

Implant Bespoke Report for:

DePuy

CORAIL Collared Stem / Pinnacle Cup (70+)

Comprising PRIMARY hips implanted up to:	04 February 2019
NJR Database extract:	05 April 2019
Produced on:	16 April 2019
Licenced for use until:	16 April 2020

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This report has been produced by the National Joint Registry of England, Wales and Northern Ireland (NJR). It summarises usage and outcomes associated with the CORAIL Collared Stem / Pinnacle Cup (70+) up to the specified dates. This analysis is based on data collected by the NJR and PROMs data collected by NHS Digital for the following combinations of products:

Femoral components	CORAIL Collared Stems in patients aged 70+
Acetabular Components	Pinnacle cups (excluding metal liners)
Comparator Group	All fully cemented hips, age 70+, excluding metal on metal

Appendix A lists details of all CORAIL Collared Stem / Pinnacle Cup components included in this report.

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NJR Recorded Usage

Implant Usage

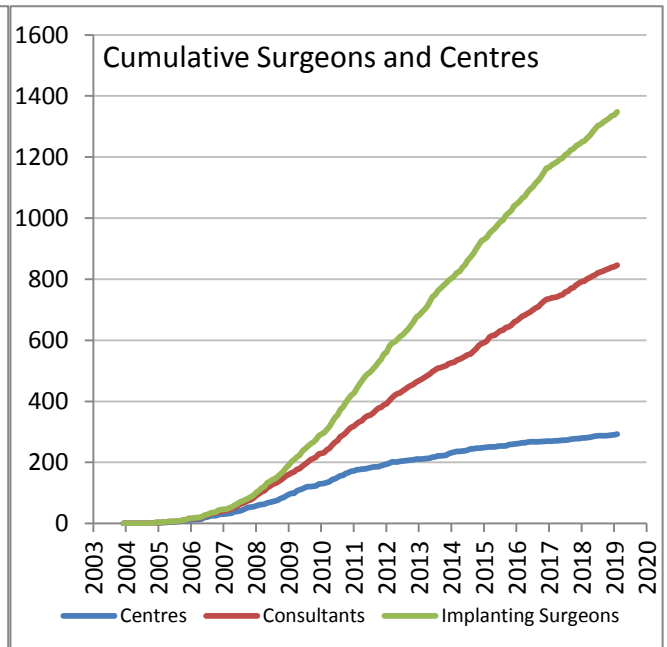
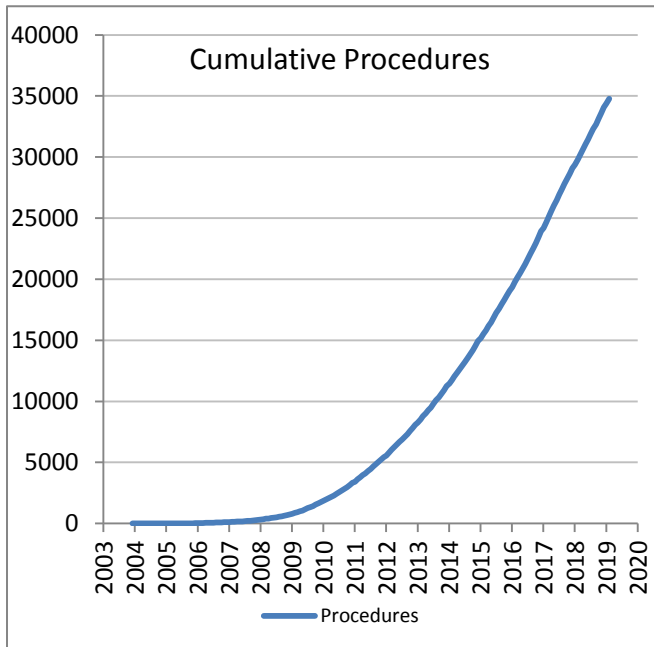
Date of first recorded usage in the NJR: **15 October 2004**

