

## Fin II Total Conventional Hip Investigation

Note: This analysis compares the Fin II acetabular 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-2023>.

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 2022 are excluded from the comparator.

### TABLE 1

#### Revision Rate of Primary Total Conventional Hip Replacement

The revision rate of the Fin II 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)
Fin II	171	2387	21193	0.81 (0.69, 0.94)
Other Total Conventional Hip	17442	493664	3079706	0.57 (0.56, 0.57)
<b>TOTAL</b>	<b>17613</b>	<b>496051</b>	<b>3100899</b>	<b>0.57 (0.56, 0.58)</b>

Note: Prostheses no longer used in 2022 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 Fin II total conventional hip prosthesis is compared to all other total conventional hip prostheses.

**Table 2: Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement**

CPR	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs	8 Yrs
Fin II	2.5 (2.0, 3.2)	3.2 (2.6, 4.0)	3.4 (2.7, 4.2)	3.9 (3.2, 4.8)	4.5 (3.7, 5.4)	5.0 (4.2, 6.1)	5.7 (4.8, 6.8)	6.3 (5.3, 7.4)
Other Total Conventional Hip	1.7 (1.7, 1.8)	2.2 (2.1, 2.2)	2.5 (2.5, 2.6)	2.8 (2.7, 2.8)	3.1 (3.0, 3.1)	3.4 (3.3, 3.4)	3.6 (3.6, 3.7)	3.9 (3.9, 4.0)

CPR	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs
Fin II	7.0 (6.0, 8.3)	7.6 (6.5, 8.8)	8.0 (6.9, 9.3)	8.5 (7.3, 9.9)	9.6 (8.2, 11.2)	10.1 (8.5, 11.8)	10.4 (8.8, 12.3)
Other Total Conventional Hip	4.3 (4.2, 4.3)	4.6 (4.5, 4.7)	4.9 (4.8, 5.0)	5.3 (5.2, 5.4)	5.7 (5.6, 5.8)	6.1 (6.0, 6.2)	6.5 (6.4, 6.6)

CPR	16 Yrs	17 Yrs	18 Yrs	19 Yrs	20 Yrs	21 Yrs	22 Yrs
Fin II	11.1 (9.1, 13.6)						
Other Total Conventional Hip	6.9 (6.8, 7.1)	7.3 (7.1, 7.4)	7.6 (7.4, 7.8)	8.2 (8.0, 8.5)	8.5 (8.2, 8.8)	8.9 (8.5, 9.3)	9.3 (8.8, 9.8)

Note: Prostheses no longer used in 2022 are excluded from the comparator. Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator.

