

CPCS/Reflection (Non XLPE Cup) Total Conventional Hip Investigation

Note: This analysis compares the CPCS/Reflection (Non XLPE Cup) femoral stem/acetabular combination with all other total conventional hip 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 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 CPCS/Reflection (Non XLPE Cup) total conventional hip combination 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)
CPCS/Reflection (Non XLPE Cup)	79	407	4834	1.63 (1.29, 2.04)
Other Total Conventional Hip	19622	568205	3618237	0.54 (0.53, 0.55)
TOTAL	19701	568612	3623071	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 CPCS/Reflection (Non XLPE Cup) total conventional hip combination 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
CPCS/Reflection (Non XLPE Cup)	1.0 (0.4, 2.7)	1.5 (0.7, 3.4)	2.9 (1.6, 5.1)	3.4 (2.0, 5.8)	3.4 (2.0, 5.8)	3.7 (2.2, 6.2)
Other Total Conventional Hip	1.7 (1.7, 1.8)	2.1 (2.1, 2.2)	2.5 (2.4, 2.5)	2.7 (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
CPCS/Reflection (Non XLPE Cup)	5.0 (3.2, 7.8)	6.3 (4.2, 9.4)	7.6 (5.2, 11.0)	10.0 (7.2, 13.8)	11.8 (8.7, 16.0)	16.6 (12.8, 21.4)
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, 4.4)	4.7 (4.6, 4.8)	5.1 (5.0, 5.1)

CPR	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs
CPCS/Reflection (Non XLPE Cup)	18.8 (14.6, 23.8)	20.6 (16.3, 25.9)	23.1 (18.4, 28.7)	24.2 (19.4, 30.0)	27.5 (22.2, 33.8)	29.9 (24.2, 36.6)
Other Total Conventional Hip	5.4 (5.3, 5.5)	5.8 (5.7, 5.9)	6.1 (6.0, 6.3)	6.5 (6.4, 6.7)	6.9 (6.7, 7.0)	7.2 (7.0, 7.4)

CPR	19 Yrs	20 Yrs	21 Yrs	22 Yrs	23 Yrs	24 Yrs	25 Yrs
CPCS/Reflection (Non XLPE Cup)	33.7 (27.3, 41.1)	33.7 (27.3, 41.1)					
Other Total Conventional Hip	7.6 (7.4, 7.8)	7.9 (7.7, 8.1)	8.5 (8.2, 8.7)	8.9 (8.6, 9.3)	9.4 (9.0, 9.9)	9.5 (9.0, 10.0)	10.2 (9.3, 11.1)

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.

