

## Implant Summary Report for:

Zimmer Biomet

### MS-30 Stem

Comprising PRIMARY hips implanted up to:  
NJR Database extract:

03 April 2024  
03 May 2024

Produced on:  
Licensed for use until:

23 May 2024  
23 May 2025

## Contents

Recorded Usage in NJR	2
Patient and Procedure Details	3
Revision and Survivorship	4
Patient Reported Outcome Measures	12
APPENDIX A – Component List	17

This report has been produced by the National Joint Registry (NJR). It summarises usage and outcomes associated with the MS-30 Stem 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

### MS-30 Stem

### Acetabular Component

### Any Acetabular Component from all manufacturers

Appendix A lists details of all MS-30 Stem components included in this report.

This report is made available to Zimmer Biomet under licence. Under this licence, Zimmer Biomet is free to distribute this document, subject to the restrictions specified in the National Joint Registry Supplier Feedback Data Access and Use Code of Practice.

**NJR Recorded Usage**

**Implant Usage**

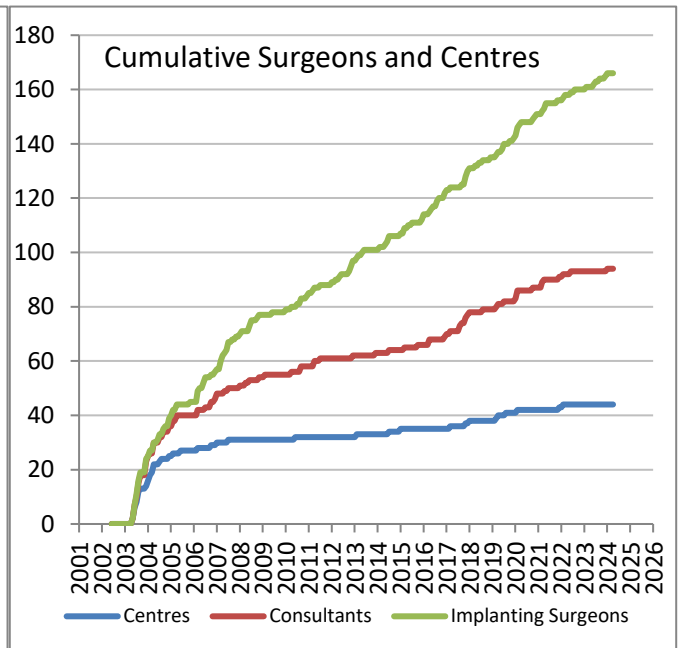
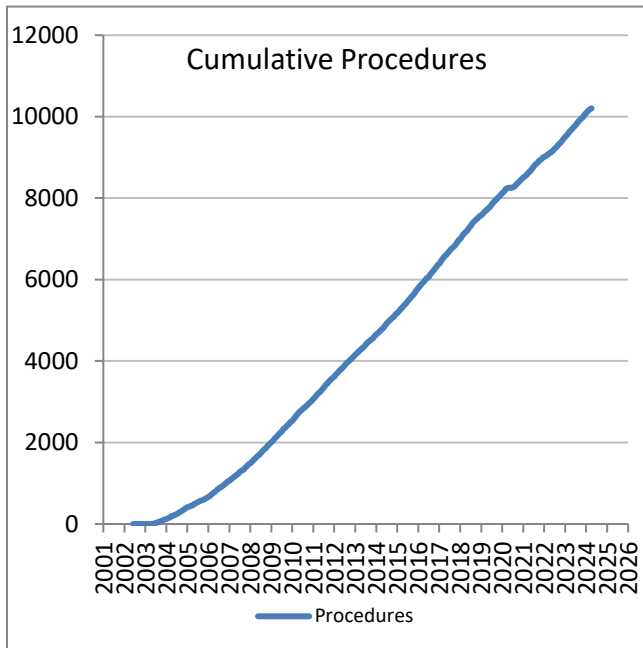
Date of first recorded usage in the NJR: **04 April 2003**

Date of last recorded usage in this dataset: **30 March 2024**

Maximum implantation time: 21.0 years

Mean implantation time: 7.9 years

Totals Recorded in NJR	Cumulative Total
Procedures	10,203
Patients	8,900
Centres	44
Consultants	94
Implanting Surgeons	166



Current Outcome	Year of implantation													Total	%
	Pre-2013	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024		
Death	2012	156	170	116	127	107	80	49	18	18	15	7	0	2875	28.2%
Revised	125	10	6	10	7	7	5	5	4	1	5	4	1	190	1.9%
Unrevised	2011	337	356	483	466	491	499	482	367	493	470	574	109	7138	70.0%
<b>Total</b>	<b>4148</b>	<b>503</b>	<b>532</b>	<b>609</b>	<b>600</b>	<b>605</b>	<b>584</b>	<b>536</b>	<b>389</b>	<b>512</b>	<b>490</b>	<b>585</b>	<b>110</b>	<b>10203</b>	<b>100%</b>

## Patient / Procedure Details

## Patient Details

	MS-30 Stem	All other Cemented Stems in NJR	All NJR hip replacement
<b>Total Procedures</b>	10,203	897,291	1,618,736
<b>Total Patients</b>	8,900	776,216	1,340,433
<b>Demographics</b>			
Mean age	<b>72.2</b>	<b>71.9</b>	<b>68.7</b>
< 50	1.8%	3.0%	6.1%
50 – 59	8.8%	8.9%	14.6%
60 – 69	27.7%	25.2%	29.3%
70 – 79	39.6%	41.5%	34.6%
≥ 80	22.1%	21.4%	15.4%
Median BMI	<b>27</b>	<b>28</b>	<b>28</b>
% BMI information available	62.6%	66.6%	66.1%
Underweight ( BMI < 18.5)	1.3%	1.0%	0.9%
Normal (18.5 ≤ BMI < 25)	25.7%	22.3%	20.9%
Overweight (25 ≤ BMI < 30)	40.7%	39.2%	39.2%
Obese I (30 ≤ BMI < 35)	22.0%	25.0%	25.8%
Obese II (35 ≤ BMI < 40)	7.3%	9.3%	10.0%
Obese III (BMI ≥ 40)	3.1%	3.1%	3.3%
% Male	33.3%	35.2%	40.2%
<b>ASA Grades</b>			
P1 - Fit and healthy	16.4%	10.6%	14.2%
P2 - Mild disease not incapacitating	66.3%	67.7%	67.9%
P3 - Incapacitating systemic disease	16.7%	21.0%	17.3%
P4 / P5	0.6%	0.8%	0.6%
<b>Indications</b>			
Osteoarthritis	93.17%	89.59%	91.19%
Rheumatoid Arthritis	0.99%	1.43%	1.29%
Avascular Necrosis	1.60%	2.74%	2.64%
Fractured Neck of Femur	3.42%	5.26%	3.69%
CDH/DDH	0.57%	1.16%	1.61%
Other	1.65%	2.46%	2.22%

