



Australian Orthopaedic Association National Joint Replacement Registry

2013 Annual Report

ERRATUM

Note: The version of the 2013 Annual Report currently available on the AOANJRR website has been corrected.

PROSTHESES WITH HIGHER THAN ANTICIPATED RATES OF REVISION

Total Resurfacing Hip Replacement

The AOANJRR has recently reviewed the classification of the Cormet HA Bi-Coated Resurfacing Femoral Head. As a consequence, the AOANJRR has identified that one range was omitted from the analysis of Cormet/Cormet Combination. The updated analysis now includes this additional range (248 procedures, 26 revised). The addition of this range to the Cormet/Cormet Combination does not affect its identification as a newly identified prosthesis with a higher than anticipated rate of revision in the 2013 Annual Report.

The full updated analysis of the Cormet/Cormet Combination is available on the AOANJRR website [Newly Identified - Cormet/Cormet Combination](#)

Page 169 - Paragraph 1

PUBLISHED TEXT	UPDATED TEXT	DATE AMENDED
<p>There is one resurfacing device being identified for the first time, the Cormet/Cormet prosthesis combination.</p> <p>The Cormet/Cormet has been used in 374 procedures and has a ten year cumulative percent revision of 21.6%. There have been 50 revisions, 62.0% of which involved revision to the femoral and acetabular components, and 30.0% to the femoral component only. Loosening/lysis (34.0%), fracture (24.0%) and metal related pathology (24.0%) are the main reasons for revision.</p>	<p>There is one resurfacing device being identified for the first time, the Cormet/Cormet prosthesis combination.</p> <p>The Cormet/Cormet has been used in 622 procedures and has a ten year cumulative percent revision of 20.7%. There have been 76 revisions, 60.5% of which involved revision to the femoral and acetabular components, and 31.6% to the femoral component only. Loosening/lysis (36.8%), fracture (19.7%) and metal related pathology (23.7%) are the main reasons for revision.</p>	<p>13 November 2013</p>

PUBLISHED TABLES	UPDATED TABLES	DATE AMENDED
Tables IP7, IP8, IP9 and Figure IP4	Tables IP7, IP8, IP9 and Figure IP4	13 November 2013

HIP REPLACEMENT

Primary Total Resurfacing Hip Replacement

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PUBLISHED TABLES	UPDATED TABLES	DATE AMENDED
Table HT33	Table HT33	13 November 2013

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PUBLISHED TABLES	UPDATED TABLES	DATE AMENDED
Table HT42	Table HT42	13 November 2013

KNEE REPLACEMENT

Primary Partial Knee Replacement - Unicompartmental

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ERROR	CORRECTION	DATE AMENDED
Cumulative Percent Revision at three years for the Sigma HP/Sigma HP and Oxford 3/Oxford combinations were omitted from Table KP 17 in the published report.	Cumulative Percent Revision at three years for the Sigma HP/Sigma HP and Oxford 3/Oxford combinations have been added to Table KP 17 in the online version of the report.	22 November 2013

PUBLISHED TABLES	UPDATED TABLES	DATE AMENDED
Table KP17	Table KP17	22 November 2013

PROSTHESES WITH HIGHER THAN ANTICIPATED RATES OF REVISION

Total Resurfacing Hip Replacement

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Table IP7: Revision Rate of Individual Total Resurfacing Hip identified as having a Higher than Anticipated Revision Rate

Resurfacing Head/Acetabular	N Total	Obs. Years	Revisions/100 Obs. Yrs	Hazard Ratio, P Value
Identified and no longer used				
ASR/ASR	1167	6865	3.58	0 - 3Mth: HR=1.65 (0.99, 2.75),p=0.053 3Mth - 2Yr: HR=2.06 (1.48, 2.86),p<0.001 2Yr - 4Yr: HR=3.95 (2.91, 5.37),p<0.001 4Yr - 4.5Yr: HR=7.22 (4.48, 11.65),p<0.001 4.5Yr - 5Yr: HR=9.73 (5.81, 16.30),p<0.001 5Yr+: HR=5.75 (4.40, 7.52),p<0.001
Bionik/Bionik	199	847	3.66	Entire Period: HR=3.60 (2.52, 5.16),p<0.001
Durom/Durom	847	5260	1.39	Entire Period: HR=1.36 (1.07, 1.72),p=0.012
Recap/Recap	195	922	2.28	Entire Period: HR=2.17 (1.41, 3.35),p<0.001
*Cormet 2000 HAP	95	785	2.29	Entire Period: HR=2.37 (1.49, 3.78),p<0.001
Newly Identified				
Cormet/Cormet	374	2179	2.29	Entire Period: HR=2.13 (1.60, 2.83),p<0.001