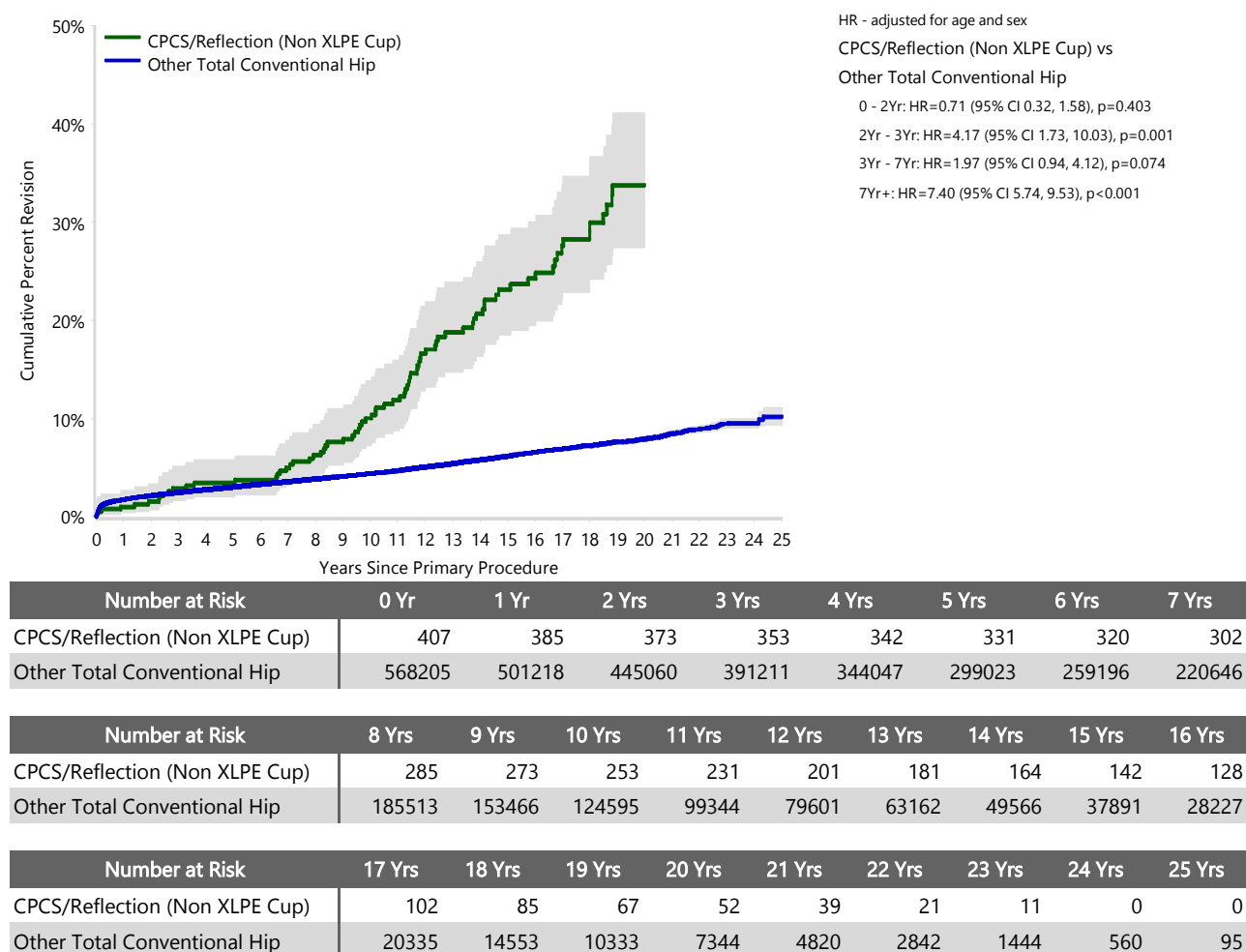
FIGURE 1

Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement

The yearly cumulative percent revision of the CPCS/Reflection (Non XLPE Cup) total conventional hip combination 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



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

Primary Diagnosis	CPCS/Reflection (Non XLPE Cup)		Other Total Conventional Hip	
	Number	Percent	Number	Percent
Osteoarthritis	73	92.4	16223	82.7
Fractured Neck Of Femur	1	1.3	1520	7.7
Osteonecrosis	3	3.8	841	4.3
Developmental Dysplasia	1	1.3	320	1.6
Rheumatoid Arthritis	1	1.3	200	1.0
Failed Internal Fixation			165	0.8
Tumour			157	0.8
Other Inflammatory Arthritis			102	0.5
Fracture/Dislocation			60	0.3
Other			21	0.1
Arthrodesis Takedown			13	0.1
TOTAL	79	100.0	19622	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 (Follow-up Limited to 23.8 Years)

Revision Diagnosis	CPCS/Reflection (Non XLPE Cup)			Other Total Conventional Hip		
	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Infection	9	2.2	11.4	5008	0.9	25.5
Prosthesis Dislocation/Instability	12	2.9	15.2	4370	0.8	22.3
Fracture	5	1.2	6.3	4343	0.8	22.1
Loosening	51	12.5	64.6	3576	0.6	18.2
Pain				340	0.1	1.7
Leg Length Discrepancy				307	0.1	1.6
Malposition				282	0.0	1.4
Implant Breakage Stem				211	0.0	1.1
Lysis	1	0.2	1.3	199	0.0	1.0
Implant Breakage Acetabular Insert				128	0.0	0.7
Wear Acetabular Insert				112	0.0	0.6
Incorrect Sizing				96	0.0	0.5
Metal Related Pathology				93	0.0	0.5
Implant Breakage Acetabular	1	0.2	1.3	72	0.0	0.4
Wear Head				49	0.0	0.2
Tumour				46	0.0	0.2
Heterotopic Bone				26	0.0	0.1
Implant Breakage Head				26	0.0	0.1
Wear Acetabulum				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				322	0.1	1.6
N Revision	79	19.4	100.0	19619	3.5	100.0
N Primary	407			568205		