Date of last recorded usage in this dataset: **04 February 2019**

Maximum implantation time: 14.2 years

Mean implantation time: 3.7 years

Totals Recorded in NJR	Cumulative Total
Procedures	34,808
Patients	32,307
Centres	293
Consultants	846
Implanting Surgeons	1,349



Current Outcome	Year of implantation														Total	%
	Pre-2008	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019			
Death	141	194	358	476	523	496	477	401	293	236	124	42	0	3761	10.8%	
Revised	9	7	17	26	36	42	37	34	56	53	42	24	1	384	1.1%	
Unrevised	174	273	682	1067	1575	2135	2690	3288	3834	4557	5004	4929	455	30663	88.1%	
Total	324	474	1057	1569	2134	2673	3204	3723	4183	4846	5170	4995	456	34808	100%	

Patient / Procedure Details

Patient Details

	CORAIL Collared Stem / Pinnacle Cup (70+)	All cemented THR in NJR (70+)	All NJR hip replacement (70+)
Total Procedures	34,808	253,460	558,132
Total Patients	32,307	229,774	494,765
Demographics			
Mean age	76.6	78.0	77.4
< 50	0.0%	0.0%	0.0%
50 – 59	0.0%	0.0%	0.0%
60 – 69	0.0%	0.0%	0.0%
70 – 79	73.4%	62.6%	67.5%
≥ 80	26.6%	37.4%	32.5%
Median BMI	28	27	27
% BMI information available	72.0%	57.5%	60.7%
Underweight (BMI < 18.5)	0.8%	1.2%	1.1%
Normal (18.5 ≤ BMI < 25)	21.3%	24.6%	23.5%
Overweight (25 ≤ BMI < 30)	42.1%	41.7%	42.0%
Obese I (30 ≤ BMI < 35)	25.3%	23.6%	24.0%
Obese II (35 ≤ BMI < 40)	8.4%	7.0%	7.5%
Obese III (BMI ≥ 40)	2.1%	1.8%	1.9%
% Male	37.8%	32.1%	35.3%
ASA Grades			
P1 - Fit and healthy	7.3%	7.9%	7.8%
P2 - Mild disease not incapacitating	73.2%	68.5%	69.8%
P3 - Incapacitating systemic disease	19.0%	22.8%	21.5%
P4 / P5	0.6%	0.9%	0.8%
Indications			
Osteoarthritis	95.24%	92.35%	92.38%
Rheumatoid Arthritis	0.67%	1.04%	0.98%
Avascular Necrosis	1.08%	1.90%	1.84%
Fractured Neck of Femur	3.09%	4.31%	4.20%
CDH/DDH	0.26%	0.19%	0.28%
Other	0.64%	1.87%	1.99%

Total of indications may exceed total number of implants, since more than one indication can be listed per case.

Revision and Survivorship

Reasons for Revision

Reasons for revision of primary procedures in which the implant was used.

Reason for Revision	Revised [†]	Expected Revisions [*]	p value
Unexplained Pain	15	29.43	0.004
Dislocation / Subluxation	109	123.81	0.172
Adverse Soft Tissue Reaction	6	2.69	0.048
Infection	68	101.07	<0.001
Aseptic Loosening - Stem	64	38.81	<0.001
Aseptic Loosening - Socket	16	56.65	<0.001
Periprosthetic Fracture Stem	50	61.82	0.128
Periprosthetic Fracture Socket	8	4.24	0.069
Malalignment Stem	23	12.55	0.004
Malalignment Socket	24	21.65	0.571
Wear Of Acetabular Component	17	12.16	0.179
Lysis Stem	7	7.70	1
Lysis Socket	2	9.75	0.005
Implant Fracture Stem	5	4.93	1
Implant Fracture Socket	8	1.61	<0.001
Implant Fracture Head	0	0.59	1
Dissociation of Liner	18	5.32	<0.001
Other / reason not recorded	15	12.87	0.554
Total Revised	384	403.59	0.322

