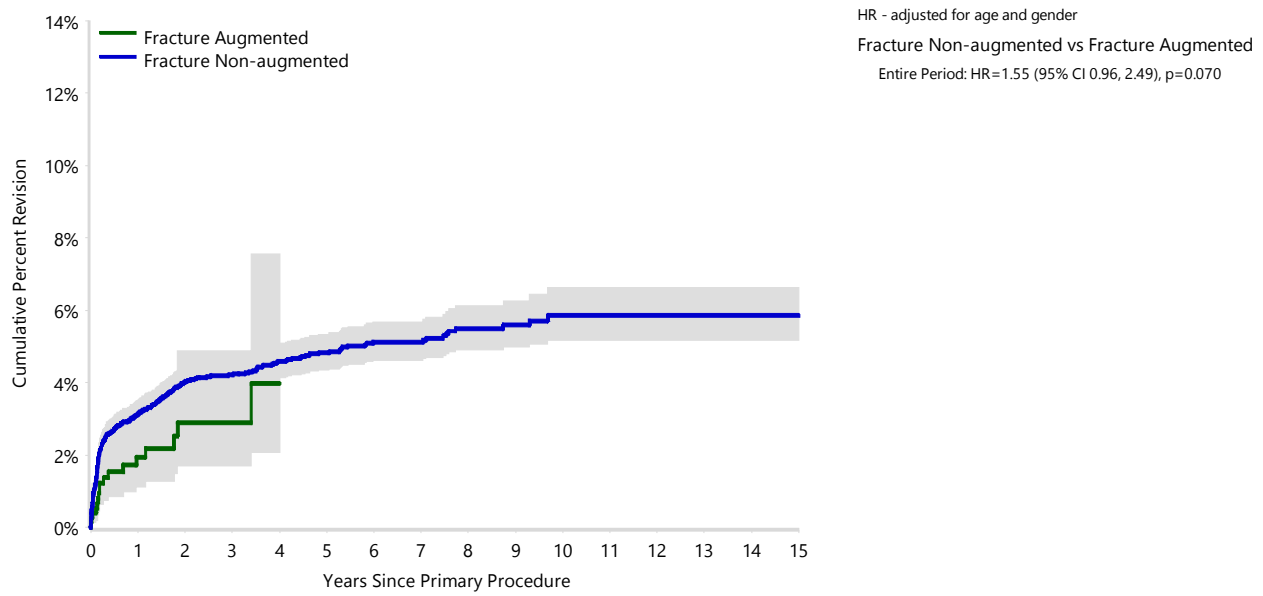
Note: Restricted to modern prostheses

Figure ST93A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenoid Augmentation (Primary Diagnosis Rotator Cuff Arthropathy)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Rotator Cuff Arthropathy	Augmented	3800	2523	1585	1001	589	314
	Non-augmented	20316	17464	14849	12593	10251	8252

Figure ST93B Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenoid Augmentation (Primary Diagnosis Fracture)



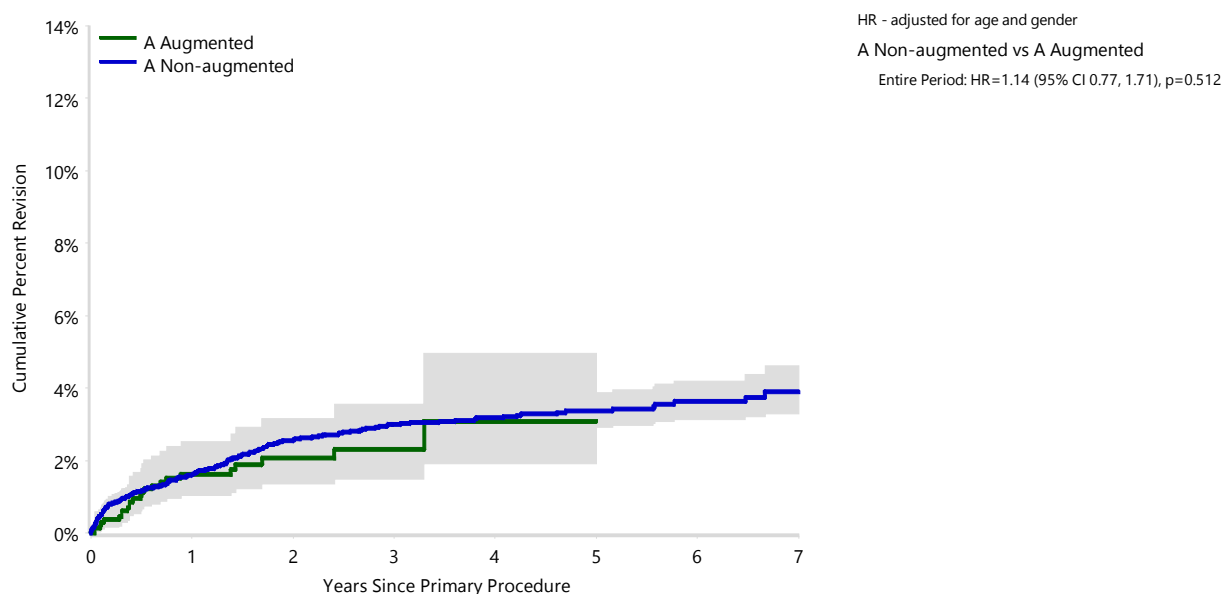
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Fracture	Augmented	771	444	244	118	51	30
	Non-augmented	8816	7431	6250	5170	4159	3242

Table ST94 Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis, Glenoid Morphology and Glenoid Augmentation

