Taper Fit Total Conventional Hip Investigation

Note: This analysis compares the Taper Fit femoral stem prosthesis with all other total conventional hip prostheses.

This prosthesis 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 metal/metal prostheses with head size larger than 32mm 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 Conventional Hip Replacement

The revision rate of the Taper Fit total conventional hip prosthesis is compared to all other total conventional hip prostheses.

Table 1: Revision Rates of Primary Total Conventional Hip Replacement

Component	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Taper Fit	258	8152	34567	0.75 (0.66, 0.84)
Other Total Conventional Hip	19501	560824	3592433	0.54 (0.54, 0.55)
TOTAL	**19759**	**568976**	**3627000**	**0.54 (0.54, 0.55)**

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator.

TABLE 2

Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement

The yearly cumulative percent revision of the Taper Fit total conventional hip prosthesis is compared to all other total conventional hip prostheses.

Table 2: Yearly Cumulative Percent Revision (95% CI) of Primary Total Conventional Hip Replacement

CPR	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs
Taper Fit	1.7 (1.4, 2.0)	2.2 (1.8, 2.5)	2.5 (2.2, 2.9)	2.9 (2.5, 3.4)	3.3 (2.9, 3.8)	3.8 (3.3, 4.3)
Other Total Conventional Hip	1.7 (1.7, 1.8)	2.1 (2.1, 2.2)	2.5 (2.4, 2.5)	2.8 (2.7, 2.8)	3.0 (3.0, 3.1)	3.3 (3.2, 3.3)

CPR	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs
Taper Fit	4.0 (3.5, 4.7)	4.4 (3.8, 5.1)	4.7 (3.9, 5.5)	5.6 (4.6, 6.8)	5.8 (4.7, 7.1)	5.8 (4.7, 7.1)
Other Total Conventional Hip	3.5 (3.5, 3.6)	3.8 (3.7, 3.9)	4.1 (4.0, 4.2)	4.4 (4.3, 4.5)	4.7 (4.6, 4.8)	5.1 (5.0, 5.2)

CPR	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs
Taper Fit	8.4 (6.2, 11.3)	9.0 (6.6, 12.1)	11.2 (8.1, 15.5)	12.8 (9.2, 17.7)	14.7 (10.5, 20.3)	16.7 (12.0, 23.1)
Other Total Conventional Hip	5.4 (5.3, 5.5)	5.8 (5.7, 5.9)	6.2 (6.1, 6.3)	6.6 (6.5, 6.7)	7.0 (6.8, 7.1)	7.3 (7.1, 7.5)

CPR	19 Yrs	20 Yrs	21 Yrs	22 Yrs	23 Yrs	24 Yrs	25 Yrs
Taper Fit	16.7 (12.0, 23.1)						
Other Total Conventional Hip	7.7 (7.5, 7.9)	8.0 (7.8, 8.2)	8.6 (8.3, 8.9)	9.0 (8.7, 9.4)	9.6 (9.1, 10.0)	9.6 (9.2, 10.1)	10.3 (9.4, 11.2)

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator.

