

# Australian Orthopaedic Association National Joint Replacement Registry

2023 SUPPLEMENTARY REPORT

## Comparative Prosthesis Performance



**AOA**  
AUSTRALIAN  
ORTHOPAEDIC  
ASSOCIATION

Australian  
Orthopaedic  
Association  
National  
Joint  
Replacement  
Registry

**Australian Orthopaedic Association National Joint Replacement Registry**

**Comparative Prostheses Performance**

2023 Supplementary Report

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National Joint Replacement Registry

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The Registry greatly appreciates the participation of all joint replacement patients throughout Australia. Their contribution allows ongoing improvements in arthroplasty outcomes to be achieved.

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# Introduction

The purpose of this supplementary report is to ensure that the Registry provides updated 10, 15 and 20 year data on the comparative performance of all prostheses including those that are no longer used.

Analyses presented in the main report are now limited to prostheses that were still used in 2022. Surgeons at the Annual Report Workshop highlighted that there was ongoing interest in the comparative performance of all devices reported to the Registry and recommended its inclusion as a supplementary report.

This report presents comparative performance information on hip and knee prostheses used for the treatment of osteoarthritis for the three different time periods irrespective of their use in 2022. Individual hip and knee prosthesis combinations with >350 procedures are reported. For the first time, the Registry is reporting 10 year outcomes for primary total shoulder replacements. Individual humeral and glenoid

prosthesis combinations are reported. A combination is included if >50 procedures have been reported to the Registry and the follow-up is  $\geq 10$  years. Those prostheses not used in 2022 are identified with an asterisk in each of the tables.

To identify superiority and non-inferiority, the new benchmark standards described in the main report are used. These standards are based on the aggregate performance of devices in a class still being used in 2022.

A prosthesis combination is identified as having a superiority benchmark if the upper confidence interval is less than, or equal to, the benchmark standard. These devices are highlighted in green in the relevant tables.

A prosthesis combination is identified as having a non-inferiority benchmark if the upper confidence interval level is not more than 20% above the benchmark standard. These devices are highlighted in blue in the relevant tables.

# Ten, Fifteen and Twenty Year Outcomes Comparative Performance

## Ten Year Outcomes

### HIP REPLACEMENT

There are 111 hip prosthesis combinations listed that have been used in >350 procedures and have data to at least 10 years. These listed combinations were used in 79.3% of all primary total conventional hip replacement procedures performed for osteoarthritis.

The 10 year cumulative percent revision ranges from 2.4% to 46.4%. The benchmark standard used to assess superiority and non-inferiority performance at 10 years is 4.3%. There are 13 (11.7%) hip prosthesis combinations that qualify for a superiority benchmark (highlighted in green). An additional 15 (25.2%) prosthesis combinations qualify for a non-inferiority benchmark (highlighted in blue) (Table CP1).

### KNEE REPLACEMENT

There are 77 knee prosthesis combinations that have been used in >350 procedures and have data to at least 10 years. The listed combinations were used in 83.8% of all primary total knee replacement procedures performed for osteoarthritis.

The 10 year cumulative percent revision ranges from 2.8% to 13.3%. The benchmark used to assess superiority and non-inferiority at 10 years is 4.6%. There are 9 (11.7%) knee prosthesis combinations that qualify for a superiority benchmark (highlighted in green). An additional 13 (28.6%) prosthesis combinations qualify for a non-inferiority benchmark highlighted in blue (Table CP2).

### SHOULDER REPLACEMENT

#### Total Stemmed Anatomic

There are 11 total stemmed anatomic shoulder prosthesis combinations that have been used in >50 procedures and have data to at least 10 years. The listed combinations were used in 70.6% of all primary total stemmed anatomic shoulder replacement procedures performed for osteoarthritis.

The 10 year cumulative percent revision ranges from 5.3% to 39.0%. The benchmark used to assess superiority and non-inferiority at 10 years is 7.6%. There are 2 (18.2%) shoulder prosthesis combinations that qualify for a superiority benchmark (highlighted in green). One additional (27.3%) prosthesis combination qualifies for a non-inferiority benchmark highlighted in blue (Table CP3).

#### Total Stemmed Reverse

There are 6 total reverse shoulder prosthesis combinations that have been used in >50 procedures and have data to at least 10 years. The listed combinations were used in 57.1% of all primary total reverse shoulder replacement procedures performed for any diagnosis.

The 10 year cumulative percent revision ranges from 5.1% to 10.0%. The benchmark used to assess superiority and non-inferiority at 10 years is 5.6%. There were no shoulder prosthesis combinations that qualified for a superiority benchmark. There are 2 (33.3%) prosthesis combinations that qualify for a non-inferiority benchmark highlighted in blue (Table CP4).



**Table CP1 Cumulative Percent Revision of Primary Total Conventional Hip Replacement Combinations with 10 Year Data (Primary Diagnosis OA)**

Femoral Component	Acetabular Component	N Revised	N Total	Type of Revision				2 Yrs	5 Yrs	10 Yrs
				THR	Femoral	Acetabular	Other			
ABGII	ABGII (Shell/Insert)*	95	853	19	51	16	9	1.8 (1.1, 2.9)	2.7 (1.8, 4.1)	6.6 (5.0, 8.5)
ABGII	ABGII*	354	2772	56	174	83	41	2.5 (2.0, 3.1)	4.1 (3.5, 5.0)	6.9 (6.0, 7.9)
ABGII	Trident (Shell)*	278	2439	15	177	35	51	3.4 (2.8, 4.2)	4.9 (4.1, 5.9)	8.6 (7.5, 9.8)
AMIStem H	Versafitcup CC	103	3836	11	66	7	19	1.7 (1.3, 2.1)	2.9 (2.4, 3.6)	5.9 (3.6, 9.7)
Accolade I	Mitch TRH* <sup>MoM</sup>	100	357	48	17	25	10	3.7 (2.1, 6.2)	10.3 (7.5, 14.0)	18.8 (15.0, 23.4)
Accolade I	Trident (Shell)*	563	8574	66	223	108	166	2.4 (2.1, 2.7)	3.8 (3.4, 4.2)	5.7 (5.2, 6.2)
Accolade I	Trident/Tritanium (Shell)*	33	696	3	14	6	10	2.0 (1.2, 3.4)	2.9 (1.9, 4.5)	4.9 (3.5, 6.9)
Adapter	Bionik* <sup>MoM</sup>	98	376	21	10	23	44	5.1 (3.3, 7.9)	15.0 (11.7, 19.2)	25.1 (20.8, 30.1)
Alloclassic	Allofit	325	5164	36	144	53	92	1.8 (1.5, 2.2)	2.9 (2.4, 3.4)	5.0 (4.4, 5.7)
Alloclassic	Durom* <sup>MoM</sup>	105	547	28	15	47	15	3.4 (2.1, 5.3)	7.4 (5.5, 10.0)	16.3 (13.3, 19.9)
Alloclassic	Fitmore*	141	1709	15	70	18	38	4.2 (3.4, 5.3)	5.6 (4.6, 6.8)	7.4 (6.2, 8.8)
Alloclassic	Metasul*	24	371	4	2	12	6	2.2 (1.1, 4.3)	3.6 (2.1, 6.1)	5.2 (3.3, 8.1)
Alloclassic	Trabecular Metal (Shell)*	50	957	5	15	5	25	2.5 (1.7, 3.7)	4.0 (2.9, 5.5)	5.2 (3.9, 6.8)
<b>Anthology</b>	<b>R3</b>	<b>246</b>	<b>7733</b>	<b>25</b>	<b>71</b>	<b>49</b>	<b>101</b>	<b>2.3 (2.0, 2.7)</b>	<b>2.8 (2.4, 3.2)</b>	<b>3.7 (3.2, 4.2)</b>
Anthology	Reflection (Shell)*	41	909	4	15	14	8	2.3 (1.5, 3.5)	3.0 (2.1, 4.4)	4.6 (3.4, 6.3)
Apex	Fin II*	60	924	8	13	23	16	2.3 (1.5, 3.5)	3.4 (2.4, 4.8)	6.0 (4.6, 7.8)
Avenir	Continuum	63	1658	5	13	12	33	3.2 (2.5, 4.2)	3.8 (2.9, 4.8)	4.1 (3.2, 5.2)
<b>Avenir</b>	<b>Trilogy*</b>	<b>12</b>	<b>553</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>5</b>	<b>1.1 (0.5, 2.4)</b>	<b>1.3 (0.6, 2.6)</b>	<b>2.4 (1.3, 4.3)</b>
C-Stem	Duraloc*	94	894	13	26	14	41	2.8 (1.9, 4.2)	3.8 (2.7, 5.3)	6.9 (5.3, 8.9)
C-Stem	Elite Plus LPW*	24	367	11	4	9	0	1.1 (0.4, 3.0)	2.7 (1.4, 5.0)	5.3 (3.3, 8.6)
<b>C-Stem AMT</b>	<b>Marathon</b>	<b>9</b>	<b>482</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>0.9 (0.3, 2.3)</b>	<b>1.6 (0.8, 3.3)</b>	<b>2.4 (1.2, 4.7)</b>
C-Stem AMT	PINNACLE	131	4814	12	54	15	50	1.6 (1.3, 2.0)	2.7 (2.2, 3.3)	4.4 (3.5, 5.5)
CLS	Allofit*	62	817	6	34	14	8	2.5 (1.6, 3.8)	3.9 (2.7, 5.4)	6.0 (4.5, 7.9)
CLS	Fitmore	61	1028	10	24	9	18	2.3 (1.6, 3.5)	3.8 (2.7, 5.2)	5.0 (3.7, 6.8)
CORAIL	ASR* <sup>MoM</sup>	1287	2654	234	44	942	67	5.1 (4.3, 6.0)	27.5 (25.8, 29.3)	46.4 (44.4, 48.4)
<b>CORAIL</b>	<b>DeltaMotion*</b>	<b>35</b>	<b>1209</b>	<b>6</b>	<b>10</b>	<b>11</b>	<b>8</b>	<b>1.5 (0.9, 2.4)</b>	<b>2.2 (1.5, 3.2)</b>	<b>3.4 (2.4, 4.8)</b>
CORAIL	Duraloc*	109	1267	19	47	17	26	1.6 (1.0, 2.5)	2.5 (1.8, 3.6)	5.1 (4.0, 6.6)
<b>CORAIL</b>	<b>PINNACLE</b>	<b>2110</b>	<b>57148</b>	<b>193</b>	<b>805</b>	<b>317</b>	<b>795</b>	<b>2.1 (1.9, 2.2)</b>	<b>3.0 (2.8, 3.1)</b>	<b>4.7 (4.4, 4.9)</b>
CORAIL	PINNACLE* <sup>MoM</sup>	128	880	18	43	21	46	2.9 (1.9, 4.2)	6.1 (4.7, 8.0)	12.2 (10.1, 14.7)
CORAIL	Trident (Shell)	23	520	4	6	3	10	3.3 (2.0, 5.4)	4.9 (3.1, 7.7)	7.4 (4.6, 12.0)
<b>CPCS</b>	<b>R3</b>	<b>221</b>	<b>6874</b>	<b>22</b>	<b>62</b>	<b>45</b>	<b>92</b>	<b>2.3 (2.0, 2.7)</b>	<b>3.1 (2.7, 3.6)</b>	<b>4.4 (3.8, 5.1)</b>
CPCS	Reflection (Cup)	82	831	27	4	38	13	1.5 (0.9, 2.6)	2.8 (1.8, 4.3)	8.3 (6.2, 11.0)
<b>CPCS</b>	<b>Reflection (Shell)</b>	<b>110</b>	<b>2811</b>	<b>14</b>	<b>49</b>	<b>14</b>	<b>33</b>	<b>0.9 (0.6, 1.4)</b>	<b>1.7 (1.3, 2.2)</b>	<b>3.3 (2.6, 4.1)</b>
CPT	Allofit	60	1730	11	23	5	21	1.3 (0.8, 1.9)	2.9 (2.1, 3.9)	4.9 (3.7, 6.5)
CPT	Continuum	138	2793	10	48	19	61	3.1 (2.6, 3.9)	4.2 (3.5, 5.0)	6.2 (5.2, 7.4)
CPT	Trabecular Metal (Shell)	104	2072	8	44	18	34	2.6 (2.0, 3.4)	3.9 (3.1, 4.9)	6.1 (4.9, 7.5)
CPT	Trilogy	394	7817	43	149	42	160	2.3 (2.0, 2.7)	3.5 (3.1, 4.0)	5.3 (4.8, 5.9)
CPT	ZCA	40	865	14	9	10	7	1.2 (0.6, 2.2)	2.4 (1.6, 3.8)	4.7 (3.3, 6.6)
Charnley	Charnley Ogee*	67	630	40	9	6	12	2.1 (1.2, 3.6)	5.1 (3.6, 7.2)	9.1 (6.9, 11.9)
Charnley	Charnley*	50	563	40	7	3	0	0.9 (0.4, 2.2)	2.2 (1.3, 3.9)	6.5 (4.6, 9.1)
Charnley	Vitalock*	43	370	8	20	4	11	2.7 (1.5, 5.0)	4.4 (2.7, 7.1)	7.9 (5.5, 11.4)
Citation	Trident (Shell)*	61	1036	3	17	16	25	1.9 (1.3, 3.0)	3.3 (2.4, 4.6)	4.4 (3.3, 5.9)
Citation	Vitalock*	51	508	4	8	20	19	1.0 (0.4, 2.4)	2.0 (1.1, 3.7)	5.2 (3.5, 7.7)
E2	C2	23	710	1	1	6	15	1.9 (1.1, 3.2)	2.8 (1.8, 4.4)	4.2 (2.7, 6.5)
EVOK	C2	37	883	2	7	17	11	2.8 (1.9, 4.2)	4.0 (2.8, 5.6)	5.5 (3.9, 7.7)
Elite Plus	Duraloc*	112	953	18	65	6	23	2.2 (1.5, 3.4)	5.1 (3.9, 6.8)	9.2 (7.4, 11.5)
Epoch	Trilogy*	47	990	1	9	10	27	2.7 (1.9, 4.0)	3.6 (2.6, 4.9)	4.5 (3.3, 6.0)

