

Implant Summary Report for:

DePuy

Elite Plus Ogee Cup

Comprising PRIMARY hips implanted up to:
NJR Database extract:

10 August 2020
09 October 2020

Produced on:
Licensed for use until:

16 October 2020
16 February 2021

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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 Elite Plus Ogee Cup 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:

Acetabular components

Elite Plus Ogee Cup

Femoral Component

Any Femoral Components manufactured by DePuy

Appendix A lists details of all Elite Plus Ogee Cup components included in this report.

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NJR Recorded Usage

Implant Usage

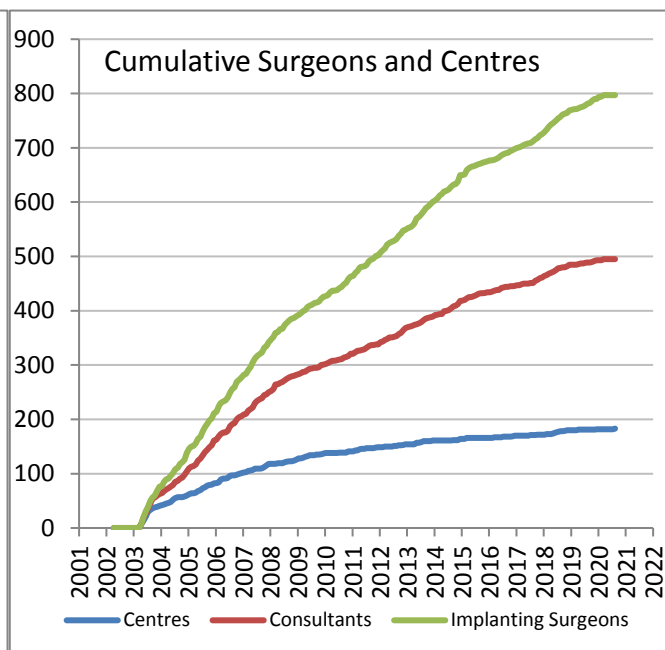
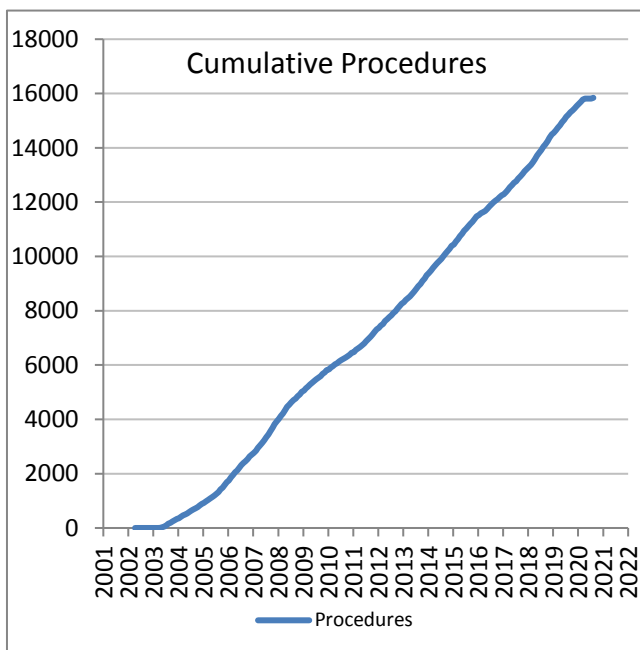
Date of first recorded usage in the NJR: **02 April 2003**

Date of last recorded usage in this dataset: **08 August 2020**

Maximum implantation time: 17.3 years

Mean implantation time: 6.7 years

Totals Recorded in NJR	Cumulative Total
Procedures	15,842
Patients	14,754
Centres	183
Consultants	495
Implanting Surgeons	797



Current Outcome	Year of implantation													Total	%
	Pre-2009	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
Death	2657	320	221	264	243	234	191	181	90	60	56	26	2	4545	28.7%
Revised	154	22	18	19	23	22	16	10	10	14	15	5	0	328	2.1%
Unrevised	2232	451	394	600	680	806	861	895	663	925	1181	1028	253	10969	69.2%
Total	5043	793	633	883	946	1062	1068	1086	763	999	1252	1059	255	15842	100%