* Based on All cemented THR in NJR (70+) adjusted for agegroup, gender, and indications

† multiple reasons may be listed for one revision procedure

Significantly better, $p < 0.001$

Significantly better, $p < 0.05$

Significantly worse $p < 0.05$

Significantly worse $p < 0.001$



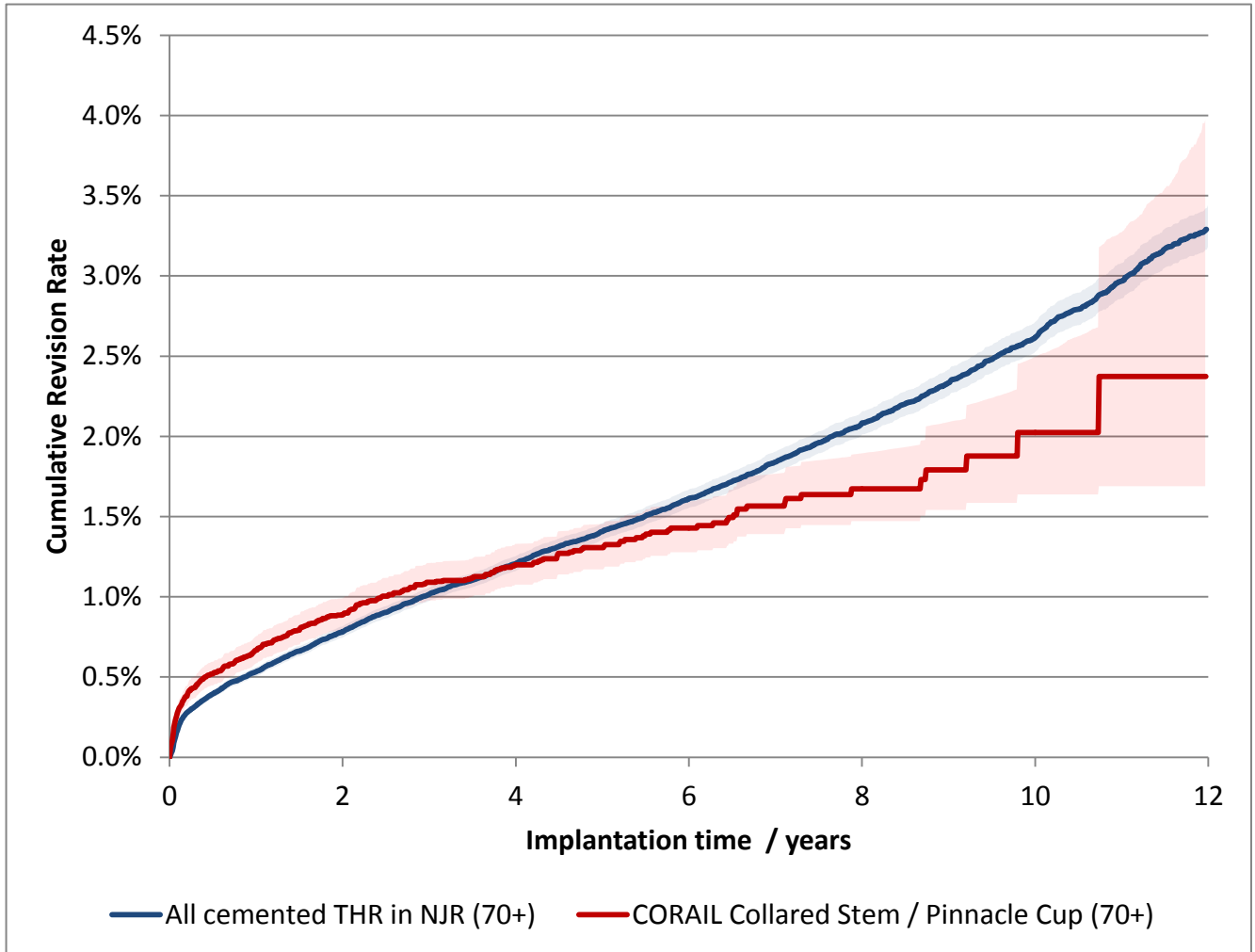
Components Revised	Number of procedures	CORAIL Collared Stem / Pinnacle Cup (70+)	All cemented THR in NJR (70+)
Femoral only	117	30%	20%
Acetabular only	90	23%	25%
Both femoral and acetabular	102	27%	47%
Neither femoral nor acetabular revision recorded *	75	20%	8%

