

## Implant Bespoke Report for:

DePuy

## CORAIL Collared Stem / Marathon 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 / Marathon 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:

<b>Femoral components</b>	<b>CORAIL Collared Stems in patients aged 70+</b>
<b>Acetabular Components</b>	<b>Marathon cemented cup</b>
<b>Comparator Group</b>	<b>All Cemented hips, age 70+, excluding metal on metal</b>

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

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**NJR Recorded Usage**

**Implant Usage**

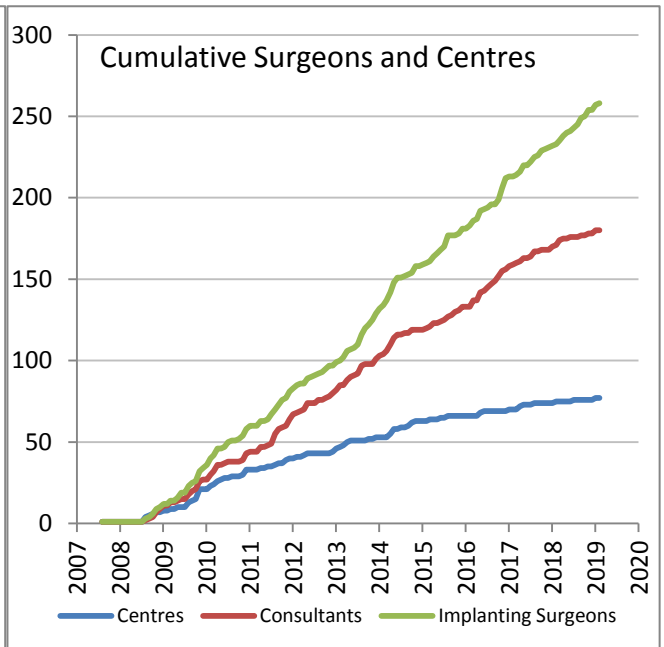
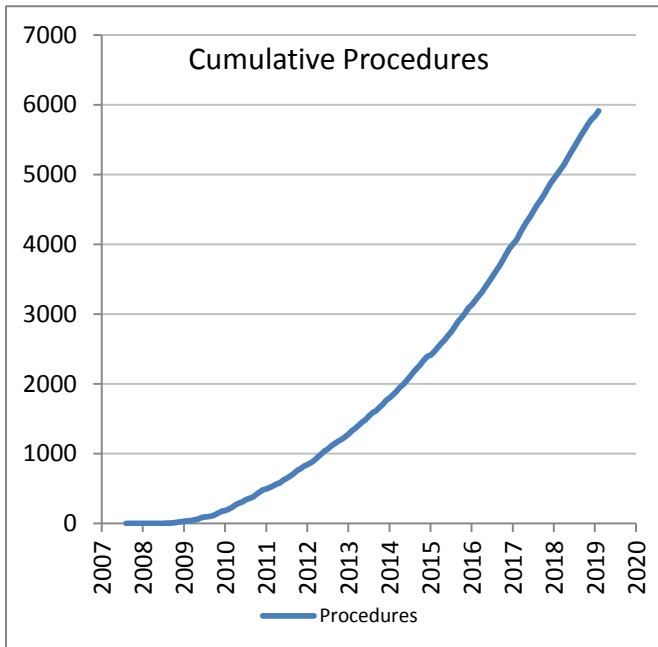
Date of first recorded usage in the NJR: **25 April 2007**

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

Maximum implantation time: 11.8 years

Mean implantation time: 3.5 years

Totals Recorded in NJR	Cumulative Total
Procedures	5,913
Patients	5,524
Centres	77
Consultants	180
Implanting Surgeons	258



Current Outcome	Year of implantation														Total	%
	Pre-2008	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019			
<b>Death</b>	0	9	60	104	82	77	92	72	60	32	20	5	0	613	10.4%	
<b>Revised</b>	0	0	3	7	2	6	3	9	6	3	3	9	0	51	0.9%	
<b>Unrevised</b>	1	23	90	200	263	347	432	530	652	834	915	885	77	5249	88.8%	
<b>Total</b>	<b>1</b>	<b>32</b>	<b>153</b>	<b>311</b>	<b>347</b>	<b>430</b>	<b>527</b>	<b>611</b>	<b>718</b>	<b>869</b>	<b>938</b>	<b>899</b>	<b>77</b>	<b>5913</b>	<b>100%</b>	

