

Active Knee (cementless)/Active Knee Total Knee Investigation

Note: This analysis compares the Active Knee (cless)/Active Knee femoral/tibial combination with all other total knee 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 Total Knee Replacement

The revision rate of the Active Knee (cless)/Active Knee total knee combination is compared to all other total knee prostheses.

Table 1: Revision Rates of Primary Total Knee Replacement

Component	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Active Knee (cless)/Active Knee	796	7315	90865	0.88 (0.82, 0.94)
Other Total Knee	23911	713746	4444673	0.54 (0.53, 0.54)
TOTAL	24707	721061	4535539	0.54 (0.54, 0.55)

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

TABLE 2

Yearly Cumulative Percent Revision of Primary Total Knee Replacement

The yearly cumulative percent revision of the Active Knee (cless)/Active Knee total knee combination is compared to all other total knee prostheses.

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

CPR	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs	8 Yrs
Active Knee (cless)/Active Knee	1.1 (0.9, 1.4)	2.6 (2.3, 3.0)	3.5 (3.1, 4.0)	4.4 (3.9, 4.9)	5.0 (4.5, 5.6)	5.7 (5.2, 6.3)	6.6 (6.0, 7.2)	7.5 (6.9, 8.1)
Other Total Knee	1.0 (1.0, 1.0)	1.8 (1.8, 1.8)	2.4 (2.3, 2.4)	2.8 (2.7, 2.8)	3.1 (3.1, 3.2)	3.4 (3.4, 3.5)	3.7 (3.7, 3.8)	4.0 (4.0, 4.1)

CPR	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs
Active Knee (cless)/Active Knee	8.1 (7.4, 8.7)	8.7 (8.0, 9.4)	9.5 (8.8, 10.3)	10.3 (9.5, 11.0)	10.9 (10.2, 11.7)	11.4 (10.6, 12.2)	12.2 (11.4, 13.1)	13.1 (12.2, 14.1)
Other Total Knee	4.3 (4.3, 4.4)	4.7 (4.6, 4.7)	5.0 (4.9, 5.0)	5.3 (5.2, 5.3)	5.6 (5.5, 5.7)	5.9 (5.8, 6.0)	6.2 (6.1, 6.3)	6.6 (6.5, 6.8)

CPR	17 Yrs	18 Yrs	19 Yrs	20 Yrs	21 Yrs	22 Yrs	23 Yrs
Active Knee (cless)/Active Knee	13.8 (12.9, 14.9)	14.4 (13.4, 15.5)	14.8 (13.7, 15.9)	15.0 (13.9, 16.2)	15.1 (14.0, 16.3)	15.1 (14.0, 16.3)	
Other Total Knee	7.0 (6.9, 7.2)	7.3 (7.2, 7.5)	7.6 (7.4, 7.8)	7.8 (7.6, 8.0)	8.1 (7.8, 8.4)	8.3 (8.0, 8.6)	8.4 (8.1, 8.7)