Note: This table is restricted to revisions within 23.8 years for all groups to allow a time-matched comparison of revisions.

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 CPCS/Reflection (Non XLPE Cup) total conventional hip combination. 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

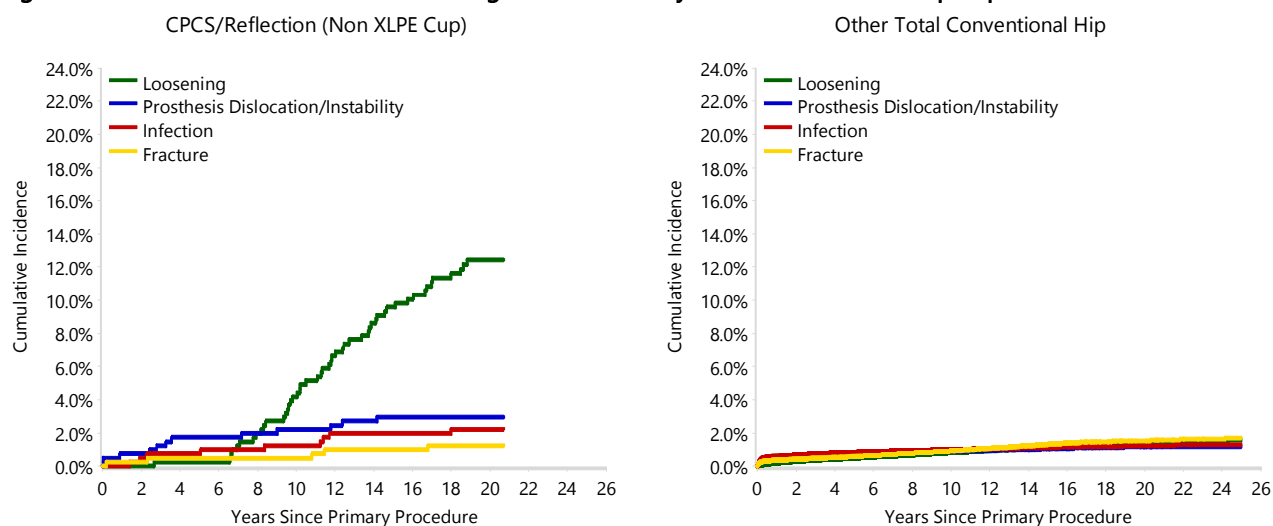


TABLE 5

Type of Revision Performed for Primary Total Conventional Hip Replacement

This analysis identifies the components used in the revision of the CPCS/Reflection (Non XLPE Cup) total conventional hip combination 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 CPCS/Reflection (Non XLPE Cup) total conventional hip combination compared to all other total conventional hip prostheses.

Table 5: Primary Total Conventional Hip Replacement - Type of Revision (Follow-up Limited to 23.8 Years)

Type of Revision	CPCS/Reflection (Non XLPE Cup)		Other Total Conventional Hip	
	Number	Percent	Number	Percent
Femoral Component	3	3.8	6642	33.9
Acetabular Component	40	50.6	3270	16.7
THR (Femoral/Acetabular)	26	32.9	2277	11.6
Cement Spacer	4	5.1	552	2.8
Removal of Prostheses			93	0.5
Reinsertion of Components			27	0.1
Total Femoral			12	0.1
Bipolar Head and Femoral			10	0.1
N Major	73	92.4	12883	65.7
Head/Insert			5372	27.4
Head Only	2	2.5	912	4.6
Minor Components	4	5.1	281	1.4
Insert Only			168	0.9
Bipolar Only			1	0.0
Cement Only			1	0.0
Head/Neck/Insert			1	0.0
N Minor	6	7.6	6736	34.3
TOTAL	79	100.0	19619	100.0

Note: This table is restricted to revisions within 23.8 years for all groups to allow a time-matched comparison of revisions.