Femoral Component	Acetabular Component	N Revised	N Total	Type of Revision						
				THR	Femoral	Acetabular	Other	2 Yrs	5 Yrs	10 Yrs
Exeter	Contemporary*	39	428	10	7	14	8	2.9 (1.6, 5.0)	4.2 (2.6, 6.6)	6.0 (4.0, 8.9)
Exeter	Vitalock*	73	1076	13	13	28	19	2.0 (1.3, 3.0)	2.3 (1.5, 3.4)	4.6 (3.4, 6.1)
Exeter V40	ABGII*	41	976	9	12	13	7	0.8 (0.4, 1.6)	1.8 (1.1, 2.9)	3.4 (2.4, 4.8)
Exeter V40	Contemporary	304	4605	81	47	142	34	2.1 (1.8, 2.6)	3.2 (2.7, 3.7)	5.6 (4.9, 6.4)
Exeter V40	Exeter Contemporary	166	2949	55	34	54	23	1.9 (1.5, 2.5)	3.0 (2.4, 3.7)	4.6 (3.9, 5.5)
Exeter V40	Exeter X3 Rimfit	108	4288	27	32	26	23	1.7 (1.3, 2.1)	2.4 (2.0, 3.0)	3.4 (2.7, 4.2)
Exeter V40	Exeter*	127	1526	31	16	58	22	1.3 (0.8, 2.0)	2.9 (2.1, 3.9)	4.6 (3.6, 5.9)
Exeter V40	Mallory-Head*	45	1434	8	26	4	7	0.8 (0.4, 1.4)	1.1 (0.6, 1.8)	2.4 (1.7, 3.4)
Exeter V40	PINNACLE	52	2112	2	19	11	20	1.5 (1.0, 2.1)	1.7 (1.2, 2.4)	3.6 (2.6, 4.9)
Exeter V40	Trabecular Metal (Shell)	21	477	2	3	2	14	2.8 (1.6, 4.8)	3.9 (2.4, 6.2)	5.0 (3.2, 7.7)
Exeter V40	Trident (Shell)	2143	73981	289	686	275	893	1.5 (1.4, 1.6)	2.3 (2.2, 2.4)	3.5 (3.4, 3.7)
Exeter V40	Trident/Tritanium (Shell)	132	4800	13	29	25	65	1.8 (1.4, 2.2)	2.8 (2.3, 3.3)	3.8 (3.1, 4.7)
Exeter V40	Trilogy*	18	517	2	5	2	9	2.3 (1.3, 4.1)	2.5 (1.5, 4.3)	3.6 (2.2, 5.8)
Exeter V40	Vitalock*	97	1795	19	27	26	25	1.4 (1.0, 2.1)	2.3 (1.7, 3.1)	3.2 (2.5, 4.2)
F2L	SPH-Blind*	63	571	10	20	17	16	3.9 (2.6, 5.8)	6.1 (4.4, 8.4)	7.6 (5.7, 10.2)
H-Max	Delta-TT	71	1619	5	33	10	23	2.5 (1.8, 3.4)	3.9 (3.0, 5.0)	6.6 (4.9, 8.8)
M/L Taper	Allofit*	27	719	1	13	4	9	1.7 (1.0, 2.9)	2.1 (1.3, 3.5)	4.4 (2.8, 6.7)
M/L Taper	Continuum	58	1511	6	18	8	26	2.8 (2.1, 3.8)	3.6 (2.8, 4.7)	4.2 (3.2, 5.4)
M/L Taper	Trabecular Metal (Shell)*	16	362	1	4	3	8	1.7 (0.8, 3.7)	2.0 (0.9, 4.1)	4.6 (2.7, 7.7)
M/L Taper Kinectiv	Continuum*	97	2085	4	29	16	48	2.8 (2.2, 3.6)	3.5 (2.8, 4.4)	5.0 (4.1, 6.1)
MS 30	Allofit*	67	1539	14	20	20	13	1.3 (0.8, 2.0)	2.1 (1.5, 3.0)	3.5 (2.6, 4.6)
MS 30	Fitmore	29	785	1	9	9	10	0.9 (0.4, 1.9)	2.0 (1.1, 3.4)	2.9 (1.8, 4.6)
MS 30	Low Profile Cup	24	604	10	3	9	2	0.5 (0.2, 1.5)	1.3 (0.6, 2.7)	2.8 (1.6, 4.9)
Mallory-Head	Mallory-Head*	219	2908	19	14	78	108	2.1 (1.6, 2.7)	3.0 (2.4, 3.7)	4.6 (3.9, 5.5)
Meridian	Vitalock*	44	354	2	3	18	21	1.4 (0.6, 3.4)	3.5 (2.0, 6.1)	6.7 (4.4, 10.0)
Metafix	Trinity	322	15416	38	83	69	132	1.9 (1.6, 2.1)	2.6 (2.3, 2.9)	3.7 (3.0, 4.5)
MiniHip	Trinity	39	1225	1	20	10	8	2.8 (2.0, 3.9)	3.2 (2.3, 4.4)	3.3 (2.4, 4.6)
Natural Hip	Fitmore*	43	882	2	8	12	21	0.9 (0.5, 1.8)	2.0 (1.3, 3.2)	4.2 (3.0, 5.9)
Omnifit	Secur-Fit*	89	716	9	23	23	34	3.7 (2.5, 5.3)	6.2 (4.6, 8.2)	9.9 (7.9, 12.5)
Omnifit	Trident (Shell)	166	3841	13	41	30	82	2.2 (1.8, 2.7)	3.0 (2.5, 3.6)	4.0 (3.4, 4.7)
Polarstem	R3	451	16905	28	150	63	210	2.2 (2.0, 2.4)	2.9 (2.6, 3.2)	4.0 (3.5, 4.5)
Quadra-C	Versafitcup CC	38	1846	6	10	10	12	1.6 (1.1, 2.4)	2.0 (1.4, 2.8)	3.8 (2.4, 6.1)
Quadra-H	Mpact	208	5987	20	98	25	65	2.3 (2.0, 2.8)	4.1 (3.5, 4.7)	6.6 (5.2, 8.3)
Quadra-H	Versafitcup CC	687	16917	67	322	141	157	2.1 (1.9, 2.3)	3.1 (2.9, 3.4)	5.2 (4.8, 5.6)
S-Rom	Duraloc Option*	27	523	4	9	5	9	2.1 (1.2, 3.8)	3.3 (2.1, 5.2)	4.6 (3.1, 6.8)
S-Rom	PINNACLE	153	2591	15	86	15	37	2.9 (2.3, 3.6)	4.5 (3.7, 5.4)	5.8 (4.9, 6.8)
SL-Plus	EP-Fit Plus	124	2128	5	55	23	41	1.9 (1.4, 2.6)	3.4 (2.7, 4.3)	5.4 (4.5, 6.5)
SL-Plus	R3	102	1684	5	28	25	44	3.2 (2.5, 4.2)	4.4 (3.5, 5.5)	6.2 (5.1, 7.6)
Secur-Fit	Trident (Shell)	499	9796	33	220	90	156	2.5 (2.2, 2.8)	3.6 (3.2, 4.0)	4.8 (4.4, 5.3)
Secur-Fit Plus	Trident (Shell)	237	5923	16	64	59	98	1.6 (1.3, 2.0)	2.3 (2.0, 2.8)	3.4 (2.9, 3.9)
Spectron EF	BHR* <sup>MoM</sup>	75	430	14	0	51	10	2.6 (1.4, 4.6)	6.0 (4.1, 8.8)	15.8 (12.5, 19.9)
Spectron EF	R3	97	2134	17	17	19	44	2.4 (1.9, 3.2)	3.9 (3.1, 4.9)	5.1 (4.1, 6.3)
Spectron EF	Reflection (Cup)	124	1404	47	12	56	9	1.3 (0.8, 2.0)	2.9 (2.1, 4.0)	7.1 (5.7, 8.8)
Spectron EF	Reflection (Shell)*	326	4646	71	110	49	96	1.5 (1.2, 1.9)	2.7 (2.3, 3.3)	5.3 (4.7, 6.1)
Stability	Duraloc*	56	374	3	10	18	25	1.3 (0.6, 3.2)	2.2 (1.1, 4.3)	8.9 (6.3, 12.5)
Summit	ASR* <sup>MoM</sup>	489	1041	17	6	440	26	3.0 (2.1, 4.2)	20.1 (17.7, 22.7)	44.5 (41.5, 47.7)
Summit	PINNACLE	177	5622	13	36	31	97	1.8 (1.5, 2.2)	2.3 (1.9, 2.8)	3.4 (2.9, 4.0)
Summit	PINNACLE* <sup>MoM</sup>	86	730	9	6	16	55	1.7 (0.9, 2.9)	3.5 (2.4, 5.1)	8.9 (7.0, 11.3)
Synergy	BHR* <sup>MoM</sup>	119	698	7	10	68	34	2.7 (1.8, 4.2)	4.8 (3.4, 6.7)	12.4 (10.1, 15.1)