Primary Diagnosis	Glenoid Morphology	Glenoid Augmentation	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Osteoarthritis									
	A	Augmented	27	1378	1.6 (1.0, 2.5)	2.1 (1.3, 3.2)	2.3 (1.5, 3.6)	3.1 (1.9, 5.0)	3.1 (1.9, 5.0)
		Non-augmented	216	7939	1.6 (1.4, 1.9)	2.6 (2.2, 3.0)	3.0 (2.6, 3.5)	3.2 (2.8, 3.7)	3.4 (3.0, 3.9)
	B	Augmented	55	2255	1.5 (1.0, 2.1)	2.0 (1.5, 2.8)	3.0 (2.2, 4.0)	3.6 (2.7, 4.9)	4.1 (3.0, 5.7)
		Non-augmented	107	4618	1.6 (1.3, 2.1)	2.0 (1.6, 2.5)	2.5 (2.0, 3.0)	2.9 (2.4, 3.5)	2.9 (2.4, 3.5)
	C	Augmented	6	496	0.7 (0.2, 2.1)	0.7 (0.2, 2.1)	0.7 (0.2, 2.1)	1.3 (0.4, 3.9)	3.6 (1.4, 9.4)
		Non-augmented	28	732	2.6 (1.6, 4.0)	3.4 (2.3, 5.1)	3.9 (2.6, 5.7)	4.4 (3.0, 6.4)	4.8 (3.3, 7.1)
Rotator Cuff Arthropathy									
	A	Augmented	41	1748	1.8 (1.3, 2.6)	2.7 (1.9, 3.8)	2.9 (2.1, 4.0)	3.5 (2.4, 5.1)	3.5 (2.4, 5.1)
		Non-augmented	350	10632	2.2 (1.9, 2.5)	3.0 (2.7, 3.4)	3.5 (3.1, 3.9)	3.8 (3.4, 4.3)	4.0 (3.6, 4.5)
	B	Augmented	29	1425	1.5 (0.9, 2.3)	2.3 (1.5, 3.4)	2.6 (1.8, 4.0)	2.6 (1.8, 4.0)	3.3 (2.0, 5.4)
		Non-augmented	87	2745	2.2 (1.7, 2.8)	2.9 (2.3, 3.6)	3.4 (2.7, 4.2)	3.6 (2.9, 4.5)	3.9 (3.1, 4.8)
	C	Augmented	8	310	2.4 (1.2, 5.0)	2.9 (1.5, 5.8)	2.9 (1.5, 5.8)	2.9 (1.5, 5.8)	
		Non-augmented	12	360	2.1 (1.0, 4.4)	2.8 (1.5, 5.4)	3.2 (1.7, 5.9)	3.2 (1.7, 5.9)	4.9 (2.6, 9.0)
Fracture									
	A	Augmented	14	532	2.0 (1.0, 3.9)	3.5 (1.9, 6.4)	3.5 (1.9, 6.4)		
		Non-augmented	186	4774	3.0 (2.5, 3.5)	3.9 (3.4, 4.6)	4.1 (3.5, 4.7)	4.4 (3.8, 5.0)	4.7 (4.0, 5.4)
	B	Augmented	3	110	3.0 (1.0, 8.9)				
		Non-augmented	14	286	3.3 (1.7, 6.2)	4.8 (2.8, 8.5)	4.8 (2.8, 8.5)	6.3 (3.7, 10.7)	6.3 (3.7, 10.7)
	C	Augmented	0	17	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)			
		Non-augmented	1	38	2.8 (0.4, 18.1)	2.8 (0.4, 18.1)	2.8 (0.4, 18.1)	2.8 (0.4, 18.1)	2.8 (0.4, 18.1)
TOTAL			1184	40395					

Note: Excludes 21,255 procedures with unknown glenoid augmentation or glenoid morphology
Restricted to modern prostheses.

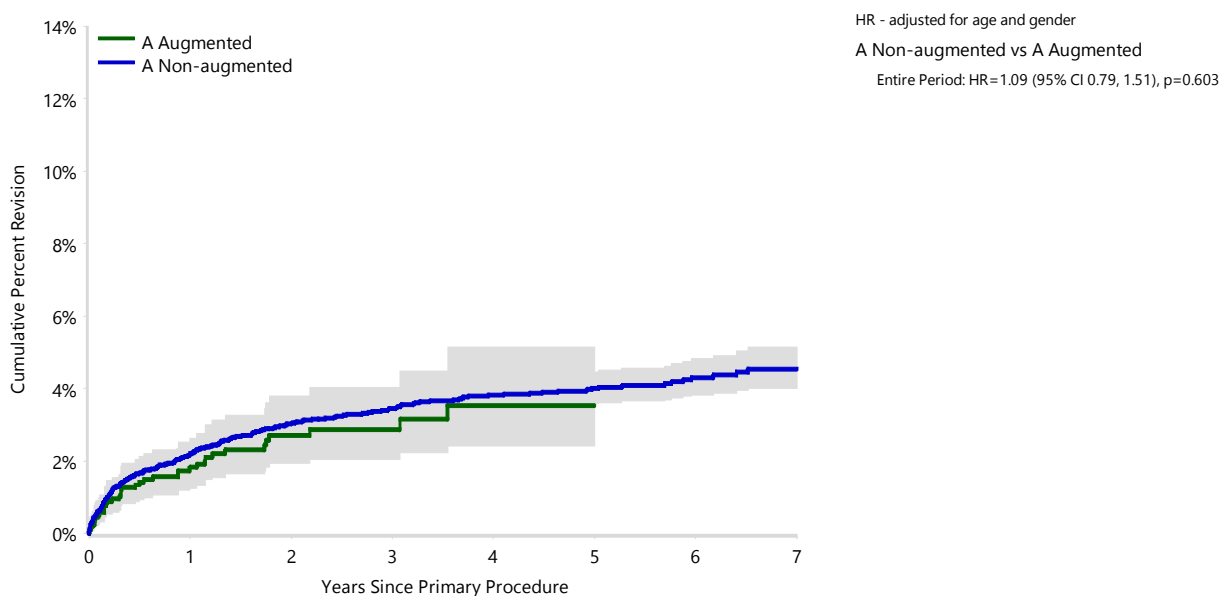
Figure ST94A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Glenoid Morphology and Glenoid Augmentation (Primary Diagnosis OA)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A	Augmented	1378	872	514	291	164	91
	Non-augmented	7939	6469	5120	4022	2906	2004

Note: Restricted to modern prostheses.