* includes isolated head and/or liner exchange

Revision and Survivorship

Cumulative Revision Rate

Endpoint: All reasons for revision.



Cox Proportional Hazards model for revision risk ratio of CORAIL Collared Stem / Pinnacle Cup (70+) / All cemented THR in NJR (70+), with endpoint as any revision.

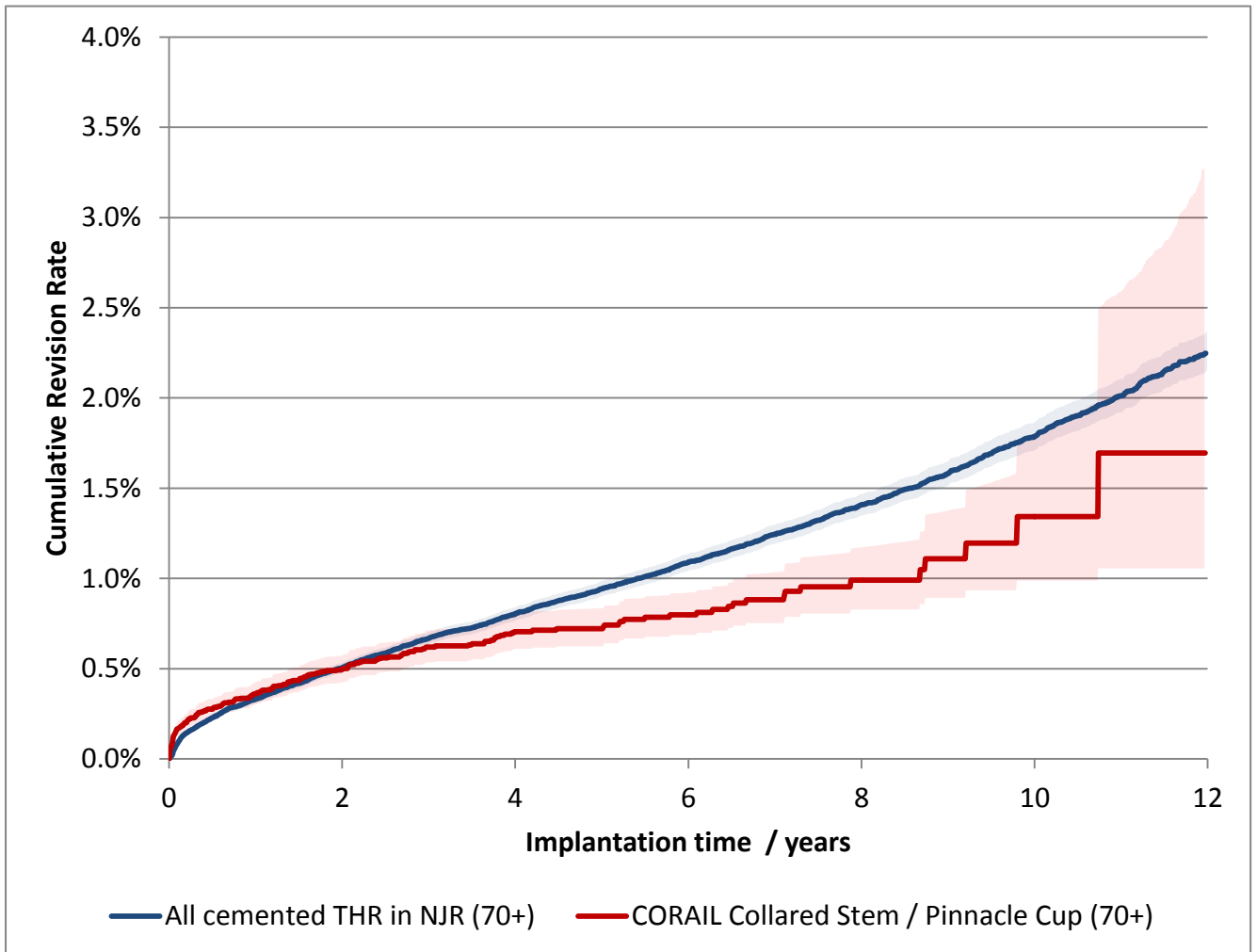
Adjustment	Hazard Ratio (95% CI)	p-value
Unadjusted.	0.96 ‡ (0.86 - 1.07)	<0.001 ‡
Adjusted for age, gender, year cohort and indications.	0.88 (0.79 - 0.98)	0.025

