Preservation Mobile Unicompartmental Knee Investigation

Note: This analysis compares the Preservation Mobile tibial prosthesis with all other unicompartmental knee 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-2025.

Note: Procedures using prostheses with no recorded use in 2024 are excluded from the comparator.

TABLE 1

Revision Rate of Primary Unicompartmental Knee Replacement

The revision rate of the Preservation Mobile unicompartmental knee prosthesis is compared to all other unicompartmental knee prostheses.

Table 1: Revision Rates of Primary Unicompartmental Knee Replacement

Component	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Preservation Mobile	169	400	5436	3.11 (2.66, 3.61)
Other Unicompartmental Knee	5258	50910	389433	1.35 (1.31, 1.39)
TOTAL	**5427**	**51310**	**394869**	**1.37 (1.34, 1.41)**

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

TABLE 2

Yearly Cumulative Percent Revision of Primary Unicompartmental Knee Replacement

The yearly cumulative percent revision of the Preservation Mobile unicompartmental knee prosthesis is compared to all other unicompartmental knee prostheses.

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

CPR	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs	8 Yrs
Preservation Mobile	5.3 (3.5, 7.9)	10.5 (7.9, 14.0)	15.5 (12.3, 19.5)	17.1 (13.7, 21.1)	19.1 (15.6, 23.3)	19.9 (16.3, 24.1)	21.4 (17.7, 25.8)	23.0 (19.1, 27.4)
Other Unicompartmental Knee	1.9 (1.8, 2.0)	3.4 (3.2, 3.6)	4.4 (4.2, 4.6)	5.3 (5.1, 5.5)	6.1 (5.9, 6.4)	7.0 (6.8, 7.3)	8.1 (7.8, 8.3)	9.1 (8.8, 9.4)

CPR	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs
Preservation Mobile	25.1 (21.1, 29.7)	27.2 (23.1, 31.9)	29.4 (25.1, 34.2)	31.4 (27.0, 36.3)	33.7 (29.2, 38.7)	34.6 (30.0, 39.6)	37.1 (32.4, 42.2)	37.4 (32.7, 42.5)
Other Unicompartmental Knee	10.2 (9.9, 10.5)	11.3 (11.0, 11.7)	12.5 (12.2, 12.9)	13.8 (13.4, 14.3)	15.2 (14.8, 15.7)	16.8 (16.3, 17.3)	18.2 (17.7, 18.8)	19.7 (19.1, 20.3)

CPR	17 Yrs	18 Yrs	19 Yrs	20 Yrs	21 Yrs	22 Yrs	23 Yrs
Preservation Mobile	39.7 (34.9, 44.9)	42.1 (37.1, 47.4)	44.7 (39.6, 50.1)	45.1 (40.0, 50.5)	46.8 (41.5, 52.3)	48.1 (42.6, 53.8)	
Other Unicompartmental Knee	21.4 (20.7, 22.1)	23.0 (22.3, 23.8)	24.8 (23.9, 25.6)	26.7 (25.7, 27.7)	28.7 (27.6, 29.8)	30.4 (29.1, 31.7)	31.2 (29.7, 32.6)

