Univers 3D/Univers 3D Total Stemmed Anatomic Shoulder Investigation

Note: This analysis compares the Univers 3D/Univers 3D humeral stem/glenoid combination with all other total 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-2026.

Note: Procedures using modular metal-backed glenoids are excluded from the comparator. Procedures using prostheses with no recorded use in 2025 are excluded from the comparator.

TABLE 1

Revision Rate of Primary Total Stemmed Anatomic Shoulder Replacement

The revision rate of the Univers 3D/Univers 3D total stemmed anatomic shoulder combination is compared to all other total stemmed anatomic shoulder prostheses.

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

Component	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Univers 3D/Univers 3D	17	34	310	5.48 (3.19, 8.78)
Other Total Stemmed Anatomic Shoulder	348	5758	35680	0.98 (0.88, 1.08)
TOTAL	**365**	**5792**	**35990**	**1.01 (0.91, 1.12)**

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using modular metal-backed glenoids are excluded from the comparator.

TABLE 2

Yearly Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement

The yearly cumulative percent revision of the Univers 3D/Univers 3D total stemmed anatomic shoulder combination is compared to all other total stemmed anatomic shoulder prostheses.

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

CPR	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs
Univers 3D/Univers 3D	5.9 (1.5, 21.5)	14.7 (6.4, 31.8)	14.7 (6.4, 31.8)	17.9 (8.4, 35.5)	21.2 (10.7, 39.4)
Other Total Stemmed Anatomic Shoulder	2.0 (1.6, 2.4)	3.1 (2.6, 3.6)	3.7 (3.2, 4.2)	4.3 (3.8, 4.9)	4.9 (4.4, 5.6)

CPR	6 Yrs	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs
Univers 3D/Univers 3D	27.7 (15.4, 46.6)	31.0 (18.0, 50.1)	34.3 (20.6, 53.5)	34.3 (20.6, 53.5)	44.7 (29.2, 63.7)	44.7 (29.2, 63.7)
Other Total Stemmed Anatomic Shoulder	5.6 (5.0, 6.3)	6.4 (5.7, 7.2)	7.4 (6.6, 8.3)	8.1 (7.2, 9.0)	8.7 (7.7, 9.8)	9.1 (8.1, 10.3)

CPR	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs
Univers 3D/Univers 3D	48.9 (32.7, 68.0)	48.9 (32.7, 68.0)	54.6 (37.0, 74.1)	60.3 (41.6, 79.5)	60.3 (41.6, 79.5)	60.3 (41.6, 79.5)
Other Total Stemmed Anatomic Shoulder	10.4 (9.0, 11.9)	11.1 (9.5, 12.9)	11.1 (9.5, 12.9)	11.9 (10.1, 14.2)	12.7 (10.4, 15.3)	13.5 (10.8, 16.8)

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using modular metal-backed glenoids are excluded from the comparator.