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 - all bearing types**

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	8	17.17	0.02
Dislocation / Subluxation	50	59.67	0.24
Adverse Soft Tissue Reaction	14	8.37	0.055
Infection	43	49.54	0.391
Aseptic Loosening - Stem	17	30.15	0.013
Aseptic Loosening - Socket	26	57.87	<0.001
Periprosthetic Fracture Stem	33	42.56	0.164
Periprosthetic Fracture Socket	0	4.14	0.041
Malalignment Stem	1	5.11	0.071
Malalignment Socket	6	10.50	0.211
Wear Of Acetabular Component	9	15.85	0.098
Lysis Stem	5	9.68	0.145
Lysis Socket	11	13.20	0.676
Implant Fracture Stem	5	6.16	0.839
Implant Fracture Socket	1	1.30	1
Implant Fracture Head	2	1.00	0.262
Dissociation of Liner	2	2.59	1
Other / reason not recorded	6	9.28	0.405
<b>Total Revised</b>	<b>190</b>	<b>256.06</b>	<b>&lt;0.001</b>

† multiple reasons may be listed for one revision procedure

\* Based on All NJR Cemented Stems, adjusted for agegroup, gender, indications, and implantation year

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	MS-30 Stem	All other Cemented Stems in NJR
Femoral only	41	22%	22%
Acetabular only	48	25%	23%
Both femoral and acetabular	76	40%	45%
Neither femoral nor acetabular revision recorded *	25	13%	10%

\* includes isolated head and/or liner exchange

## Revision and Survivorship

## Reasons for Revision - excluding Metal on Metal

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

Reason for Revision	Revised <sup>†</sup>	Expected Revisions <sup>*</sup>	p value
Unexplained Pain	5	12.51	0.031
Dislocation / Subluxation	39	52.48	0.061
Adverse Soft Tissue Reaction	3	3.22	1
Infection	33	43.23	0.126
Aseptic Loosening - Stem	12	22.41	0.025
Aseptic Loosening - Socket	20	44.27	<0.001
Periprosthetic Fracture Stem	27	37.53	0.085
Periprosthetic Fracture Socket	0	3.69	0.058
Malalignment Stem	1	4.50	0.146
Malalignment Socket	2	8.92	0.011
Wear Of Acetabular Component	6	11.76	0.105
Lysis Stem	4	6.53	0.43
Lysis Socket	7	9.55	0.515
Implant Fracture Stem	2	4.59	0.342
Implant Fracture Socket	1	0.97	0.625
Implant Fracture Head	2	0.78	0.183
Dissociation of Liner	1	2.15	0.729
Other / reason not recorded	4	7.66	0.27
<b>Total Revised</b>	<b>138</b>	<b>211.15</b>	<b>&lt;0.001</b>

\* Based on All NJR Cemented Stems (excluding metal on metal), adjusted for agegroup, gender, indications, and implantation year

† 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  $p < 0.001$



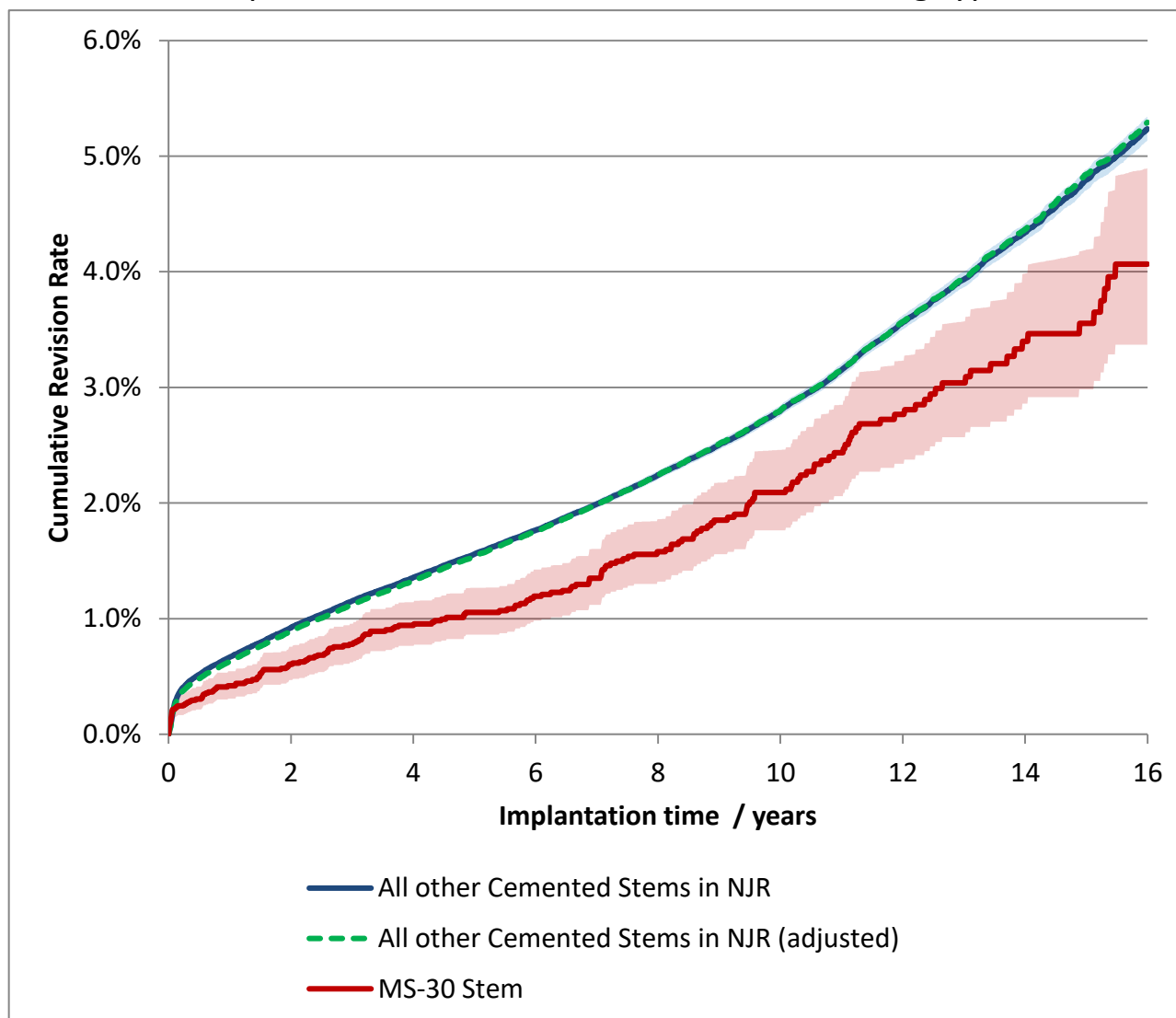
Components Revised	Number of procedures	MS-30 Stem	All other Cemented Stems in NJR
Femoral only	35	25%	23%
Acetabular only	30	22%	23%
Both femoral and acetabular	50	36%	44%
Neither femoral nor acetabular revision recorded *	23	17%	11%