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

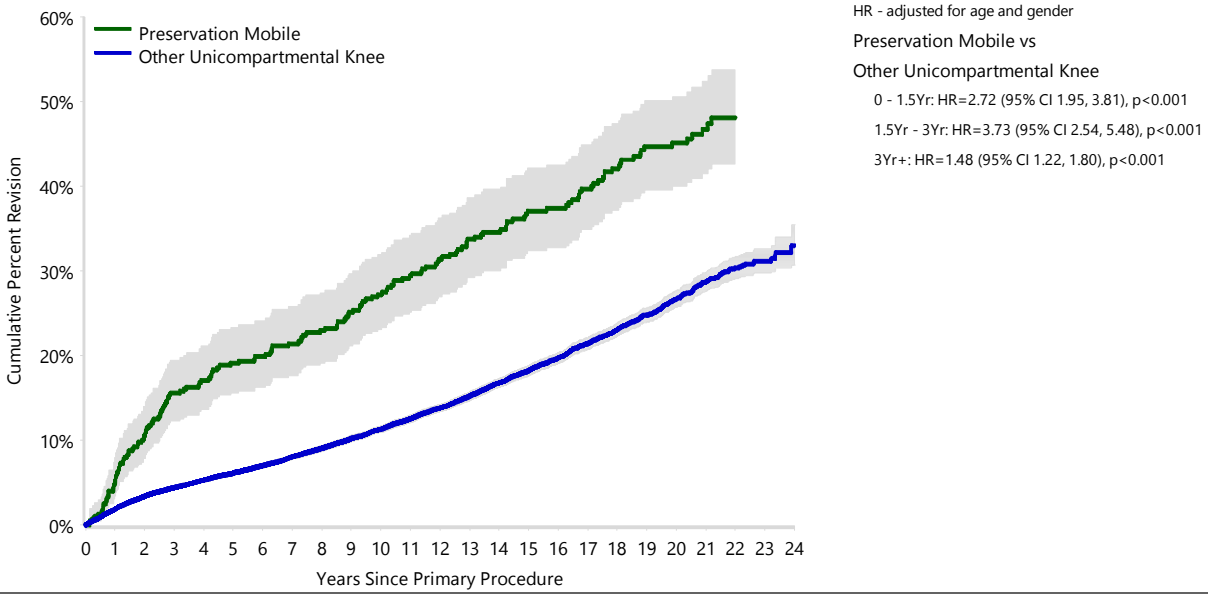
FIGURE 1

Yearly Cumulative Percent Revision of Primary Unicompartmental Knee Replacement

The yearly cumulative percent revision of the Preservation Mobile unicompartmental knee prosthesis is compared to all other unicompartmental 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 Unicompartmental Knee 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
Preservation Mobile	400	378	357	334	326	317	313	304	291	282	272	254
Other Unicompartmental Knee	50910	46153	41711	37728	33767	30081	26631	23607	20764	18178	15807	13628

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	23 Yrs
Preservation Mobile	239	226	215	199	194	183	166	141	117	85	45	3
Other Unicompartmental Knee	11723	10050	8412	6867	5506	4306	3270	2412	1742	1193	718	311

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

TABLE 3

Primary Diagnosis for Revised Primary Unicompartmental 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 unicompartmental knee prostheses.

Table 3: Primary Diagnosis for Revised Primary Unicompartmental Knee Replacement

	Preservation Mobile		Other Unicompartmental Knee	
Primary Diagnosis	Number	Percent	Number	Percent
Osteoarthritis	168	99.4	5206	99.0
Osteonecrosis			30	0.6
Rheumatoid Arthritis	1	0.6	14	0.3
Other Inflammatory Arthritis			5	0.1
Fracture			2	0.0
Tumour			1	0.0
TOTAL	**169**	**100.0**	**5258**	**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 Unicompartmental Knee Replacement - Reason for Revision (Follow-up Limited to 23.1 Years)

	Preservation Mobile			Other Unicompartmental Knee		
Revision Diagnosis	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Progression Of Disease	47	11.8	27.8	2008	3.9	38.2
Loosening	92	23.0	54.4	1593	3.1	30.3
Pain	10	2.5	5.9	375	0.7	7.1
Infection	7	1.8	4.1	269	0.5	5.1
Bearing Dislocation	1	0.3	0.6	202	0.4	3.8
Fracture	2	0.5	1.2	160	0.3	3.0
Instability				109	0.2	2.1
Lysis	3	0.8	1.8	97	0.2	1.8
Wear Tibial Insert	2	0.5	1.2	89	0.2	1.7
Malalignment				66	0.1	1.3
Implant Breakage Tibial Insert	1	0.3	0.6	61	0.1	1.2
Incorrect Sizing				31	0.1	0.6
Patellofemoral Pain				30	0.1	0.6
Implant Breakage Tibial	3	0.8	1.8	29	0.1	0.6
Prosthesis Dislocation				27	0.1	0.5
Metal Related Pathology				15	0.0	0.3
Osteonecrosis				13	0.0	0.2
Wear Tibial				12	0.0	0.2
Arthrofibrosis				11	0.0	0.2
Synovitis				11	0.0	0.2
Wear Femoral				5	0.0	0.1
Implant Breakage Femoral				4	0.0	0.1
Patella Erosion				3	0.0	0.1
Other	1	0.3	0.6	33	0.1	0.6
N Revision	**169**	**42.3**	**100.0**	**5253**	**10.3**	**100.0**
N Primary	**400**			**50910**		

Note: This table is restricted to revisions within 23.1 years for all groups to allow a time-matched comparison of revisions.
Note: Prostheses no longer used in 2024 are excluded from the comparator.

FIGURE 2

Cumulative Incidence Revision Diagnosis of Primary Unicompartmental 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 Preservation Mobile unicompartmental knee prosthesis. A comparative graph is provided of the cumulative incidence for the same reasons for revisions for all other unicompartmental knee prostheses.