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

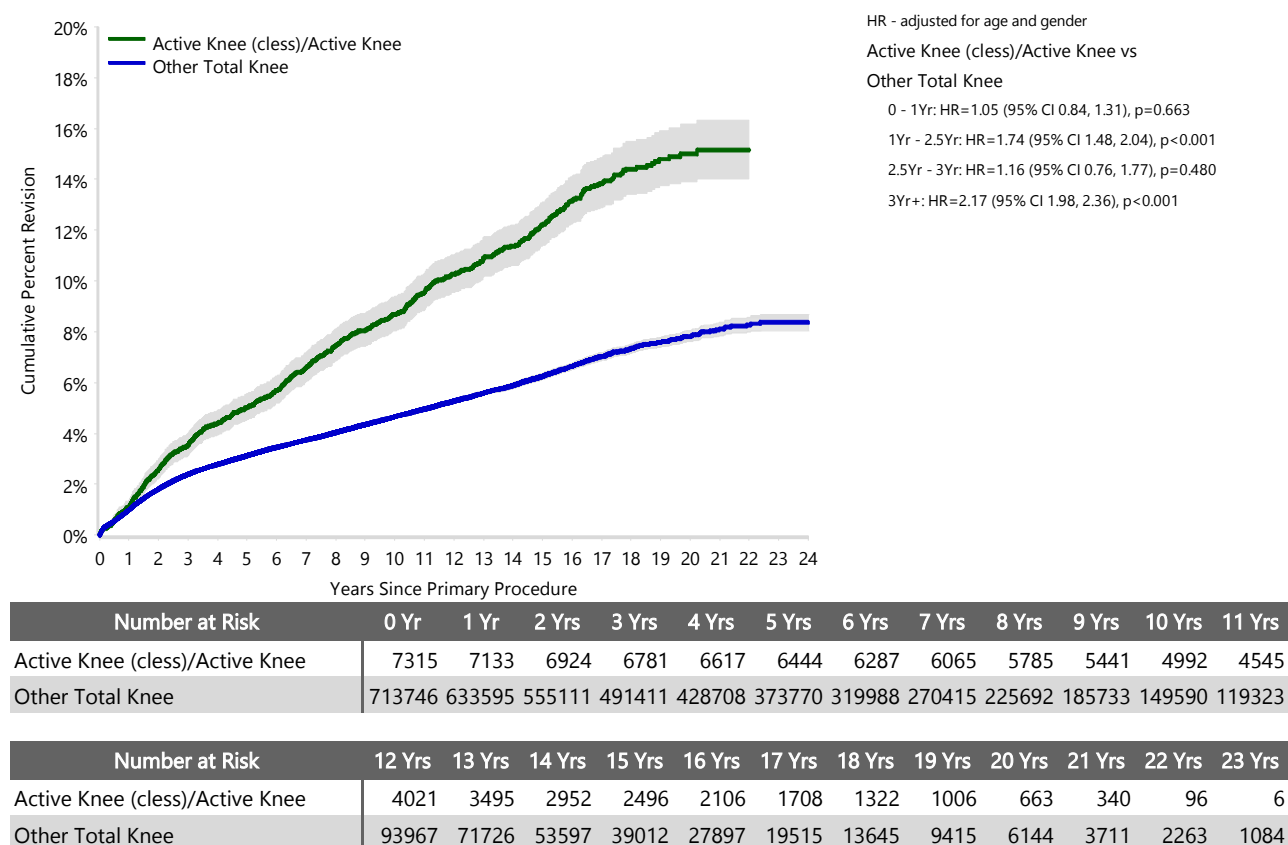
FIGURE 1

Yearly Cumulative Percent Revision of Primary Total Knee Replacement

The yearly cumulative percent revision of the Active Knee (class)/Active Knee total knee combination is compared to all other total knee 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 Knee Replacement



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

TABLE 3

Primary Diagnosis for Revised Primary Total Knee 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 knee prostheses.

Table 3: Primary Diagnosis for Revised Primary Total Knee Replacement

Primary Diagnosis	Active Knee (class)/Active Knee		Other Total Knee	
	Number	Percent	Number	Percent
Osteoarthritis	777	97.6	23113	96.7
Rheumatoid Arthritis	8	1.0	293	1.2
Tumour			192	0.8
Other Inflammatory Arthritis	3	0.4	155	0.6
Osteonecrosis	6	0.8	84	0.4
Fracture			50	0.2
Other	1	0.1	24	0.1
Chondrocalcinosis	1	0.1		
TOTAL	796	100.0	23911	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 Total Knee Replacement - Reason for Revision