Note: All Components have been compared to all other Total Resurfacing Hip components.
* Resurfacing Head Component

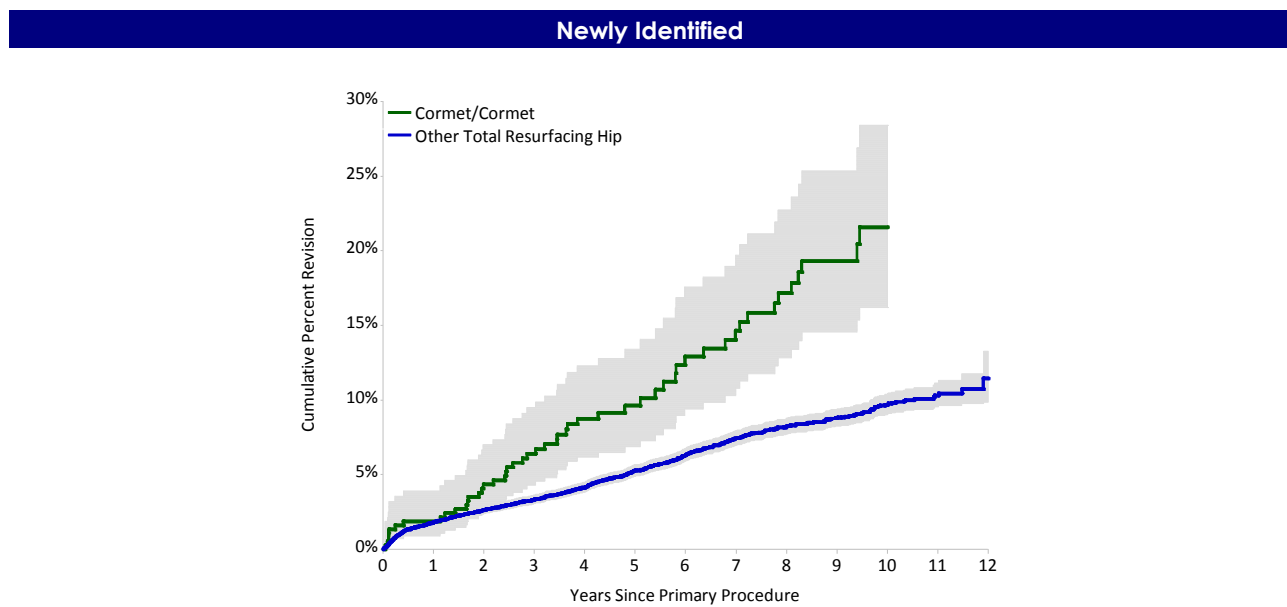
Table IP8: Cumulative Percent Revision of Individual Total Resurfacing Hip identified as having a Higher than Anticipated Revision Rate

CPR	1 Yr	3 Yrs	5 Yrs	10 Yrs	12 Yrs
Identified and no longer used					
ASR/ASR	3.3 (2.5, 4.5)	7.1 (5.8, 8.8)	15.4 (13.4, 17.7)		
Bionik/Bionik	3.5 (1.7, 7.2)	12.4 (8.5, 17.9)	17.3 (12.2, 24.2)		
Durom/Durom	3.2 (2.2, 4.6)	5.4 (4.0, 7.1)	7.6 (6.0, 9.7)		
Recap/Recap	5.1 (2.8, 9.3)	8.8 (5.5, 13.7)	10.8 (7.0, 16.2)		
*Cormet 2000 HAP	6.3 (2.9, 13.5)	8.4 (4.3, 16.1)	9.5 (5.0, 17.4)	21.1 (13.6, 31.8)	
Newly Identified					
Cormet/Cormet	1.9 (0.9, 3.9)	6.4 (4.3, 9.5)	9.6 (6.9, 13.4)	21.6 (16.2, 28.4)	