Patient / Procedure Details

Patient Details

	Elite Plus Ogee Cup	All other Cemented Cups in NJR	All NJR hip replacement
Total Procedures	15,842	380,245	1,240,128
Total Patients	14,754	338,193	1,046,258
Demographics			
Mean age	73.2	73.3	68.6
< 50	1.3%	1.6%	5.9%
50 – 59	6.0%	5.9%	13.8%
60 – 69	23.3%	22.8%	28.9%
70 – 79	44.6%	43.8%	34.7%
≥ 80	24.9%	25.9%	16.6%
Median BMI	28	28	28
% BMI information available	58.2%	59.5%	62.4%
Underweight (BMI < 18.5)	1.0%	1.1%	0.9%
Normal (18.5 ≤ BMI < 25)	21.3%	22.2%	20.7%
Overweight (25 ≤ BMI < 30)	40.2%	40.0%	39.6%
Obese I (30 ≤ BMI < 35)	25.3%	25.0%	25.8%
Obese II (35 ≤ BMI < 40)	9.3%	8.8%	9.7%
Obese III (BMI ≥ 40)	2.9%	2.8%	3.3%
% Male	36.3%	33.6%	40.2%
ASA Grades			
P1 - Fit and healthy	10.6%	10.8%	15.6%
P2 - Mild disease not incapacitating	66.5%	67.9%	67.7%
P3 - Incapacitating systemic disease	22.2%	20.5%	16.2%
P4 / P5	0.7%	0.8%	0.6%
Indications			
Osteoarthritis	92.51%	90.78%	91.36%
Rheumatoid Arthritis	1.63%	1.37%	1.32%
Avascular Necrosis	2.78%	2.18%	2.51%
Fractured Neck of Femur	3.57%	4.66%	3.59%
CDH/DDH	0.54%	0.62%	1.57%
Other	1.57%	2.30%	2.12%

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 [†]	Expected Revisions [*]	p value
Unexplained Pain	37	28.91	0.128
Dislocation / Subluxation	66	84.08	0.045
Adverse Soft Tissue Reaction	2	4.06	0.444
Infection	65	72.42	0.402
Aseptic Loosening - Stem	50	50.04	1
Aseptic Loosening - Socket	75	93.82	0.051
Periprosthetic Fracture Stem	67	52.35	0.048
Periprosthetic Fracture Socket	3	3.21	1
Malalignment Stem	11	8.51	0.379
Malalignment Socket	8	13.59	0.164
Wear Of Acetabular Component	14	18.50	0.342
Lysis Stem	9	11.73	0.549
Lysis Socket	13	18.18	0.279
Implant Fracture Stem	5	6.63	0.691
Implant Fracture Socket	0	0.80	1
Implant Fracture Head	0	1.02	0.625
Dissociation of Liner	1	2.44	0.521
Other / reason not recorded	10	9.36	0.739
Total Revised	328	353.02	0.184

[†] multiple reasons may be listed for one revision procedure ^{*} Based on All NJR Cemented Cups, 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	Elite Plus Ogee Cup	All other Cemented Cups in NJR
Femoral only	83	25%	18%
Acetabular only	84	26%	26%
Both femoral and acetabular	134	41%	49%
Neither femoral nor acetabular revision recorded [*]	27	8%	7%

^{*} 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 [†]	Expected Revisions [*]	p value
Unexplained Pain	37	28.87	0.128
Dislocation / Subluxation	66	83.91	0.045
Adverse Soft Tissue Reaction	2	3.53	0.588
Infection	65	72.40	0.402
Aseptic Loosening - Stem	50	50.05	1
Aseptic Loosening - Socket	75	93.73	0.051
Periprosthetic Fracture Stem	67	52.27	0.041
Periprosthetic Fracture Socket	3	3.22	1
Malalignment Stem	11	8.53	0.379
Malalignment Socket	8	13.54	0.163
Wear Of Acetabular Component	14	18.47	0.341
Lysis Stem	9	11.73	0.549
Lysis Socket	13	18.11	0.278
Implant Fracture Stem	5	6.48	0.69
Implant Fracture Socket	0	0.80	1
Implant Fracture Head	0	0.96	0.625
Dissociation of Liner	1	2.45	0.521
Other / reason not recorded	10	9.22	0.736
Total Revised	328	351.84	0.201

* Based on All NJR Cemented Cups (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