## Patient / Procedure Details

## Patient Details

	CORAIL Collared Stem / Marathon Cup (70+)	All Cemented THR in NJR	All NJR hip replacement (70+)
<b>Total Procedures</b>	5,913	253,460	558,132
<b>Total Patients</b>	5,524	229,774	494,765
<b>Demographics</b>			
Mean age	<b>77.0</b>	<b>78.0</b>	<b>77.4</b>
< 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	70.2%	62.6%	67.5%
≥ 80	29.8%	37.4%	32.5%
Median BMI	<b>28</b>	<b>27</b>	<b>27</b>
% BMI information available	66.4%	57.5%	60.7%
Underweight ( BMI < 18.5)	0.7%	1.2%	1.1%
Normal (18.5 ≤ BMI < 25)	21.9%	24.6%	23.5%
Overweight (25 ≤ BMI < 30)	42.0%	41.7%	42.0%
Obese I (30 ≤ BMI < 35)	25.1%	23.6%	24.0%
Obese II (35 ≤ BMI < 40)	8.5%	7.0%	7.5%
Obese III (BMI ≥ 40)	1.8%	1.8%	1.9%
% Male	34.6%	32.1%	35.3%
<b>ASA Grades</b>			
P1 - Fit and healthy	6.8%	7.9%	7.8%
P2 - Mild disease not incapacitating	73.7%	68.5%	69.8%
P3 - Incapacitating systemic disease	19.0%	22.8%	21.5%
P4 / P5	0.5%	0.9%	0.8%
<b>Indications</b>			
Osteoarthritis	94.06%	92.35%	92.38%
Rheumatoid Arthritis	1.20%	1.04%	0.98%
Avascular Necrosis	1.13%	1.90%	1.84%
Fractured Neck of Femur	3.40%	4.31%	4.20%
CDH/DDH	0.19%	0.19%	0.28%
Other	0.91%	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 <sup>†</sup>	Expected Revisions <sup>*</sup>	p value
Unexplained Pain	0	4.88	0.018
Dislocation / Subluxation	22	21.03	0.825
Adverse Soft Tissue Reaction	1	0.37	0.314
Infection	11	16.83	0.175
Aseptic Loosening - Stem	5	5.43	1
Aseptic Loosening - Socket	3	9.25	0.031
Periprosthetic Fracture Stem	7	10.03	0.426
Periprosthetic Fracture Socket	0	0.58	1
Malalignment Stem	2	1.83	0.706
Malalignment Socket	1	3.47	0.273
Wear Of Acetabular Component	1	1.72	1
Lysis Stem	0	1.09	0.632
Lysis Socket	0	1.55	0.414
Implant Fracture Stem	1	0.75	0.53
Implant Fracture Socket	0	0.13	1
Implant Fracture Head	0	0.10	1
Dissociation of Liner	1	0.63	0.471
Other / reason not recorded	2	2.06	1
<b>Total Revised</b>	<b>51</b>	<b>65.10</b>	<b>0.08</b>

\* Based on All Cemented THR in NJR 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  $p < 0.001$