Table IP9: Yearly Usage of Individual Total Resurfacing Hip identified as having a Higher than Anticipated Revision Rate

Year of Implant	≤2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Identified and no longer used											
ASR/ASR		43	165	302	257	176	133	91			
Bionik/Bionik				12	33	33	46	54	19	2	
Durom/Durom		58	166	207	143	105	88	46	24	10	
Recap/Recap			27	14	9	42	46	38	16	3	
*Cormet 2000 HAP	18	38	39								
Newly Identified											
Cormet/Cormet	62	42	47	18	12	15	73	52	42	8	3

Figure IP4: Cumulative Percent Revision of Individual Total Resurfacing Hip newly identified-



HIP REPLACEMENT

Primary Total Resurfacing Hip Replacement

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Table HT33: Ten Most Used Resurfacing Heads in Primary Total Resurfacing Hip Replacement

2003		2009		2010		2011		2012						
N	Model	N	Model	N	Model	N	Model	N	Model					
1359	BHR	632	BHR	604	BHR	442	BHR	341	BHR					
58	Durom	196	Mitch TRH	188	Mitch TRH	93	Mitch TRH	89	Adept					
43	ASR	91	ASR	53	Adept	27	Adept	10	Mitch TRH					
42	Cormet	70	Adept	42	Cormet	10	Durom	7	ACCIS					
38	Cormet 2000 HAP	54	Bionik	24	Durom	8	Cormet	3	Cormet					
7	Conserve Plus	52	Cormet	19	Bionik	3	Recap	1	Cormet HAP Bi-Coated					
		46	Durom	16	Recap	2	ACCIS							
		45	Recap	10	Icon	2	Bionik							
		23	Cormet HAP Bi-Coated	8	Cormet HAP Bi-Coated	2	Cormet HAP Bi-Coated							
		6	Icon											
Ten Most Used														
1547	(6)	100.0%	1215	(10)	99.8%	964	(9)	100.0%	589	(9)	100.0%	451	(6)	100.0%
Remainder														
0	(0)	0%	2	(2)	0.2%	0	(0)	0%	0	(0)	0%	0	(0)	0%
TOTAL														
1547	(6)	100.0%	1217	(12)	100.0%	964	(9)	100.0%	589	(9)	100.0%	451	(6)	100.0%

Table HT42: Cumulative Percent Revision of Primary Total Resurfacing Hip Replacement by Prosthesis Type

Head Component	Acetabular Component	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
ASR	ASR	246	1167	3.3 (2.5, 4.5)	7.1 (5.8, 8.8)	15.4 (13.4, 17.7)	23.9 (21.2, 26.8)	
Adept	Adept	15	531	1.4 (0.7, 2.9)	2.1 (1.1, 3.9)	2.7 (1.5, 4.8)		
BHR	BHR	529	10474	1.4 (1.2, 1.7)	2.5 (2.2, 2.8)	3.6 (3.3, 4.0)	5.1 (4.6, 5.6)	7.1 (6.5, 7.8)
Bionik	Bionik	31	199	3.5 (1.7, 7.2)	12.4 (8.5, 17.9)	17.3 (12.2, 24.2)		
Cormet	Cormet	50	374	1.9 (0.9, 3.9)	6.4 (4.3, 9.5)	9.6 (6.9, 13.4)	14.6 (10.8, 19.7)	21.6 (16.2, 28.4)
Cormet HAP Bi-Coated	Cormet	26	248	2.4 (1.1, 5.3)	4.5 (2.5, 8.0)	8.7 (5.7, 13.2)	13.2 (9.0, 19.1)	
Durom	Durom	73	847	3.2 (2.2, 4.6)	5.4 (4.0, 7.1)	7.6 (6.0, 9.7)	9.0 (7.2, 11.3)	
Icon	Icon	5	113	0.9 (0.1, 6.1)	1.8 (0.4, 6.9)	4.0 (1.5, 10.6)		
Mitch TRH	Mitch TRH	25	1024	1.2 (0.7, 2.1)	2.2 (1.4, 3.3)	2.7 (1.8, 4.0)		
Recap	Recap	21	195	5.1 (2.8, 9.3)	8.8 (5.5, 13.7)	10.8 (7.0, 16.2)		
Other (8)		29	188	5.3 (2.9, 9.7)	7.6 (4.6, 12.5)	9.9 (6.4, 15.3)	12.4 (8.4, 18.3)	
TOTAL		1050	15360					