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

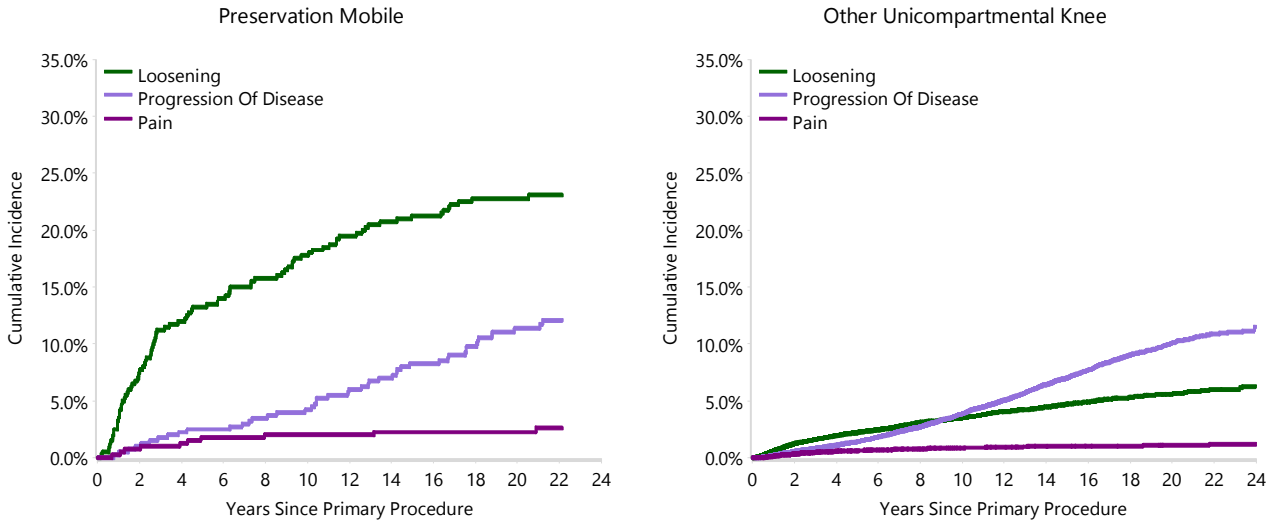


TABLE 5

Type of Revision Performed for Primary Unicompartmental Knee Replacement

This analysis identifies the components used in the revision of the Preservation Mobile unicompartmental knee prosthesis and compares it to the components used in the revision of all other unicompartmental 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 unicompartmental knee prostheses i.e. is there a difference in the type of revision undertaken for the Preservation Mobile unicompartmental knee prosthesis compared to all other unicompartmental knee prostheses.

Table 5: Primary Unicompartmental Knee Replacement - Type of Revision (Follow-up Limited to 23.1 Years)

	Preservation Mobile		Other Unicompartmental Knee	
Type of Revision	Number	Percent	Number	Percent
TKR (Tibial/Femoral)	150	88.8	4430	84.3
Uni Tibial Component	8	4.7	95	1.8
Uni Femoral Component	2	1.2	47	0.9
Cement Spacer	1	0.6	40	0.8
UKR (Uni Tibial/Uni Femoral)	1	0.6	35	0.7
Patella/Trochlear Resurfacing	2	1.2	16	0.3
Removal of Prostheses			5	0.1
Femoral Component			4	0.1
Reinsertion of Components			4	0.1
Tibial Component			1	0.0
N Major	**164**	**97.0**	**4677**	**89.0**
Uni Insert Only	4	2.4	575	10.9
Cement Only	1	0.6		
Patella Only			1	0.0
N Minor	**5**	**3.0**	**576**	**11.0**
TOTAL	**169**	**100.0**	**5253**	**100.0**

Note: This table is restricted to revisions within 23.1 years for all groups to allow a time-matched comparison of revisions.
Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 6

Revision Rates of Preservation Mobile Primary Unicompartmental 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 Preservation Mobile Primary Unicompartmental Knee Replacement by Fixation

Fixation	N Revised	N Total
Cemented	169	400
TOTAL	**169**	**400**

TABLE 7

Revision Rates of Primary Unicompartmental Knee Replacement by State

This enables a state by state variation to be identified for the Preservation Mobile unicompartmental knee prosthesis and provides the comparative data for each of the states for all other unicompartmental knee 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 7: Revised Number of Primary Unicompartmental Knee Replacement by State

Component	State	N Revised	N Total
Preservation Mobile	NSW	6	6
	VIC	32	84
	QLD	18	49
	WA	32	72
	SA	75	175
	TAS	3	5
	ACT/NT	3	9
Other Unicompartmental Knee	NSW	1479	12313
	VIC	1049	11729
	QLD	958	10315
	WA	700	8024
	SA	729	5299
	TAS	194	2150
	ACT/NT	149	1080
TOTAL		**5427**	**51310**

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

TABLE 8

Number of Revisions of Preservation Mobile Primary Unicompartmental Knee Replacement by Year of Implant

This analysis details the number of prostheses reported each year to the Registry for the Preservation Mobile unicompartmental knee 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 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 8: Number of Revisions of Preservation Mobile Primary Unicompartmental Knee Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2001	10	15
2002	63	149
2003	52	121
2004	18	59
2005	9	26
2006	8	17
2007	9	13
TOTAL	**169**	**400**

TABLE 9

Revision Rates of Preservation Mobile Primary Unicompartmental Knee 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 Preservation Mobile 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
Tibial			
Preservation Mobile	149825001-149826005	MOBILE UNI TIBIAL BASEPLATE	YES

Table 9: Revised Number of Preservation Mobile Primary Unicompartmental Knee Replacement by Catalogue Number Range

Tibial Range	N Revised	N Total
149825001-149826005	169	400
TOTAL	**169**	**400**

TABLE 10

Revision Rates of Preservation Mobile Primary Unicompartmental Knee 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 10: Revised Number of Preservation Mobile Primary Unicompartmental Knee Replacement by Femoral Component

Femoral Component	N Revised	N Total
Preservation	169	400
TOTAL	**169**	**400**