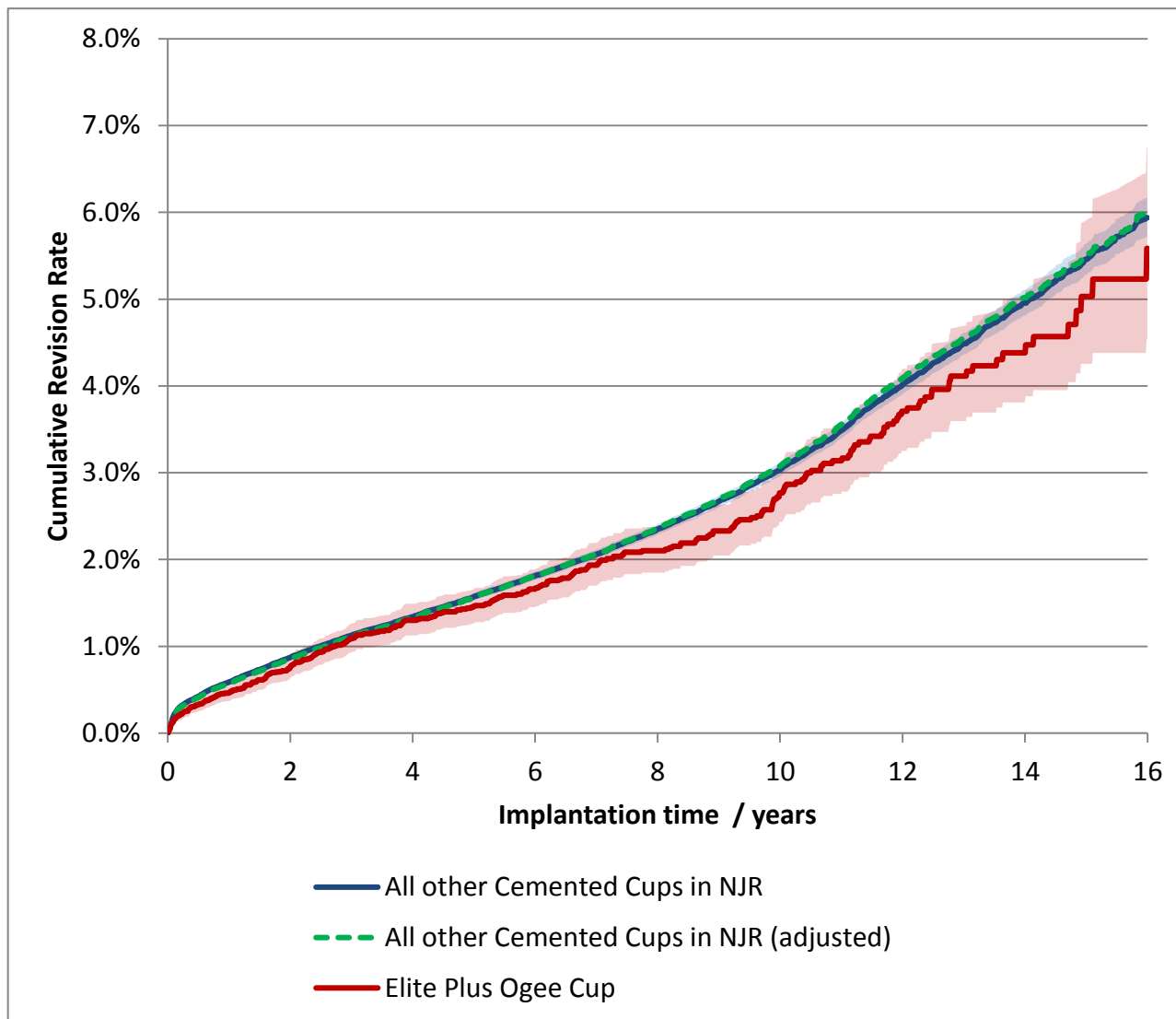
Components Revised	Number of procedures	Elite Plus Ogee Cup	All other Cemented Cups in NJR
Femoral only	83	25%	18%
Acetabular only	84	26%	26%
Both femoral and acetabular	134	41%	49%
Neither femoral nor acetabular revision recorded *	27	8%	7%