Note: Only combinations with over 100 procedures have been listed.

KNEE REPLACEMENT

Primary Partial Knee Replacement – Unicompartmental

Table KP17: Cumulative Percent Revision of Primary Unicompartmental Knee Replacement by Prosthesis Type

Uni Femoral	Uni Tibial	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	10 Yrs	12 Yrs
Allegretto Uni	Allegretto Uni	236	2024	3.0 (2.4, 3.9)	5.6 (4.7, 6.7)	7.8 (6.7, 9.1)	14.5 (12.7, 16.5)	19.1 (15.9, 22.8)
BalanSys Uni	BalanSys Uni Fixed	13	287	2.2 (1.0, 4.9)	3.1 (1.6, 6.1)	4.8 (2.6, 8.6)		
Endo-Model Sled	Endo-Model Sled	103	1071	1.1 (0.7, 2.0)	5.1 (3.9, 6.7)	8.1 (6.5, 10.1)		
Freedom PKR/Active	Freedom PKR/Active	165	1343	1.5 (1.0, 2.4)	7.3 (6.0, 8.9)	13.0 (11.1, 15.2)		
GRU	GRU	154	1936	1.4 (1.0, 2.1)	4.6 (3.7, 5.7)	6.5 (5.4, 7.7)	12.2 (10.2, 14.7)	
Genesis	Genesis	234	1863	2.7 (2.1, 3.6)	8.2 (7.0, 9.6)	10.8 (9.4, 12.4)	16.5 (14.2, 19.1)	
M/G	M/G	186	2133	1.6 (1.1, 2.2)	4.1 (3.4, 5.1)	6.5 (5.5, 7.6)	10.2 (8.8, 11.9)	13.5 (10.5, 17.3)
Oxford 3	Oxford	53	1364	3.2 (2.4, 4.4)				
Oxford 3	Oxford 3	1255	11715	2.3 (2.0, 2.5)	5.9 (5.5, 6.4)	8.6 (8.1, 9.2)	14.6 (13.8, 15.5)	16.8 (15.5, 18.2)
Preservation	Preservation Fixed	287	2318	2.4 (1.9, 3.1)	7.1 (6.1, 8.2)	9.6 (8.4, 10.9)	16.3 (14.3, 18.6)	
Preservation	Preservation Mobile	101	400	5.3 (3.5, 7.9)	15.5 (12.3, 19.5)	19.1 (15.6, 23.3)	27.0 (22.7, 32.0)	
Repicci II	Repicci II	357	2876	1.6 (1.2, 2.1)	4.4 (3.7, 5.2)	7.4 (6.4, 8.5)	17.7 (15.9, 19.6)	
Sigma HP	Sigma HP	8	340	1.4 (0.5, 3.6)				
Uniglide	Uniglide	101	706	4.6 (3.3, 6.5)	10.8 (8.7, 13.4)	13.1 (10.7, 16.0)		
Unix	Unix	264	3416	2.3 (1.8, 2.8)	5.3 (4.5, 6.1)	7.1 (6.2, 8.1)	12.6 (10.9, 14.5)	
ZUK	ZUK	118	3300	1.3 (1.0, 1.8)	3.9 (3.2, 4.7)	5.0 (4.2, 6.1)		
Other (33)		221	2010	3.5 (2.7, 4.4)	8.4 (7.1, 9.8)	10.9 (9.4, 12.6)	21.1 (18.1, 24.5)	22.3 (19.1, 25.9)
TOTAL		3856	39102					

Note: Only combinations with over 200 procedures have been listed.