Revision Diagnosis	Active Knee (class)/Active Knee			Other Total Knee		
	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Infection	109	1.5	13.7	6982	1.0	29.2
Loosening	161	2.2	20.2	5101	0.7	21.3
Instability	88	1.2	11.1	2449	0.3	10.2
Patella Erosion	84	1.1	10.6	1733	0.2	7.2
Pain	64	0.9	8.0	1699	0.2	7.1
Patellofemoral Pain	80	1.1	10.1	1400	0.2	5.9
Arthrofibrosis	29	0.4	3.6	1018	0.1	4.3
Fracture	49	0.7	6.2	968	0.1	4.0
Malalignment	14	0.2	1.8	474	0.1	2.0
Wear Tibial Insert	23	0.3	2.9	299	0.0	1.3
Lysis	22	0.3	2.8	242	0.0	1.0
Incorrect Sizing	1	0.0	0.1	209	0.0	0.9
Implant Breakage Tibial Insert				204	0.0	0.9
Patella Maltracking	1	0.0	0.1	174	0.0	0.7
Bearing Dislocation	2	0.0	0.3	140	0.0	0.6
Metal Related Pathology	1	0.0	0.1	100	0.0	0.4
Implant Breakage Patella	51	0.7	6.4	81	0.0	0.3
Prosthesis Dislocation	1	0.0	0.1	69	0.0	0.3
Synovitis	2	0.0	0.3	57	0.0	0.2
Implant Breakage Femoral	1	0.0	0.1	44	0.0	0.2
Osteonecrosis	4	0.1	0.5	42	0.0	0.2
Wear Patella	1	0.0	0.1	42	0.0	0.2
Implant Breakage Tibial	2	0.0	0.3	33	0.0	0.1
Tumour				30	0.0	0.1
Heterotopic Bone	1	0.0	0.1	13	0.0	0.1
Progression Of Disease	1	0.0	0.1	7	0.0	0.0
Wear Tibial	1	0.0	0.1	5	0.0	0.0
Incorrect Side				1	0.0	0.0
Patella Dislocation				1	0.0	0.0
Wear Femoral				1	0.0	0.0
Other	3	0.0	0.4	293	0.0	1.2
N Revision	796	10.9	100.0	23911	3.4	100.0
N Primary	7315			713746		

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

FIGURE 2

Cumulative Incidence Revision Diagnosis of Primary Total Knee 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 Active Knee (class)/Active Knee total knee combination. A comparative graph is provided of the cumulative incidence for the same reasons for revisions for all other total knee prostheses.

Figure 2: Cumulative Incidence Revision Diagnosis for Primary Total Knee Replacement