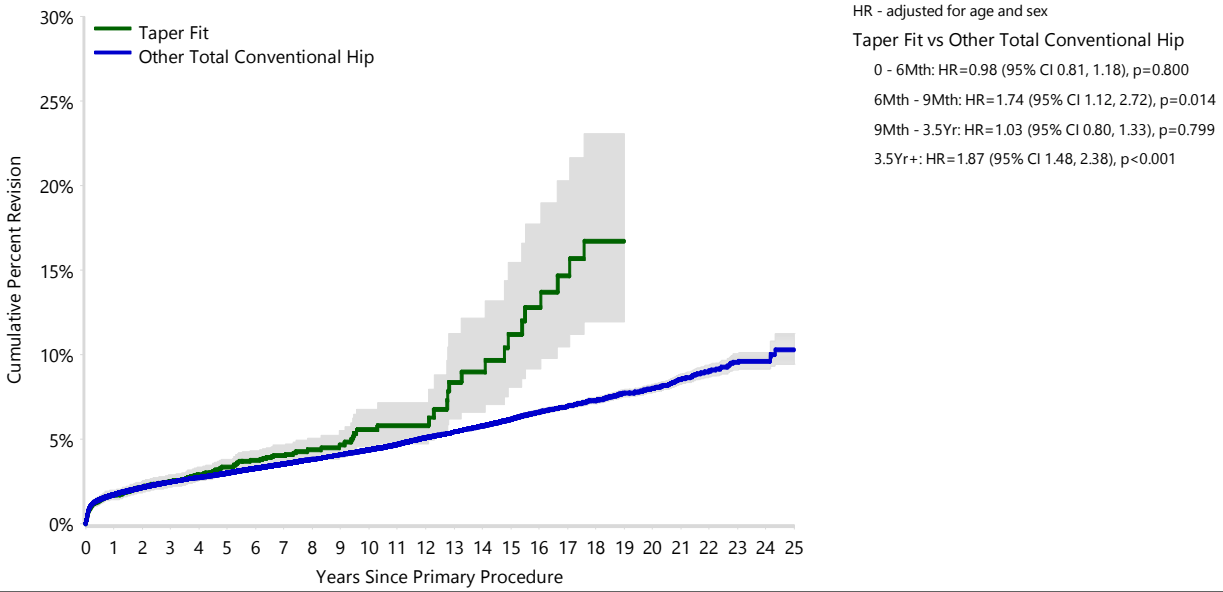
FIGURE 1

Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement

The yearly cumulative percent revision of the Taper Fit total conventional hip prosthesis is compared to all other total conventional hip 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 Conventional Hip Replacement



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs
Taper Fit	8152	6957	5903	4611	3699	2865	2092	1378
Other Total Conventional Hip	560824	494993	439863	387270	340991	296772	257683	219800

Number at Risk	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs
Taper Fit	861	594	418	289	204	166	133	113	99
Other Total Conventional Hip	185150	153341	124605	99450	79748	63315	49724	38030	28352

Number at Risk	17 Yrs	18 Yrs	19 Yrs	20 Yrs	21 Yrs	22 Yrs	23 Yrs	24 Yrs	25 Yrs
Taper Fit	86	74	61	38	27	17	8	3	0
Other Total Conventional Hip	20435	14637	10400	7396	4859	2863	1455	560	95

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator.

TABLE 3

Primary Diagnosis for Revised Primary Total Conventional Hip 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 conventional hip prostheses.

Table 3: Primary Diagnosis for Revised Primary Total Conventional Hip Replacement

	Taper Fit		Other Total Conventional Hip	
Primary Diagnosis	Number	Percent	Number	Percent
Osteoarthritis	202	78.3	16137	82.7
Fractured Neck Of Femur	23	8.9	1501	7.7
Osteonecrosis	18	7.0	830	4.3
Developmental Dysplasia			321	1.6
Rheumatoid Arthritis	3	1.2	198	1.0
Failed Internal Fixation	1	0.4	164	0.8
Tumour	7	2.7	156	0.8
Other Inflammatory Arthritis	2	0.8	101	0.5
Fracture/Dislocation	1	0.4	59	0.3
Other	1	0.4	21	0.1
Arthrodesis Takedown			13	0.1
TOTAL	**258**	**100.0**	**19501**	**100.0**

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using metal/metal prostheses with head size larger than 32mm 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 Conventional Hip Replacement - Reason for Revision

	Taper Fit			Other Total Conventional Hip		
Revision Diagnosis	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Infection	69	0.8	26.7	4959	0.9	25.4
Prosthesis Dislocation/Instability	64	0.8	24.8	4323	0.8	22.2
Fracture	54	0.7	20.9	4305	0.8	22.1
Loosening	46	0.6	17.8	3601	0.6	18.5
Pain	4	0.0	1.6	338	0.1	1.7
Leg Length Discrepancy				307	0.1	1.6
Malposition	4	0.0	1.6	278	0.0	1.4
Implant Breakage Stem	7	0.1	2.7	211	0.0	1.1
Lysis	1	0.0	0.4	200	0.0	1.0
Implant Breakage Acetabular Insert	1	0.0	0.4	127	0.0	0.7
Wear Acetabular Insert				112	0.0	0.6
Incorrect Sizing	1	0.0	0.4	96	0.0	0.5
Metal Related Pathology	1	0.0	0.4	93	0.0	0.5
Implant Breakage Acetabular	1	0.0	0.4	72	0.0	0.4
Wear Head				49	0.0	0.3
Tumour	1	0.0	0.4	45	0.0	0.2
Heterotopic Bone				26	0.0	0.1
Implant Breakage Head				26	0.0	0.1
Wear Acetabulum	2	0.0	0.8	6	0.0	0.0
Osteonecrosis				4	0.0	0.0
Synovitis				2	0.0	0.0
Progression Of Disease				1	0.0	0.0
Other	2	0.0	0.8	320	0.1	1.6
N Revision	**258**	**3.2**	**100.0**	**19501**	**3.5**	**100.0**
N Primary	**8152**			**560824**		

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator.

FIGURE 2

Cumulative Incidence Revision Diagnosis of Primary Total Conventional Hip 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 Taper Fit total conventional hip prosthesis. A comparative graph is provided of the cumulative incidence for the same reasons for revisions for all other total conventional hip prostheses.

