

Delta Xtend/Delta Xtend Hemi Stemmed Anatomic Shoulder Investigation

Note: This analysis compares the Delta Xtend/Delta Xtend humeral stem/head combination with all other hemi stemmed anatomic shoulder prostheses.

This combination has been identified as having a significantly higher rate of revision. For a detailed explanation of the process used by the Registry that results in identification of prostheses that have a higher than anticipated rate of revision please refer to the Prostheses with Higher than Anticipated Rates of Revision chapter of the most recent AOANJRR Annual Report, <https://aoanjrr.sahmri.com/annual-reports-2025>.

Note: Procedures using prostheses with no recorded use in 2024 are excluded from the comparator.

TABLE 1

Revision Rate of Primary Hemi Stemmed Anatomic Shoulder Replacement

The revision rate of the Delta Xtend/Delta Xtend hemi stemmed anatomic shoulder combination is compared to all other hemi stemmed anatomic shoulder prostheses.

Table 1: Revision Rates of Primary Hemi Stemmed Anatomic Shoulder Replacement

Component	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Delta Xtend/Delta Xtend	14	79	524	2.67 (1.46, 4.48)
Other Hemi Stemmed Anatomic Shoulder	404	3848	24671	1.64 (1.48, 1.81)
TOTAL	418	3927	25195	1.66 (1.50, 1.83)

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 2

Yearly Cumulative Percent Revision of Primary Hemi Stemmed Anatomic Shoulder Replacement

The yearly cumulative percent revision of the Delta Xtend/Delta Xtend hemi stemmed anatomic shoulder combination is compared to all other hemi stemmed anatomic shoulder prostheses.

Table 2: Yearly Cumulative Percent Revision (95% CI) of Primary Hemi Stemmed Anatomic Shoulder Replacement

CPR	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Delta Xtend/Delta Xtend	6.4 (2.7, 14.7)	13.1 (7.3, 23.0)	16.0 (9.4, 26.5)	16.0 (9.4, 26.5)	16.0 (9.4, 26.5)	16.0 (9.4, 26.5)
Other Hemi Stemmed Anatomic Shoulder	3.6 (3.1, 4.3)	6.9 (6.1, 7.7)	8.8 (7.9, 9.8)	9.9 (8.9, 10.9)	10.7 (9.7, 11.8)	11.2 (10.2, 12.4)

CPR	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs
Delta Xtend/Delta Xtend	17.9 (10.8, 29.0)	17.9 (10.8, 29.0)	20.5 (12.4, 32.7)	20.5 (12.4, 32.7)	20.5 (12.4, 32.7)	20.5 (12.4, 32.7)
Other Hemi Stemmed Anatomic Shoulder	11.6 (10.5, 12.8)	12.1 (11.0, 13.4)	12.7 (11.5, 14.0)	13.4 (12.1, 14.7)	13.7 (12.5, 15.2)	13.9 (12.6, 15.3)

CPR	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs
Delta Xtend/Delta Xtend					
Other Hemi Stemmed Anatomic Shoulder	14.3 (12.9, 15.9)	14.8 (13.3, 16.4)	15.6 (13.9, 17.6)	15.6 (13.9, 17.6)	

Note: Prostheses no longer used in 2024 are excluded from the comparator.

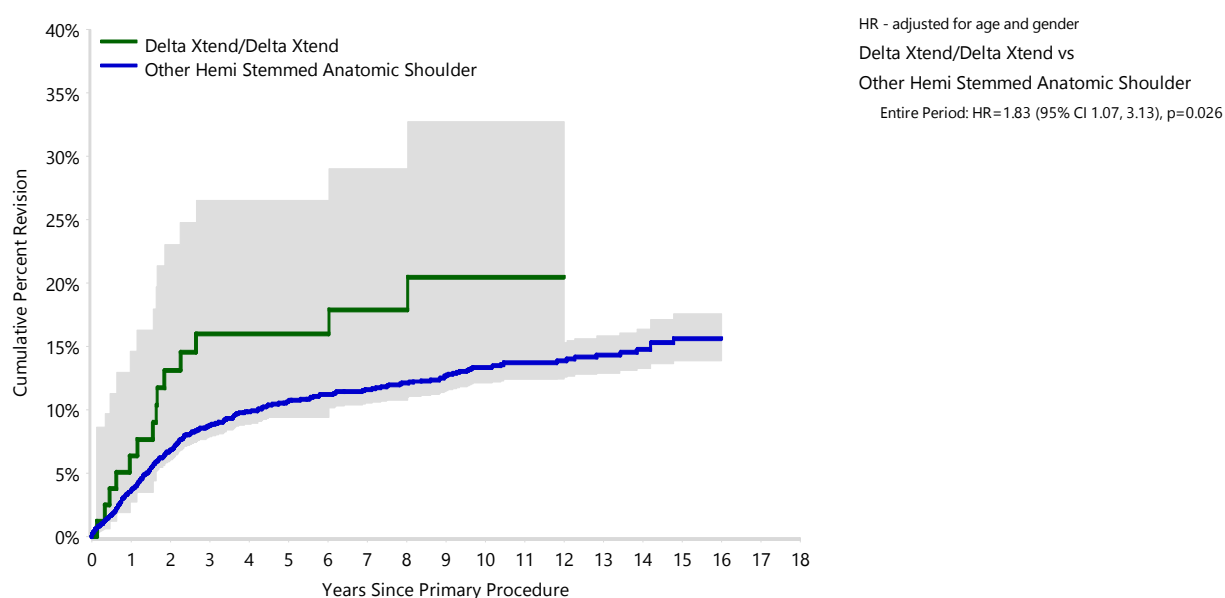
FIGURE 1

Yearly Cumulative Percent Revision of Primary Hemi Stemmed Anatomic Shoulder Replacement