\* includes isolated head and/or liner exchange

**Revision and Survivorship**

**Cumulative Revision Rate**

Endpoint: All reasons for revision. All Bearing types



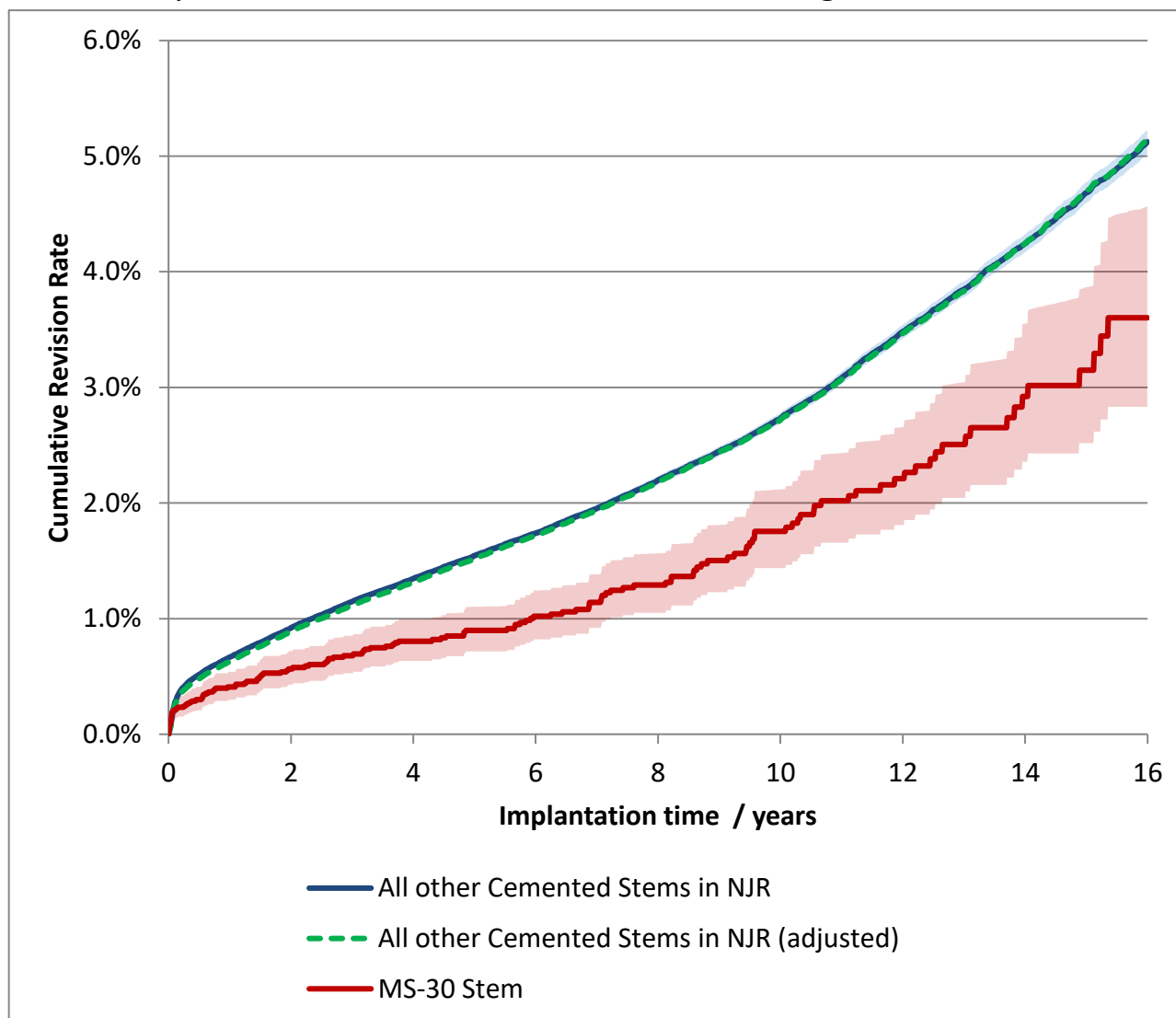
Cox Proportional Hazards model for revision risk ratio of MS-30 Stem / All other Cemented Stems in NJR, with endpoint as any revision.

Adjustment	Hazard Ratio (95% CI)	p-value
All bearings. Unadjusted.	0.74 (0.64 - 0.85)	<0.001
All bearings. Adjusted for age, gender, year cohort and indications.	0.74 (0.64 - 0.85)	<0.001

**Revision and Survivorship**

**Cumulative Revision Rate**

Endpoint: All reasons for revision. Excluding Metal-on-Metal



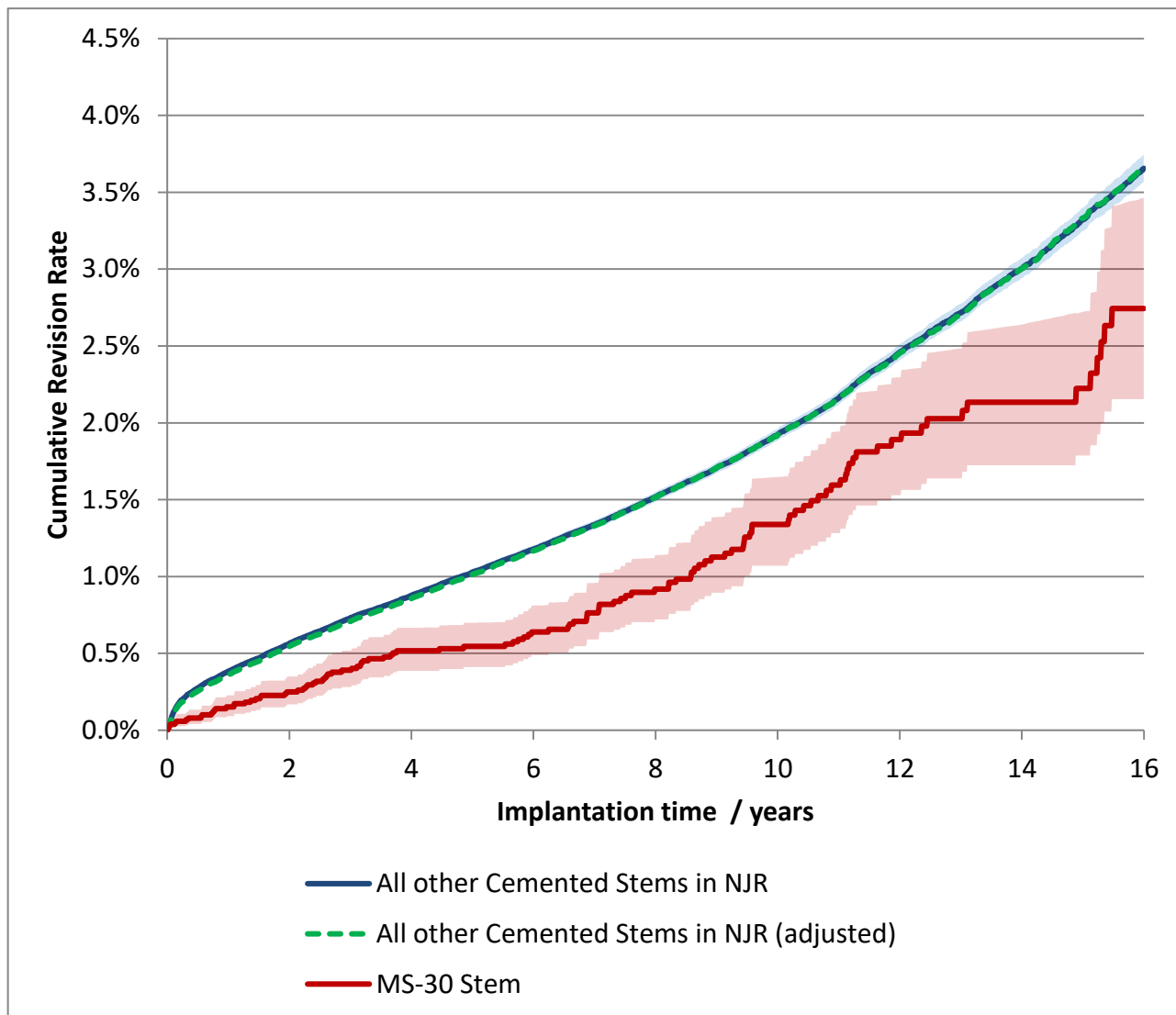
Cox Proportional Hazards model for revision risk ratio of MS-30 Stem / All other Cemented Stems in NJR, with endpoint as any revision.