Figure 2: Cumulative Incidence Revision Diagnosis for Primary Total Conventional Hip Replacement

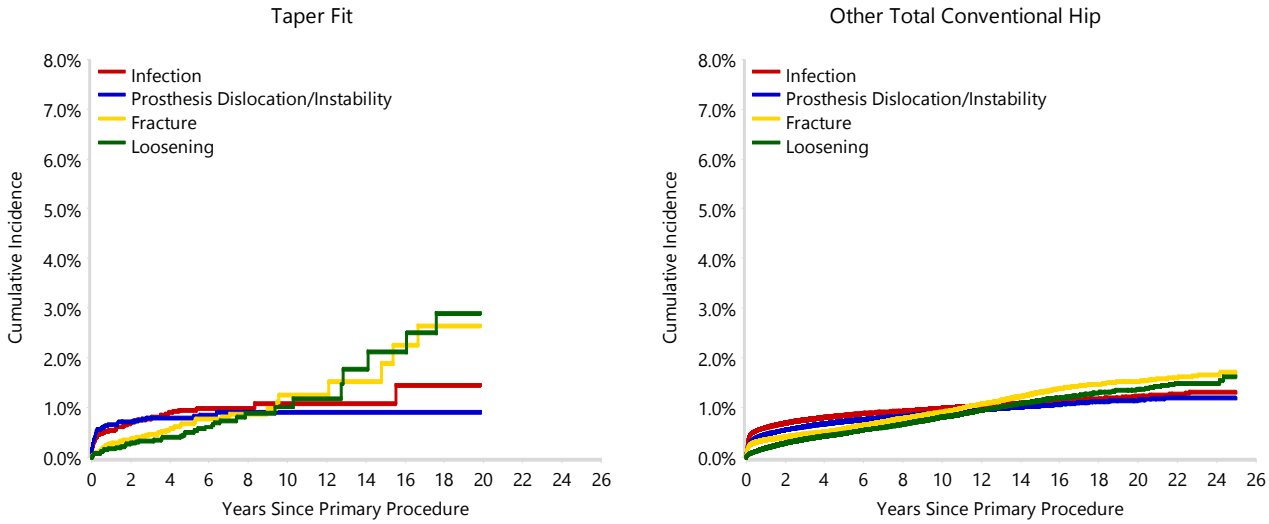


TABLE 5

Type of Revision Performed for Primary Total Conventional Hip Replacement

This analysis identifies the components used in the revision of the Taper Fit total conventional hip prosthesis and compares it to the components used in the revision of all other total conventional hip 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 conventional hip prostheses i.e. is there a difference in the type of revision undertaken for the Taper Fit total conventional hip prosthesis compared to all other total conventional hip prostheses.

Table 5: Primary Total Conventional Hip Replacement - Type of Revision

	Taper Fit		Other Total Conventional Hip	
Type of Revision	Number	Percent	Number	Percent
Femoral Component	65	25.2	6591	33.8
Acetabular Component	50	19.4	3278	16.8
THR (Femoral/Acetabular)	51	19.8	2277	11.7
Cement Spacer	8	3.1	553	2.8
Removal of Prostheses	2	0.8	92	0.5
Reinsertion of Components			27	0.1
Total Femoral			12	0.1
Bipolar Head and Femoral			10	0.1
N Major	**176**	**68.2**	**12840**	**65.8**
Head/Insert	71	27.5	5302	27.2
Head Only	5	1.9	909	4.7
Minor Components	5	1.9	280	1.4
Insert Only	1	0.4	167	0.9
Bipolar Only			1	0.0
Cement Only			1	0.0
Head/Neck/Insert			1	0.0
N Minor	**82**	**31.8**	**6661**	**34.2**
TOTAL	**258**	**100.0**	**19501**	**100.0**

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator.

TABLE 6

Revision Rates of Taper Fit Primary Total Conventional Hip 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 Taper Fit Primary Total Conventional Hip Replacement by Fixation

Fixation	N Revised	N Total
Cemented	26	240
Cementless	1	3
Hybrid (Femur Cemented)	231	7909
TOTAL	**258**	**8152**

TABLE 7

Revision Rates of Taper Fit Primary Total Conventional Hip 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 prosthesis are listed.

Table 7: Revised Number of Taper Fit Primary Total Conventional Hip Replacement by Bearing Surface

Bearing Surface	N Revised	N Total
Ceramic/Ceramic	16	396
Ceramic/Non XLPE	2	31
Ceramic/XLPE	5	205
Ceramic/XLPE + Antioxidant	123	4848
Metal/Metal	35	167
Metal/Non XLPE	26	208
Metal/XLPE	0	81
Metal/XLPE + Antioxidant	51	2213
Unknown	0	3
TOTAL	**258**	**8152**

TABLE 8

Revision Rates of Taper Fit Primary Total Conventional Hip Replacement by Approach

This analysis is provided as some prostheses are used with a variety of surgical approaches. All surgical approaches used with this prosthesis are listed.