Femoral Component	Acetabular Component	N Revised	N Total	Type of Revision						
				THR	Femoral	Acetabular	Other	2 Yrs	5 Yrs	10 Yrs
Synergy	R3	163	5066	5	45	40	73	2.1 (1.7, 2.5)	2.7 (2.2, 3.2)	3.4 (2.9, 4.0)
Synergy	Reflection (Shell)	408	7532	35	86	140	147	2.0 (1.7, 2.3)	2.6 (2.3, 3.0)	3.9 (3.5, 4.4)
Synergy	Trident (Shell)*	19	438	0	4	7	8	1.2 (0.5, 2.7)	1.9 (0.9, 3.7)	3.8 (2.3, 6.2)
Taperloc	Exceed*	67	2191	7	20	24	16	1.9 (1.4, 2.6)	2.4 (1.9, 3.2)	3.3 (2.6, 4.3)
Taperloc	M2a* <sup>MoM</sup>	67	471	14	2	45	6	2.6 (1.5, 4.5)	6.9 (4.9, 9.6)	12.2 (9.5, 15.6)
Taperloc	Mallory-Head*	98	1903	10	19	31	38	2.3 (1.7, 3.0)	3.1 (2.4, 3.9)	4.8 (3.8, 6.0)
Taperloc	Recap* <sup>MoM</sup>	51	456	13	7	24	7	2.4 (1.4, 4.4)	5.6 (3.8, 8.2)	9.8 (7.3, 13.0)
Taperloc	Regenerex*	16	530	2	4	3	7	1.9 (1.0, 3.5)	2.3 (1.3, 4.0)	3.4 (2.1, 5.6)
Trabecular Metal	Allofit*	21	435	2	5	4	10	3.0 (1.8, 5.1)	4.4 (2.9, 6.9)	5.0 (3.3, 7.5)
Trabecular Metal	Continuum*	47	645	3	16	10	18	5.7 (4.2, 7.8)	6.5 (4.9, 8.7)	6.9 (5.2, 9.1)
Tri-Fit TS	Trinity	105	4630	11	49	16	29	1.7 (1.4, 2.1)	2.3 (1.9, 2.8)	2.9 (2.3, 3.7)
Tri-Lock	DeltaMotion*	22	755	3	5	10	4	0.9 (0.4, 1.9)	1.5 (0.8, 2.6)	2.7 (1.7, 4.2)
Tri-Lock	PINNACLE	27	1066	0	10	8	9	1.6 (1.0, 2.5)	2.3 (1.5, 3.4)	3.5 (2.2, 5.5)
VerSys	Trilogy*	261	4432	19	90	48	104	3.0 (2.6, 3.6)	3.9 (3.4, 4.5)	5.2 (4.6, 5.9)
twinSys (cless)	RM Cup	50	1471	3	10	5	32	2.6 (1.9, 3.6)	3.4 (2.5, 4.5)	4.0 (3.0, 5.3)
<b>TOTAL</b>		<b>18641</b>	<b>394445</b>	<b>2385</b>	<b>5644</b>	<b>4825</b>	<b>5787</b>			

Note: Only prostheses with >350 procedures have been listed

\* denotes prosthesis combinations that have not had any reported use in primary total hip procedures in 2022

<sup>MoM</sup> refers to metal/metal prosthesis combinations used with head sizes >32mm

**Table CP2 Cumulative Percent Revision of Primary Total Knee Replacement Combinations with 10 Year Data (Primary Diagnosis OA)**

Femoral Component	Tibial Component	N Revised	N Total	Type of Revision						
				TKR	Femoral	Tibial	Other	2 Yrs	5 Yrs	10 Yrs
ACS	ACS Fixed	146	3423	36	9	21	80	2.9 (2.3, 3.5)	4.3 (3.7, 5.1)	5.4 (4.6, 6.4)
ACS	ACS Mobile	96	2029	36	8	4	48	3.1 (2.4, 3.9)	5.0 (4.0, 6.1)	6.2 (5.0, 7.6)
AGC	AGC*	333	5028	152	5	26	150	1.7 (1.4, 2.1)	3.2 (2.8, 3.8)	4.9 (4.3, 5.6)
Active Knee	Active Knee	864	10525	255	29	42	538	2.4 (2.2, 2.8)	4.6 (4.2, 5.1)	8.0 (7.5, 8.6)
Advance	Advance	70	992	28	4	8	30	3.9 (2.9, 5.3)	6.0 (4.6, 7.7)	8.0 (6.3, 10.1)
Advance	Advance II	121	1623	50	3	13	55	3.6 (2.8, 4.6)	5.0 (4.1, 6.2)	6.7 (5.6, 8.1)
Apex Knee CR	Apex Knee	187	11015	44	15	12	116	1.3 (1.1, 1.6)	2.2 (1.9, 2.6)	3.3 (2.5, 4.3)
BalanSys	BalanSys	125	4474	38	6	7	74	1.4 (1.0, 1.7)	2.4 (1.9, 2.9)	3.9 (3.2, 4.8)
Buechel-Pappas	Buechel-Pappas*	55	467	20	2	2	31	4.3 (2.8, 6.6)	8.1 (5.9, 11.0)	10.7 (8.2, 14.0)
Columbus	Columbus	192	6253	48	8	9	127	2.1 (1.7, 2.5)	3.9 (3.3, 4.6)	6.5 (5.4, 7.9)
Duracon	Duracon*	1333	19830	372	31	68	862	2.1 (1.9, 2.3)	3.5 (3.2, 3.7)	5.2 (4.9, 5.5)
E.Motion	E.Motion	71	1007	19	9	4	39	4.4 (3.3, 5.8)	6.4 (5.0, 8.2)	8.3 (6.5, 10.5)
GMK Primary	GMK Primary	114	3282	35	3	15	61	2.4 (1.9, 3.1)	3.7 (3.0, 4.5)	4.7 (3.9, 5.7)
Genesis II CR	Genesis II	1204	25778	255	75	56	818	2.0 (1.8, 2.2)	3.5 (3.2, 3.7)	5.0 (4.7, 5.3)
Genesis II CR	Profix Mobile*	136	1209	58	9	8	61	2.7 (1.9, 3.8)	5.4 (4.2, 6.8)	8.8 (7.3, 10.6)
Genesis II Oxinium CR (ctd)	Genesis II	594	10542	115	31	26	422	1.9 (1.6, 2.2)	3.5 (3.1, 3.9)	6.0 (5.5, 6.5)
Genesis II Oxinium PS (ctd)	Genesis II	1391	21865	199	34	171	987	2.8 (2.6, 3.0)	4.9 (4.6, 5.2)	7.1 (6.8, 7.5)
Genesis II PS	Genesis II	940	20615	174	33	59	674	2.0 (1.8, 2.2)	3.6 (3.4, 3.9)	5.0 (4.7, 5.4)
Journey Oxinium	Journey*	382	2975	63	5	30	284	3.4 (2.8, 4.1)	6.5 (5.7, 7.5)	11.3 (10.1, 12.5)
Kinemax Plus	Kinemax Plus*	137	1815	80	4	5	48	1.8 (1.3, 2.6)	3.2 (2.4, 4.1)	4.6 (3.7, 5.8)
LCS CR	LCS	630	8342	258	24	90	258	2.5 (2.1, 2.8)	4.5 (4.0, 4.9)	6.4 (5.9, 7.0)
LCS CR	MBT	1470	32999	504	70	160	736	1.9 (1.8, 2.1)	3.5 (3.3, 3.7)	4.9 (4.6, 5.1)
LCS CR	MBT Duofix*	882	15248	257	37	43	545	2.7 (2.4, 2.9)	4.1 (3.8, 4.4)	5.3 (5.0, 5.7)
LCS Duofix	MBT Duofix*	525	3606	363	27	8	127	3.7 (3.2, 4.4)	10.2 (9.2, 11.2)	13.3 (12.3, 14.5)
LCS Duofix	MBT*	142	1169	97	9	2	34	3.3 (2.4, 4.5)	8.1 (6.7, 9.9)	11.9 (10.1, 13.9)
LCS PS	MBT*	47	482	12	5	1	29	4.6 (3.1, 6.9)	6.6 (4.7, 9.2)	10.5 (8.0, 13.8)
Legion CR	Genesis II	273	8417	52	19	13	189	2.2 (1.9, 2.5)	3.6 (3.2, 4.1)	5.9 (5.0, 6.9)
Legion Oxinium CR	Genesis II	261	10012	67	19	7	168	1.7 (1.4, 1.9)	3.3 (2.9, 3.8)	4.3 (3.7, 4.9)
Legion Oxinium PS	Genesis II	701	17147	105	20	60	516	2.2 (2.0, 2.4)	3.9 (3.6, 4.3)	5.5 (5.1, 6.0)
Legion PS	Genesis II	201	6020	51	4	7	139	1.9 (1.6, 2.3)	3.1 (2.7, 3.6)	4.2 (3.6, 4.9)
MBK (Zimmer)	Nexgen*	39	448	22	1	1	15	2.3 (1.2, 4.1)	4.1 (2.6, 6.5)	6.2 (4.2, 8.9)
MRK	MRK	29	808	7	1	0	21	1.9 (1.1, 3.2)	2.7 (1.7, 4.2)	4.5 (3.0, 6.6)
Maxim	Maxim*	151	1819	50	11	6	84	2.1 (1.5, 2.8)	3.4 (2.6, 4.3)	5.2 (4.3, 6.4)
Maxim	Vanguard*	95	628	43	6	6	40	3.1 (2.0, 4.8)	5.6 (4.0, 7.7)	8.3 (6.3, 10.9)
Natural Knee Flex	Natural Knee II	178	6269	48	8	9	113	1.5 (1.2, 1.9)	2.4 (2.0, 2.8)	3.3 (2.8, 3.8)
Natural Knee II	Natural Knee II*	456	6443	211	10	60	175	1.6 (1.4, 2.0)	2.8 (2.4, 3.2)	5.0 (4.4, 5.6)
Nexgen CR	Nexgen	447	11582	144	22	33	248	1.3 (1.1, 1.5)	2.2 (1.9, 2.5)	3.1 (2.8, 3.5)
Nexgen CR	Nexgen TM CR*	56	867	20	4	11	21	2.4 (1.6, 3.7)	5.4 (4.1, 7.2)	6.4 (4.9, 8.3)
Nexgen CR Flex	Nexgen	1646	60421	416	112	135	983	1.4 (1.3, 1.5)	2.3 (2.2, 2.4)	3.1 (3.0, 3.3)
Nexgen CR Flex	Nexgen TM CR	364	12303	125	23	29	187	1.2 (1.1, 1.5)	2.2 (2.0, 2.5)	3.1 (2.8, 3.5)
Nexgen LCCK	Nexgen	53	970	8	3	1	41	3.1 (2.2, 4.4)	4.7 (3.5, 6.3)	6.2 (4.6, 8.3)
Nexgen LPS	Nexgen	379	7024	101	22	33	223	1.9 (1.6, 2.3)	3.3 (2.9, 3.7)	4.8 (4.3, 5.4)
Nexgen LPS	Nexgen TM LPS*	37	1476	12	4	6	15	1.0 (0.6, 1.6)	2.1 (1.5, 3.1)	2.8 (2.0, 3.9)
Nexgen LPS Flex	Nexgen	1704	37818	486	70	248	900	1.8 (1.6, 1.9)	3.1 (3.0, 3.3)	5.0 (4.7, 5.2)
Nexgen LPS Flex	Nexgen TM LPS*	72	1576	34	4	6	28	2.0 (1.4, 2.8)	3.5 (2.6, 4.5)	4.4 (3.5, 5.6)
Nexgen RH	Nexgen	33	670	3	5	3	22	2.8 (1.7, 4.4)	4.9 (3.3, 7.2)	8.1 (5.5, 11.6)
Optetrak-CR	Optetrak*	57	504	24	3	4	26	3.2 (2.0, 5.2)	6.1 (4.3, 8.7)	10.0 (7.5, 13.1)