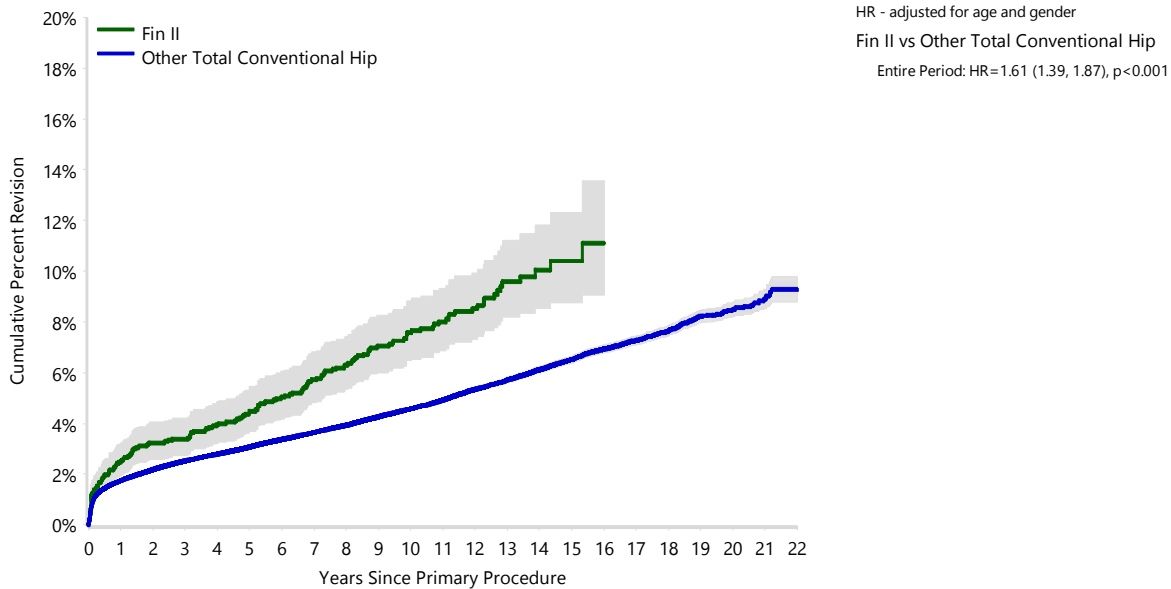
**FIGURE 1**

**Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement**

The yearly cumulative percent revision of the Fin II 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	8 Yrs	9 Yrs	10 Yrs	11 Yrs
Fin II	2387	2210	2061	1939	1827	1746	1706	1636	1575	1426	1171	971
Other Total Conventional Hip	493664	437115	388429	344023	299537	257951	219200	183406	151265	124837	102610	83474

Number at Risk	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs	19 Yrs	20 Yrs	21 Yrs	22 Yrs
Fin II	730	501	320	163	72	13	0	0	0	0	0
Other Total Conventional Hip	66656	51985	39538	29740	22330	16535	11402	7013	3737	1435	252

Note: Prostheses no longer used in 2022 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**

Primary Diagnosis	Fin II		Other Total Conventional Hip	
	Number	Percent	Number	Percent
Osteoarthritis	154	90.1	14422	82.7
Fractured Neck Of Femur	5	2.9	1291	7.4
Osteonecrosis	5	2.9	797	4.6
Developmental Dysplasia	3	1.8	279	1.6
Rheumatoid Arthritis	2	1.2	186	1.1
Failed Internal Fixation	1	0.6	147	0.8
Tumour			145	0.8
Other Inflammatory Arthritis			99	0.6
Fracture/Dislocation			46	0.3
Arthrodesis Takedown			16	0.1
Other	1	0.6	14	0.1
<b>TOTAL</b>	<b>171</b>	<b>100.0</b>	<b>17442</b>	<b>100.0</b>

Note: Prostheses no longer used in 2022 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 (Follow-up Limited to 17.5 Years)

Revision Diagnosis	Number	Fin II		Other Total Conventional Hip		
		% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Prosthesis Dislocation/Instability	36	1.5	21.1	4002	0.8	23.1
Infection	23	1.0	13.5	3993	0.8	23.0
Fracture	22	0.9	12.9	3791	0.8	21.9
Loosening	38	1.6	22.2	3498	0.7	20.2
Pain	6	0.3	3.5	309	0.1	1.8
Leg Length Discrepancy	3	0.1	1.8	270	0.1	1.6
Malposition	2	0.1	1.2	243	0.0	1.4
Lysis	6	0.3	3.5	188	0.0	1.1
Implant Breakage Stem	5	0.2	2.9	165	0.0	1.0
Implant Breakage Acetabular Insert	3	0.1	1.8	119	0.0	0.7
Incorrect Sizing	2	0.1	1.2	102	0.0	0.6
Wear Acetabular Insert	1	0.0	0.6	94	0.0	0.5
Metal Related Pathology	8	0.3	4.7	72	0.0	0.4
Implant Breakage Acetabular	10	0.4	5.8	69	0.0	0.4
Wear Head	1	0.0	0.6	44	0.0	0.3
Tumour				41	0.0	0.2
Implant Breakage Head	1	0.0	0.6	32	0.0	0.2
Heterotopic Bone				26	0.0	0.2
Wear Acetabulum				9	0.0	0.1
Progression Of Disease				2	0.0	0.0
Osteonecrosis				1	0.0	0.0
Synovitis	1	0.0	0.6	1	0.0	0.0
Other	3	0.1	1.8	256	0.1	1.5
<b>N Revision</b>	<b>171</b>	<b>7.2</b>	<b>100.0</b>	<b>17327</b>	<b>3.5</b>	<b>100.0</b>
<b>N Primary</b>	<b>2387</b>			<b>493664</b>		

Note: This table is restricted to revisions within 17.5 years for all groups to allow a time-matched comparison of revisions.