Adjustment	Hazard Ratio (95% CI)	p-value
Excluding MoM, Unadjusted.	0.63 (0.53 - 0.74)	<0.001
Excluding MoM. Adjusted for age, gender, year cohort and indications.	0.65 (0.55 - 0.77)	<0.001

**Revision and Survivorship**

**Cumulative Revision Rate**

Endpoint: Femoral Revision. All Bearing types



Cox Proportional Hazards model for revision risk ratio of MS-30 Stem / All other Cemented Stems in NJR, with endpoint as any revision.

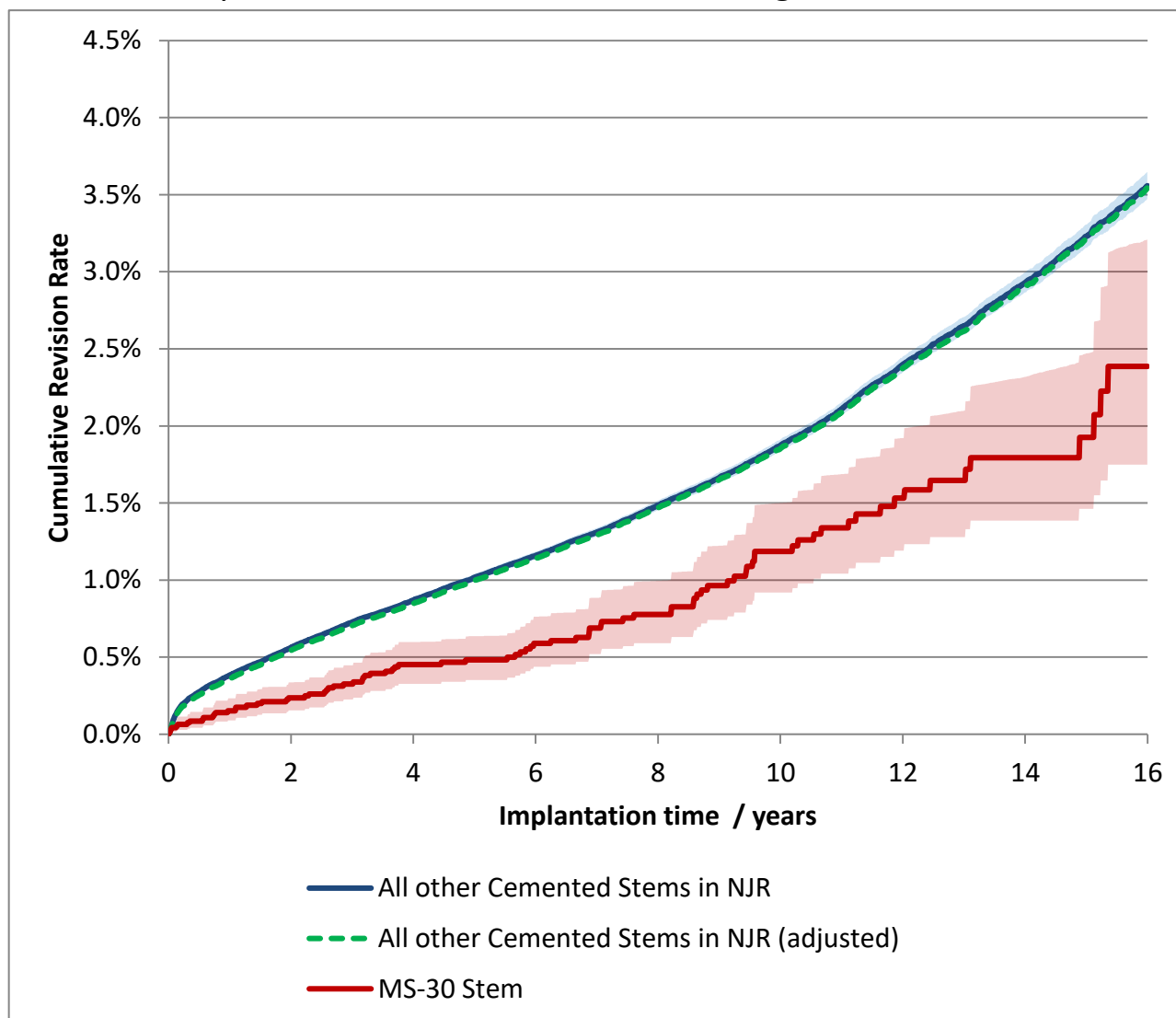
Adjustment	Hazard Ratio (95% CI)	p-value
All bearings. Unadjusted.	0.67 (0.56 - 0.81)	<0.001
All bearings. Adjusted for age, gender, year cohort and indications.	0.68 (0.56 - 0.81)	<0.001



**Revision and Survivorship**

**Cumulative Revision Rate**

Endpoint: Femoral Revision. Excluding Metal-on-Metal



Cox Proportional Hazards model for revision risk ratio of MS-30 Stem / All other Cemented Stems in NJR, with endpoint as any revision.

Adjustment	Hazard Ratio (95% CI)	p-value
Excluding MoM. Unadjusted.	0.58 (0.47 - 0.71)	<0.001
Excluding MoM. Adjusted for age, gender, year cohort and indications.	0.60 (0.49 - 0.75)	<0.001