Femoral Component	Tibial Component	N Revised	N Total	Type of Revision						
				TKR	Femoral	Tibial	Other	2 Yrs	5 Yrs	10 Yrs
Optetrak-PS	Optetrak RBK*	94	1112	28	3	3	60	2.8 (2.0, 3.9)	5.9 (4.6, 7.4)	8.1 (6.6, 10.1)
Optetrak-PS	Optetrak*	318	2365	151	7	29	131	3.4 (2.8, 4.2)	6.4 (5.4, 7.4)	12.1 (10.7, 13.5)
PFC Sigma CR	MBT Duofix*	168	3314	28	18	6	116	2.4 (1.9, 3.0)	3.5 (2.9, 4.2)	4.8 (4.0, 5.6)
PFC Sigma CR	MBT*	340	6273	73	35	45	187	2.6 (2.3, 3.1)	3.9 (3.4, 4.4)	5.0 (4.5, 5.6)
<b>PFC Sigma CR</b>	<b>PFC Sigma</b>	<b>918</b>	<b>24917</b>	<b>236</b>	<b>56</b>	<b>70</b>	<b>556</b>	<b>1.5 (1.4, 1.7)</b>	<b>2.5 (2.3, 2.7)</b>	<b>3.5 (3.3, 3.8)</b>
PFC Sigma PS	MBT	378	6334	130	16	25	207	2.2 (1.9, 2.6)	4.0 (3.5, 4.5)	5.4 (4.9, 6.0)
PFC Sigma PS	MBT Duofix*	182	2212	40	4	6	132	3.5 (2.8, 4.3)	5.9 (5.0, 7.0)	8.0 (6.8, 9.2)
<b>PFC Sigma PS</b>	<b>PFC Sigma*</b>	<b>388</b>	<b>8041</b>	<b>135</b>	<b>13</b>	<b>28</b>	<b>212</b>	<b>2.0 (1.7, 2.3)</b>	<b>3.3 (2.9, 3.7)</b>	<b>4.7 (4.2, 5.2)</b>
Profix	Profix Mobile*	111	986	40	6	5	60	5.1 (3.9, 6.7)	8.2 (6.6, 10.1)	9.9 (8.1, 12.0)
Profix	Profix*	314	5370	76	13	18	207	2.3 (1.9, 2.8)	3.8 (3.3, 4.3)	5.4 (4.8, 6.1)
Profix Oxinium (ctd)	Profix*	110	1049	24	5	14	67	4.1 (3.1, 5.5)	7.0 (5.6, 8.7)	8.9 (7.3, 10.8)
RBK	RBK	589	11019	231	16	43	299	2.3 (2.1, 2.6)	3.9 (3.6, 4.3)	5.3 (4.9, 5.8)
Rocc	Rocc*	45	575	17	1	2	25	3.3 (2.1, 5.2)	5.2 (3.6, 7.3)	6.8 (5.0, 9.3)
Rotaglide Plus	Rotaglide Plus*	84	616	40	1	5	38	3.3 (2.2, 5.1)	5.8 (4.1, 8.0)	11.2 (8.8, 14.2)
<b>SAIPH</b>	<b>SAIPH</b>	<b>86</b>	<b>5365</b>	<b>24</b>	<b>2</b>	<b>0</b>	<b>60</b>	<b>1.0 (0.7, 1.3)</b>	<b>2.1 (1.7, 2.6)</b>	<b>2.8 (1.9, 4.1)</b>
Score	Score	398	5994	160	20	12	206	3.1 (2.7, 3.6)	5.9 (5.3, 6.6)	9.6 (8.6, 10.8)
Scorpio CR	Scorpio+*	210	2448	49	10	34	117	2.1 (1.6, 2.7)	4.3 (3.6, 5.2)	7.1 (6.2, 8.3)
Scorpio CR	Series 7000*	660	11561	171	27	47	415	1.8 (1.6, 2.1)	3.3 (3.0, 3.6)	5.2 (4.7, 5.6)
<b>Scorpio NRG CR</b>	<b>Series 7000*</b>	<b>227</b>	<b>5070</b>	<b>62</b>	<b>15</b>	<b>13</b>	<b>137</b>	<b>2.1 (1.7, 2.5)</b>	<b>3.2 (2.7, 3.7)</b>	<b>4.5 (3.9, 5.2)</b>
<b>Scorpio NRG PS</b>	<b>Series 7000*</b>	<b>191</b>	<b>3931</b>	<b>38</b>	<b>8</b>	<b>19</b>	<b>126</b>	<b>2.0 (1.6, 2.5)</b>	<b>3.7 (3.1, 4.3)</b>	<b>4.5 (3.9, 5.3)</b>
Scorpio PS	Scorpio*	36	524	10	0	11	15	2.1 (1.2, 3.8)	4.5 (3.0, 6.7)	6.1 (4.3, 8.6)
Scorpio PS	Scorpio+*	161	2036	45	14	10	92	2.7 (2.1, 3.5)	5.1 (4.2, 6.2)	6.7 (5.7, 8.0)
Scorpio PS	Series 7000*	371	4696	127	10	70	164	2.6 (2.2, 3.1)	4.7 (4.1, 5.3)	6.8 (6.1, 7.6)
Trekking	Trekking	68	1264	31	7	3	27	3.0 (2.2, 4.1)	4.7 (3.6, 6.1)	6.3 (5.0, 8.1)
<b>Triathlon CR</b>	<b>Triathlon</b>	<b>3305</b>	<b>141973</b>	<b>610</b>	<b>130</b>	<b>154</b>	<b>2411</b>	<b>1.4 (1.4, 1.5)</b>	<b>2.4 (2.3, 2.5)</b>	<b>3.6 (3.5, 3.8)</b>
Triathlon PS	Triathlon	633	14196	116	32	77	408	2.4 (2.1, 2.6)	3.8 (3.5, 4.2)	5.4 (5.0, 5.9)
Vanguard CR	Regenerex*	94	1708	24	5	10	55	2.6 (2.0, 3.5)	4.0 (3.1, 5.0)	6.3 (5.1, 7.8)
<b>Vanguard CR</b>	<b>Vanguard</b>	<b>1086</b>	<b>27174</b>	<b>262</b>	<b>40</b>	<b>72</b>	<b>712</b>	<b>1.7 (1.6, 1.9)</b>	<b>3.0 (2.8, 3.2)</b>	<b>4.8 (4.5, 5.1)</b>
Vanguard PS	Regenerex*	42	462	18	3	4	17	5.0 (3.3, 7.4)	7.6 (5.5, 10.4)	9.7 (7.1, 13.1)
Vanguard PS	Vanguard	343	5271	89	7	60	187	3.4 (2.9, 3.9)	5.2 (4.6, 5.9)	7.3 (6.6, 8.2)
<b>TOTAL</b>		<b>31369</b>	<b>717671</b>	<b>8682</b>	<b>1390</b>	<b>2463</b>	<b>18834</b>			

Note: Only prostheses with >350 procedures have been listed

\* Denotes prosthesis combinations that have not had any reported use in primary total knee procedures in 2022

**Table CP3 Cumulative Percent Revision of Primary Total Stemmed Anatomic Shoulder Replacement Combinations with 10 Year Data (Primary Diagnosis OA)**

Humeral Component	Glenoid Component	N Revised	N Total	Type of Revision			2 Yrs	5 Yrs	10 Yrs	
				TSR	Humeral	Glenoid Other				
Aequalis	Aequalis*	92	1564	53	7	8	24	2.3 (1.6, 3.1)	3.4 (2.6, 4.4)	6.0 (4.9, 7.4)
Affinis	Affinis	19	187	6	1	7	5	1.1 (0.3, 4.4)	5.1 (2.7, 9.6)	9.1 (5.6, 14.6)
Ascend	Aequalis*	17	236	13	1	1	2	3.0 (1.4, 6.2)	5.6 (3.3, 9.5)	9.1 (5.5, 14.9)
Bigliani/Flatow	Bigliani/Flatow*	11	142	5	3	2	1	2.1 (0.7, 6.4)	3.6 (1.5, 8.3)	8.0 (4.4, 14.5)
Bigliani/Flatow TM	Bigliani/Flatow	35	453	23	1	4	7	3.6 (2.2, 5.8)	5.5 (3.7, 8.1)	8.8 (6.2, 12.3)
Bigliani/Flatow TM	Bigliani/Flatow TM*	44	643	21	3	3	17	3.8 (2.5, 5.6)	5.0 (3.6, 7.1)	7.2 (5.3, 9.8)
Global AP	Global	137	2948	73	16	9	39	2.3 (1.8, 2.9)	3.2 (2.6, 3.9)	5.3 (4.4, 6.3)
Global Advantage	Global*	51	725	24	5	10	12	2.4 (1.5, 3.8)	3.8 (2.6, 5.5)	7.0 (5.2, 9.5)
SMR	SMR	28	491	22	1	0	5	4.2 (2.7, 6.4)	5.1 (3.4, 7.5)	6.1 (4.2, 8.8)
SMR	SMR L1	380	2215	7	356	1	16	8.8 (7.7, 10.1)	13.3 (11.9, 14.9)	20.2 (18.2, 22.3)
SMR	SMR L2*	301	798	6	249	7	39	17.5 (15.0, 20.3)	30.2 (27.1, 33.6)	39.0 (35.6, 42.6)
<b>TOTAL</b>		<b>1115</b>	<b>10402</b>	<b>253</b>	<b>643</b>	<b>52</b>	<b>167</b>			