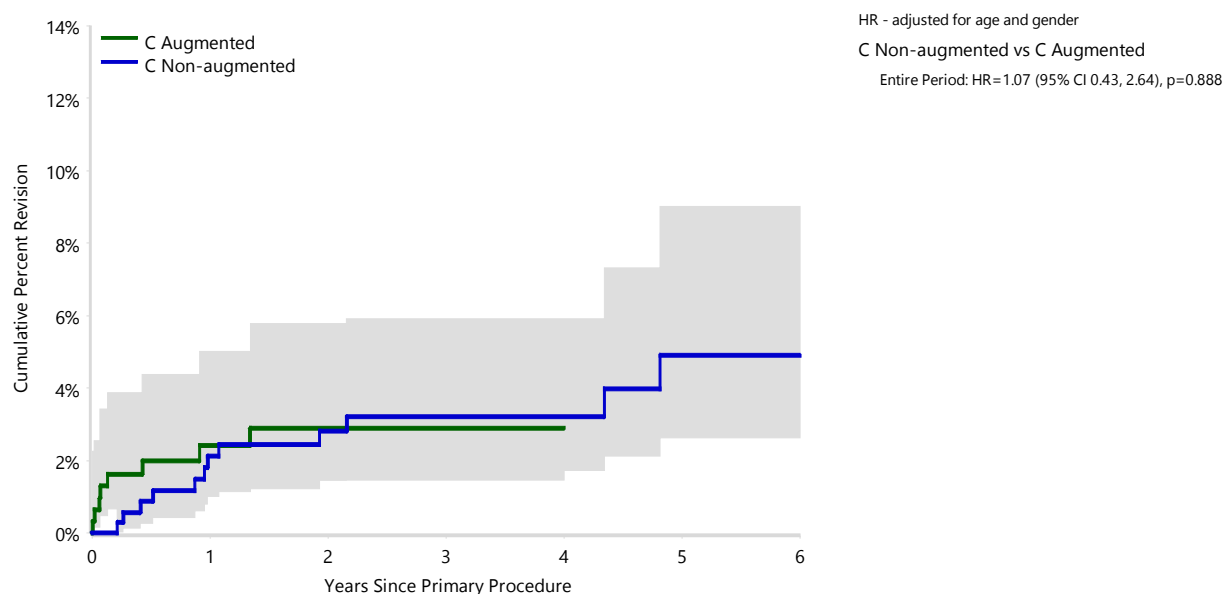
Figure ST94B Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Glenoid Morphology and Glenoid Augmentation (Primary Diagnosis Rotator Cuff Arthropathy)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A	Augmented	1748	1086	658	368	188	91
	Non-augmented	10632	8702	6927	5452	3941	2699

Note: Restricted to modern prostheses.

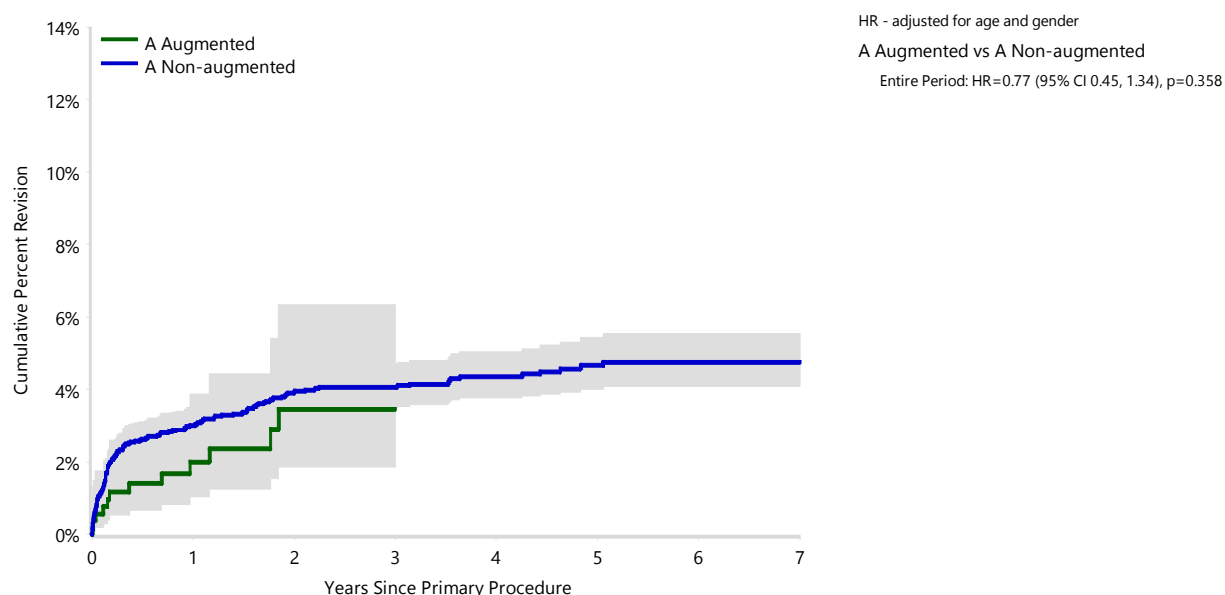
Figure ST94C Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Glenoid Morphology and Glenoid Augmentation (Primary Diagnosis Rotator Cuff Arthropathy)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
C	Augmented	310	228	151	94	51	21
	Non-augmented	360	305	255	204	142	97

Note: Restricted to modern prostheses.

Figure ST94D Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Glenoid Morphology and Glenoid Augmentation (Primary Diagnosis Fracture)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
A	Augmented	532	301	161	78	28	16
	Non-augmented	4774	3804	2974	2248	1584	995