‡ Hazard ratio varies with time

Revision and Survivorship

Cumulative Revision Rate

Endpoint: Femoral Revision.



Cox Proportional Hazards model for revision risk ratio of CORAIL Collared Stem / Pinnacle Cup (70+) / All cemented THR in NJR (70+), with endpoint as Femoral revision.

Adjustment	Hazard Ratio (95% CI)	p-value
Unadjusted	0.83 (0.72 - 0.96)	0.009
Adjusted for age, gender, year cohort and indications.	0.77 (0.67 - 0.89)	<0.001

Revision and Survivorship

Cumulative Revision Rate

Period /years	Endpoint: Any component revised				Endpoint: Femoral Revision			
	At Risk	CORAIL Collared Stem / Pinnacle Cup (70+)	All cemented THR in NJR (70+)	All THR	At Risk	CORAIL Collared Stem / Pinnacle Cup (70+)	All cemented THR in NJR (70+)	All THR
0	34,808	-	-	-	34,808	-	-	-
1	29,144	0.7% (0.6% - 0.8%)	0.5% (0.5% - 0.6%)	0.8% (0.7% - 0.8%)	29,144	0.4% (0.3% - 0.4%)	0.3% (0.3% - 0.4%)	0.5% (0.4% - 0.5%)
2	23,555	0.9% (0.8% - 1.0%)	0.8% (0.7% - 0.8%)	1.0% (1.0% - 1.1%)	23,555	0.5% (0.4% - 0.6%)	0.5% (0.5% - 0.5%)	0.6% (0.6% - 0.7%)
3	18,384	1.1% (1.0% - 1.2%)	1.0% (1.0% - 1.1%)	1.3% (1.2% - 1.3%)	18,384	0.6% (0.5% - 0.7%)	0.7% (0.6% - 0.7%)	0.8% (0.8% - 0.8%)
4	13,920	1.2% (1.1% - 1.3%)	1.2% (1.2% - 1.3%)	1.5% (1.4% - 1.5%)	13,920	0.7% (0.6% - 0.8%)	0.8% (0.8% - 0.8%)	0.9% (0.9% - 1.0%)
5	10,102	1.3% (1.2% - 1.5%)	1.4% (1.4% - 1.5%)	1.7% (1.6% - 1.7%)	10,102	0.7% (0.6% - 0.8%)	0.9% (0.9% - 1.0%)	1.1% (1.0% - 1.1%)
6	6,944	1.4% (1.3% - 1.6%)	1.6% (1.6% - 1.7%)	1.9% (1.8% - 1.9%)	6,944	0.8% (0.7% - 0.9%)	1.1% (1.0% - 1.1%)	1.2% (1.2% - 1.3%)
7	4,492	1.6% (1.4% - 1.8%)	1.8% (1.8% - 1.9%)	2.1% (2.0% - 2.1%)	4,492	0.9% (0.8% - 1.0%)	1.2% (1.2% - 1.3%)	1.4% (1.3% - 1.4%)
8	2,621	1.7% (1.5% - 1.9%)	2.1% (2.0% - 2.2%)	2.3% (2.3% - 2.4%)	2,621	1.0% (0.8% - 1.2%)	1.4% (1.3% - 1.5%)	1.5% (1.5% - 1.6%)
9	1,332	1.8% (1.5% - 2.1%)	2.3% (2.3% - 2.4%)	2.6% (2.5% - 2.6%)	1,332	1.1% (0.9% - 1.4%)	1.6% (1.5% - 1.6%)	1.7% (1.7% - 1.8%)
10	544	2.0% (1.6% - 2.5%)	2.6% (2.5% - 2.7%)	2.9% (2.8% - 2.9%)	544	1.3% (1.0% - 1.8%)	1.8% (1.7% - 1.9%)	1.9% (1.9% - 2.0%)
11	223	2.4% (1.7% - 3.3%)	3.0% (2.9% - 3.1%)	3.2% (3.1% - 3.3%)	223	1.7% (1.1% - 2.6%)	2.0% (1.9% - 2.1%)	2.2% (2.1% - 2.2%)
12		(-)	3.3% (3.2% - 3.4%)	3.6% (3.5% - 3.7%)		(-)	2.3% (2.2% - 2.4%)	2.4% (2.3% - 2.5%)
13		(-)	3.7% (3.5% - 3.8%)	3.9% (3.7% - 4.0%)		(-)	2.5% (2.4% - 2.7%)	2.7% (2.5% - 2.8%)
14		(-)	3.9% (3.7% - 4.1%)	4.1% (4.0% - 4.3%)		(-)	2.7% (2.6% - 2.9%)	2.8% (2.7% - 3.0%)
15		(-)	4.4% (4.1% - 4.7%)	4.6% (4.3% - 4.8%)		(-)	2.9% (2.7% - 3.1%)	3.0% (2.8% - 3.2%)