PROSTHESES WITH HIGHER THAN ANTICIPATED RATES OF REVISION

Total Resurfacing Hip Replacement

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Table IP7: Revision Rate of Individual Total Resurfacing Hip identified as having a higher than anticipated Revision Rate

Resurfacing Head/Acetabular	N Total	Obs. Years	Revisions/100 Obs. Yrs	Hazard Ratio, P Value
Identified and no longer used				
ASR/ASR	1167	6865	3.58	0 - 3Mth: HR=1.65 (0.99, 2.75),p=0.053 3Mth - 2Yr: HR=2.06 (1.48, 2.86),p<0.001 2Yr - 4Yr: HR=3.95 (2.91, 5.37),p<0.001 4Yr - 4.5Yr: HR=7.22 (4.48, 11.65),p<0.001 4.5Yr - 5Yr: HR=9.73 (5.81, 16.30),p<0.001 5Yr+: HR=5.75 (4.40, 7.52),p<0.001
Bionik/Bionik	199	847	3.66	Entire Period: HR=3.60 (2.52, 5.16),p<0.001
Durom/Durom	847	5260	1.39	Entire Period: HR=1.36 (1.07, 1.72),p=0.012
Recap/Recap	195	922	2.28	Entire Period: HR=2.17 (1.41, 3.35),p<0.001
*Cormet 2000 HAP	95	785	2.29	Entire Period: HR=2.37 (1.49, 3.78),p<0.001
Newly Identified				
Cormet/Cormet	622	3550	2.14	0 - 1.5Yr: HR=1.15 (0.71, 1.87),p=0.573 1.5Yr+: HR=2.43 (1.86, 3.17),p<0.001

Note: All Components have been compared to all other Total Resurfacing Hip components.
* Resurfacing Head Component

Table IP8: Yearly Cumulative Percent Revision of Individual Total Resurfacing Hip identified as having a higher than anticipated Revision Rate

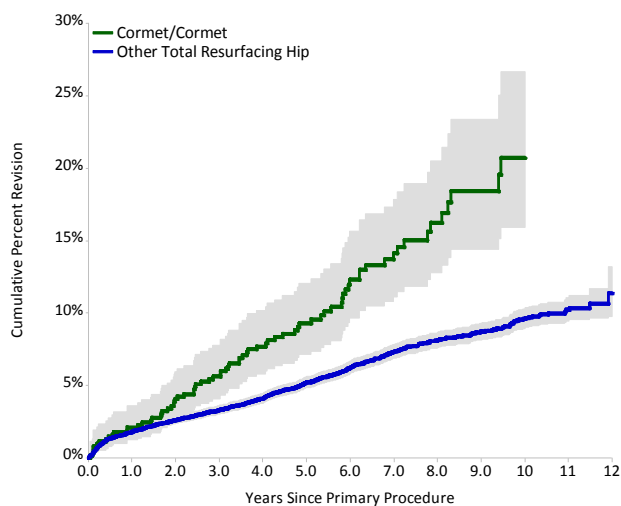
CPR	1 Yr	3 Yrs	5 Yrs	10 Yrs	12 Yrs
Identified and no longer used					
ASR/ASR	3.3 (2.5, 4.5)	7.1 (5.8, 8.8)	15.4 (13.4, 17.7)		
Bionik/Bionik	3.5 (1.7, 7.2)	12.4 (8.5, 17.9)	17.3 (12.2, 24.2)		
Durom/Durom	3.2 (2.2, 4.6)	5.4 (4.0, 7.1)	7.6 (6.0, 9.7)		
Recap/Recap	5.1 (2.8, 9.3)	8.8 (5.5, 13.7)	10.8 (7.0, 16.2)		
*Cormet 2000 HAP	6.3 (2.9, 13.5)	8.4 (4.3, 16.1)	9.5 (5.0, 17.4)	21.1 (13.6, 31.8)	
Newly Identified					
Cormet/Cormet	2.1 (1.2, 3.6)	5.6 (4.0, 7.8)	9.3 (7.1, 12.1)	20.7 (15.9, 26.7)	