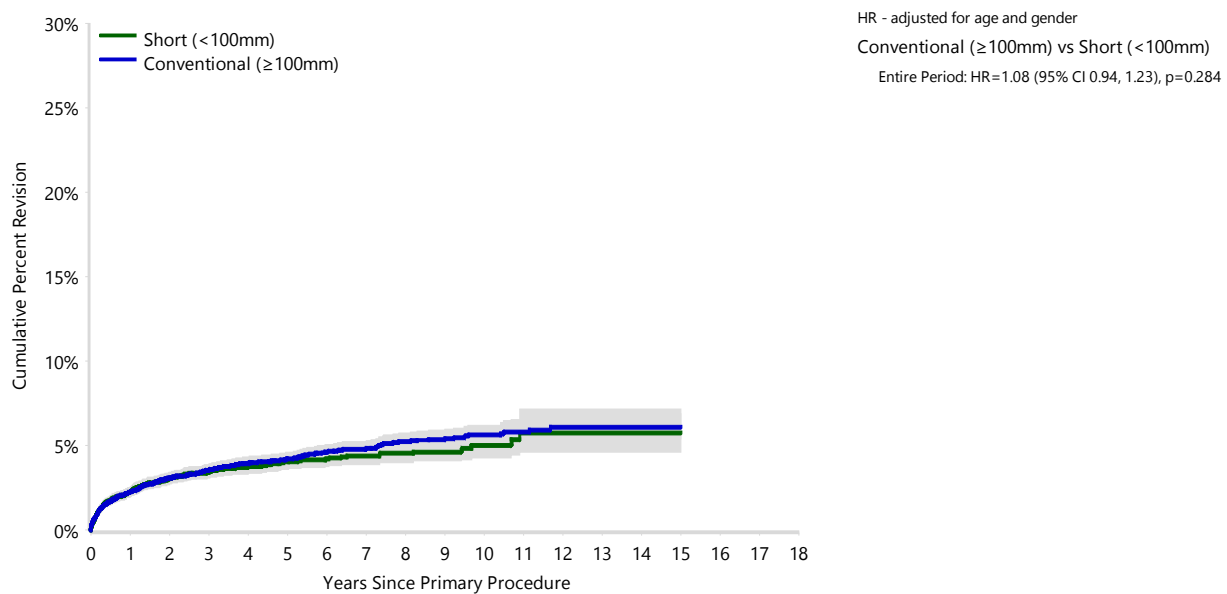
Note: Restricted to modern prostheses.

Table ST97 Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Humeral Stem Length

Primary Diagnosis	Humeral Stem Length	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Osteoarthritis	Short (<100mm)	338	12636	1.9 (1.6, 2.1)	2.7 (2.4, 3.1)	3.1 (2.8, 3.4)	3.4 (3.0, 3.9)	4.1 (3.5, 4.7)	5.1 (3.9, 6.6)
	Conventional (≥100mm)	555	15152	1.8 (1.6, 2.0)	3.0 (2.8, 3.3)	3.7 (3.4, 4.0)	4.5 (4.1, 4.9)	5.5 (4.9, 6.1)	7.0 (5.9, 8.2)
Rotator Cuff Arthropathy	Short (<100mm)	359	10896	2.3 (2.0, 2.6)	3.4 (3.1, 3.8)	4.0 (3.6, 4.5)	4.4 (3.9, 4.9)	5.0 (4.3, 5.9)	5.8 (4.6, 7.2)
	Conventional (≥100mm)	521	13091	2.3 (2.0, 2.5)	3.5 (3.2, 3.9)	4.2 (3.9, 4.6)	4.8 (4.4, 5.3)	5.6 (5.1, 6.2)	6.1 (5.4, 6.9)
Fracture	Short (<100mm)	128	2631	3.8 (3.1, 4.6)	5.1 (4.3, 6.1)	5.5 (4.6, 6.5)	5.6 (4.7, 6.7)	5.6 (4.7, 6.7)	
	Conventional (≥100mm)	278	6948	2.8 (2.4, 3.2)	3.8 (3.3, 4.3)	4.5 (4.0, 5.1)	4.9 (4.3, 5.5)	5.9 (5.0, 6.9)	5.9 (5.0, 6.9)
TOTAL		2179	61354						

Note: Excludes procedures with unknown humeral stem length
Restricted to modern prostheses

Figure ST97A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Humeral Stem Length (Primary Diagnosis Rotator Cuff Arthropathy)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Short (<100mm)	10896	8583	5208	2964	1455	394	58
Conventional (≥100mm)	13091	11373	8381	5598	3236	1172	145

Figure ST97B Cumulative Incidence Revision Diagnosis of Primary Total Stemmed Reverse Shoulder Replacement by Humeral Stem Length (Primary Diagnosis Rotator Cuff Arthropathy)

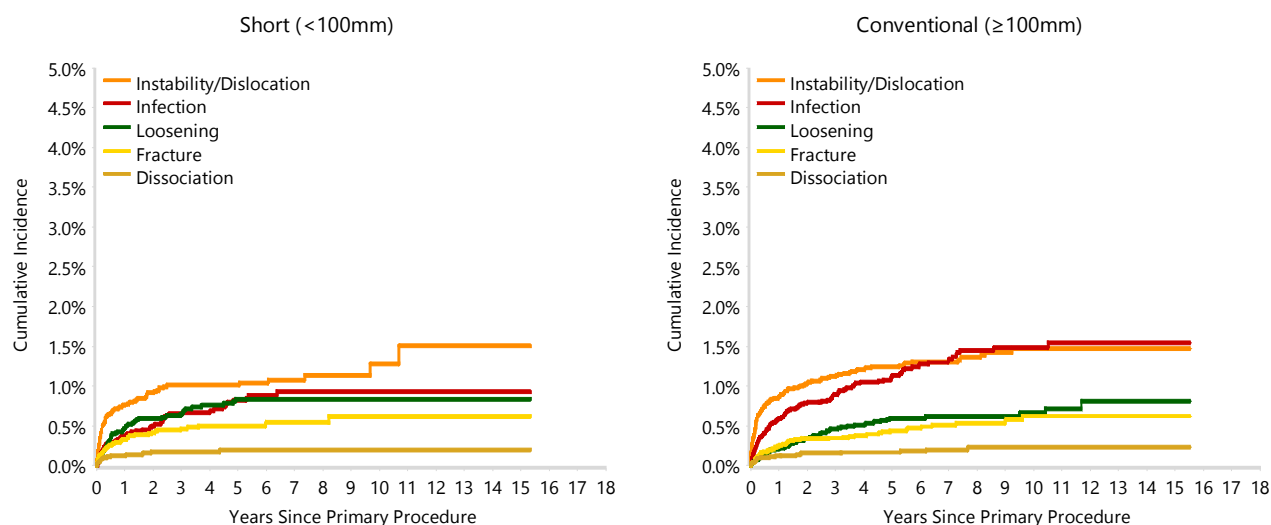
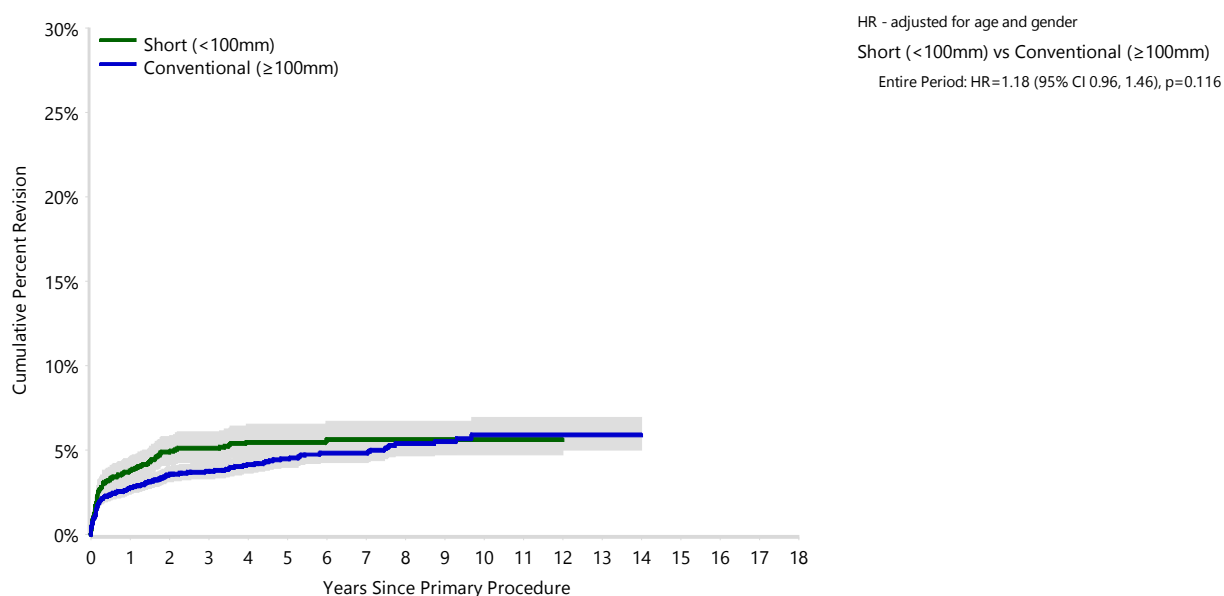