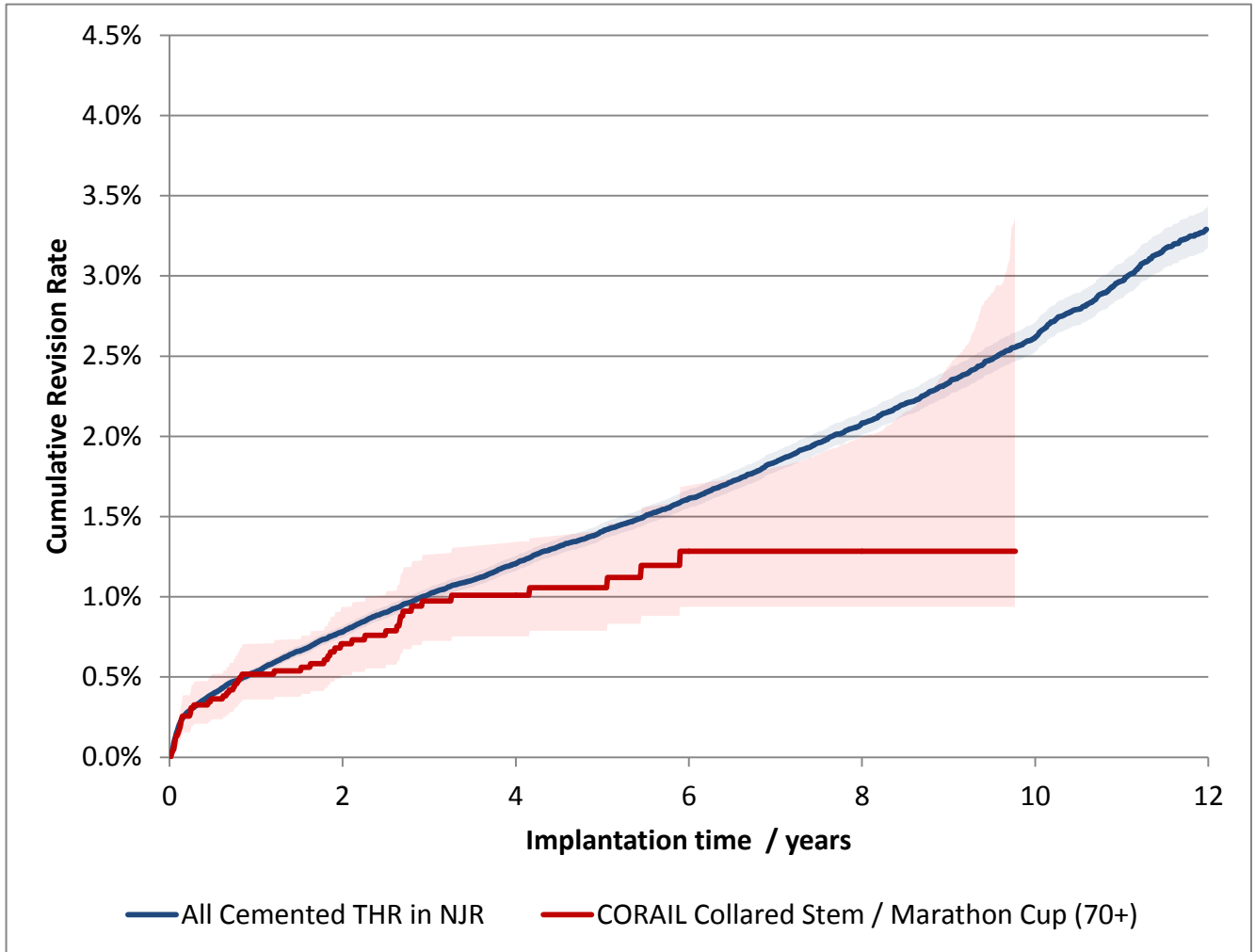
Components Revised	Number of procedures	CORAIL Collared Stem / Marathon Cup (70+)	All Cemented THR in NJR
Femoral only	14	27%	20%
Acetabular only	11	22%	25%
Both femoral and acetabular	7	14%	47%
Neither femoral nor acetabular revision recorded *	19	37%	8%

\* includes isolated head and/or liner exchange

**Revision and Survivorship**

**Cumulative Revision Rate**

Endpoint: All reasons for revision.