Cumulative revision rate with 95% confidence intervals

Rate is only reported for times where more than 40 remain at risk

Patient Reported Outcomes

PROMs Analysis

Comprising PROMs data up to and including: 31/12/2016

Oxford Hip Score (0 - 48)	CORAIL Collared Stem / Pinnacle Cup (70+)	All cemented THR in NJR (70+)	All THR in NJR (70+)
Paired Records	9,678	55,531	
PreOp score	18.7 (18.5 - 18.9)	17.3 (17.2 - 17.4)	
6 month score	39.9 (39.7 - 40.0)	37.7 (37.7 - 37.8)	
6 month score (adjusted)	39.9 (39.8 - 40.1)	38.7 (38.7 - 38.8)	
Health gain	21.2 (21.0 - 21.4)	20.4 (20.3 - 20.5)	
Health gain (adjusted)	21.8 (21.7 - 22.0)	20.6 (20.6 - 20.7)	
p value (adjusted health gain)	< 0.001		
Score Improved	97.5%	96.8%	

EQ-5D Index (-0.59 - 1.00)	CORAIL Collared Stem / Pinnacle Cup (70+)	All cemented THR in NJR (70+)	All THR in NJR (70+)
Paired Records	8,729	50,148	
PreOp score	0.382 (0.375 - 0.389)	0.329 (0.326 - 0.332)	
6 month score	0.814 (0.809 - 0.818)	0.764 (0.762 - 0.766)	
6 month score (adjusted)	0.807 (0.803 - 0.811)	0.780 (0.778 - 0.782)	
Health gain	0.431 (0.424 - 0.438)	0.435 (0.432 - 0.438)	
Health gain (adjusted)	0.450 (0.446 - 0.454)	0.423 (0.421 - 0.424)	
p value (adjusted health gain)	< 0.001		
Score Improved	90.2%	88.5%	