Figure ST97C Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Humeral Stem Length (Primary Diagnosis Fracture)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	14 Yrs
Short (<100mm)	2631	2120	1386	900	532	195	34
Conventional (≥100mm)	6948	5754	3902	2372	1284	394	41

Figure ST97D Cumulative Incidence Revision Diagnosis of Primary Total Stemmed Reverse Shoulder Replacement by Humeral Stem Length (Primary Diagnosis Fracture)

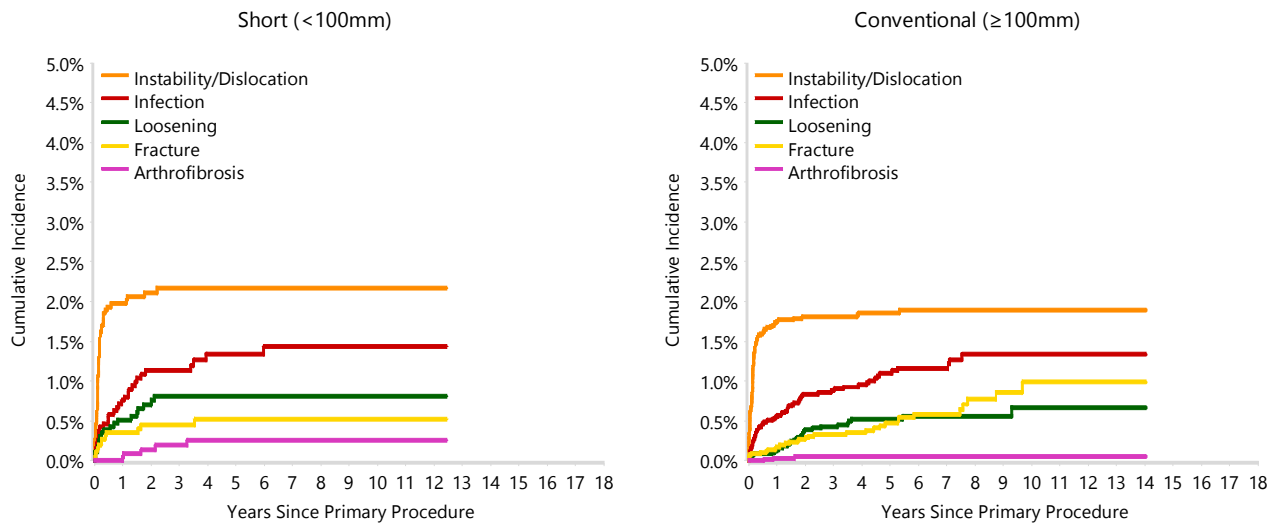
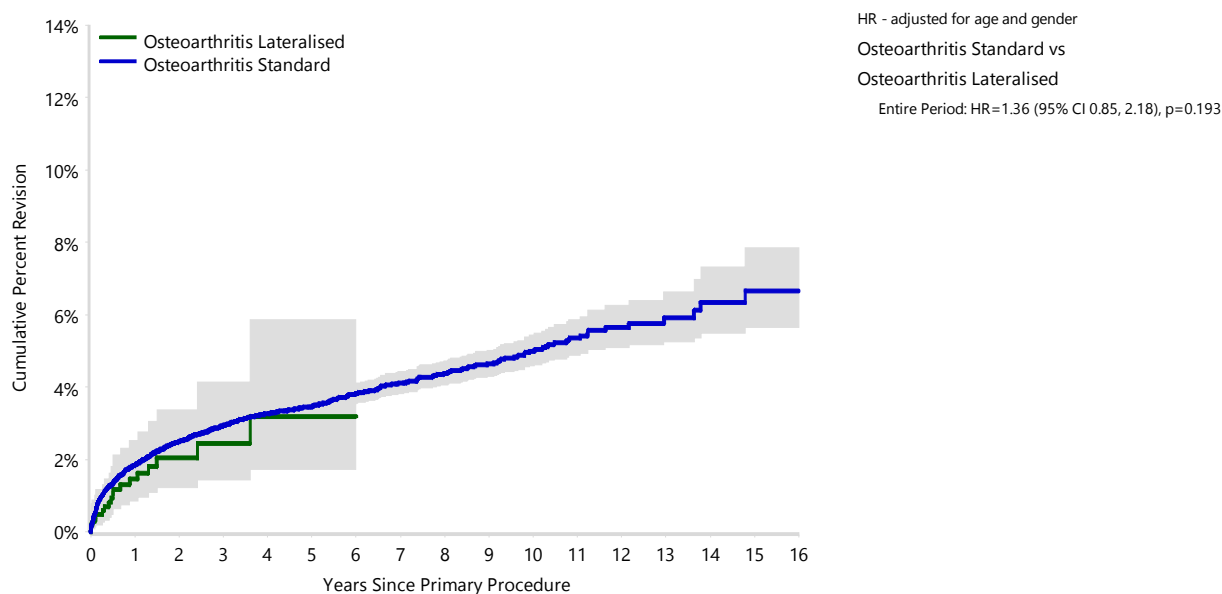