* includes isolated head and/or liner exchange

Revision and Survivorship

Cumulative Revision Rate

Endpoint: All reasons for revision. All Bearing types



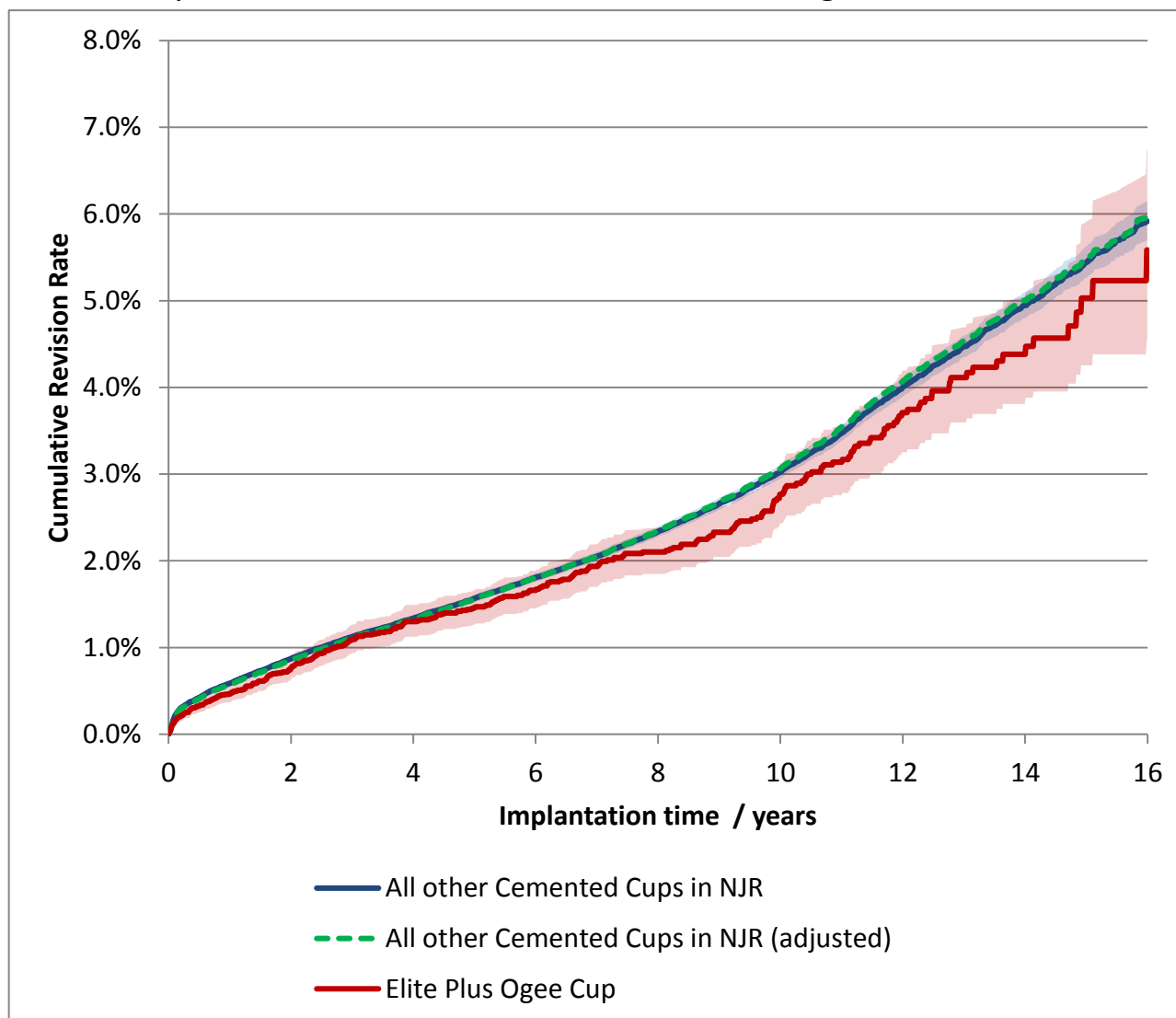
Cox Proportional Hazards model for revision risk ratio of Elite Plus Ogee Cup / All other Cemented Cups in NJR, with endpoint as any revision.

Adjustment	Hazard Ratio (95% CI)	p-value
All bearings. Unadjusted.	0.93 (0.83 - 1.04)	0.197
All bearings. Adjusted for age, gender, year cohort and indications.	0.93 (0.83 - 1.03)	0.174