Table IP9: Yearly Usage of Individual Total Resurfacing Hip identified as having a higher than anticipated Revision Rate

Year of Implant	≤2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Identified and no longer used											
ASR/ASR		43	165	302	257	176	133	91			
Bionik/Bionik				12	33	33	46	54	19	2	
Durom/Durom		58	166	207	143	105	88	46	24	10	
Recap/Recap			27	14	9	42	46	38	16	3	
*Cormet 2000 HAP	18	38	39								
Newly Identified											
Cormet/Cormet	62	42	50	85	74	76	94	75	50	10	4

Figure IP4: Cumulative Percent Revision of Individual Total Resurfacing Hip newly identified-

Newly Identified



HIP REPLACEMENT

Primary Total Resurfacing Hip Replacement

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Table HT33: Ten Most Used Resurfacing Heads used in Primary Total Resurfacing Hip Replacement

2003		2009		2010		2011		2012						
N	Model	N	Model	N	Model	N	Model	N	Model					
1359	BHR	632	BHR	604	BHR	442	BHR	341	BHR					
58	Durom	196	Mitch TRH	188	Mitch TRH	93	Mitch TRH	89	Adept					
43	ASR	91	ASR	53	Adept	27	Adept	10	Mitch TRH					
42	Cormet	75	Cormet	50	Cormet	10	Cormet	7	ACCIS					
38	Cormet 2000 HAP	70	Adept	24	Durom	10	Durom	4	Cormet					
7	Conserve Plus	54	Bionik	19	Bionik	3	Recap							
		46	Durom	16	Recap	2	ACCIS							
		45	Recap	10	Icon	2	Bionik							
		6	Icon											
		1	Conserve Plus											
Ten Most Used														
1547	(6)	100.0%	1216	(10)	99.9%	964	(8)	100.0%	589	(8)	100.0%	451	(5)	100.0%
Remainder														
0	(0)	0%	1	(1)	0.1%	0	(0)	0%	0	(0)	0%	0	(0)	0%
TOTAL														
1547	(6)	100.0%	1217	(11)	100.0%	964	(8)	100.0%	589	(8)	100.0%	451	(5)	100.0%

Table HT42: Cumulative Percent Revision of Primary Total Resurfacing Hip Replacement by Prosthesis Type

Head Component	Acetabular Component	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
ASR	ASR	246	1167	3.3 (2.5, 4.5)	7.1 (5.8, 8.8)	15.4 (13.4, 17.7)	23.9 (21.2, 26.8)	
Adept	Adept	15	531	1.4 (0.7, 2.9)	2.1 (1.1, 3.9)	2.7 (1.5, 4.8)		
BHR	BHR	529	10474	1.4 (1.2, 1.7)	2.5 (2.2, 2.8)	3.6 (3.3, 4.0)	5.1 (4.6, 5.6)	7.1 (6.5, 7.8)
Bionik	Bionik	31	199	3.5 (1.7, 7.2)	12.4 (8.5, 17.9)	17.3 (12.2, 24.2)		
Cormet	Cormet	76	622	2.1 (1.2, 3.6)	5.6 (4.0, 7.8)	9.3 (7.1, 12.1)	14.1 (11.1, 17.8)	20.7 (15.9, 26.7)
Durom	Durom	73	847	3.2 (2.2, 4.6)	5.4 (4.0, 7.1)	7.6 (6.0, 9.7)	9.0 (7.2, 11.3)	
Icon	Icon	5	113	0.9 (0.1, 6.1)	1.8 (0.4, 6.9)	4.0 (1.5, 10.6)		
Mitch TRH	Mitch TRH	25	1024	1.2 (0.7, 2.1)	2.2 (1.4, 3.3)	2.7 (1.8, 4.0)		
Recap	Recap	21	195	5.1 (2.8, 9.3)	8.8 (5.5, 13.7)	10.8 (7.0, 16.2)		
Other (8)		29	188	5.3 (2.9, 9.7)	7.6 (4.6, 12.5)	9.9 (6.4, 15.3)	12.4 (8.4, 18.3)	
TOTAL		1050	15360					

Note: Only combinations with over 100 procedures have been listed.