Note: Prostheses no longer used in 2022 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 Fin II 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**

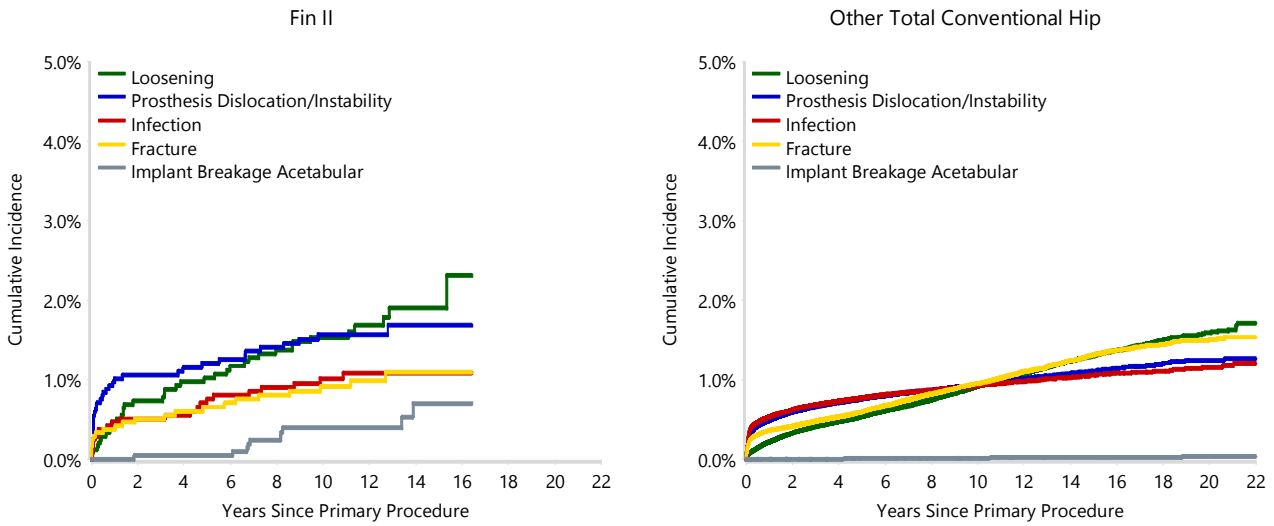


TABLE 5

### Type of Revision Performed for Primary Total Conventional Hip Replacement

This analysis identifies the components used in the revision of the Fin II 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 Fin II total conventional hip prosthesis compared to all other total conventional hip prostheses.

**Table 5: Primary Total Conventional Hip Replacement - Type of Revision (Follow-up Limited to 17.5 Years)**

Type of Revision	Fin II		Other Total Conventional Hip	
	Number	Percent	Number	Percent
Femoral Component	54	31.6	5676	32.8
Acetabular Component	43	25.1	3277	18.9
THR (Femoral/Acetabular)	26	15.2	2007	11.6
Cement Spacer	10	5.8	617	3.6
Removal of Prostheses			94	0.5
Reinsertion of Components			27	0.2
Total Femoral			8	0.0
Bipolar Head and Femoral			5	0.0
Saddle			1	0.0
<b>N Major</b>	<b>133</b>	<b>77.8</b>	<b>11712</b>	<b>67.6</b>
Head/Insert	8	4.7	4294	24.8
Head Only	14	8.2	841	4.9
Minor Components	3	1.8	296	1.7
Insert Only			180	1.0
Head/Neck	9	5.3	1	0.0
Head/Neck/Insert	4	2.3		
Bipolar Only			2	0.0
Cement Only			1	0.0
<b>N Minor</b>	<b>38</b>	<b>22.2</b>	<b>5615</b>	<b>32.4</b>
<b>TOTAL</b>	<b>171</b>	<b>100.0</b>	<b>17327</b>	<b>100.0</b>

Note: This table is restricted to revisions within 17.5 years for all groups to allow a time-matched comparison of revisions.