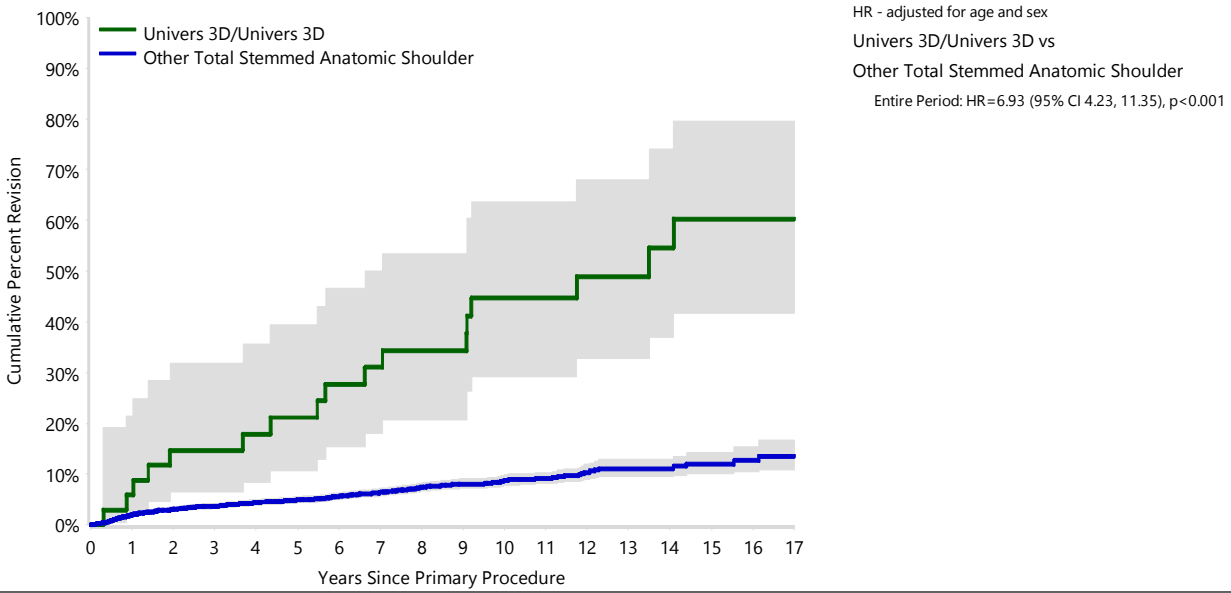
FIGURE 1

Yearly Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement

The yearly cumulative percent revision of the Univers 3D/Univers 3D total stemmed anatomic shoulder combination is compared to all other total 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 Total 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	9 Yrs
Univers 3D/Univers 3D	34	32	29	27	26	24	22	21	19	19
Other Total Stemmed Anatomic Shoulder	5758	5295	4852	4383	3852	3355	2875	2309	1799	1354

Number at Risk	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs	19 Yrs
Univers 3D/Univers 3D	15	14	12	9	8	6	5	5	2	0
Other Total Stemmed Anatomic Shoulder	940	594	374	297	228	157	104	66	21	5

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using modular metal-backed glenoids are excluded from the comparator.

TABLE 3

Primary Diagnosis for Revised Primary Total 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 total stemmed anatomic shoulder prostheses.

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

	Univers 3D/Univers 3D		Other Total Stemmed Anatomic Shoulder	
Primary Diagnosis	Number	Percent	Number	Percent
Osteoarthritis	17	100.0	322	92.5
Osteonecrosis			7	2.0
Fracture			6	1.7
Rheumatoid Arthritis			6	1.7
Other Inflammatory Arthritis			4	1.1
Rotator Cuff Arthropathy			2	0.6
Instability			1	0.3
TOTAL	**17**	**100.0**	**348**	**100.0**

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using modular metal-backed glenoids 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 Total Stemmed Anatomic Shoulder Replacement - Reason for Revision

	Univers 3D/Univers 3D			Other Total Stemmed Anatomic Shoulder		
Revision Diagnosis	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Loosening	12	35.3	70.6	107	1.9	30.7
Rotator Cuff Insufficiency	1	2.9	5.9	92	1.6	26.4
Instability/Dislocation	1	2.9	5.9	72	1.3	20.7
Infection				22	0.4	6.3
Pain				12	0.2	3.4
Lysis				10	0.2	2.9
Fracture	1	2.9	5.9	8	0.1	2.3
Implant Breakage Glenoid				6	0.1	1.7
Incorrect Sizing				5	0.1	1.4
Arthrofibrosis				4	0.1	1.1
Malposition				3	0.1	0.9
Implant Breakage Glenoid Insert				2	0.0	0.6
Dissociation				1	0.0	0.3
Metal Related Pathology				1	0.0	0.3
Wear Glenoid Insert	1	2.9	5.9	1	0.0	0.3
Other	1	2.9	5.9	2	0.0	0.6
N Revision	**17**	**50.0**	**100.0**	**348**	**6.0**	**100.0**
N Primary	**34**			**5758**		

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using modular metal-backed glenoids are excluded from the comparator.