Revision and Survivorship

Cumulative Revision Rate

Endpoint: All revisions

Period /years	All Bearing types				Excluding Metal on Metal Bearings			
	At Risk	MS-30 Stem	All other Cemented Stems in NJR	All THR	At Risk	MS-30 Stem	All other Cemented Stems in NJR	All THR
0	10,203	-	-	-	9,433	-	-	-
1	9,488	0.4% (0.3% - 0.5%)	0.7% (0.6% - 0.7%)	0.8% (0.8% - 0.8%)	8,727	0.4% (0.3% - 0.5%)	0.7% (0.6% - 0.7%)	0.8% (0.7% - 0.8%)
2	8,785	0.6% (0.5% - 0.8%)	0.9% (0.9% - 0.9%)	1.1% (1.1% - 1.1%)	8,040	0.6% (0.4% - 0.7%)	0.9% (0.9% - 0.9%)	1.0% (1.0% - 1.1%)
3	8,129	0.8% (0.6% - 1.0%)	1.2% (1.1% - 1.2%)	1.4% (1.4% - 1.4%)	7,409	0.7% (0.5% - 0.9%)	1.1% (1.1% - 1.2%)	1.3% (1.3% - 1.3%)
4	7,552	0.9% (0.8% - 1.1%)	1.4% (1.3% - 1.4%)	1.7% (1.6% - 1.7%)	6,852	0.8% (0.6% - 1.0%)	1.3% (1.3% - 1.4%)	1.5% (1.5% - 1.5%)
5	6,823	1.1% (0.9% - 1.3%)	1.6% (1.5% - 1.6%)	2.0% (1.9% - 2.0%)	6,140	0.9% (0.7% - 1.1%)	1.5% (1.5% - 1.6%)	1.7% (1.7% - 1.7%)
6	6,135	1.2% (1.0% - 1.4%)	1.8% (1.7% - 1.8%)	2.3% (2.2% - 2.3%)	5,472	1.0% (0.8% - 1.2%)	1.7% (1.7% - 1.8%)	1.9% (1.9% - 1.9%)
7	5,418	1.3% (1.1% - 1.6%)	2.0% (2.0% - 2.0%)	2.6% (2.6% - 2.6%)	4,774	1.1% (0.9% - 1.4%)	2.0% (1.9% - 2.0%)	2.1% (2.1% - 2.1%)
8	4,681	1.6% (1.3% - 1.9%)	2.2% (2.2% - 2.3%)	2.9% (2.9% - 3.0%)	4,060	1.3% (1.0% - 1.6%)	2.2% (2.2% - 2.2%)	2.3% (2.3% - 2.4%)
9	3,981	1.9% (1.6% - 2.2%)	2.5% (2.5% - 2.5%)	3.3% (3.3% - 3.3%)	3,384	1.5% (1.2% - 1.8%)	2.4% (2.4% - 2.5%)	2.6% (2.6% - 2.6%)
10	3,372	2.1% (1.8% - 2.5%)	2.8% (2.8% - 2.8%)	3.7% (3.6% - 3.7%)	2,805	1.8% (1.4% - 2.1%)	2.7% (2.7% - 2.8%)	2.9% (2.8% - 2.9%)
11	2,825	2.4% (2.1% - 2.8%)	3.2% (3.1% - 3.2%)	4.1% (4.0% - 4.1%)	2,290	2.0% (1.7% - 2.4%)	3.1% (3.0% - 3.1%)	3.2% (3.1% - 3.2%)
12	2,311	2.8% (2.3% - 3.2%)	3.6% (3.5% - 3.6%)	4.5% (4.5% - 4.6%)	1,812	2.2% (1.8% - 2.7%)	3.5% (3.4% - 3.5%)	3.6% (3.5% - 3.6%)
13	1,832	3.0% (2.6% - 3.6%)	3.9% (3.9% - 4.0%)	5.0% (4.9% - 5.0%)	1,369	2.5% (2.0% - 3.0%)	3.8% (3.8% - 3.9%)	3.9% (3.9% - 4.0%)
14	1,440	3.4% (2.9% - 4.0%)	4.3% (4.3% - 4.4%)	5.4% (5.4% - 5.5%)	1,030	2.9% (2.4% - 3.6%)	4.2% (4.2% - 4.3%)	4.3% (4.3% - 4.4%)
15	1,037	3.6% (3.0% - 4.2%)	4.8% (4.7% - 4.9%)	5.9% (5.9% - 6.0%)	701	3.1% (2.5% - 3.9%)	4.7% (4.6% - 4.8%)	4.7% (4.7% - 4.8%)

Cumulative revision rate with 95% confidence intervals

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

Revision and Survivorship

Cumulative Revision Rate

Endpoint: Femoral Revision

Period /years	All Bearing types				Excluding Metal on Metal Bearings			
	At Risk	MS-30 Stem	All other Cemented Stems in NJR	All THR	At Risk	MS-30 Stem	All other Cemented Stems in NJR	All THR
0	10,203	-	-	-	9,433	-	-	-
1	9,488	0.2% (0.1% - 0.2%)	0.4% (0.4% - 0.4%)	0.5% (0.5% - 0.5%)	8,727	0.2% (0.1% - 0.2%)	0.4% (0.4% - 0.4%)	0.4% (0.4% - 0.5%)
2	8,785	0.2% (0.2% - 0.3%)	0.6% (0.5% - 0.6%)	0.7% (0.7% - 0.7%)	8,040	0.2% (0.2% - 0.3%)	0.6% (0.5% - 0.6%)	0.6% (0.6% - 0.6%)
3	8,129	0.4% (0.3% - 0.5%)	0.7% (0.7% - 0.7%)	0.9% (0.9% - 0.9%)	7,409	0.3% (0.2% - 0.4%)	0.7% (0.7% - 0.7%)	0.8% (0.8% - 0.8%)
4	7,552	0.5% (0.4% - 0.7%)	0.9% (0.9% - 0.9%)	1.1% (1.1% - 1.1%)	6,852	0.5% (0.3% - 0.6%)	0.9% (0.8% - 0.9%)	0.9% (0.9% - 1.0%)
5	6,823	0.5% (0.4% - 0.7%)	1.0% (1.0% - 1.1%)	1.3% (1.2% - 1.3%)	6,140	0.5% (0.4% - 0.6%)	1.0% (1.0% - 1.0%)	1.1% (1.1% - 1.1%)
6	6,135	0.6% (0.5% - 0.8%)	1.2% (1.2% - 1.2%)	1.5% (1.5% - 1.5%)	5,472	0.6% (0.4% - 0.8%)	1.2% (1.1% - 1.2%)	1.2% (1.2% - 1.2%)
7	5,418	0.8% (0.6% - 1.0%)	1.3% (1.3% - 1.4%)	1.7% (1.7% - 1.7%)	4,774	0.7% (0.5% - 0.9%)	1.3% (1.3% - 1.3%)	1.4% (1.3% - 1.4%)
8	4,681	0.9% (0.7% - 1.1%)	1.5% (1.5% - 1.6%)	1.9% (1.9% - 1.9%)	4,060	0.8% (0.6% - 1.0%)	1.5% (1.5% - 1.5%)	1.5% (1.5% - 1.6%)
9	3,981	1.1% (0.9% - 1.4%)	1.7% (1.7% - 1.7%)	2.2% (2.1% - 2.2%)	3,384	1.0% (0.7% - 1.2%)	1.7% (1.6% - 1.7%)	1.7% (1.7% - 1.7%)
10	3,372	1.3% (1.1% - 1.6%)	1.9% (1.9% - 2.0%)	2.4% (2.4% - 2.4%)	2,805	1.2% (0.9% - 1.5%)	1.9% (1.8% - 1.9%)	1.9% (1.9% - 1.9%)
11	2,825	1.6% (1.3% - 1.9%)	2.2% (2.1% - 2.2%)	2.7% (2.7% - 2.7%)	2,290	1.3% (1.0% - 1.7%)	2.1% (2.1% - 2.2%)	2.1% (2.1% - 2.1%)
12	2,311	1.9% (1.5% - 2.3%)	2.5% (2.4% - 2.5%)	3.0% (3.0% - 3.1%)	1,812	1.5% (1.2% - 1.9%)	2.4% (2.3% - 2.4%)	2.4% (2.3% - 2.4%)
13	1,832	2.0% (1.6% - 2.5%)	2.7% (2.7% - 2.8%)	3.3% (3.3% - 3.4%)	1,369	1.6% (1.3% - 2.1%)	2.6% (2.6% - 2.7%)	2.6% (2.6% - 2.7%)
14	1,440	2.1% (1.7% - 2.6%)	3.0% (2.9% - 3.1%)	3.7% (3.6% - 3.7%)	1,030	1.8% (1.4% - 2.3%)	2.9% (2.9% - 3.0%)	2.9% (2.8% - 2.9%)
15	1,037	2.2% (1.8% - 2.7%)	3.3% (3.2% - 3.4%)	4.0% (4.0% - 4.1%)	701	1.9% (1.5% - 2.5%)	3.2% (3.2% - 3.3%)	3.2% (3.1% - 3.2%)