The yearly cumulative percent revision of the Delta Xtend/Delta Xtend hemi stemmed anatomic shoulder combination is compared to all other hemi stemmed anatomic shoulder prostheses. In addition, hazard ratios are reported.

Hazard ratios are reported for specific time periods during which the hazard ratio is constant. This is done to enable more specific and valid comparisons of the risk of revision over time. The pattern of variation in risk has important implications with respect to the underlying reasons for any difference.

Figure 1: Cumulative Percent Revision of Primary Hemi Stemmed Anatomic Shoulder Replacement



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs	8 Yrs
Delta Xtend/Delta Xtend	79	72	62	57	53	48	44	35	32
Other Hemi Stemmed Anatomic Shoulder	3848	3332	2932	2620	2299	2036	1793	1576	1367

Number at Risk	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs
Delta Xtend/Delta Xtend	22	20	16	11	6	5	2	2	2
Other Hemi Stemmed Anatomic Shoulder	1186	1010	827	651	491	343	219	113	31

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 3**Primary Diagnosis for Revised Primary Hemi Stemmed Anatomic Shoulder Replacement**

This table identifies the diagnosis of the primary procedure which was subsequently revised. This information is provided as there is a variation on outcome depending on the primary diagnosis. It is therefore important when considering the reasons for a higher than anticipated rate of revision that there is identification of the primary diagnosis. This information should be compared to the primary diagnosis for the revisions of all other hemi stemmed anatomic shoulder prostheses.

Table 3: Primary Diagnosis for Revised Primary Hemi Stemmed Anatomic Shoulder Replacement

Primary Diagnosis	Delta Xtend/Delta Xtend		Other Hemi Stemmed Anatomic Shoulder	
	Number	Percent	Number	Percent
Fracture	4	28.6	251	62.1
Osteoarthritis	3	21.4	98	24.3
Osteonecrosis	1	7.1	19	4.7
Rotator Cuff Arthropathy	4	28.6	11	2.7
Rheumatoid Arthritis			9	2.2
Tumour			8	2.0
Instability	1	7.1	4	1.0
Other Inflammatory Arthritis	1	7.1	3	0.7
Other			1	0.2
TOTAL	14	100.0	404	100.0

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 4

Reasons for Revision

This is reported in two ways: a percentage of primary procedures revised and as a percentage of all revision procedures.

% Primaries Revised: This shows the proportional contribution of each revision diagnosis as a percentage of the total number of primary procedures. This percentage can be used to approximate the risk of being revised for that diagnosis. Differing percentages between groups, with the same distribution of follow up time, may identify problems of concern.

% Revisions: The number of revisions for each diagnosis is expressed as a percentage of the total number of revisions. This shows the distribution of reasons for revision within a group but cannot be used as a comparison between groups.

Table 4: Primary Hemi Stemmed Anatomic Shoulder Replacement - Reason for Revision

Revision Diagnosis	Delta Xtend/Delta Xtend			Other Hemi Stemmed Anatomic Shoulder		
	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Rotator Cuff Insufficiency				97	2.5	24.0
Instability/Dislocation	4	5.1	28.6	69	1.8	17.1
Glenoid Erosion	4	5.1	28.6	55	1.4	13.6
Infection	3	3.8	21.4	45	1.2	11.1
Pain				37	1.0	9.2
Fracture	1	1.3	7.1	36	0.9	8.9
Loosening	2	2.5	14.3	29	0.8	7.2
Arthrofibrosis				8	0.2	2.0
Dissociation				7	0.2	1.7
Incorrect Sizing				6	0.2	1.5
Malposition				5	0.1	1.2
Tumour				3	0.1	0.7
Heterotopic Bone				1	0.0	0.2
Implant Breakage Glenoid				1	0.0	0.2
Lysis				1	0.0	0.2
Other				4	0.1	1.0
N Revision	14	17.7	100.0	404	10.5	100.0
N Primary	79			3848		

Note: Prostheses no longer used in 2024 are excluded from the comparator.

FIGURE 2**Cumulative Incidence Revision Diagnosis of Primary Hemi Stemmed Anatomic Shoulder Replacement**

This figure details the cumulative incidence of the most common reasons for revision. The five most common reasons for revision are included as long as each of these reasons account for more than 10 procedures or at least 5% of all revisions for the Delta Xtend/Delta Xtend hemi stemmed anatomic shoulder combination. A comparative graph is provided of the cumulative incidence for the same reasons for revisions for all other hemi stemmed anatomic shoulder prostheses.