Table ST98 Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenosphere Lateralisation

Primary Diagnosis	Glenoid Lateralisation	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Osteoarthritis	Lateralised	18	1047	1.5 (0.8, 2.5)	2.0 (1.2, 3.4)	2.4 (1.4, 4.1)	3.2 (1.7, 5.9)	3.2 (1.7, 5.9)
	Standard	878	26764	1.8 (1.7, 2.0)	2.5 (2.3, 2.7)	2.9 (2.7, 3.2)	3.3 (3.0, 3.5)	3.5 (3.2, 3.7)
Rotator Cuff Arthropathy	Lateralised	23	876	2.6 (1.6, 4.0)	3.3 (2.2, 5.1)	3.3 (2.2, 5.1)	4.4 (2.5, 7.6)	4.4 (2.5, 7.6)
	Standard	858	23108	2.2 (2.1, 2.5)	3.1 (2.8, 3.3)	3.5 (3.3, 3.8)	3.9 (3.6, 4.1)	4.1 (3.9, 4.5)
Fracture	Lateralised	17	361	4.6 (2.8, 7.6)	5.2 (3.2, 8.4)	5.2 (3.2, 8.4)		
	Standard	388	9195	3.0 (2.7, 3.4)	3.9 (3.5, 4.3)	4.1 (3.7, 4.5)	4.5 (4.0, 4.9)	4.7 (4.3, 5.2)
TOTAL		2182	61351					

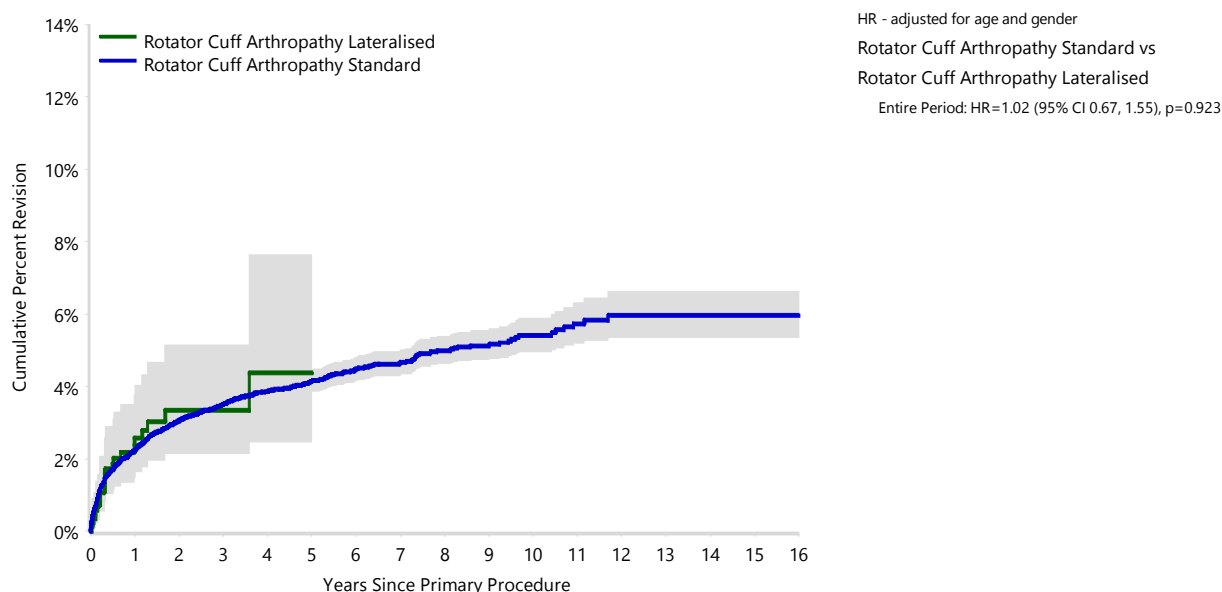
Note: Excludes procedures with unknown lateralisation
Restricted to modern prostheses.

Figure ST98A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenosphere Lateralisation (Primary Diagnosis OA)



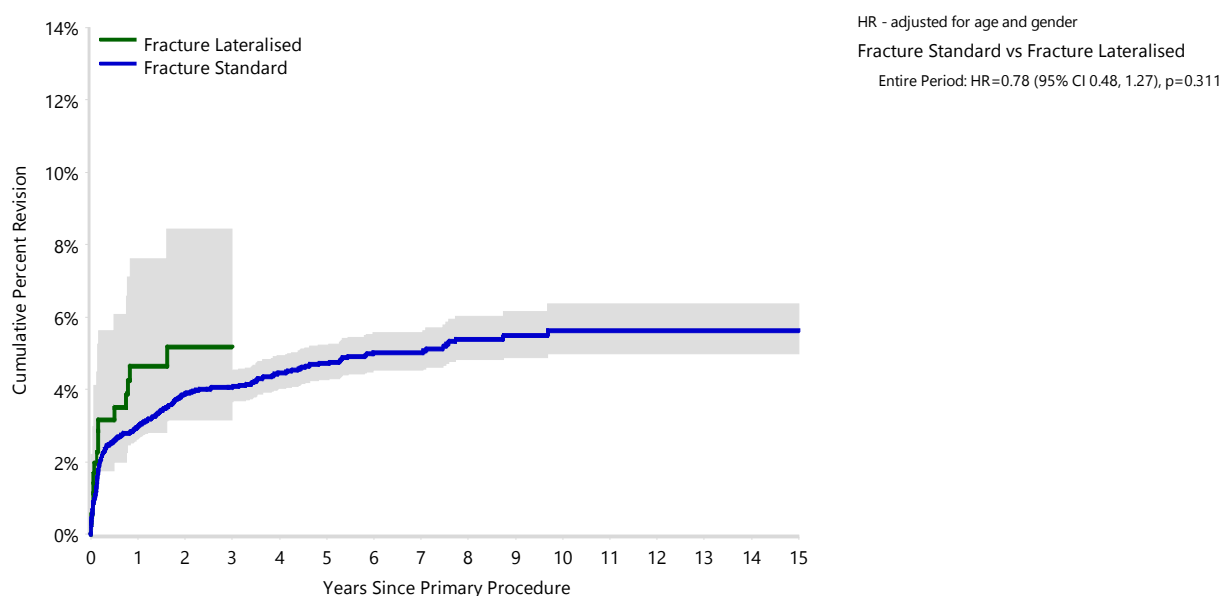
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Osteoarthritis	Lateralised	1047	602	311	185	107	72
	Standard	26764	22748	19204	16250	13278	10678