Note: Prostheses no longer used in 2022 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 Fin II 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 Fin II Primary Total Conventional Hip Replacement by Fixation**

Fixation	N Revised	N Total
Cemented	0	1
Cementless	151	2043
Hybrid (Femur Cemented)	18	340
Reverse Hybrid (Femur Cementless)	2	3
<b>TOTAL</b>	<b>171</b>	<b>2387</b>

**TABLE 7****Revision Rates of Fin II 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 Fin II Primary Total Conventional Hip Replacement by Bearing Surface**

Bearing Surface	N Revised	N Total
Ceramic/Ceramic	152	2057
Ceramic/Non XLPE	4	16
Ceramic/XLPE	4	181
Metal/Metal	1	3
Metal/Non XLPE	7	93
Metal/XLPE	3	32
Unknown	0	5
<b>TOTAL</b>	<b>171</b>	<b>2387</b>



**TABLE 8****Revision Rates of Fin II 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 Fin II Primary Total Conventional Hip Replacement by Approach**

Approach	N Revised	N Total
Anterior	3	122
Lateral	0	9
Posterior	3	237
<b>TOTAL</b>	<b>6</b>	<b>368</b>

Note: Excludes 2019 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 Fin II 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
Fin II	NSW	121	1917
	VIC	36	257
	QLD	5	41
	WA	5	133
	TAS	0	2
	ACT/NT	4	37
Other Total Conventional Hip	NSW	4721	144379
	VIC	4348	128322
	QLD	3451	86921
	WA	2387	58817
	SA	1621	45638
	TAS	405	16382
	ACT/NT	509	13205
<b>TOTAL</b>		<b>17613</b>	<b>496051</b>

Note: Prostheses no longer used in 2022 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 Fin II Primary Total Conventional Hip Replacement by Year of Implant**

This analysis details the number of prostheses reported each year to the Registry for the Fin II 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 2022 has a maximum of one year to be revised, whereas a primary procedure performed in 2020 has a maximum of three years to be revised.

**Table 10: Number of Revisions of Fin II Primary Total Conventional Hip Replacement by Year of Implant**

Year of Implant	Number Revised	Total Number
2005	4	39
2006	7	128
2007	13	175
2008	34	251
2009	32	269
2010	30	318
2011	15	286
2012	12	205
2013	15	247
2014	3	101
2015	0	6
2018	0	9
2019	2	76
2020	3	94
2021	1	96
2022	0	87
<b>TOTAL</b>	<b>171</b>	<b>2387</b>

TABLE 11

**Revision Rates of Fin II 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 Fin II 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	Coating
<b>Acetabular</b>					
Fin II	110350146H-110350164H	TITANIUM PLAMA SPRAYED HA ACETABULAR CUP	NO	METAL	HA COATED
Fin II	1110350144-1110350162	TITANIUM PLAMA SPRAYED HA ACETABULAR CUP	NO	METAL	HA COATED
Fin II	1110350144H-1110350254H	TITANIUM PLAMA SPRAYED HA ACETABULAR CUP	NO	METAL	HA COATED

**Table 11: Revised Number of Fin II Primary Total Conventional Hip Replacement by Catalogue Number Range**

Acetabular Range	N Revised	N Total
110350146H-110350164H	6	354
1110350144-1110350162	7	63
1110350144H-1110350254H	158	1970
<b>TOTAL</b>	<b>171</b>	<b>2387</b>

TABLE 12

## Revision Rates of Fin II 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 Fin II Primary Total Conventional Hip Replacement by Femoral Stem Component

Femoral Stem Component	N Revised	N Total
Absolut	2	32
Apex	66	1010
Apex K1	2	15
C-Stem AMT	0	4
CPT	0	1
Edinburgh	5	55
Evolve	0	3
Excia	0	2
Excia (cless)	0	1
Exeter V40	0	2
Generic Stem	0	2
HACTIV	0	41
Hip and Go	0	1
Integrale (exch neck)	0	1
K2	44	264
Korus	6	306
Linear	0	2
M-Cor	1	1
MML	0	1
MS 30	0	1
MSA	13	104
Novation	1	16
Origin	0	7
Paragon	1	72
Profemur L (exch neck)	0	1
Profemur TL	3	61
Profemur XM	2	43
R120	9	175
Restoration	0	1
S-Rom	0	3
UniSyn	16	158
VerSys Heritage	0	1
<b>TOTAL</b>	<b>171</b>	<b>2387</b>