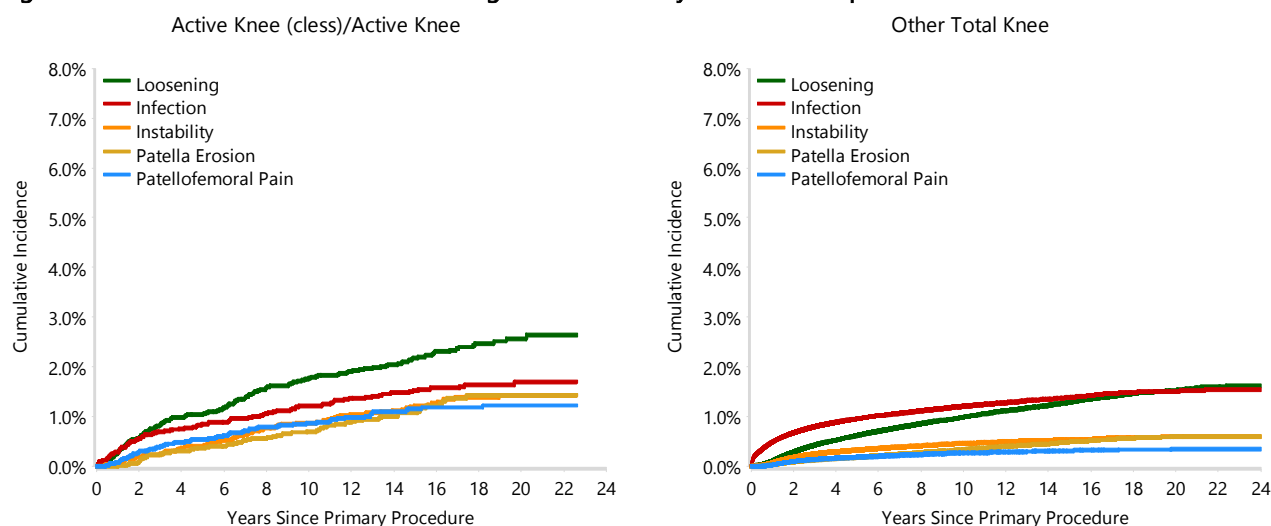


TABLE 5

Type of Revision Performed for Primary Total Knee Replacement

This analysis identifies the components used in the revision of the Active Knee (cless)/Active Knee total knee combination and compares it to the components used in the revision of all other total knee 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 knee prostheses i.e. is there a difference in the type of revision undertaken for the Active Knee (cless)/Active Knee total knee combination compared to all other total knee prostheses.

Table 5: Primary Total Knee Replacement - Type of Revision

Type of Revision	Active Knee (cless)/Active Knee		Other Total Knee	
	Number	Percent	Number	Percent
TKR (Tibial/Femoral)	242	30.4	5670	23.7
Tibial Component	34	4.3	1769	7.4
Femoral Component	28	3.5	1156	4.8
Cement Spacer	15	1.9	1067	4.5
Removal of Prostheses	2	0.3	124	0.5
Total Femoral			22	0.1
Reinsertion of Components			7	0.0
N Major	321	40.3	9815	41.0
Insert Only	136	17.1	7531	31.5
Patella Only	124	15.6	4040	16.9
Insert/Patella	215	27.0	2453	10.3
Minor Components			63	0.3
Cement Only			9	0.0
N Minor	475	59.7	14096	59.0
TOTAL	796	100.0	23911	100.0

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

TABLE 6**Revision Rates of Active Knee (cless)/Active Knee Primary Total Knee 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 Active Knee (cless)/Active Knee Primary Total Knee Replacement by Fixation

Fixation	N Revised	N Total
Cemented	1	16
Cementless	622	4899
Hybrid (Tibial Cemented)	173	2400
TOTAL	796	7315

TABLE 7**Revision Rates of Active Knee (cless)/Active Knee Primary Total Knee 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 Active Knee (cless)/Active Knee Primary Total Knee Replacement by Bearing Surface

Bearing Surface	N Revised	N Total
Non XLPE	796	7312
Unknown	0	3
TOTAL	796	7315

TABLE 8**Revision Rates of Active Knee (cless)/Active Knee Primary Total Knee Replacement by Bearing Mobility**

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

Table 8: Revised Number of Active Knee (cless)/Active Knee Primary Total Knee Replacement by Bearing Mobility

Bearing Mobility	N Revised	N Total
Fixed	794	7304
Rotating - Sliding	2	8
Unknown	0	3
TOTAL	796	7315

TABLE 9**Revision Rates of Active Knee (cless)/Active Knee Primary Total Knee Replacement by Stability**

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

Table 9: Revised Number of Active Knee (cless)/Active Knee Primary Total Knee Replacement by Stability

Stability	N Revised	N Total
Minimally Stabilised	796	7312
Unknown	0	3
TOTAL	796	7315

TABLE 10**Number of Revisions of Active Knee (cless)/Active Knee Primary Total Knee Replacement by Year of Implant**

This analysis details the number of prostheses reported each year to the Registry for the Active Knee (cless)/Active Knee total knee 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 10: Number of Revisions of Active Knee (cless)/Active Knee Primary Total Knee Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2001	0	18
2002	33	203
2003	70	613
2004	102	790
2005	82	693
2006	41	466
2007	51	510
2008	62	483
2009	43	412
2010	55	479
2011	87	601
2012	56	500
2013	44	427
2014	32	319
2015	17	336
2016	8	176
2017	7	91
2018	3	35
2019	1	21
2020	1	24
2021	1	17
2022	0	1
2023	0	37
2024	0	63
TOTAL	796	7315