Note: Only prostheses with >50 procedures have been listed

Green: prosthesis combination qualifies for a superiority benchmark. Blue: prosthesis combination qualifies for non-inferiority benchmark

\* Denotes prosthesis combinations that have not had any reported use in primary total stemmed anatomic shoulder procedures in 2022

**Table CP4 Cumulative Percent Revision of Primary Total Stemmed Reverse Shoulder Replacement Combinations with 10 Year Data (All Diagnoses)**

Humeral Component	Glenoid Component	N Revised	N Total	Type of Revision			2 Yrs	5 Yrs	10 Yrs	
				TSR	Humeral	Glenoid Other				
Aequalis	Aequalis	178	4079	10	32	12	124	2.8 (2.3, 3.3)	4.3 (3.7, 5.0)	6.5 (5.4, 7.7)
Delta CTA	Delta CTA*	11	89	1	0	3	7	5.7 (2.4, 13.1)	6.9 (3.1, 14.6)	10.0 (5.1, 19.1)
Delta Xtend	Delta Xtend	414	10750	21	60	26	307	2.8 (2.5, 3.1)	3.8 (3.4, 4.2)	5.1 (4.6, 5.7)
SMR	SMR L1	423	9990	27	94	28	274	3.7 (3.4, 4.1)	4.5 (4.0, 4.9)	5.6 (4.9, 6.3)
SMR	SMR L2*	74	1141	2	16	2	54	4.3 (3.2, 5.6)	5.5 (4.3, 7.1)	7.2 (5.7, 8.9)
Trabecular Metal	Trabecular Metal	93	1827	2	8	32	51	3.7 (2.9, 4.7)	5.2 (4.2, 6.4)	6.2 (4.9, 7.8)
<b>TOTAL</b>		<b>1193</b>	<b>27876</b>	<b>63</b>	<b>210</b>	<b>103</b>	<b>817</b>			

Note: Only prostheses with >50 procedures have been listed

Blue: prosthesis combination qualifies for non-inferiority benchmark

\* Denotes prosthesis combinations that have not had any reported use in primary total stemmed reverse shoulder procedures in 2022

## Fifteen Year Outcomes

### HIP REPLACEMENT

There are 74 hip prosthesis combinations listed that have been used in >350 procedures and have data to at least 15 years. These listed prosthesis combinations were used in 54.6% of all primary total conventional hip replacement procedures performed for osteoarthritis.

The 15 year cumulative percent revision ranges from 4.0% to 53.5%. The benchmark standard used to assess superiority and non-inferiority performance at 15 years is 6.2%. There are 8 (10.8%) hip prosthesis combinations that qualify for a superiority benchmark (highlighted in green). An additional 9 (23.0%) prosthesis combinations qualify for a non-inferiority benchmark (highlighted in blue) (Table CP5).

### KNEE REPLACEMENT

There are 58 knee prosthesis combinations that have been used in >350 procedures and have data to at least 15 years. The listed prosthesis combinations were used in 73.7% of all primary total knee replacement procedures performed for osteoarthritis.

The 15 year cumulative percent revision ranges from 3.5% to 16.8%. The benchmark used to assess superiority and non-inferiority at 15 years is 6.2%. There are 6 (10.3%) knee prosthesis combinations that qualify for a superiority benchmark (highlighted in green). An additional 9 (25.9%) prosthesis combinations qualify for a non-inferiority benchmark (highlighted in blue) (Table CP6).

**Table CP5 Cumulative Percent Revision of Primary Total Conventional Hip Replacement Combinations with 15 Year Data (Primary Diagnosis OA)**

Femoral Component	Acetabular Component	N Revised	N Total	Type of Revision				5 Yrs	10 Yrs	15 Yrs
				THR	Femoral	Acetabular	Other			
ABGII	ABGII (Shell/Insert)*	95	853	19	51	16	9	2.7 (1.8, 4.1)	6.6 (5.0, 8.5)	10.5 (8.4, 13.0)
ABGII	ABGII*	354	2772	56	174	83	41	4.1 (3.5, 5.0)	6.9 (6.0, 7.9)	12.0 (10.7, 13.4)
ABGII	Trident (Shell)*	278	2439	15	177	35	51	4.9 (4.1, 5.9)	8.6 (7.5, 9.8)	13.3 (11.8, 15.0)
Accolade I	Mitch TRH* <sup>MoM</sup>	100	357	48	17	25	10	10.3 (7.5, 14.0)	18.8 (15.0, 23.4)	31.2 (26.1, 37.0)
Accolade I	Trident (Shell)*	563	8574	66	223	108	166	3.8 (3.4, 4.2)	5.7 (5.2, 6.2)	7.4 (6.8, 8.1)
Adapter	Bionik* <sup>MoM</sup>	98	376	21	10	23	44	15.0 (11.7, 19.2)	25.1 (20.8, 30.1)	30.2 (25.3, 35.7)
Alloclassic	Allofit	325	5164	36	144	53	92	2.9 (2.4, 3.4)	5.0 (4.4, 5.7)	7.8 (7.0, 8.8)
Alloclassic	Durom* <sup>MoM</sup>	105	547	28	15	47	15	7.4 (5.5, 10.0)	16.3 (13.3, 19.9)	21.3 (17.8, 25.3)
Alloclassic	Fitmore*	141	1709	15	70	18	38	5.6 (4.6, 6.8)	7.4 (6.2, 8.8)	9.5 (8.1, 11.3)
Alloclassic	Metasul*	24	371	4	2	12	6	3.6 (2.1, 6.1)	5.2 (3.3, 8.1)	6.6 (4.4, 9.8)
Alloclassic	Trabecular Metal (Shell)*	50	957	5	15	5	25	4.0 (2.9, 5.5)	5.2 (3.9, 6.8)	6.1 (4.6, 8.0)
Anthology	Reflection (Shell)*	41	909	4	15	14	8	3.0 (2.1, 4.4)	4.6 (3.4, 6.3)	5.0 (3.7, 6.8)
Apex	Fin II*	60	924	8	13	23	16	3.4 (2.4, 4.8)	6.0 (4.6, 7.8)	8.7 (6.6, 11.5)
C-Stem	Duraloc*	94	894	13	26	14	41	3.8 (2.7, 5.3)	6.9 (5.3, 8.9)	11.9 (9.6, 14.7)
C-Stem	Elite Plus LPW*	24	367	11	4	9	0	2.7 (1.4, 5.0)	5.3 (3.3, 8.6)	8.5 (5.6, 12.8)
C-Stem AMT	PINNACLE	131	4814	12	54	15	50	2.7 (2.2, 3.3)	4.4 (3.5, 5.5)	8.9 (5.0, 15.7)
CLS	Allofit*	62	817	6	34	14	8	3.9 (2.7, 5.4)	6.0 (4.5, 7.9)	8.2 (6.3, 10.6)
CLS	Fitmore	61	1028	10	24	9	18	3.8 (2.7, 5.2)	5.0 (3.7, 6.8)	8.4 (6.4, 11.1)
CORAIL	ASR* <sup>MoM</sup>	1287	2654	234	44	942	67	27.5 (25.8, 29.3)	46.4 (44.4, 48.4)	53.5 (51.4, 55.6)
CORAIL	Duraloc*	109	1267	19	47	17	26	2.5 (1.8, 3.6)	5.1 (4.0, 6.6)	10.0 (8.1, 12.2)
CORAIL	PINNACLE	2110	57148	193	805	317	795	3.0 (2.8, 3.1)	4.7 (4.4, 4.9)	7.5 (6.9, 8.2)
CORAIL	PINNACLE* <sup>MoM</sup>	128	880	18	43	21	46	6.1 (4.7, 8.0)	12.2 (10.1, 14.7)	16.9 (14.3, 19.9)
CPCS	Reflection (Cup)	82	831	27	4	38	13	2.8 (1.8, 4.3)	8.3 (6.2, 11.0)	18.5 (14.7, 23.2)
CPCS	Reflection (Shell)	110	2811	14	49	14	33	1.7 (1.3, 2.2)	3.3 (2.6, 4.1)	5.9 (4.8, 7.4)
CPT	Allofit	60	1730	11	23	5	21	2.9 (2.1, 3.9)	4.9 (3.7, 6.5)	7.4 (5.1, 10.7)
CPT	Trabecular Metal (Shell)	104	2072	8	44	18	34	3.9 (3.1, 4.9)	6.1 (4.9, 7.5)	9.1 (7.1, 11.7)
CPT	Trilogy	394	7817	43	149	42	160	3.5 (3.1, 4.0)	5.3 (4.8, 5.9)	6.8 (6.1, 7.6)
CPT	ZCA	40	865	14	9	10	7	2.4 (1.6, 3.8)	4.7 (3.3, 6.6)	6.2 (4.3, 8.8)
Charnley	Charnley Ogee*	67	630	40	9	6	12	5.1 (3.6, 7.2)	9.1 (6.9, 11.9)	13.6 (10.7, 17.3)
Charnley	Charnley*	50	563	40	7	3	0	2.2 (1.3, 3.9)	6.5 (4.6, 9.1)	10.5 (7.9, 13.9)
Charnley	Vitalock*	43	370	8	20	4	11	4.4 (2.7, 7.1)	7.9 (5.5, 11.4)	11.5 (8.4, 15.7)
Citation	Trident (Shell)*	61	1036	3	17	16	25	3.3 (2.4, 4.6)	4.4 (3.3, 5.9)	6.0 (4.7, 7.7)
Citation	Vitalock*	51	508	4	8	20	19	2.0 (1.1, 3.7)	5.2 (3.5, 7.7)	9.1 (6.7, 12.4)
Elite Plus	Duraloc*	112	953	18	65	6	23	5.1 (3.9, 6.8)	9.2 (7.4, 11.5)	14.9 (12.3, 18.0)
Epoch	Trilogy*	47	990	1	9	10	27	3.6 (2.6, 4.9)	4.5 (3.3, 6.0)	5.0 (3.8, 6.6)
Exeter	Contemporary*	39	428	10	7	14	8	4.2 (2.6, 6.6)	6.0 (4.0, 8.9)	12.6 (9.0, 17.3)
Exeter	Vitalock*	73	1076	13	13	28	19	2.3 (1.5, 3.4)	4.6 (3.4, 6.1)	6.8 (5.3, 8.7)
Exeter V40	ABGII*	41	976	9	12	13	7	1.8 (1.1, 2.9)	3.4 (2.4, 4.8)	4.5 (3.2, 6.2)
Exeter V40	Contemporary	304	4605	81	47	142	34	3.2 (2.7, 3.7)	5.6 (4.9, 6.4)	8.8 (7.8, 10.0)
Exeter V40	Exeter Contemporary	166	2949	55	34	54	23	3.0 (2.4, 3.7)	4.6 (3.9, 5.5)	7.8 (6.6, 9.3)
Exeter V40	Exeter*	127	1526	31	16	58	22	2.9 (2.1, 3.9)	4.6 (3.6, 5.9)	9.9 (8.2, 12.0)
Exeter V40	Mallory-Head*	45	1434	8	26	4	7	1.1 (0.6, 1.8)	2.4 (1.7, 3.4)	4.2 (3.0, 5.8)
Exeter V40	PINNACLE	52	2112	2	19	11	20	1.7 (1.2, 2.4)	3.6 (2.6, 4.9)	4.6 (3.3, 6.6)
Exeter V40	Trident (Shell)	2143	73981	289	686	275	893	2.3 (2.2, 2.4)	3.5 (3.4, 3.7)	5.1 (4.8, 5.4)
Exeter V40	Trilogy*	18	517	2	5	2	9	2.5 (1.5, 4.3)	3.6 (2.2, 5.8)	4.0 (2.5, 6.3)
Exeter V40	Vitalock*	97	1795	19	27	26	25	2.3 (1.7, 3.1)	3.2 (2.5, 4.2)	5.0 (4.0, 6.2)
F2L	SPH-Blind*	63	571	10	20	17	16	6.1 (4.4, 8.4)	7.6 (5.7, 10.2)	11.5 (9.0, 14.6)