Figure ST98B Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenosphere Lateralisation (Primary Diagnosis Rotator Cuff Arthropathy)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Rotator Cuff Arthropathy	Lateralised	876	491	250	142	77	46
	Standard	23108	19495	16183	13452	10763	8520

Figure ST98C Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Glenosphere Lateralisation (Primary Diagnosis Fracture)



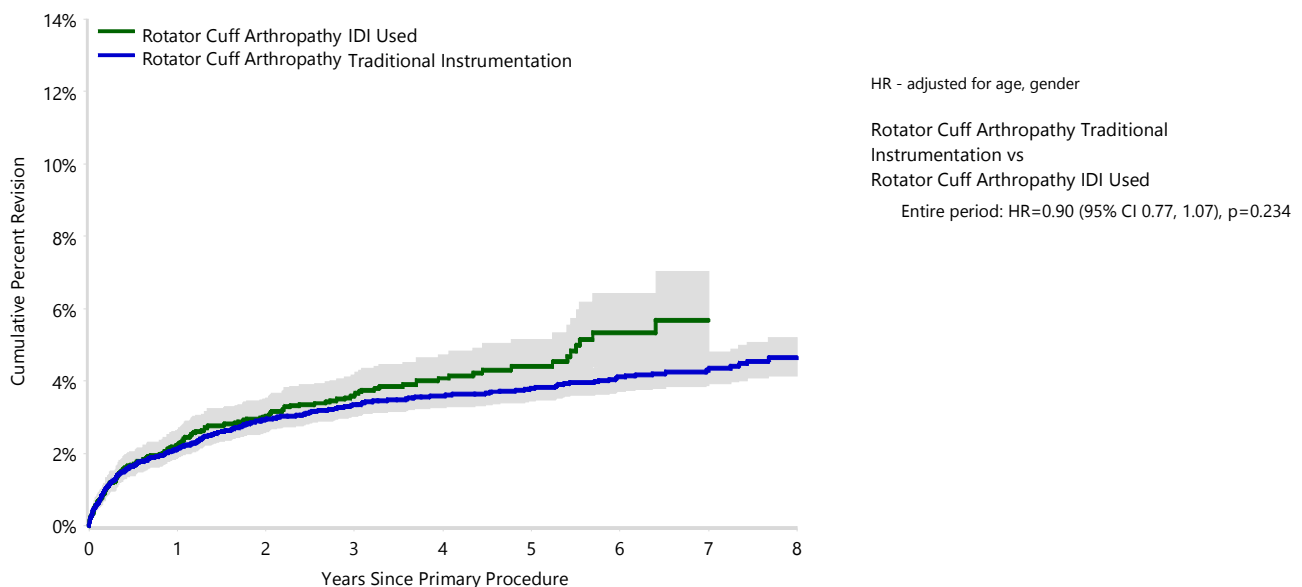
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Fracture	Lateralised	361	234	141	63	23	15
	Standard	9195	7636	6349	5223	4185	3256

Table ST99 Cumulative Percent Revision of Primary Total Stemmed Reverse Replacement Since 2016 by Primary Diagnosis and IDI Usage

Primary Diagnosis	IDI Use	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Osteoarthritis	IDI Used	144	6977	1.4 (1.1, 1.7)	1.9 (1.6, 2.3)	2.3 (1.9, 2.8)	2.6 (2.1, 3.1)	2.8 (2.3, 3.3)
	Traditional Instrumentation	477	16034	1.8 (1.6, 2.0)	2.5 (2.2, 2.7)	2.9 (2.7, 3.2)	3.3 (3.0, 3.6)	3.4 (3.1, 3.8)
Rotator Cuff Arthropathy	IDI Used	201	6213	2.2 (1.9, 2.7)	3.0 (2.6, 3.5)	3.6 (3.1, 4.2)	4.1 (3.5, 4.7)	4.4 (3.8, 5.2)
	Traditional Instrumentation	467	14206	2.1 (1.9, 2.4)	2.9 (2.7, 3.3)	3.3 (3.0, 3.7)	3.6 (3.3, 3.9)	3.8 (3.5, 4.2)
Fracture	IDI Used	23	582	2.8 (1.8, 4.6)	4.5 (2.9, 6.9)	4.5 (2.9, 6.9)	4.5 (2.9, 6.9)	6.8 (3.9, 11.7)
	Traditional Instrumentation	315	7415	3.2 (2.8, 3.6)	4.1 (3.7, 4.6)	4.3 (3.8, 4.8)	4.8 (4.3, 5.3)	5.0 (4.5, 5.6)
TOTAL		1627	51427					