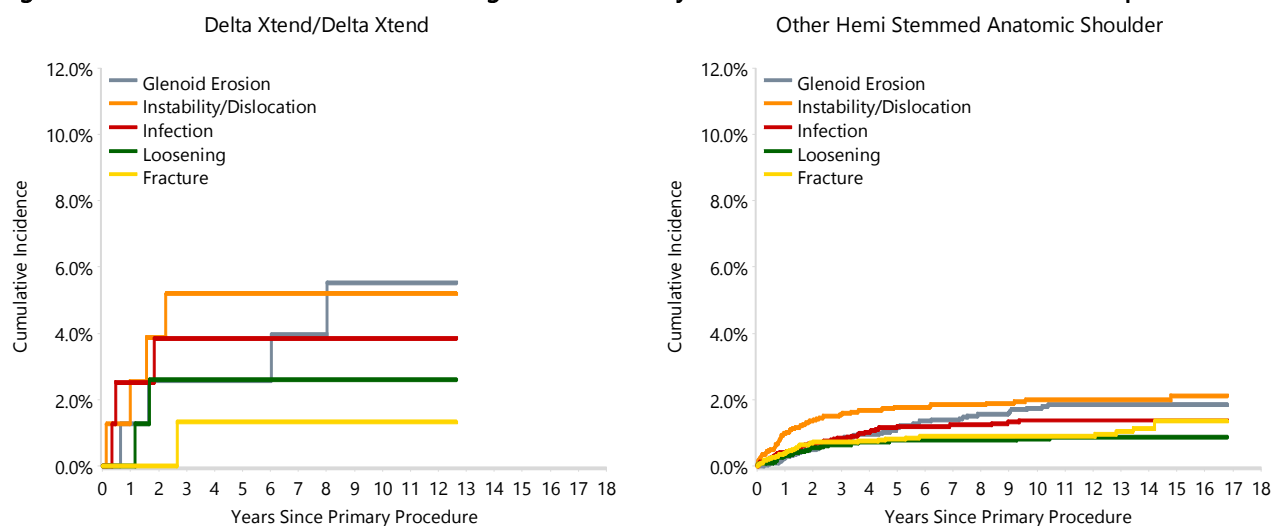
Figure 2: Cumulative Incidence Revision Diagnosis for Primary Hemi Stemmed Anatomic Shoulder Replacement

TABLE 5

Type of Revision Performed for Primary Hemi Stemmed Anatomic Shoulder Replacement

This analysis identifies the components used in the revision of the Delta Xtend/Delta Xtend hemi stemmed anatomic shoulder combination and compares it to the components used in the revision of all other hemi stemmed anatomic shoulder prostheses.

The reason this analysis is undertaken is to identify whether there is one or more components which are being replaced that differ from the components replaced for revisions of all other hemi stemmed anatomic shoulder prostheses i.e. is there a difference in the type of revision undertaken for the Delta Xtend/Delta Xtend hemi stemmed anatomic shoulder combination compared to all other hemi stemmed anatomic shoulder prostheses.

Table 5: Primary Hemi Stemmed Anatomic Shoulder Replacement - Type of Revision

Type of Revision	Delta Xtend/Delta Xtend		Other Hemi Stemmed Anatomic Shoulder	
	Number	Percent	Number	Percent
Humeral/Glenoid	3	21.4	287	71.0
Humeral Component	1	7.1	36	8.9
Glenoid Component	9	64.3	29	7.2
Cement Spacer	1	7.1	26	6.4
Removal of Prostheses			5	1.2
N Major	14	100.0	383	94.8
Head Only			14	3.5
Reoperation			3	0.7
Cement Only			2	0.5
Head/Insert			1	0.2
Minor Components			1	0.2
N Minor			21	5.2
TOTAL	14	100.0	404	100.0

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 6**Number of Revisions of Delta Xtend/Delta Xtend Primary Hemi Stemmed Anatomic Shoulder Replacement by Year of Implant**

This analysis details the number of prostheses reported each year to the Registry for the Delta Xtend/Delta Xtend hemi stemmed anatomic shoulder combination. It also provides the subsequent number of revisions of the primaries reported in that year.

Primary procedures performed in later years have had less follow up time therefore the number revised is expected to be less than the number revised in earlier years. For example, a primary procedure performed in 2024 has a maximum of one year to be revised, whereas a primary procedure performed in 2022 has a maximum of three years to be revised.

Table 6: Number of Revisions of Delta Xtend/Delta Xtend Primary Hemi Stemmed Anatomic Shoulder Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2007	0	2
2008	0	5
2009	2	9
2010	2	9
2011	1	5
2012	3	10
2013	1	7
2014	1	6
2015	3	5
2016	0	4
2017	0	3
2018	0	6
2019	1	3
2020	0	1
2022	0	1
2023	0	2
2024	0	1
TOTAL	14	79