Femoral Component	Acetabular Component	N Revised	N Total	Type of Revision				5 Yrs	10 Yrs	15 Yrs
				THR	Femoral	Acetabular	Other			
MS 30	Allofit*	67	1539	14	20	20	13	2.1 (1.5, 3.0)	3.5 (2.6, 4.6)	6.2 (4.7, 8.1)
MS 30	Fitmore	29	785	1	9	9	10	2.0 (1.1, 3.4)	2.9 (1.8, 4.6)	6.7 (4.4, 10.2)
MS 30	Low Profile Cup	24	604	10	3	9	2	1.3 (0.6, 2.7)	2.8 (1.6, 4.9)	5.1 (3.1, 8.3)
Mallory-Head	Mallory-Head*	219	2908	19	14	78	108	3.0 (2.4, 3.7)	4.6 (3.9, 5.5)	8.3 (7.2, 9.6)
Meridian	Vitalock*	44	354	2	3	18	21	3.5 (2.0, 6.1)	6.7 (4.4, 10.0)	11.3 (8.3, 15.5)
Natural Hip	Fitmore*	43	882	2	8	12	21	2.0 (1.3, 3.2)	4.2 (3.0, 5.9)	4.9 (3.5, 6.7)
Omnifit	Secur-Fit*	89	716	9	23	23	34	6.2 (4.6, 8.2)	9.9 (7.9, 12.5)	13.4 (10.8, 16.4)
Omnifit	Trident (Shell)	166	3841	13	41	30	82	3.0 (2.5, 3.6)	4.0 (3.4, 4.7)	5.1 (4.3, 6.0)
S-Rom	Duraloc Option*	27	523	4	9	5	9	3.3 (2.1, 5.2)	4.6 (3.1, 6.8)	5.0 (3.4, 7.3)
S-Rom	PINNACLE	153	2591	15	86	15	37	4.5 (3.7, 5.4)	5.8 (4.9, 6.8)	7.2 (6.1, 8.5)
SL-Plus	EP-Fit Plus	124	2128	5	55	23	41	3.4 (2.7, 4.3)	5.4 (4.5, 6.5)	6.5 (5.5, 7.8)
Secur-Fit	Trident (Shell)	499	9796	33	220	90	156	3.6 (3.2, 4.0)	4.8 (4.4, 5.3)	6.4 (5.8, 7.0)
Secur-Fit Plus	Trident (Shell)	237	5923	16	64	59	98	2.3 (2.0, 2.8)	3.4 (2.9, 3.9)	4.6 (4.0, 5.2)
Spectron EF	BHR* <sup>MoM</sup>	75	430	14	0	51	10	6.0 (4.1, 8.8)	15.8 (12.5, 19.9)	21.1 (16.9, 26.2)
Spectron EF	Reflection (Cup)	124	1404	47	12	56	9	2.9 (2.1, 4.0)	7.1 (5.7, 8.8)	13.1 (10.9, 15.7)
Spectron EF	Reflection (Shell)*	326	4646	71	110	49	96	2.7 (2.3, 3.3)	5.3 (4.7, 6.1)	8.9 (7.9, 10.0)
Stability	Duraloc*	56	374	3	10	18	25	2.2 (1.1, 4.3)	8.9 (6.3, 12.5)	15.9 (12.1, 20.6)
Summit	ASR* <sup>MoM</sup>	489	1041	17	6	440	26	20.1 (17.7, 22.7)	44.5 (41.5, 47.7)	50.4 (47.3, 53.7)
Summit	PINNACLE	177	5622	13	36	31	97	2.3 (1.9, 2.8)	3.4 (2.9, 4.0)	5.0 (4.1, 6.1)
Summit	PINNACLE* <sup>MoM</sup>	86	730	9	6	16	55	3.5 (2.4, 5.1)	8.9 (7.0, 11.3)	11.5 (9.2, 14.2)
Synergy	BHR* <sup>MoM</sup>	119	698	7	10	68	34	4.8 (3.4, 6.7)	12.4 (10.1, 15.1)	18.0 (15.1, 21.3)
Synergy	Reflection (Shell)	408	7532	35	86	140	147	2.6 (2.3, 3.0)	3.9 (3.5, 4.4)	5.6 (5.0, 6.2)
Synergy	Trident (Shell)*	19	438	0	4	7	8	1.9 (0.9, 3.7)	3.8 (2.3, 6.2)	6.1 (3.7, 10.0)
Taperloc	M2a* <sup>MoM</sup>	67	471	14	2	45	6	6.9 (4.9, 9.6)	12.2 (9.5, 15.6)	15.1 (12.1, 18.9)
Taperloc	Mallory-Head*	98	1903	10	19	31	38	3.1 (2.4, 3.9)	4.8 (3.8, 6.0)	7.0 (5.5, 8.9)
Taperloc	Recap* <sup>MoM</sup>	51	456	13	7	24	7	5.6 (3.8, 8.2)	9.8 (7.3, 13.0)	12.0 (9.2, 15.6)
VerSys	Trilogy*	261	4432	19	90	48	104	3.9 (3.4, 4.5)	5.2 (4.6, 5.9)	6.1 (5.4, 6.9)
<b>TOTAL</b>		<b>14706</b>	<b>271734</b>	<b>2016</b>	<b>4285</b>	<b>4071</b>	<b>4334</b>			

Note: Only prostheses with >350 procedures have been listed

Green: prosthesis combination qualifies for a superiority benchmark. Blue: prosthesis combination qualifies for non-inferiority benchmark

\* denotes prosthesis combinations with no reported use in primary total conventional hip procedures in 2022

<sup>MoM</sup> refers to metal/metal prosthesis combinations used with head sizes >32mm

**Table CP6 Cumulative Percent Revision of Primary Total Knee Replacement Combinations with 15 Year Data (Primary Diagnosis OA)**