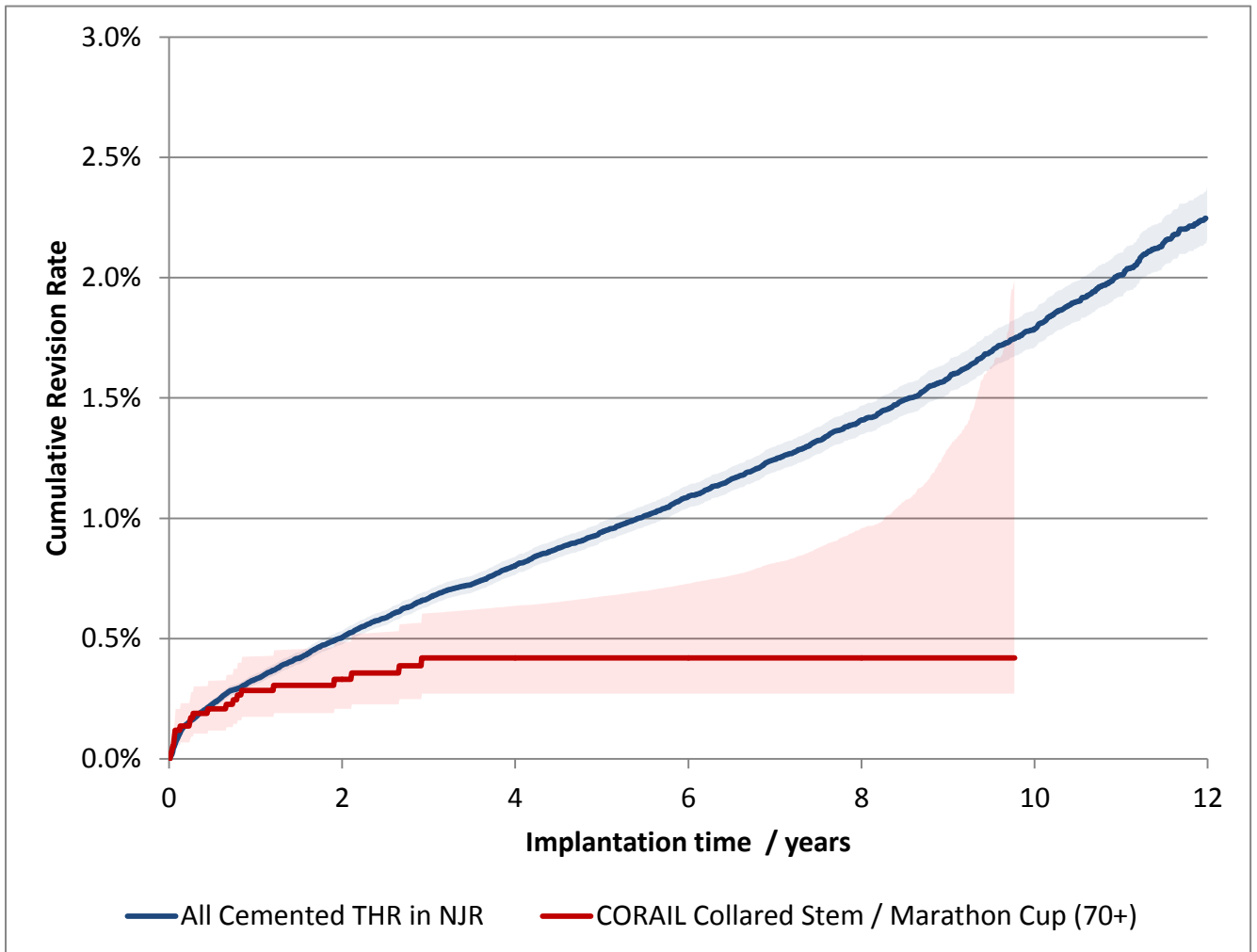
Cox Proportional Hazards model for revision risk ratio of CORAIL Collared Stem / Marathon Cup (70+) / All Cemented THR in NJR, with endpoint as any revision.

Adjustment	Hazard Ratio (95% CI)	p-value
Unadjusted.	0.79 (0.60 - 1.04)	<0.001
Adjusted for age, gender, year cohort and indications.	0.72 (0.55 - 0.96)	0.023

**Revision and Survivorship**

**Cumulative Revision Rate**

Endpoint: Femoral Revision.