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 CPCS/Reflection (Non XLPE Cup) 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 CPCS/Reflection (Non XLPE Cup) Primary Total Conventional Hip Replacement by Fixation

Fixation	N Revised	N Total
Cemented	79	407
TOTAL	79	407

TABLE 7**Revision Rates of CPCS/Reflection (Non XLPE Cup) 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 combination are listed.

Table 7: Revised Number of CPCS/Reflection (Non XLPE Cup) Primary Total Conventional Hip Replacement by Bearing Surface

Bearing Surface	N Revised	N Total
Ceramic/Non XLPE	1	7
Metal/Non XLPE	76	392
Ceramicised Metal/Non XLPE	2	7
Unknown	0	1
TOTAL	79	407

TABLE 8

Revision Rates of Primary Total Conventional Hip Replacement by State

This enables a state by state variation to be identified for the CPCS/Reflection (Non XLPE Cup) total conventional hip combination 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 8: Revised Number of Primary Total Conventional Hip Replacement by State

Component	State	N Revised	N Total
CPCS/Reflection (Non XLPE Cup)	NSW	40	209
	VIC	4	24
	QLD	35	169
	WA	0	3
	ACT/NT	0	2
Other Total Conventional Hip	NSW	5467	166793
	VIC	4849	146534
	QLD	3933	104190
	WA	2510	64943
	SA	1887	52084
	TAS	439	18269
	ACT/NT	537	15392
TOTAL		19701	568612

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 9**Number of Revisions of CPCS/Reflection (Non XLPE Cup) Primary Total Conventional Hip Replacement by Year of Implant**

This analysis details the number of prostheses reported each year to the Registry for the CPCS/Reflection (Non XLPE Cup) total conventional hip 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 CPCS/Reflection (Non XLPE Cup) Primary Total Conventional Hip Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2001	0	1
2002	10	69
2003	14	75
2004	12	55
2005	14	61
2006	21	76
2007	4	36
2008	3	19
2009	1	13
2011	0	2
TOTAL	79	407

TABLE 10

Revision Rates of CPCS/Reflection (Non XLPE Cup) 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 CPCS/Reflection (Non XLPE Cup) 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					
CPCS	71312360-71312365	COCR PRIMARY COLLARLESS STANDARD OFFSET FEMORAL COMPONENT	YES	METAL	POLISHED
CPCS	71312370-71312375	COCR PRIMARY COLLARLESS HIGH OFFSET FEMORAL COMPONENT	YES	METAL	POLISHED
CPCS	71312380-71312385	SS PRIMARY COLLARLESS STANDARD OFFSET FEMORAL COMPONENT	YES	METAL	POLISHED
CPCS	71312390-71312395	SS PRIMARY COLLARLESS HIGH OFFSET FEMORAL COMPONENT	YES	METAL	POLISHED
CPCS	71928846-71928846	PRIMARY COLLARLESS X-SMALL STANDARD OFFSET FEMORAL COMPONENT	YES	METAL	POLISHED
Acetabular					
Reflection (Cup)	71352240-71353261	ALL POLYETHYLENE 20 DEGREE OVERHANG ACETABULAR CUP	YES	NON CROSS-LINKED POLYETHYLENE	

Table 10: Revised Number of CPCS/Reflection (Non XLPE Cup) Primary Total Conventional Hip Replacement by Catalogue Number Range

Femoral Stem Range	Acetabular Range	N Revised	N Total
71312360-71312365	71352240-71353261	13	88
71312370-71312375	71352240-71353261	10	52
71312380-71312385	71352240-71353261	30	150
71312390-71312395	71352240-71353261	26	115
71928846-71928846	71352240-71353261	0	2
TOTAL		79	407