Revision and Survivorship

Cumulative Revision Rate

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



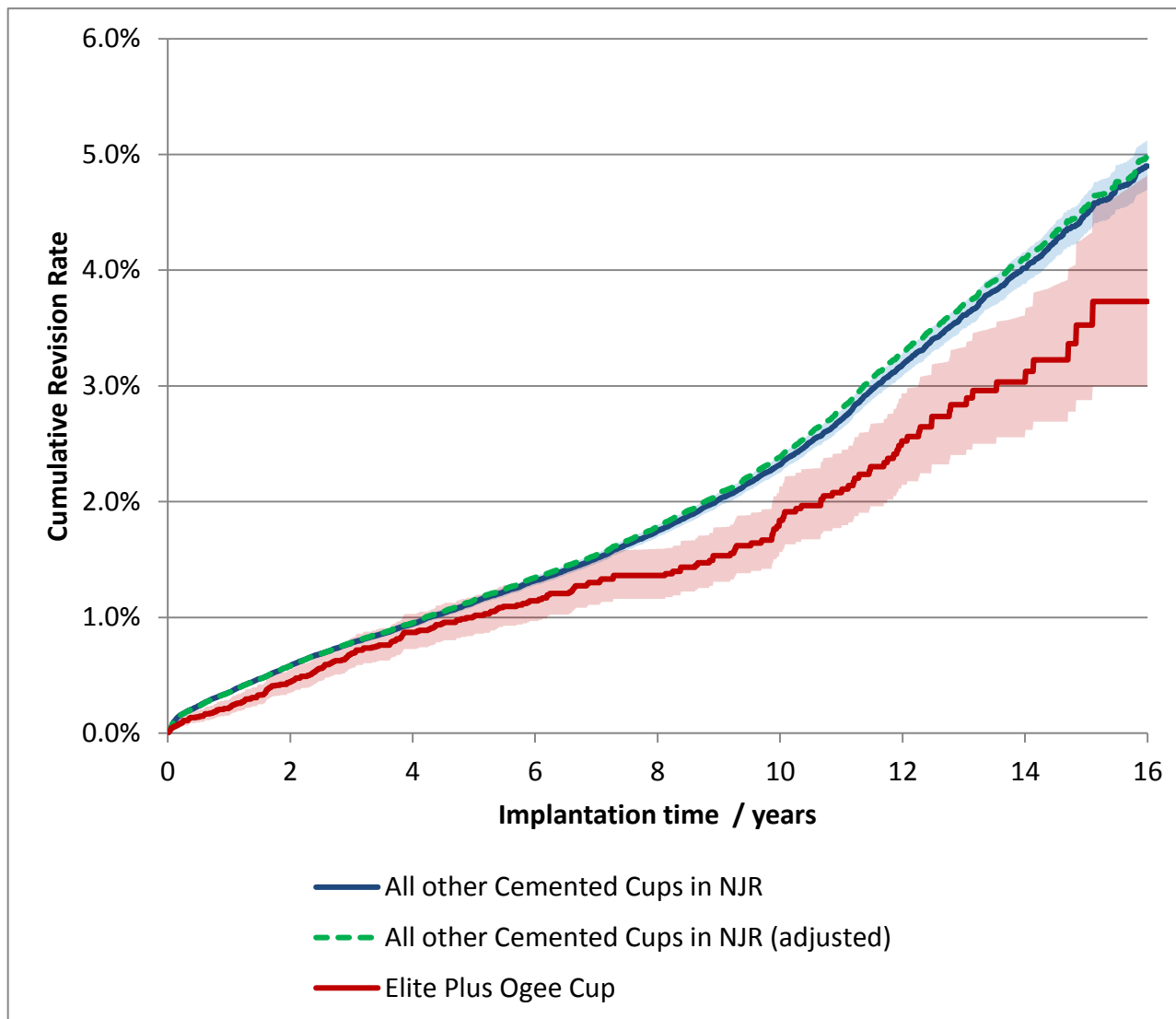
Cox Proportional Hazards model for revision risk ratio of Elite Plus Ogee Cup / All other Cemented Cups in NJR, with endpoint as any revision.

Adjustment	Hazard Ratio (95% CI)	p-value
Excluding MoM, Unadjusted.	0.93 (0.84 - 1.04)	0.217
Excluding MoM. Adjusted for age, gender, year cohort and indications.	0.93 (0.83 - 1.04)	0.194