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

Adjustment	Hazard Ratio (95% CI)	p-value
Unadjusted	0.49 (0.32 - 0.75)	0.001
Adjusted for age, gender, year cohort and indications.	0.46 (0.30 - 0.71)	<0.001

Revision and Survivorship

Cumulative Revision Rate

Period /years	Endpoint: Any component revised				Endpoint: Femoral Revision			
	At Risk	CORAIL Collared Stem / Marathon Cup (70+)	All Cemented THR in NJR	All THR	At Risk	CORAIL Collared Stem / Marathon Cup (70+)	All Cemented THR in NJR	All THR
0	5,913	-	-	-	5,913	-	-	-
1	4,912	0.5% (0.4% - 0.7%)	0.5% (0.5% - 0.6%)	0.8% (0.7% - 0.8%)	4,912	0.3% (0.2% - 0.4%)	0.3% (0.3% - 0.4%)	0.5% (0.4% - 0.5%)
2	3,894	0.7% (0.5% - 0.9%)	0.8% (0.7% - 0.8%)	1.0% (1.0% - 1.1%)	3,894	0.3% (0.2% - 0.5%)	0.5% (0.5% - 0.5%)	0.6% (0.6% - 0.7%)
3	2,969	1.0% (0.7% - 1.3%)	1.0% (1.0% - 1.1%)	1.3% (1.2% - 1.3%)	2,969	0.4% (0.3% - 0.6%)	0.7% (0.6% - 0.7%)	0.8% (0.8% - 0.8%)
4	2,187	1.0% (0.8% - 1.3%)	1.2% (1.2% - 1.3%)	1.5% (1.4% - 1.5%)	2,187	0.4% (0.3% - 0.6%)	0.8% (0.8% - 0.8%)	0.9% (0.9% - 1.0%)
5	1,563	1.1% (0.8% - 1.4%)	1.4% (1.4% - 1.5%)	1.7% (1.6% - 1.7%)	1,563	0.4% (0.3% - 0.7%)	0.9% (0.9% - 1.0%)	1.1% (1.0% - 1.1%)
6	1,073	1.3% (0.9% - 1.7%)	1.6% (1.6% - 1.7%)	1.9% (1.8% - 1.9%)	1,073	0.4% (0.3% - 0.7%)	1.1% (1.0% - 1.1%)	1.2% (1.2% - 1.3%)
7	654	1.3% (0.9% - 1.8%)	1.8% (1.8% - 1.9%)	2.1% (2.0% - 2.1%)	654	0.4% (0.3% - 0.8%)	1.2% (1.2% - 1.3%)	1.4% (1.3% - 1.4%)
8	351	1.3% (0.9% - 2.0%)	2.1% (2.0% - 2.2%)	2.3% (2.3% - 2.4%)	351	0.4% (0.3% - 1.0%)	1.4% (1.3% - 1.5%)	1.5% (1.5% - 1.6%)
9	134	1.3% (0.9% - 2.4%)	2.3% (2.3% - 2.4%)	2.6% (2.5% - 2.6%)	134	0.4% (0.3% - 1.3%)	1.6% (1.5% - 1.6%)	1.7% (1.7% - 1.8%)
10		(-)	2.6% (2.5% - 2.7%)	2.9% (2.8% - 2.9%)		(-)	1.8% (1.7% - 1.9%)	1.9% (1.9% - 2.0%)
11		(-)	3.0% (2.9% - 3.1%)	3.2% (3.1% - 3.3%)		(-)	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 / Marathon Cup (70+)	All Cemented THR in NJR	All THR in NJR (70+)
Paired Records	1,620	55,531	
PreOp score	17.8 (17.4 - 18.2)	17.3 (17.2 - 17.4)	
6 month score	38.4 (38.0 - 38.8)	37.7 (37.7 - 37.8)	
6 month score (adjusted)	39.1 (38.7 - 39.5)	38.7 (38.7 - 38.8)	
Health gain	20.7 (20.2 - 21.1)	20.4 (20.3 - 20.5)	
Health gain (adjusted)	21.0 (20.6 - 21.4)	20.6 (20.6 - 20.7)	
p value (adjusted health gain)	0.062		
Score Improved	97.0%	96.8%	