Femoral Component	Tibial Component	N Revised	N Total	Type of Revision				5 Yrs	10 Yrs	15 Yrs
				TKR	Femoral	Tibial	Other			
AGC	AGC*	333	5028	152	5	26	150	3.2 (2.8, 3.8)	4.9 (4.3, 5.6)	7.7 (6.9, 8.7)
Active Knee	Active Knee	864	10525	255	29	42	538	4.6 (4.2, 5.1)	8.0 (7.5, 8.6)	11.7 (10.9, 12.6)
Advance	Advance	70	992	28	4	8	30	6.0 (4.6, 7.7)	8.0 (6.3, 10.1)	8.3 (6.5, 10.5)
Advance	Advance II	121	1623	50	3	13	55	5.0 (4.1, 6.2)	6.7 (5.6, 8.1)	8.1 (6.8, 9.8)
BalanSys	BalanSys	125	4474	38	6	7	74	2.4 (1.9, 2.9)	3.9 (3.2, 4.8)	6.0 (4.1, 8.6)
Buechel-Pappas	Buechel-Pappas*	55	467	20	2	2	31	8.1 (5.9, 11.0)	10.7 (8.2, 14.0)	12.8 (9.9, 16.3)
Columbus	Columbus	192	6253	48	8	9	127	3.9 (3.3, 4.6)	6.5 (5.4, 7.9)	8.7 (6.8, 11.0)
Duracon	Duracon*	1333	19830	372	31	68	862	3.5 (3.2, 3.7)	5.2 (4.9, 5.5)	7.3 (6.9, 7.7)
Genesis II CR	Genesis II	1204	25778	255	75	56	818	3.5 (3.2, 3.7)	5.0 (4.7, 5.3)	6.1 (5.7, 6.5)
Genesis II CR	Profix Mobile*	136	1209	58	9	8	61	5.4 (4.2, 6.8)	8.8 (7.3, 10.6)	12.3 (10.4, 14.5)
Genesis II Oxinium CR (ctd)	Genesis II	594	10542	115	31	26	422	3.5 (3.1, 3.9)	6.0 (5.5, 6.5)	8.4 (7.7, 9.2)
Genesis II Oxinium PS (ctd)	Genesis II	1391	21865	199	34	171	987	4.9 (4.6, 5.2)	7.1 (6.8, 7.5)	9.4 (8.9, 10.1)
Genesis II PS	Genesis II	940	20615	174	33	59	674	3.6 (3.4, 3.9)	5.0 (4.7, 5.4)	6.3 (5.9, 6.8)
Journey Oxinium	Journey*	382	2975	63	5	30	284	6.5 (5.7, 7.5)	11.3 (10.1, 12.5)	16.8 (15.0, 18.9)
Kinemax Plus	Kinemax Plus*	137	1815	80	4	5	48	3.2 (2.4, 4.1)	4.6 (3.7, 5.8)	7.9 (6.6, 9.4)
LCS CR	LCS	630	8342	258	24	90	258	4.5 (4.0, 4.9)	6.4 (5.9, 7.0)	8.1 (7.5, 8.8)
LCS CR	MBT	1470	32999	504	70	160	736	3.5 (3.3, 3.7)	4.9 (4.6, 5.1)	6.0 (5.6, 6.4)
LCS CR	MBT Duofix*	882	15248	257	37	43	545	4.1 (3.8, 4.4)	5.3 (5.0, 5.7)	7.2 (6.7, 7.7)
LCS Duofix	MBT Duofix*	525	3606	363	27	8	127	10.2 (9.2, 11.2)	13.3 (12.3, 14.5)	15.6 (14.4, 17.0)
LCS Duofix	MBT*	142	1169	97	9	2	34	8.1 (6.7, 9.9)	11.9 (10.1, 13.9)	13.3 (11.4, 15.6)
MBK (Zimmer)	Nexgen*	39	448	22	1	1	15	4.1 (2.6, 6.5)	6.2 (4.2, 8.9)	8.1 (5.8, 11.4)
Maxim	Maxim*	151	1819	50	11	6	84	3.4 (2.6, 4.3)	5.2 (4.3, 6.4)	9.4 (7.9, 11.1)
Maxim	Vanguard*	95	628	43	6	6	40	5.6 (4.0, 7.7)	8.3 (6.3, 10.9)	14.7 (11.9, 18.2)
Natural Knee II	Natural Knee II*	456	6443	211	10	60	175	2.8 (2.4, 3.2)	5.0 (4.4, 5.6)	8.6 (7.8, 9.5)
Nexgen CR	Nexgen	447	11582	144	22	33	248	2.2 (1.9, 2.5)	3.1 (2.8, 3.5)	4.5 (4.1, 5.0)
Nexgen CR	Nexgen TM CR*	56	867	20	4	11	21	5.4 (4.1, 7.2)	6.4 (4.9, 8.3)	7.4 (5.7, 9.7)
Nexgen CR Flex	Nexgen	1646	60421	416	112	135	983	2.3 (2.2, 2.4)	3.1 (3.0, 3.3)	4.0 (3.8, 4.3)
Nexgen CR Flex	Nexgen TM CR	364	12303	125	23	29	187	2.2 (2.0, 2.5)	3.1 (2.8, 3.5)	4.3 (3.8, 4.9)
Nexgen LPS	Nexgen	379	7024	101	22	33	223	3.3 (2.9, 3.7)	4.8 (4.3, 5.4)	6.4 (5.8, 7.1)
Nexgen LPS	Nexgen TM LPS*	37	1476	12	4	6	15	2.1 (1.5, 3.1)	2.8 (2.0, 3.9)	3.5 (2.4, 4.9)
Nexgen LPS Flex	Nexgen	1704	37818	486	70	248	900	3.1 (3.0, 3.3)	5.0 (4.7, 5.2)	6.6 (6.2, 7.0)
Nexgen LPS Flex	Nexgen TM LPS*	72	1576	34	4	6	28	3.5 (2.6, 4.5)	4.4 (3.5, 5.6)	6.3 (4.6, 8.5)
Optetrak-CR	Optetrak*	57	504	24	3	4	26	6.1 (4.3, 8.7)	10.0 (7.5, 13.1)	14.0 (10.7, 18.1)
Optetrak-PS	Optetrak RBK*	94	1112	28	3	3	60	5.9 (4.6, 7.4)	8.1 (6.6, 10.1)	11.2 (9.0, 13.9)
Optetrak-PS	Optetrak*	318	2365	151	7	29	131	6.4 (5.4, 7.4)	12.1 (10.7, 13.5)	15.9 (14.3, 17.7)
PFC Sigma CR	MBT Duofix*	168	3314	28	18	6	116	3.5 (2.9, 4.2)	4.8 (4.0, 5.6)	6.6 (5.6, 7.9)
PFC Sigma CR	MBT*	340	6273	73	35	45	187	3.9 (3.4, 4.4)	5.0 (4.5, 5.6)	6.4 (5.7, 7.1)
PFC Sigma CR	PFC Sigma	918	24917	236	56	70	556	2.5 (2.3, 2.7)	3.5 (3.3, 3.8)	5.0 (4.7, 5.4)
PFC Sigma PS	MBT	378	6334	130	16	25	207	4.0 (3.5, 4.5)	5.4 (4.9, 6.0)	7.4 (6.6, 8.2)
PFC Sigma PS	MBT Duofix*	182	2212	40	4	6	132	5.9 (5.0, 7.0)	8.0 (6.8, 9.2)	10.1 (8.7, 11.7)
PFC Sigma PS	PFC Sigma*	388	8041	135	13	28	212	3.3 (2.9, 3.7)	4.7 (4.2, 5.2)	6.2 (5.6, 7.0)
Profix	Profix Mobile*	111	986	40	6	5	60	8.2 (6.6, 10.1)	9.9 (8.1, 12.0)	12.0 (10.0, 14.3)
Profix	Profix*	314	5370	76	13	18	207	3.8 (3.3, 4.3)	5.4 (4.8, 6.1)	6.3 (5.6, 7.0)
Profix Oxinium (ctd)	Profix*	110	1049	24	5	14	67	7.0 (5.6, 8.7)	8.9 (7.3, 10.8)	10.6 (8.8, 12.8)
RBK	RBK	589	11019	231	16	43	299	3.9 (3.6, 4.3)	5.3 (4.9, 5.8)	6.6 (6.0, 7.2)
Rocc	Rocc*	45	575	17	1	2	25	5.2 (3.6, 7.3)	6.8 (5.0, 9.3)	8.3 (6.2, 11.1)
Rotaglide Plus	Rotaglide Plus*	84	616	40	1	5	38	5.8 (4.1, 8.0)	11.2 (8.8, 14.2)	15.2 (12.3, 18.7)

Femoral Component	Tibial Component	N Revised	N Total	Type of Revision				5 Yrs	10 Yrs	15 Yrs
				TKR	Femoral	Tibial	Other			
Scorpio CR	Scorpio+*	210	2448	49	10	34	117	4.3 (3.6, 5.2)	7.1 (6.2, 8.3)	9.1 (8.0, 10.4)
Scorpio CR	Series 7000*	660	11561	171	27	47	415	3.3 (3.0, 3.6)	5.2 (4.7, 5.6)	7.0 (6.4, 7.5)
Scorpio NRG CR	Series 7000*	227	5070	62	15	13	137	3.2 (2.7, 3.7)	4.5 (3.9, 5.2)	6.5 (5.5, 7.7)
Scorpio NRG PS	Series 7000*	191	3931	38	8	19	126	3.7 (3.1, 4.3)	4.5 (3.9, 5.3)	6.5 (5.5, 7.8)
Scorpio PS	Scorpio*	36	524	10	0	11	15	4.5 (3.0, 6.7)	6.1 (4.3, 8.6)	7.3 (5.2, 10.2)
Scorpio PS	Scorpio+*	161	2036	45	14	10	92	5.1 (4.2, 6.2)	6.7 (5.7, 8.0)	8.4 (7.2, 9.8)
Scorpio PS	Series 7000*	371	4696	127	10	70	164	4.7 (4.1, 5.3)	6.8 (6.1, 7.6)	9.0 (8.1, 10.0)
Triathlon CR	Triathlon	3305	141973	610	130	154	2411	2.4 (2.3, 2.5)	3.6 (3.5, 3.8)	4.8 (4.5, 5.1)
Triathlon PS	Triathlon	633	14196	116	32	77	408	3.8 (3.5, 4.2)	5.4 (5.0, 5.9)	7.1 (6.3, 8.0)
Vanguard CR	Vanguard	1086	27174	262	40	72	712	3.0 (2.8, 3.2)	4.8 (4.5, 5.1)	7.0 (6.3, 7.8)
Vanguard PS	Vanguard	343	5271	89	7	60	187	5.2 (4.6, 5.9)	7.3 (6.6, 8.2)	8.6 (7.4, 10.1)
<b>TOTAL</b>		<b>28291</b>	<b>631327</b>	<b>7902</b>	<b>1225</b>	<b>2277</b>	<b>16887</b>			

Note: Only prostheses with >350 procedures have been listed

Green: prosthesis combination qualifies for a superiority benchmark. Blue: prosthesis combination qualifies for non-inferiority benchmark

\* denotes prosthesis combinations that have not had any reported use in primary total knee procedures in 2022

## Twenty Year Outcomes

The Registry has information on 42 hip and 31 knee prosthesis combinations that have been used in >350 procedures for osteoarthritis and have a follow-up of at least 20 years.

### HIP REPLACEMENT

The listed prosthesis combinations have been used in 34.2% of all primary total conventional hip replacement procedures performed for osteoarthritis. The 20 year cumulative percent revision ranges from 5.6% to 20.4% (Table CP7).

### KNEE REPLACEMENT

The listed prosthesis combinations were used in 35.4% of all primary total knee replacement procedures performed for osteoarthritis. The 20 year cumulative percent revision ranges from 5.9% to 21.6% (Table CP8).

**Table CP7 Cumulative Percent Revision of Primary Total Conventional Hip Replacement Combinations with 20 Year Data (Primary Diagnosis OA)**

Femoral Component	Acetabular Component	N Revised	N Total	Type of Revision				10 Yrs	15 Yrs	20 Yrs
				THR	Femoral	Acetabular	Other			
ABGII	ABGII*	354	2772	56	174	83	41	6.9 (6.0, 7.9)	12.0 (10.7, 13.4)	18.0 (16.2, 19.9)
ABGII	Trident (Shell)*	278	2439	15	177	35	51	8.6 (7.5, 9.8)	13.3 (11.8, 15.0)	18.7 (15.7, 22.1)
Accolade I	Trident (Shell)*	563	8574	66	223	108	166	5.7 (5.2, 6.2)	7.4 (6.8, 8.1)	9.1 (8.1, 10.4)
Alloclassic	Allofit	325	5164	36	144	53	92	5.0 (4.4, 5.7)	7.8 (7.0, 8.8)	10.2 (8.9, 11.7)
Alloclassic	Fitmore*	141	1709	15	70	18	38	7.4 (6.2, 8.8)	9.5 (8.1, 11.3)	11.0 (9.0, 13.4)
Alloclassic	Metasul*	24	371	4	2	12	6	5.2 (3.3, 8.1)	6.6 (4.4, 9.8)	7.1 (4.7, 10.6)
C-Stem	Duraloc*	94	894	13	26	14	41	6.9 (5.3, 8.9)	11.9 (9.6, 14.7)	17.2 (13.8, 21.3)
CLS	Allofit*	62	817	6	34	14	8	6.0 (4.5, 7.9)	8.2 (6.3, 10.6)	10.9 (8.3, 14.3)
CLS	Fitmore	61	1028	10	24	9	18	5.0 (3.7, 6.8)	8.4 (6.4, 11.1)	11.7 (8.7, 15.7)
CORAIL	Duraloc*	109	1267	19	47	17	26	5.1 (4.0, 6.6)	10.0 (8.1, 12.2)	16.4 (12.7, 21.1)
CPT	Trilogy	394	7817	43	149	42	160	5.3 (4.8, 5.9)	6.8 (6.1, 7.6)	8.0 (6.7, 9.5)
CPT	ZCA	40	865	14	9	10	7	4.7 (3.3, 6.6)	6.2 (4.3, 8.8)	9.1 (6.1, 13.3)
Charnley	Charnley*	50	563	40	7	3	0	6.5 (4.6, 9.1)	10.5 (7.9, 13.9)	13.9 (10.3, 18.6)
Charnley	Vitalock*	43	370	8	20	4	11	7.9 (5.5, 11.4)	11.5 (8.4, 15.7)	14.8 (11.0, 19.8)
Citation	Trident (Shell)*	61	1036	3	17	16	25	4.4 (3.3, 5.9)	6.0 (4.7, 7.7)	8.0 (5.8, 11.0)
Citation	Vitalock*	51	508	4	8	20	19	5.2 (3.5, 7.7)	9.1 (6.7, 12.4)	13.4 (10.1, 17.5)
Elite Plus	Duraloc*	112	953	18	65	6	23	9.2 (7.4, 11.5)	14.9 (12.3, 18.0)	18.6 (15.3, 22.4)
Exeter	Contemporary*	39	428	10	7	14	8	6.0 (4.0, 8.9)	12.6 (9.0, 17.3)	15.2 (10.9, 21.0)
Exeter	Vitalock*	73	1076	13	13	28	19	4.6 (3.4, 6.1)	6.8 (5.3, 8.7)	8.9 (7.0, 11.3)
Exeter V40	ABGII*	41	976	9	12	13	7	3.4 (2.4, 4.8)	4.5 (3.2, 6.2)	5.8 (4.0, 8.3)
Exeter V40	Contemporary	304	4605	81	47	142	34	5.6 (4.9, 6.4)	8.8 (7.8, 10.0)	14.4 (12.2, 17.0)
Exeter V40	Exeter*	127	1526	31	16	58	22	4.6 (3.6, 5.9)	9.9 (8.2, 12.0)	16.0 (13.1, 19.5)
Exeter V40	Mallory-Head*	45	1434	8	26	4	7	2.4 (1.7, 3.4)	4.2 (3.0, 5.8)	6.3 (4.2, 9.6)
Exeter V40	Trident (Shell)	2143	73981	289	686	275	893	3.5 (3.4, 3.7)	5.1 (4.8, 5.4)	6.7 (6.0, 7.4)
Exeter V40	Vitalock*	97	1795	19	27	26	25	3.2 (2.5, 4.2)	5.0 (4.0, 6.2)	8.7 (6.9, 11.0)
F2L	SPH-Blind*	63	571	10	20	17	16	7.6 (5.7, 10.2)	11.5 (9.0, 14.6)	13.2 (10.4, 16.8)
MS 30	Fitmore	29	785	1	9	9	10	2.9 (1.8, 4.6)	6.7 (4.4, 10.2)	9.0 (5.9, 13.7)
MS 30	Low Profile Cup	24	604	10	3	9	2	2.8 (1.6, 4.9)	5.1 (3.1, 8.3)	11.7 (7.0, 19.3)
Mallory-Head	Mallory-Head*	219	2908	19	14	78	108	4.6 (3.9, 5.5)	8.3 (7.2, 9.6)	13.5 (11.4, 15.9)
Meridian	Vitalock*	44	354	2	3	18	21	6.7 (4.4, 10.0)	11.3 (8.3, 15.5)	16.5 (12.2, 22.0)
Natural Hip	Fitmore*	43	882	2	8	12	21	4.2 (3.0, 5.9)	4.9 (3.5, 6.7)	6.3 (4.6, 8.8)
Omnifit	Secur-Fit*	89	716	9	23	23	34	9.9 (7.9, 12.5)	13.4 (10.8, 16.4)	15.9 (12.9, 19.4)
Omnifit	Trident (Shell)	166	3841	13	41	30	82	4.0 (3.4, 4.7)	5.1 (4.3, 6.0)	6.4 (5.3, 7.6)
S-Rom	Duraloc Option*	27	523	4	9	5	9	4.6 (3.1, 6.8)	5.0 (3.4, 7.3)	5.6 (3.9, 8.2)