Revision and Survivorship

Cumulative Revision Rate

Endpoint: Acetabular Revision. All Bearing types



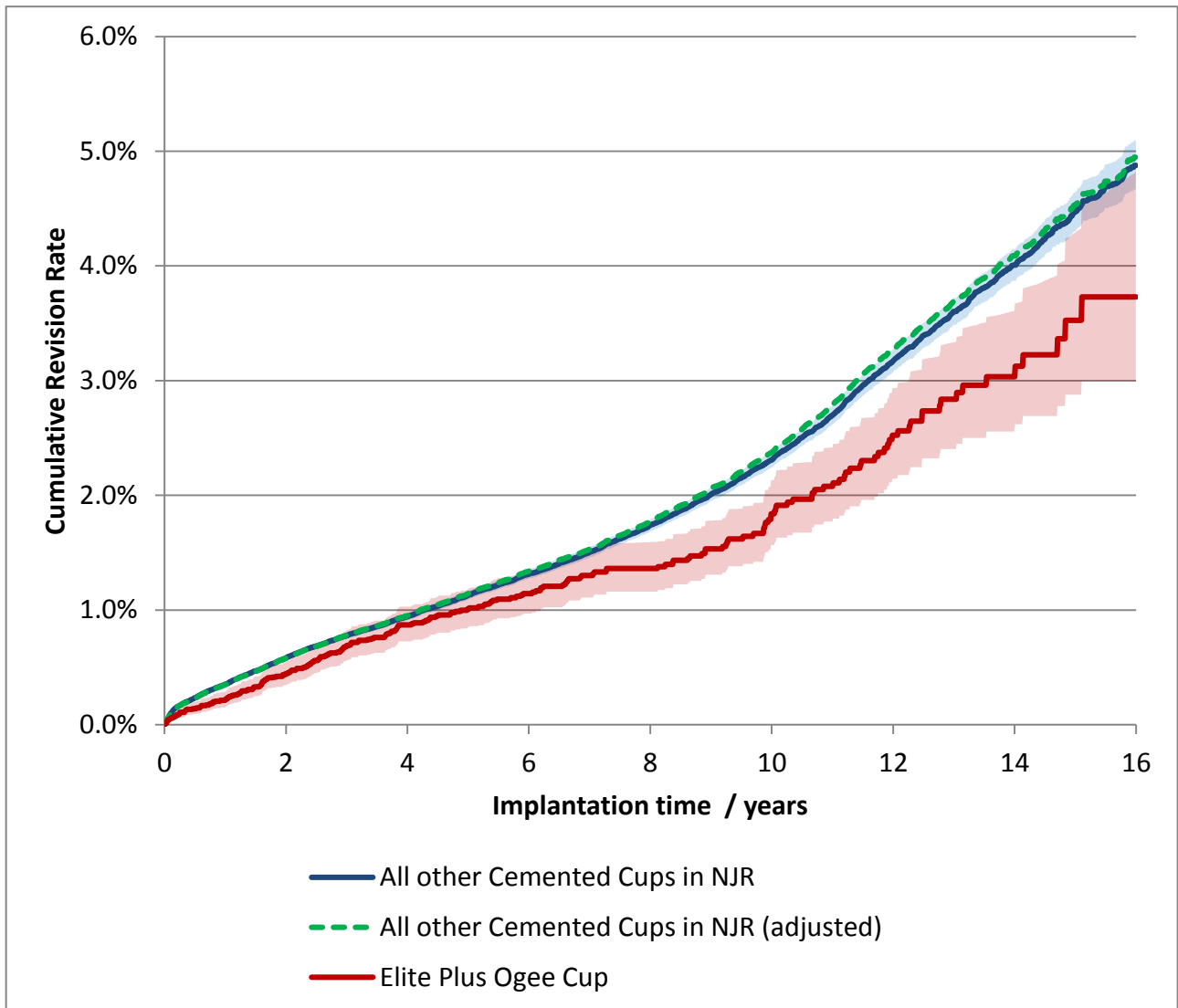
Cox Proportional Hazards model for revision risk ratio of Elite Plus Ogee Cup / All other Cemented Cups in NJR, with endpoint as any revision.

Adjustment	Hazard Ratio (95% CI)	p-value
All bearings. Unadjusted.	0.82 (0.72 - 0.94)	0.004
All bearings. Adjusted for age, gender, year cohort and indications.	0.81 (0.71 - 0.93)	0.002

Revision and Survivorship

Cumulative Revision Rate

Endpoint: Acetabular Revision. Excluding Metal-on-Metal



Cox Proportional Hazards model for revision risk ratio of Elite Plus Ogee Cup / All other Cemented Cups in NJR, with endpoint as any revision.