Table 8: Revised Number of Taper Fit Primary Total Conventional Hip Replacement by Approach

Approach	N Revised	N Total
Anterior	13	1052
Lateral	25	819
Posterior	154	5686
TOTAL	**192**	**7557**

Note: Excludes 595 procedures with no approach recorded

TABLE 9

Revision Rates of Primary Total Conventional Hip Replacement by State

This enables a state by state variation to be identified for the Taper Fit total conventional hip prosthesis and provides the comparative data for each of the states for all other total conventional hip 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 9: Revised Number of Primary Total Conventional Hip Replacement by State

Component	State	N Revised	N Total
Taper Fit	NSW	141	4341
	VIC	27	1179
	QLD	49	973
	WA	19	894
	SA	3	59
	TAS	1	51
	ACT/NT	18	655
Other Total Conventional Hip	NSW	5401	162886
	VIC	4831	145411
	QLD	3935	103483
	WA	2491	64054
	SA	1885	52031
	TAS	438	18218
	ACT/NT	520	14741
TOTAL		**19759**	**568976**

Note: Prostheses no longer used in 2025 are excluded from the comparator. Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator.

TABLE 10

Number of Revisions of Taper Fit Primary Total Conventional Hip Replacement by Year of Implant

This analysis details the number of prostheses reported each year to the Registry for the Taper Fit total conventional hip prosthesis. 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 10: Number of Revisions of Taper Fit Primary Total Conventional Hip Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2001	2	14
2002	2	16
2003	6	34
2004	13	65
2005	15	50
2006	8	66
2007	3	26
2008	1	18
2009	1	6
2010	1	8
2011	2	17
2012	1	55
2013	1	45
2014	6	110
2015	5	161
2016	12	227
2017	11	315
2018	20	592
2019	27	790
2020	16	789
2021	20	798
2022	21	853
2023	25	1207
2024	26	947
2025	13	943
TOTAL	**258**	**8152**

TABLE 11

Revision Rates of Taper Fit Primary Total Conventional Hip 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 Taper Fit 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	Fixation
Femoral Stem					
Taper Fit	188001-188013	STAINLESS STEEL FEMORAL STEM W/CENTRALISER	YES	METAL	POLISHED
Taper Fit	5883600-5885004	STAINLESS STEEL FEMORAL STEM W/CENTRALISER	YES	METAL	POLISHED
Taper Fit	5883810-5884510	TAPERFIT CEMENT IN CEMENT REVISION STEM	YES	METAL	POLISHED
Taper Fit	E088000-E088014	EUROCONE STAINLESS STEEL FEMORAL STEM W/CENTRALISER	YES	METAL	POLISHED

Table 11: Revised Number of Taper Fit Primary Total Conventional Hip Replacement by Catalogue Number Range

Femoral Stem Range	N Revised	N Total
188001-188013	4	21
5883600-5885004	204	7838
5883810-5884510	0	2
E088000-E088014	50	291
TOTAL	**258**	**8152**

TABLE 12

Revision Rates of Taper Fit Primary Total Conventional Hip Replacement by Component

A prosthesis may be combined with multiple components. This analysis has been undertaken to determine if the revision rate varies according to the component with which it is combined.

Table 12: Revised Number of Taper Fit Primary Total Conventional Hip Replacement by Acetabular Component

Acetabular Component	N Revised	N Total
Acetabular Shell (Global)	0	2
Alpha Lock	2	31
Avantage	0	8
BI-MENTUM	0	1
Cenator	5	37
Cera Fit	1	8
Contemporary	0	26
Continuum	0	3
Contour	0	1
Cormet	32	157
Cormet 2000	3	10
DC-Fit	0	1
Delta Revision TT	1	1
Delta-One-TT	0	2
Dual Mobility Cup	4	98
Exeter X3 Rimfit	0	8
G7	1	75
G7 Multihole	0	10
Generic Shell	0	1
Horizon	0	1
Marathon	0	1
Mpact	0	1
Muller	2	10
No Acetabular	0	1
Novae	0	14
Novae E	1	21
PINNACLE	0	4
R3	1	16
RM Cup	0	2
Reflection (Cup)	8	30
Restoration	0	1
Saturne	4	31
Trabecular Metal (Shell)	0	3
Trident (Cup)	0	3
Trident (Shell)	1	56
Trident II/Tritanium (Shell)	0	7
Trident/Tritanium (Shell)	0	4
Trilogy	0	1
Trinity	190	7371
Trinity Plus	1	92
ZCA	1	2
TOTAL	**258**	**8152**