EQ-5D Index (-0.59 - 1.00)	CORAIL Collared Stem / Marathon Cup (70+)	All Cemented THR in NJR	All THR in NJR (70+)
Paired Records	1,452	50,148	
PreOp score	0.338 (0.322 - 0.355)	0.329 (0.326 - 0.332)	
6 month score	0.769 (0.756 - 0.782)	0.764 (0.762 - 0.766)	
6 month score (adjusted)	0.780 (0.769 - 0.792)	0.780 (0.778 - 0.782)	
Health gain	0.431 (0.413 - 0.449)	0.435 (0.432 - 0.438)	
Health gain (adjusted)	0.423 (0.411 - 0.434)	0.423 (0.421 - 0.424)	
p value (adjusted health gain)	0.73		
Score Improved	87.6%	88.5%	

EQ-VAS (0 - 100)	CORAIL Collared Stem / Marathon Cup (70+)	All Cemented THR in NJR	All THR in NJR (70+)
Paired Records	1,378	47,505	
PreOp score	66.0 (64.9 - 67.1)	65.2 (65.0 - 65.4)	
6 month score	75.2 (74.3 - 76.1)	74.5 (74.3 - 74.6)	
6 month score (adjusted)	76.1 (75.3 - 76.9)	76.1 (76.0 - 76.2)	
Health gain	9.2 (8.1 - 10.3)	9.3 (9.1 - 9.5)	
Health gain (adjusted)	10.8 (10.0 - 11.6)	10.8 (10.6 - 10.9)	
p value (adjusted health gain)	0.69		
Score Improved	61.8%	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 / Marathon Cup (70+)

Responses are not case mix adjusted

**Patient Reported Outcomes**



## Disclaimer

### Disclaimer

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## Appendix A: Component List

Catalogue Number	Description	Number Implanted
3L92498	Corail Collared Stem K8A 115mm	198
3L92499	Corail Collared Stem K9A 130mm	336
3L92500	Corail Collared Stem K10A 140mm	768
3L92501	Corail Collared Stem K11A 145mm	1,209
3L92502	Corail Collared Stem K12A 150mm	1,138
3L92503	Corail Collared Stem K13A 155mm	548
3L92504	Corail Collared Stem K14A 160mm	285
3L92505	Corail Collared Stem K15A 165mm	130
3L92506	Corail Collared Stem K16A 170mm	42
3L92508	Corail Collared Stem K18A 180mm	7
3L93709	Corail Collared Lateralised Coxa Vara Stem KLA9 130mm	110
3L93710	Corail Collared Lateralised Coxa Vara Stem KLA10 140mm	176
3L93711	Corail Collared Lateralised Coxa Vara Stem KLA11 145mm	275
3L93712	Corail Collared Lateralised Coxa Vara Stem KLA12 150mm	265
3L93713	Corail Collared Lateralised Coxa Vara Stem KLA13 155mm	134
3L93714	Corail Collared Lateralised Coxa Vara Stem KLA14 160mm	75
3L93715	Corail Collared Lateralised Coxa Vara Stem KLA15 165mm	35
3L93716	Corail Collared Lateralised Coxa Vara Stem KLA16 170mm	27
3L93718	Corail Collared Lateralised Coxa Vara Stem Size 18	1
L971109	Corail 135 High Offset KHO (Collar) Size 9	4
L971110	Corail 135 High Offset KHO (Collar) Size 10	13
L971111	Corail 135 High Offset KHO (Collar) Size 11	26
L971112	Corail 135 High Offset KHO (Collar) Size 12	40
L971113	Corail 135 High Offset KHO (Collar) Size 13	21
L971114	Corail 135 High Offset KHO (Collar) Size 14	30
L971115	Corail 135 High Offset KHO (Collar) Size 15	7
L971116	Corail 135 High Offset KHO (Collar) Size 16	5
L971118	Corail 135 High Offset KHO (Collar) Size 18	1
L971210	Corail 125 Standard Neck SN (Collar) Size 10	5
L971308	Corail 135 Short Neck SN (Collar) Size 8	1
L971310	Corail 135 Short Neck SN (Collar) Size 10	1