Adjustment	Hazard Ratio (95% CI)	p-value
Excluding MoM. Unadjusted.	0.82 (0.72 - 0.94)	0.005
Excluding MoM. Adjusted for age, gender, year cohort and indications.	0.81 (0.71 - 0.93)	0.003

Revision and Survivorship

Cumulative Revision Rate

Endpoint: All revisions

Period /years	All Bearing types				Excluding Metal on Metal Bearings			
	At Risk	Elite Plus Ogee Cup	All other Cemented Cups in NJR	All THR	At Risk	Elite Plus Ogee Cup	All other Cemented Cups in NJR	All THR
0	15,842	-	-	-	15,842	-	-	-
1	14,839	0.5% (0.4% - 0.6%)	0.6% (0.6% - 0.6%)	0.8% (0.8% - 0.8%)	14,839	0.5% (0.4% - 0.6%)	0.6% (0.6% - 0.6%)	0.8% (0.8% - 0.8%)
2	13,342	0.8% (0.6% - 0.9%)	0.9% (0.8% - 0.9%)	1.1% (1.1% - 1.2%)	13,342	0.8% (0.6% - 0.9%)	0.9% (0.8% - 0.9%)	1.1% (1.1% - 1.1%)
3	11,811	1.1% (0.9% - 1.3%)	1.1% (1.1% - 1.2%)	1.5% (1.5% - 1.5%)	11,811	1.1% (0.9% - 1.3%)	1.1% (1.1% - 1.2%)	1.4% (1.3% - 1.4%)
4	10,613	1.3% (1.1% - 1.5%)	1.3% (1.3% - 1.4%)	1.8% (1.8% - 1.8%)	10,613	1.3% (1.1% - 1.5%)	1.3% (1.3% - 1.4%)	1.6% (1.6% - 1.6%)
5	9,424	1.5% (1.3% - 1.7%)	1.6% (1.5% - 1.6%)	2.2% (2.1% - 2.2%)	9,424	1.5% (1.3% - 1.7%)	1.6% (1.5% - 1.6%)	1.8% (1.8% - 1.8%)
6	8,081	1.7% (1.4% - 1.9%)	1.8% (1.8% - 1.9%)	2.6% (2.5% - 2.6%)	8,081	1.7% (1.4% - 1.9%)	1.8% (1.8% - 1.9%)	2.0% (2.0% - 2.1%)
7	6,820	1.9% (1.7% - 2.2%)	2.1% (2.0% - 2.1%)	3.0% (2.9% - 3.0%)	6,820	1.9% (1.7% - 2.2%)	2.1% (2.0% - 2.1%)	2.3% (2.3% - 2.3%)
8	5,746	2.1% (1.8% - 2.4%)	2.3% (2.3% - 2.4%)	3.4% (3.4% - 3.4%)	5,746	2.1% (1.8% - 2.4%)	2.3% (2.3% - 2.4%)	2.6% (2.5% - 2.6%)
9	4,731	2.3% (2.0% - 2.6%)	2.7% (2.6% - 2.7%)	3.9% (3.8% - 3.9%)	4,731	2.3% (2.0% - 2.6%)	2.7% (2.6% - 2.7%)	2.9% (2.8% - 2.9%)
10	3,951	2.8% (2.4% - 3.1%)	3.0% (3.0% - 3.1%)	4.3% (4.3% - 4.4%)	3,951	2.8% (2.4% - 3.1%)	3.0% (2.9% - 3.1%)	3.2% (3.2% - 3.2%)
11	3,255	3.1% (2.8% - 3.5%)	3.5% (3.4% - 3.6%)	4.9% (4.8% - 4.9%)	3,255	3.1% (2.8% - 3.5%)	3.5% (3.4% - 3.6%)	3.6% (3.5% - 3.6%)
12	2,542	3.7% (3.3% - 4.2%)	4.0% (3.9% - 4.1%)	5.4% (5.4% - 5.5%)	2,542	3.7% (3.3% - 4.2%)	4.0% (3.9% - 4.1%)	4.0% (4.0% - 4.1%)
13	1,696	4.1% (3.6% - 4.7%)	4.5% (4.4% - 4.6%)	5.9% (5.9% - 6.0%)	1,696	4.1% (3.6% - 4.7%)	4.5% (4.3% - 4.6%)	4.5% (4.4% - 4.5%)
14	1,060	4.4% (3.8% - 5.0%)	5.0% (4.8% - 5.1%)	6.5% (6.4% - 6.6%)	1,060	4.4% (3.8% - 5.0%)	4.9% (4.8% - 5.1%)	4.9% (4.8% - 5.0%)
15	521	5.0% (4.3% - 5.9%)	5.5% (5.3% - 5.6%)	7.0% (6.9% - 7.1%)	521	5.0% (4.3% - 5.9%)	5.4% (5.3% - 5.6%)	5.4% (5.3% - 5.5%)