Femoral Component	Acetabular Component	N Revised	N Total	Type of Revision				10 Yrs	15 Yrs	20 Yrs
				THR	Femoral	Acetabular	Other			
Secur-Fit	Trident (Shell)	499	9796	33	220	90	156	4.8 (4.4, 5.3)	6.4 (5.8, 7.0)	7.6 (6.8, 8.6)
Secur-Fit Plus	Trident (Shell)	237	5923	16	64	59	98	3.4 (2.9, 3.9)	4.6 (4.0, 5.2)	5.6 (4.8, 6.4)
Spectron EF	Reflection (Cup)	124	1404	47	12	56	9	7.1 (5.7, 8.8)	13.1 (10.9, 15.7)	16.8 (13.4, 21.0)
Spectron EF	Reflection (Shell)*	326	4646	71	110	49	96	5.3 (4.7, 6.1)	8.9 (7.9, 10.0)	12.5 (10.9, 14.3)
Stability	Duraloc*	56	374	3	10	18	25	8.9 (6.3, 12.5)	15.9 (12.1, 20.6)	20.4 (15.7, 26.3)
Synergy	Reflection (Shell)	408	7532	35	86	140	147	3.9 (3.5, 4.4)	5.6 (5.0, 6.2)	7.9 (7.1, 8.9)
Taperloc	Mallory-Head*	98	1903	10	19	31	38	4.8 (3.8, 6.0)	7.0 (5.5, 8.9)	12.2 (8.8, 16.8)
VerSys	Trilogy*	261	4432	19	90	48	104	5.2 (4.6, 5.9)	6.1 (5.4, 6.9)	7.3 (6.4, 8.3)
<b>TOTAL</b>		<b>8344</b>	<b>170162</b>	<b>1134</b>	<b>2771</b>	<b>1716</b>	<b>2723</b>			

Note: Only prostheses with >350 procedures have been listed

\* denotes prosthesis combinations with no reported use in primary total conventional knee procedures in 2022

**Table CP8 Cumulative Percent Revision of Primary Total Knee Replacement Combinations with 20 Year Data (Primary Diagnosis OA)**

Femoral Component	Tibial Component	N Revised	N Total	Type of Revision				10 Yrs	15 Yrs	20 Yrs
				TKR	Femoral	Tibial	Other			
AGC	AGC*	333	5028	152	5	26	150	4.9 (4.3, 5.6)	7.7 (6.9, 8.7)	10.2 (9.0, 11.5)
Active Knee	Active Knee	864	10525	255	29	42	538	8.0 (7.5, 8.6)	11.7 (10.9, 12.6)	14.3 (13.1, 15.6)
Advance	Advance II	121	1623	50	3	13	55	6.7 (5.6, 8.1)	8.1 (6.8, 9.8)	10.3 (8.4, 12.6)
Duracon	Duracon*	1333	19830	372	31	68	862	5.2 (4.9, 5.5)	7.3 (6.9, 7.7)	9.1 (8.6, 9.7)
Genesis II CR	Genesis II	1204	25778	255	75	56	818	5.0 (4.7, 5.3)	6.1 (5.7, 6.5)	7.3 (6.7, 7.9)
Genesis II CR	Profix Mobile*	136	1209	58	9	8	61	8.8 (7.3, 10.6)	12.3 (10.4, 14.5)	15.1 (12.7, 17.9)
Genesis II Oxinium CR (ctd)	Genesis II	594	10542	115	31	26	422	6.0 (5.5, 6.5)	8.4 (7.7, 9.2)	10.5 (9.3, 11.7)
Genesis II PS	Genesis II	940	20615	174	33	59	674	5.0 (4.7, 5.4)	6.3 (5.9, 6.8)	7.3 (6.6, 8.1)
Kinemax Plus	Kinemax Plus*	137	1815	80	4	5	48	4.6 (3.7, 5.8)	7.9 (6.6, 9.4)	10.2 (8.6, 12.2)
LCS CR	LCS	630	8342	258	24	90	258	6.4 (5.9, 7.0)	8.1 (7.5, 8.8)	9.3 (8.6, 10.0)
LCS CR	MBT	1470	32999	504	70	160	736	4.9 (4.6, 5.1)	6.0 (5.6, 6.4)	7.8 (7.0, 8.6)
LCS CR	MBT Duofix*	882	15248	257	37	43	545	5.3 (5.0, 5.7)	7.2 (6.7, 7.7)	9.0 (8.2, 9.9)
MBK (Zimmer)	Nexgen*	39	448	22	1	1	15	6.2 (4.2, 8.9)	8.1 (5.8, 11.4)	11.4 (8.3, 15.6)
Maxim	Maxim*	151	1819	50	11	6	84	5.2 (4.3, 6.4)	9.4 (7.9, 11.1)	13.1 (10.9, 15.7)
Maxim	Vanguard*	95	628	43	6	6	40	8.3 (6.3, 10.9)	14.7 (11.9, 18.2)	21.6 (17.8, 26.2)
Natural Knee II	Natural Knee II*	456	6443	211	10	60	175	5.0 (4.4, 5.6)	8.6 (7.8, 9.5)	11.8 (10.5, 13.2)
Nexgen CR	Nexgen	447	11582	144	22	33	248	3.1 (2.8, 3.5)	4.5 (4.1, 5.0)	5.9 (5.3, 6.6)
Nexgen LPS	Nexgen	379	7024	101	22	33	223	4.8 (4.3, 5.4)	6.4 (5.8, 7.1)	8.1 (7.2, 9.2)
Nexgen LPS Flex	Nexgen	1704	37818	486	70	248	900	5.0 (4.7, 5.2)	6.6 (6.2, 7.0)	7.5 (6.9, 8.2)
PFC Sigma CR	MBT*	340	6273	73	35	45	187	5.0 (4.5, 5.6)	6.4 (5.7, 7.1)	8.1 (6.9, 9.4)
PFC Sigma CR	PFC Sigma	918	24917	236	56	70	556	3.5 (3.3, 3.8)	5.0 (4.7, 5.4)	6.5 (5.8, 7.2)
PFC Sigma PS	MBT	378	6334	130	16	25	207	5.4 (4.9, 6.0)	7.4 (6.6, 8.2)	10.3 (7.6, 13.8)
PFC Sigma PS	PFC Sigma*	388	8041	135	13	28	212	4.7 (4.2, 5.2)	6.2 (5.6, 7.0)	8.7 (7.1, 10.6)
Profix	Profix Mobile*	111	986	40	6	5	60	9.9 (8.1, 12.0)	12.0 (10.0, 14.3)	13.2 (10.9, 15.9)
Profix	Profix*	314	5370	76	13	18	207	5.4 (4.8, 6.1)	6.3 (5.6, 7.0)	7.6 (6.6, 8.7)
RBK	RBK	589	11019	231	16	43	299	5.3 (4.9, 5.8)	6.6 (6.0, 7.2)	9.0 (7.6, 10.6)
Rotaglide Plus	Rotaglide Plus*	84	616	40	1	5	38	11.2 (8.8, 14.2)	15.2 (12.3, 18.7)	18.2 (14.7, 22.3)
Scorpio CR	Scorpio+*	210	2448	49	10	34	117	7.1 (6.2, 8.3)	9.1 (8.0, 10.4)	10.3 (9.0, 11.8)
Scorpio CR	Series 7000*	660	11561	171	27	47	415	5.2 (4.7, 5.6)	7.0 (6.4, 7.5)	8.0 (7.3, 8.7)
Scorpio PS	Scorpio+*	161	2036	45	14	10	92	6.7 (5.7, 8.0)	8.4 (7.2, 9.8)	9.5 (8.0, 11.3)
Scorpio PS	Series 7000*	371	4696	127	10	70	164	6.8 (6.1, 7.6)	9.0 (8.1, 10.0)	11.4 (9.9, 13.2)
<b>TOTAL</b>		<b>16439</b>	<b>303613</b>	<b>4940</b>	<b>710</b>	<b>1383</b>	<b>9406</b>			

Note: \* denotes prosthesis combinations with no reported use in primary total conventional hip procedures in 2022

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