KNEE REPLACEMENT

Primary Partial Knee Replacement – Unicompartmental

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Table KP17: Cumulative Percent Revision of Primary Unicompartmental Knee Replacement by Prosthesis Type

Uni Femoral	Uni Tibial	N Revised	N Total	1 Yr	3yrs	5 Yrs	10 Yrs	12 Yrs
Allegretto Uni	Allegretto Uni	236	2024	3.0 (2.4, 3.9)	5.6 (4.7, 6.7)	7.8 (6.7, 9.1)	14.5 (12.7, 16.5)	19.1 (15.9, 22.8)
BalanSys Uni	BalanSys Uni Fixed	13	287	2.2 (1.0, 4.9)	3.1 (1.6, 6.1)	4.8 (2.6, 8.6)		
Endo-Model Sled	Endo-Model Sled	103	1071	1.1 (0.7, 2.0)	5.1 (3.9, 6.7)	8.1 (6.5, 10.1)		
Freedom PKR/Active	Freedom PKR/Active	165	1343	1.5 (1.0, 2.4)	7.3 (6.0, 8.9)	13.0 (11.1, 15.2)		
GRU	GRU	154	1936	1.4 (1.0, 2.1)	4.6 (3.7, 5.7)	6.5 (5.4, 7.7)	12.2 (10.2, 14.7)	
Genesis	Genesis	234	1863	2.7 (2.1, 3.6)	8.2 (7.0, 9.6)	10.8 (9.4, 12.4)	16.5 (14.2, 19.1)	
M/G	M/G	186	2133	1.6 (1.1, 2.2)	4.1 (3.4, 5.1)	6.5 (5.5, 7.6)	10.2 (8.8, 11.9)	13.5 (10.5, 17.3)
Oxford 3	Oxford	53	1364	3.2 (2.4, 4.4)	5.1 (3.8, 6.8)			
Oxford 3	Oxford 3	1255	11715	2.3 (2.0, 2.5)	5.9 (5.5, 6.4)	8.6 (8.1, 9.2)	14.6 (13.8, 15.5)	16.8 (15.5, 18.2)
Preservation	Preservation Fixed	287	2318	2.4 (1.9, 3.1)	7.1 (6.1, 8.2)	9.6 (8.4, 10.9)	16.3 (14.3, 18.6)	
Preservation	Preservation Mobile	101	400	5.3 (3.5, 7.9)	15.5 (12.3, 19.5)	19.1 (15.6, 23.3)	27.0 (22.7, 32.0)	
Repicci II	Repicci II	357	2876	1.6 (1.2, 2.1)	4.4 (3.7, 5.2)	7.4 (6.4, 8.5)	17.7 (15.9, 19.6)	
Sigma HP	Sigma HP	8	340	1.4 (0.5, 3.6)	2.5 (1.2, 5.3)			
Uniglide	Uniglide	101	706	4.6 (3.3, 6.5)	10.8 (8.7, 13.4)	13.1 (10.7, 16.0)		
Unix	Unix	264	3416	2.3 (1.8, 2.8)	5.3 (4.5, 6.1)	7.1 (6.2, 8.1)	12.6 (10.9, 14.5)	
ZUK	ZUK	118	3300	1.3 (1.0, 1.8)	3.9 (3.2, 4.7)	5.0 (4.2, 6.1)		
Other (33)		221	2010	3.5 (2.7, 4.4)	8.4 (7.1, 9.8)	10.9 (9.4, 12.6)	21.1 (18.1, 24.5)	22.3 (19.1, 25.9)
TOTAL		3856	39102					

Note: Only prostheses with over 200 procedures have been listed.