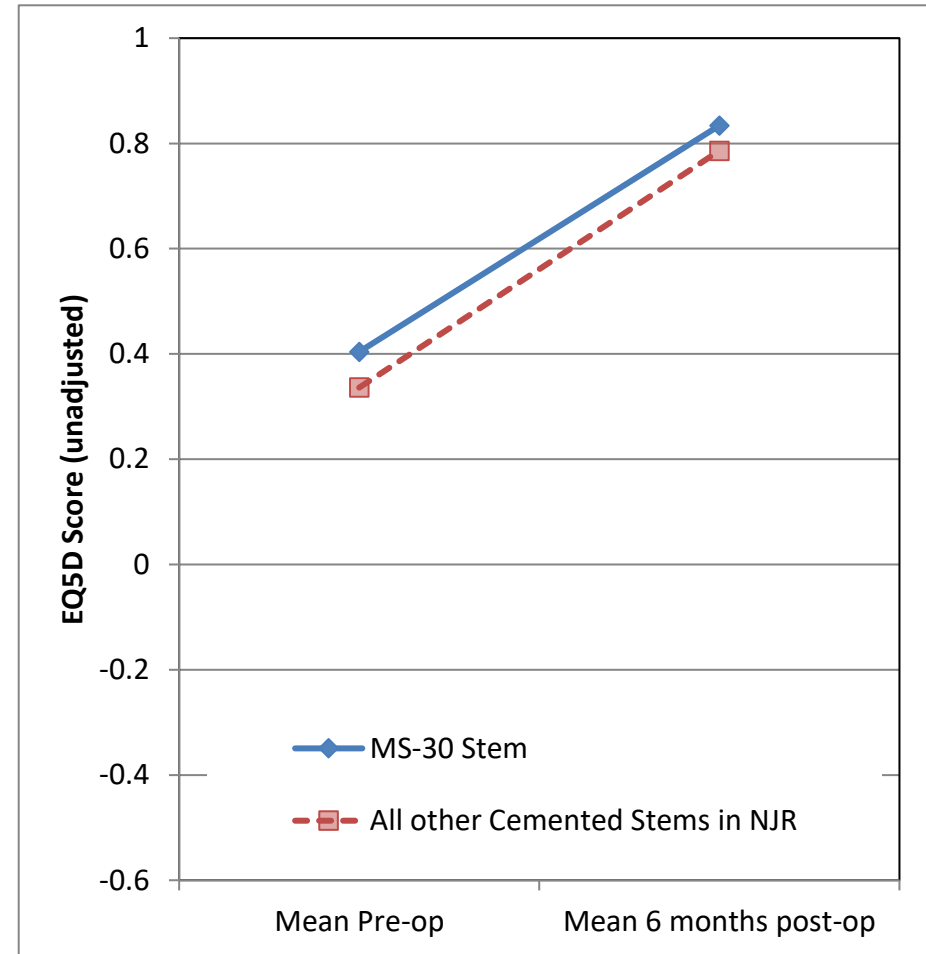
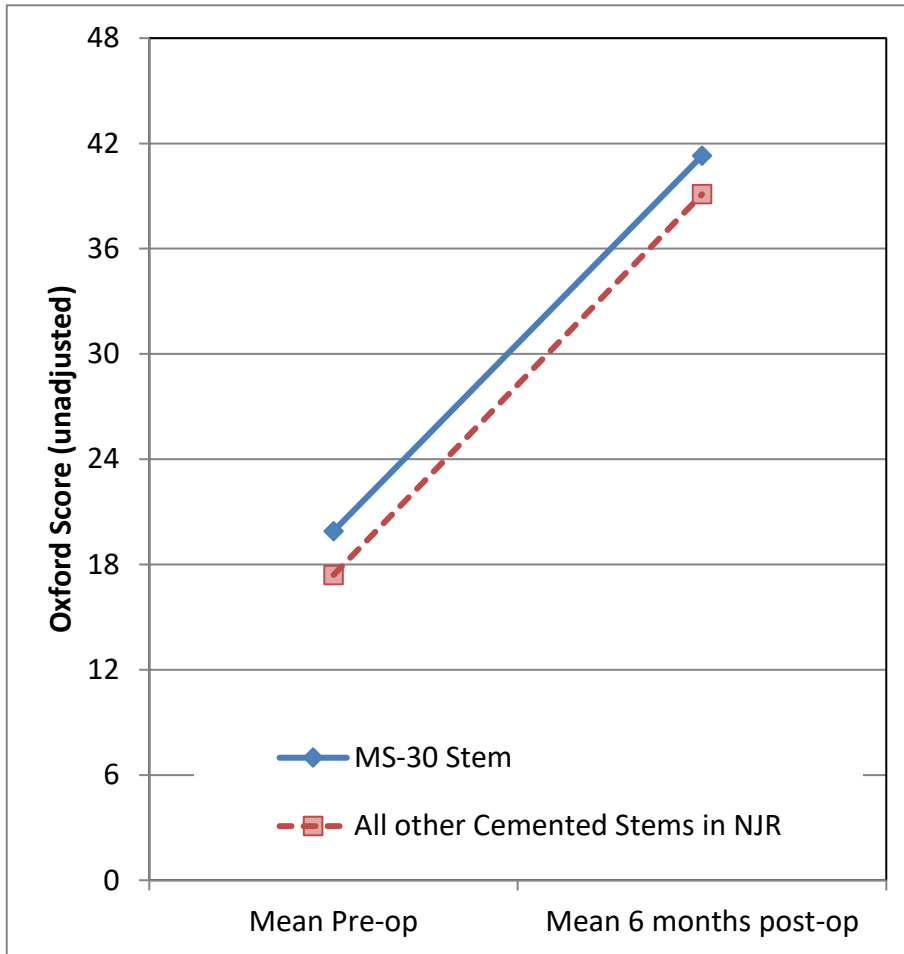
Cumulative revision rate with 95% confidence intervals

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

## PROMs Analysis

## Patient Reported Outcomes

Comprising PROMs data up to and including: 31/03/2022



## Patient Reported Outcomes

### PROMs Analysis

Comprising PROMs data up to and including: 31/03/2022

Oxford Hip Score (0 - 48)	MS-30 Stem	All other Cemented Stems in NJR	All THR in NJR
Paired Records	2,168	201,893	367,526
PreOp score	19.9 (19.5 - 20.2)	17.4 (17.4 - 17.5)	17.9 (17.9 - 17.9)
6 month score	41.3 (41.0 - 41.6)	39.1 (39.1 - 39.2)	39.6 (39.5 - 39.6)
6 month score (adjusted)	40.4 (40.1 - 40.7)	39.5 (39.5 - 39.5)	39.6 (39.5 - 39.6)
Health gain	21.4 (21.0 - 21.8)	21.7 (21.6 - 21.7)	21.7 (21.6 - 21.7)
Health gain (adjusted)	22.5 (22.2 - 22.7)	21.6 (21.6 - 21.6)	21.7 (21.6 - 21.7)
p value (adjusted health gain)	< 0.001		
Score Improved	98.2%	97.4%	97.3%