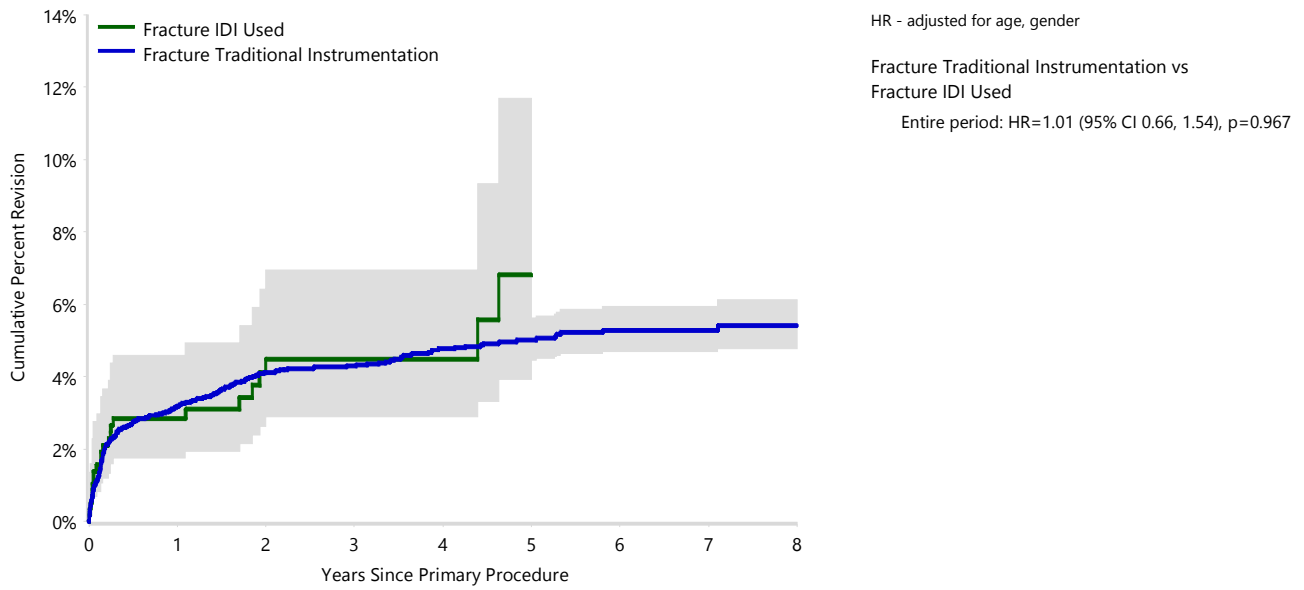
Note: Restricted to modern prostheses.

Figure ST99A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement Since 2016 by Primary Diagnosis and IDI Usage (Primary Diagnosis Rotator Cuff Arthropathy)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Rotator Cuff Arthropathy	IDI Used	6213	4652	3328	2314	1441	877
	Traditional Instrumentation	14206	11788	9675	7973	6225	4676

Figure ST99B Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement Since 2016 by Primary Diagnosis and IDI Usage (Primary Diagnosis Fracture)



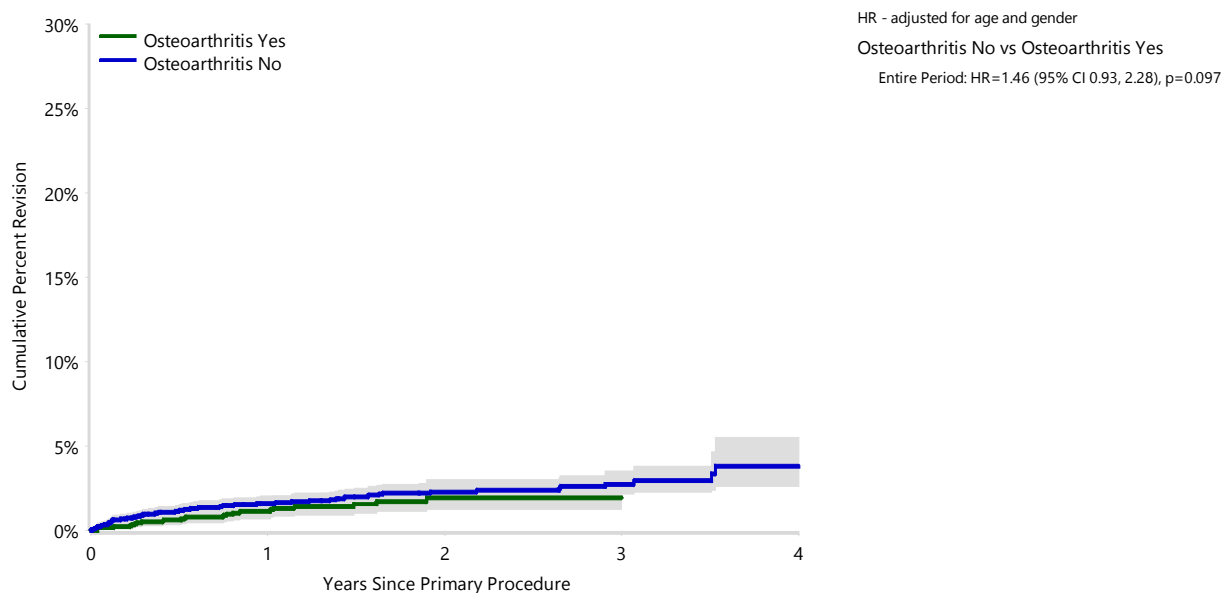
Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Fracture	IDI Used	582	395	261	177	108	63
	Traditional Instrumentation	7415	5982	4806	3760	2819	2011

Table ST100 Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Rotator Cuff Repair

Primary Diagnosis	Rotator Cuff Repair	N Revised	N Total	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Osteoarthritis								
	Yes	24	1940	1.1 (0.7, 1.8)	1.9 (1.3, 3.0)	1.9 (1.3, 3.0)		
	No	99	5262	1.6 (1.3, 2.0)	2.3 (1.9, 2.9)	2.8 (2.2, 3.5)	3.8 (2.6, 5.5)	
Rotator Cuff Arthropathy								
	Yes	30	1747	1.6 (1.0, 2.4)	2.5 (1.7, 3.6)	2.8 (1.9, 4.1)		
	No	156	5667	2.4 (2.0, 2.8)	3.4 (2.9, 4.1)	3.9 (3.2, 4.6)		
Fracture								
	Yes	20	896	2.2 (1.4, 3.5)	2.7 (1.7, 4.3)	2.7 (1.7, 4.3)		
	No	49	1200	3.9 (2.9, 5.2)	5.1 (3.9, 6.9)	5.1 (3.9, 6.9)		
TOTAL		378	16712					

Note: Restricted to modern prostheses

Figure ST100A Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis and Rotator Cuff Repair (Primary Diagnosis OA)



Number at Risk		0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Osteoarthritis	Yes	1940	1056	432	119	2	0
	No	5262	3202	1660	570	59	1



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