FIGURE 2

Cumulative Incidence Revision Diagnosis of Primary Total 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 Univers 3D/Univers 3D total stemmed anatomic shoulder combination. A comparative graph is provided of the cumulative incidence for the same reasons for revisions for all other total stemmed anatomic shoulder prostheses.

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

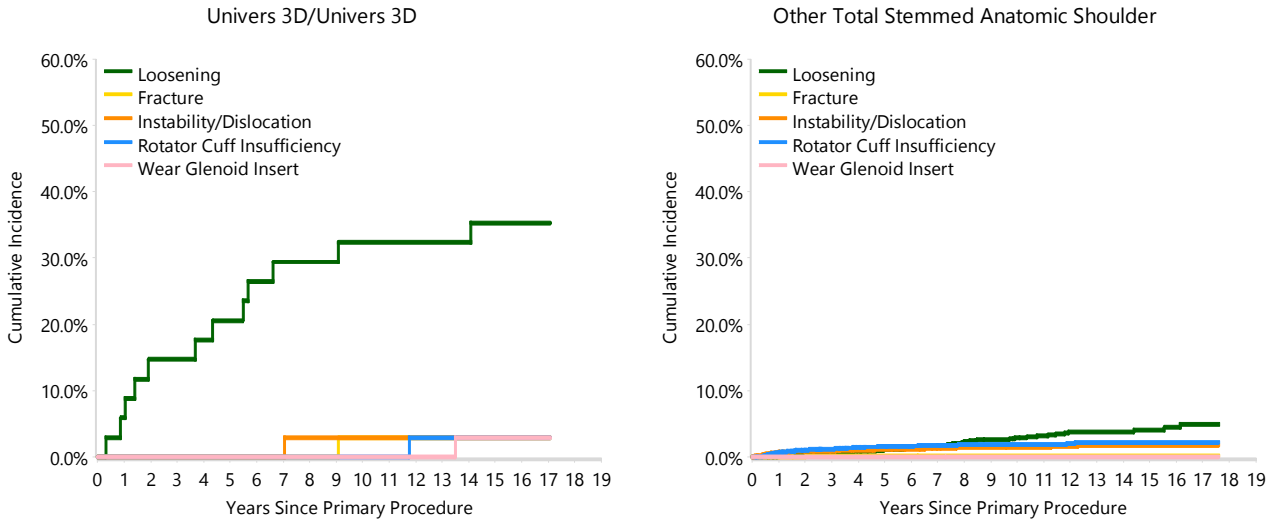


TABLE 5

Type of Revision Performed for Primary Total Stemmed Anatomic Shoulder Replacement

This analysis identifies the components used in the revision of the Univers 3D/Univers 3D total stemmed anatomic shoulder combination and compares it to the components used in the revision of all other total 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 total stemmed anatomic shoulder prostheses i.e. is there a difference in the type of revision undertaken for the Univers 3D/Univers 3D total stemmed anatomic shoulder combination compared to all other total stemmed anatomic shoulder prostheses.

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

	Univers 3D/Univers 3D		Other Total Stemmed Anatomic Shoulder	
Type of Revision	Number	Percent	Number	Percent
Humeral/Glenoid	9	52.9	260	74.7
Cement Spacer			18	5.2
Glenoid Component	4	23.5	15	4.3
Humeral Component			15	4.3
Removal of Prostheses	1	5.9	3	0.9
N Major	**14**	**82.4**	**311**	**89.4**
Head Only			35	10.1
Head/Insert	2	11.8		
Cup Only			1	0.3
Minor Components	1	5.9		
Reoperation			1	0.3
N Minor	**3**	**17.6**	**37**	**10.6**
TOTAL	**17**	**100.0**	**348**	**100.0**

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using modular metal-backed glenoids are excluded from the comparator.

TABLE 6

Revision Rates of Univers 3D/Univers 3D Primary Total Stemmed Anatomic Shoulder Replacement by Fixation

This analysis is provided as some prostheses have more than one fixation option. Additionally there are prostheses where an alternative to the recommended approach to fixation was used e.g. a cementless prosthesis that has been cemented or vice-versa.