EQ-5D Index (-0.59 - 1.00)	MS-30 Stem	All other Cemented Stems in NJR	All THR in NJR
Paired Records	1,997	185,549	338,996
PreOp score	0.404 (0.390 - 0.418)	0.336 (0.335 - 0.338)	0.353 (0.351 - 0.354)
6 month score	0.834 (0.825 - 0.844)	0.786 (0.785 - 0.787)	0.795 (0.794 - 0.796)
6 month score (adjusted)	0.811 (0.803 - 0.820)	0.793 (0.792 - 0.794)	0.795 (0.794 - 0.796)
Health gain	0.430 (0.416 - 0.444)	0.449 (0.448 - 0.451)	0.442 (0.441 - 0.444)
Health gain (adjusted)	0.459 (0.450 - 0.468)	0.440 (0.439 - 0.441)	0.442 (0.442 - 0.443)
p value (adjusted health gain)	< 0.001		
Score Improved	91.4%	89.8%	89.7%

EQ-VAS (0 - 100)	MS-30 Stem	All other Cemented Stems in NJR	All THR in NJR
Paired Records	1,921	177,835	325,938
PreOp score	66.9 (66.0 - 67.8)	64.1 (64.0 - 64.2)	64.6 (64.5 - 64.7)
6 month score	79.0 (78.3 - 79.8)	76.3 (76.2 - 76.4)	77.0 (76.9 - 77.1)
6 month score (adjusted)	77.7 (77.0 - 78.3)	76.9 (76.8 - 77.0)	77.0 (76.9 - 77.1)
Health gain	12.1 (11.2 - 13.1)	12.1 (12.0 - 12.2)	12.4 (12.3 - 12.5)
Health gain (adjusted)	13.1 (12.4 - 13.7)	12.3 (12.2 - 12.4)	12.4 (12.3 - 12.5)
p value (adjusted health gain)	0.14		
Score Improved	67.4%	65.9%	66.7%

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

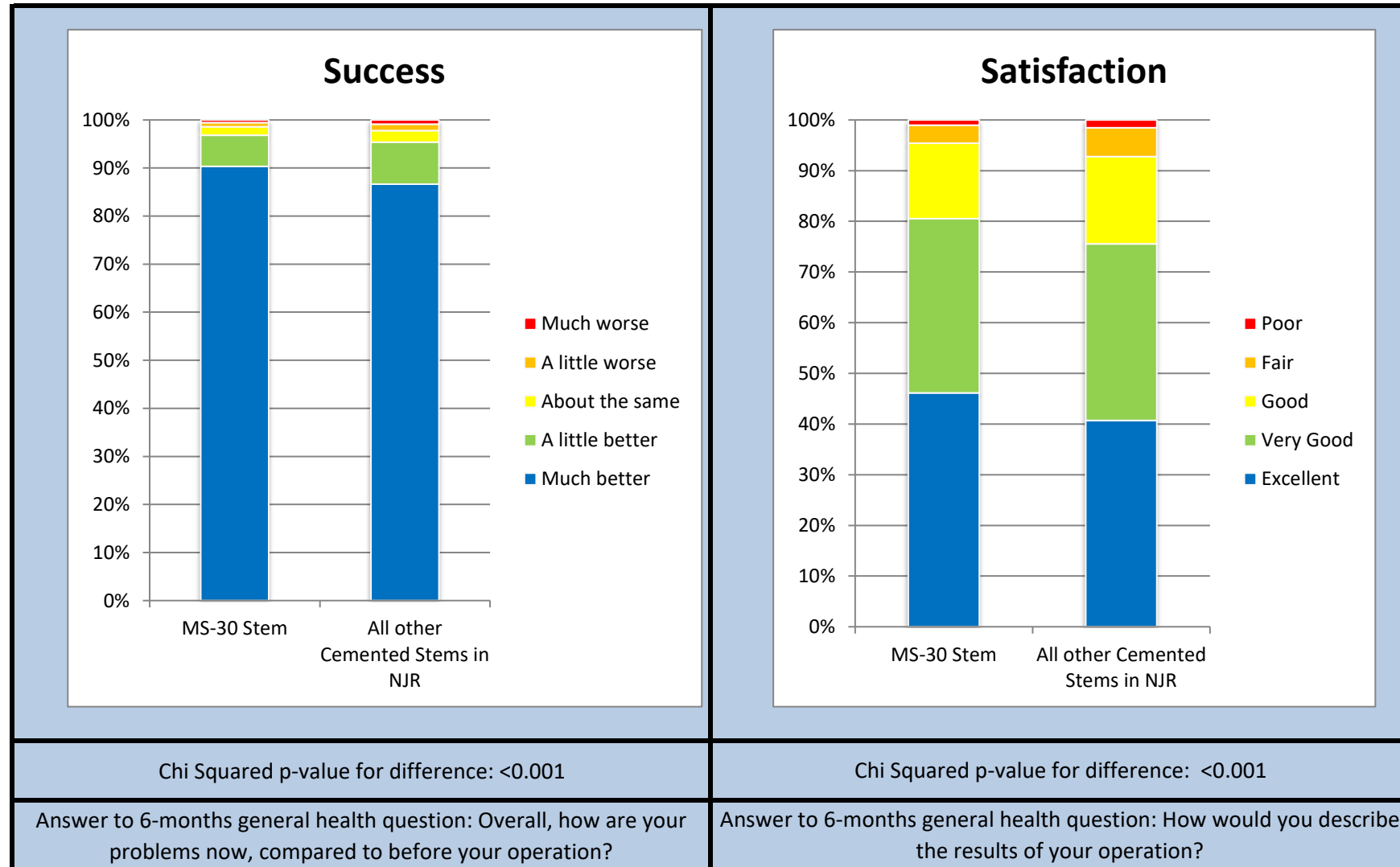
Figures in parentheses represent the 95% confidence interval for the mean

Summary Report for:

MS-30 Stem

Responses are not case mix adjusted

**Patient Reported Outcomes**



## Patient Reported Outcomes

### Success

Response	MS-30 Stem	All other Cemented Stems in NJR
Much better	1973	178656
A little better	141	18044
About the same	39	4912
A little worse	19	2758
Much worse	12	1814

Answer to 6-months general health question:

"Overall, how are your problems now, compared to before your operation?"

### Satisfaction

Response	MS-30 Stem	All other Cemented Stems in NJR
Excellent	1004	83761
Very Good	748	71733
Good	324	35456
Fair	77	11746
Poor	23	3165

Answer to 6-months general health question:

"How would you describe the results of your operation?"

## Disclaimer

### Disclaimer

The data used for this analysis was obtained from the National Joint Registry ("NJR"), part of the Healthcare Quality Improvement Partnership ("HQIP"). HQIP, the NJR and/or its contractor, NEC Software Solutions (UK) Limited ("NEC") take no responsibility (except as prohibited by law) for the accuracy, currency, reliability and correctness of any data used or referred to in this report, nor for the accuracy, currency, reliability and correctness of links or references to other information sources and disclaims all warranties in relation to such data, links and references to the maximum extent permitted by legislation including any duty of care to third party readers of the data analysis.