EQ-VAS (0 - 100)	CORAIL Collared Stem / Pinnacle Cup (70+)	All cemented THR in NJR (70+)	All THR in NJR (70+)
Paired Records	8,295	47,505	
PreOp score	68.0 (67.6 - 68.5)	65.2 (65.0 - 65.4)	
6 month score	77.3 (76.9 - 77.6)	74.5 (74.3 - 74.6)	
6 month score (adjusted)	77.1 (76.8 - 77.5)	76.1 (76.0 - 76.2)	
Health gain	9.3 (8.8 - 9.7)	9.3 (9.1 - 9.5)	
Health gain (adjusted)	11.8 (11.5 - 12.1)	10.8 (10.6 - 10.9)	
p value (adjusted health gain)	< 0.001		
Score Improved	62.2%	60.9%	

Adjusted scores correspond to the NHS Digital version 3 casemix-adjustment model. This includes patient variables from PROMs, HES, and IMD data.

Bespoke Report for:

CORAIL Collared Stem / Pinnacle Cup (70+)

Responses are not case mix adjusted

Patient Reported Outcomes



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Appendix A: Component List

Catalogue Number	Description	Number Implanted
3L92498	Corail Collared Stem K8A 115mm	842
3L92499	Corail Collared Stem K9A 130mm	1,740
3L92500	Corail Collared Stem K10A 140mm	4,050
3L92501	Corail Collared Stem K11A 145mm	6,784
3L92502	Corail Collared Stem K12A 150mm	5,938
3L92503	Corail Collared Stem K13A 155mm	3,228
3L92504	Corail Collared Stem K14A 160mm	1,632
3L92505	Corail Collared Stem K15A 165mm	766
3L92506	Corail Collared Stem K16A 170mm	304
3L92508	Corail Collared Stem K18A 180mm	72
3L92521	Corail Collared Stem K20A 190mm	3
3L93709	Corail Collared Lateralised Coxa Vara Stem KLA9 130mm	731
3L93710	Corail Collared Lateralised Coxa Vara Stem KLA10 140mm	1,295
3L93711	Corail Collared Lateralised Coxa Vara Stem KLA11 145mm	2,126
3L93712	Corail Collared Lateralised Coxa Vara Stem KLA12 150mm	1,869
3L93713	Corail Collared Lateralised Coxa Vara Stem KLA13 155mm	996
3L93714	Corail Collared Lateralised Coxa Vara Stem KLA14 160mm	574
3L93715	Corail Collared Lateralised Coxa Vara Stem KLA15 165mm	255
3L93716	Corail Collared Lateralised Coxa Vara Stem KLA16 170mm	126
3L93718	Corail Collared Lateralised Coxa Vara Stem Size 18	6
3L93720	Corail Collared Lateralised Coxa Vara Stem Size 20	1
L971109	Corail 135 High Offset KHO (Collar) Size 9	49
L971110	Corail 135 High Offset KHO (Collar) Size 10	120
L971111	Corail 135 High Offset KHO (Collar) Size 11	300
L971112	Corail 135 High Offset KHO (Collar) Size 12	342
L971113	Corail 135 High Offset KHO (Collar) Size 13	249
L971114	Corail 135 High Offset KHO (Collar) Size 14	165
L971115	Corail 135 High Offset KHO (Collar) Size 15	99
L971116	Corail 135 High Offset KHO (Collar) Size 16	61
L971118	Corail 135 High Offset KHO (Collar) Size 18	10
L971120	Corail 135 High Offset KHO (Collar) Size 20	2
L971208	Corail 125 Standard Neck SN (Collar) Size 8	13
L971209	Corail 125 Standard Neck SN (Collar) Size 9	16
L971210	Corail 125 Standard Neck SN (Collar) Size 10	14
L971308	Corail 135 Short Neck SN (Collar) Size 8	10
L971309	Corail 135 Short Neck SN (Collar) Size 9	5
L971310	Corail 135 Short Neck SN (Collar) Size 10	15