Table 6: Revised Number of Univers 3D/Univers 3D Primary Total Stemmed Anatomic Shoulder Replacement by Fixation

Fixation	N Revised	N Total
Cementless	14	27
Hybrid (Glenoid Cemented)	3	7
TOTAL	**17**	**34**

TABLE 7

Revision Rates of Univers 3D/Univers 3D Primary Total Stemmed Anatomic Shoulder Replacement by Bearing Surface

This analysis is provided as some prostheses are combined with a variety of bearing surfaces. All bearing surfaces used with this combination are listed.

Table 7: Revised Number of Univers 3D/Univers 3D Primary Total Stemmed Anatomic Shoulder Replacement by Bearing Surface

Bearing Surface	N Revised	N Total
Metal/Non XLPE	17	34
TOTAL	**17**	**34**

TABLE 8

Revision Rates of Primary Total Stemmed Anatomic Shoulder Replacement by State

This enables a state by state variation to be identified for the Univers 3D/Univers 3D total stemmed anatomic shoulder combination and provides the comparative data for each of the states for all other total stemmed anatomic shoulder prostheses.

The purpose of this analysis is to determine if the higher than anticipated rate of revision has widespread distribution between states. If there is widespread distribution then the reason for the higher than anticipated rate of revision is unlikely to be surgeon specific. If the prosthesis has been used in only a small number of states it is not possible to distinguish if the higher than anticipated rate of revision is related to the prosthesis, surgeon, technique or patient.

Table 8: Revised Number of Primary Total Stemmed Anatomic Shoulder Replacement by State

Component	State	N Revised	N Total
Univers 3D/Univers 3D	VIC	15	28
	QLD	1	3
	WA	0	2
	TAS	1	1
Other Total Stemmed Anatomic Shoulder	NSW	84	1726
	VIC	107	1506
	QLD	64	1148
	WA	51	565
	SA	25	572
	TAS	5	95
	ACT/NT	12	146
TOTAL		**365**	**5792**

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using modular metal-backed glenoids are excluded from the comparator.

TABLE 9

Number of Revisions of Univers 3D/Univers 3D Primary Total Stemmed Anatomic Shoulder Replacement by Year of Implant

This analysis details the number of prostheses reported each year to the Registry for the Univers 3D/Univers 3D total 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 2025 has a maximum of one year to be revised, whereas a primary procedure performed in 2023 has a maximum of three years to be revised.

Table 9: Number of Revisions of Univers 3D/Univers 3D Primary Total Stemmed Anatomic Shoulder Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2005	1	1
2006	3	6
2007	8	16
2008	5	11
TOTAL	**17**	**34**

TABLE 10

Revision Rates of Univers 3D/Univers 3D Primary Total Stemmed Anatomic Shoulder Replacement by Catalogue Number Range

Many prostheses have a number of catalogue ranges. The catalogue range is specific to particular design features; more than one catalogue range usually indicates a minor difference in design in a particular Univers 3D/Univers 3D prosthesis.

This analysis has been undertaken to determine if the revision rate varies according to the catalogue number range.

Model	Catalogue Range	Catalogue Description	Cement	Material
Humeral Stem				
Univers 3D	AR910005-AR910015	HUMERAL STEM	NO	METAL
Glenoid				
Univers 3D	AR910101-AR910103	METAL BACKED GLENOID	NO	METAL
Univers 3D	AR910401-AR910403	ALL POLY KEELED GLENOID	YES	NON CROSS-LINKED POLYETHYLENE

Table 10: Revised Number of Univers 3D/Univers 3D Primary Total Stemmed Anatomic Shoulder Replacement by Catalogue Number Range

Humeral Stem Range	Glenoid Range	N Revised	N Total
AR910005-AR910015	AR910101-AR910103	14	27
	AR910401-AR910403	3	7
TOTAL		**17**	**34**