To the maximum extent permitted by law, neither the NJR or NEC shall have any liability (including but not limited to liability by reason of negligence) for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on the data within this report and whether caused by reason of any error, omission or misrepresentation in the report or otherwise. This report is not to be taken as advice. Third parties using or relying on the data in this report do so at their own risk and will be responsible for making their own assessment and should verify all relevant representations, statements and information with their own professional advisers.





# Appendix A: Component List

Catalogue Number	Description	Number Implanted
14320520	BALL HEAD P20 Ñ 32 mm / S	133
14320620	BALL HEAD P20 Ñ 32 mm / M	753
14320720	BALL HEAD P20 Ñ 32 mm / L	120
17.28.05	28/SHORT SULOX CERAMIC HEAD	126
17.28.06	28/MEDIUM SULOX CERAMIC HEAD	971
17.28.07	28/LONG SULOX CERAMIC HEAD	60
17.32.05	SULOX BALL HEAD 32/S	59
17.32.06	SULOX BALL HEAD 32/M	865
17.32.07	SULOX BALL HEAD 32/L	66
19.28.05	METASUL BALL HEAD 28/S	125
19.28.06	METASUL BALL HEAD 28/M	400
19.28.07	METASUL BALL HEAD 28/ L	70
19.32.05	Metasul 32mm short (-4mm) head	6
19.32.06	Metasul Head 32/0 M tAPER 12/14	62
19.32.07	Metasul 32mm large head	13
19.32.08	Metasul Head 32/+8 XL Taper 12/14 CoCrMo	3
302205	22MM/BALL HEAD S30 SHORT	18
302206	22MM/BALL HEAD S30 MEDIUM	18
302207	22MM/BALL HEAD S30 LONG	2
302805	BALL HEAD S30 28mm/S	119
302806	28mm/MEDIUM S30 BALL HEAD	391
302807	28mm/LONG S30 BALL HEAD	67
303205	BALL HEAD S30 32mm/S	52
303206	BALL HEAD S30 32mm/M	765
303207	BALL HEAD S30 32mm/L	58
407.0101	Cerasul Ball Head 28 S	1
407.0102	Cerasul Ball Head 28 M	20
6428-28-02	Alumina ceramic femoral head 12/14 taper 28mm +0mm	6
6428-28-03	Alumina ceramic femoral head 12/14 taper 28mm +3.5mm	1
6428-32-01	Alumina ceramic femoral head 12/14 taper 32mm -3.5mm	1
6428-32-02	Alumina ceramic femoral head 12/14 taper 32mm +0mm	13
8018-22-02	0 x 22mm Diameter Neck Length	2
8018-22-20	22.25mm Diameter -2mm Neck Length	3
8018-26-02	26mm Diameter 0mm Neck Length	2
8018-26-03	26mm Diameter +3.5mm Neck Length	4
8018-28-01	28mm Diameter -3.5mm Neck Length	10
8018-28-02	28mm Diameter 0mm Neck Length	13
8018-28-03	28mm Diameter +3.5mm Neck Length	4
8018-28-14	28mm Diameter +7mm Neck Length	3
8018-32-01	32mm Diameter -3.5mm Neck Length	8
8018-32-02	32mm Diameter 0mm Neck Length	29
8018-32-03	32mm Diameter +3.5mm Neck Length	3
8018-36-01	Modular head 12/14 taper-36mm -3.5	17
8018-36-02	Modular head 12/14 taper-36mm 0	100
8018-36-03	Modular head 12/14 taper-36mm +3.5	24
8018-36-04	Modular head 12/14 taper -36mm +7	1

# Appendix A: Component List

Catalogue Number	Description	Number Implanted
8018-40-03	Modular head 12/14 taper 40mm +3.5	1
802203202	ZB 12/14 COCR HD 32MM X +0	6
802203602	ZB 12/14 COCR HD 36MM X +0	15
802203603	ZB 12/14 COCR HD 36MM X +3.5	7
Stem Centralizer		
01.00351.014	DISTAL CENTRALIZERS (WINGED) SIZE 10/14	193
01.00351.216	DISTAL CENTRALIZERS (WINGED) SIZE 12/16	28
01.00351.416	DISTAL CENTRALIZERS (WINGED) SIZE 14/16	42
01.00351.418	DISTAL CENTRALIZERS (WINGED) SIZE 14/18	11
01.00351.618	DISTAL CENTRALIZERS (WINGED) SIZE 16/18	8
01.00351.620	DISTAL CENTRALIZERS (WINGED) SIZE 16/20	2
01.00356.010	DISTAL CENTRALIZERS (WINGED) SIZE 6/10	576
01.00356.055	MS-30 Proximal positioner 6 Standard	4
01.00358.012	DISTAL CENTRALIZERS (WINGED) SIZE 8/12	390
0100351012	DISTAL CENTRALIZERS (WINGED) SIZE 10/12	1845
0100351214	DISTAL CENTRALIZERS (WINGED) SIZE 12/14	399
0100356008	DISTAL CENTRALIZERS (WINGED) SIZE 6/8	1599
0100358010	DISTAL CENTRALIZERS (WINGED) SIZE 8/10	3434
164247	Distal Centralizer Stanmore Fem Sz 2	1
300108	DISTAL CENTRALIZERS (1 PIECE) Ñ 8 mm L:	148
300110	DISTAL CENTRALIZERS (1 PIECE) Ñ 10 mm L	389
300112	DISTAL CENTRALIZERS (1 PIECE) Ñ 12 mm L	351
300114	DISTAL CENTRALIZERS (1 PIECE) Ñ 14 mm L	113
300116	DISTAL CENTRALIZERS (1 PIECE) Ñ 16 mm L	24
300118	DISTAL CENTRALIZERS (1 PIECE) Ñ 18 mm L	3
Femoral Canal Plug		
3203	SIZE 3 INTRAMEDULLARY PLUG	2
3204	SIZE 4 INTRAMEDULLARY PLUG	15
3222	SIZE 2 IM.PLUG WITH DRAIN	21
3223	SIZE 3 IM.PLUG WITH DRAIN	419
3224	SIZE 4 IM.PLUG WITH DRAIN	206
3225	SIZE 5 IM.PLUG WITH DRAIN	77
3226	SIZE 6 IM.PLUG WITH DRAIN	5
3228	SIZE 2.5 IM.PLUG WITH DRAIN	183
3229	SIZE 3.5 IM.PLUG WITH DRAIN	316
4361	SCANDIMED OPTIPLUG CEMENT RESECTOR 10MM	4
4362	SCANDIMED OPTIPLUG CEMENT RESECTOR 12MM	3
4363	SCANDIMED OPTIPLUG CEMENT RESECTOR 14MM	1
4364	SCANDIMED OPTIPLUG CEMENT RESECTOR 16MM	1
8011-10-24	Bone Plug 12mm	1
8011-20-20	Allen medullary plug 10cx20mm	19
8011-20-24	Allen medullary plug 12cx24mm	23
8011-20-28	Allen medullary plug 14cx28mm	17
8011-20-32	Allen medullary plug 16cx32mm	6