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: Acetabular Revision

Period /years	All Bearing types				Excluding Metal on Metal Bearings			
	At Risk	Elite Plus Ogee Cup	All Other Cemented Cups in NLR	All THR	At Risk	Elite Plus Ogee Cup	All Other Cemented Cups in NLR	All THR
0	15,842	-	-	-	15,842	-	-	-
1	14,839	0.2% (0.2% - 0.3%)	0.4% (0.3% - 0.4%)	0.4% (0.4% - 0.4%)	14,839	0.2% (0.2% - 0.3%)	0.4% (0.3% - 0.4%)	0.4% (0.4% - 0.4%)
2	13,342	0.4% (0.3% - 0.6%)	0.6% (0.6% - 0.6%)	0.7% (0.7% - 0.7%)	13,342	0.4% (0.3% - 0.6%)	0.6% (0.6% - 0.6%)	0.6% (0.6% - 0.6%)
3	11,811	0.7% (0.6% - 0.8%)	0.8% (0.7% - 0.8%)	0.9% (0.9% - 0.9%)	11,811	0.7% (0.6% - 0.8%)	(-)	0.8% (0.8% - 0.8%)
4	10,613	0.9% (0.7% - 1.0%)	0.9% (0.9% - 1.0%)	1.2% (1.1% - 1.2%)	10,613	0.9% (0.7% - 1.0%)	(-)	1.0% (0.9% - 1.0%)
5	9,424	1.0% (0.8% - 1.2%)	1.1% (1.1% - 1.2%)	1.4% (1.4% - 1.5%)	9,424	1.0% (0.8% - 1.2%)	(-)	1.1% (1.1% - 1.1%)
6	8,081	1.1% (1.0% - 1.3%)	1.3% (1.3% - 1.4%)	1.7% (1.7% - 1.8%)	8,081	1.1% (1.0% - 1.3%)	(-)	1.3% (1.2% - 1.3%)
7	6,820	1.3% (1.1% - 1.5%)	1.5% (1.5% - 1.6%)	2.0% (2.0% - 2.1%)	6,820	1.3% (1.1% - 1.5%)	(-)	1.4% (1.4% - 1.4%)
8	5,746	1.4% (1.2% - 1.6%)	1.7% (1.7% - 1.8%)	2.4% (2.3% - 2.4%)	5,746	1.4% (1.2% - 1.6%)	(-)	1.6% (1.6% - 1.6%)
9	4,731	1.5% (1.3% - 1.8%)	2.0% (2.0% - 2.1%)	2.7% (2.7% - 2.8%)	4,731	1.5% (1.3% - 1.8%)	(-)	1.8% (1.8% - 1.8%)
10	3,951	1.8% (1.6% - 2.1%)	2.3% (2.2% - 2.4%)	3.1% (3.1% - 3.2%)	3,951	1.8% (1.6% - 2.1%)	(-)	2.0% (2.0% - 2.1%)
11	3,255	2.1% (1.8% - 2.4%)	2.7% (2.6% - 2.8%)	3.5% (3.5% - 3.6%)	3,255	2.1% (1.8% - 2.4%)	(-)	2.3% (2.3% - 2.4%)
12	2,542	2.5% (2.1% - 2.9%)	3.2% (3.1% - 3.3%)	4.0% (3.9% - 4.0%)	2,542	2.5% (2.1% - 2.9%)	(-)	2.7% (2.6% - 2.7%)
13	1,696	2.8% (2.4% - 3.3%)	3.6% (3.5% - 3.7%)	4.4% (4.3% - 4.5%)	1,696	2.8% (2.4% - 3.3%)	(-)	3.0% (2.9% - 3.1%)
14	1,060	3.0% (2.6% - 3.6%)	4.0% (3.9% - 4.2%)	4.8% (4.8% - 4.9%)	1,060	3.0% (2.6% - 3.6%)	(-)	3.4% (3.3% - 3.4%)
15	521	3.5% (2.9% - 4.3%)	4.5% (4.3% - 4.7%)	5.3% (5.2% - 5.4%)	521	3.5% (2.9% - 4.3%)	(-)	3.8% (3.7% - 3.9%)

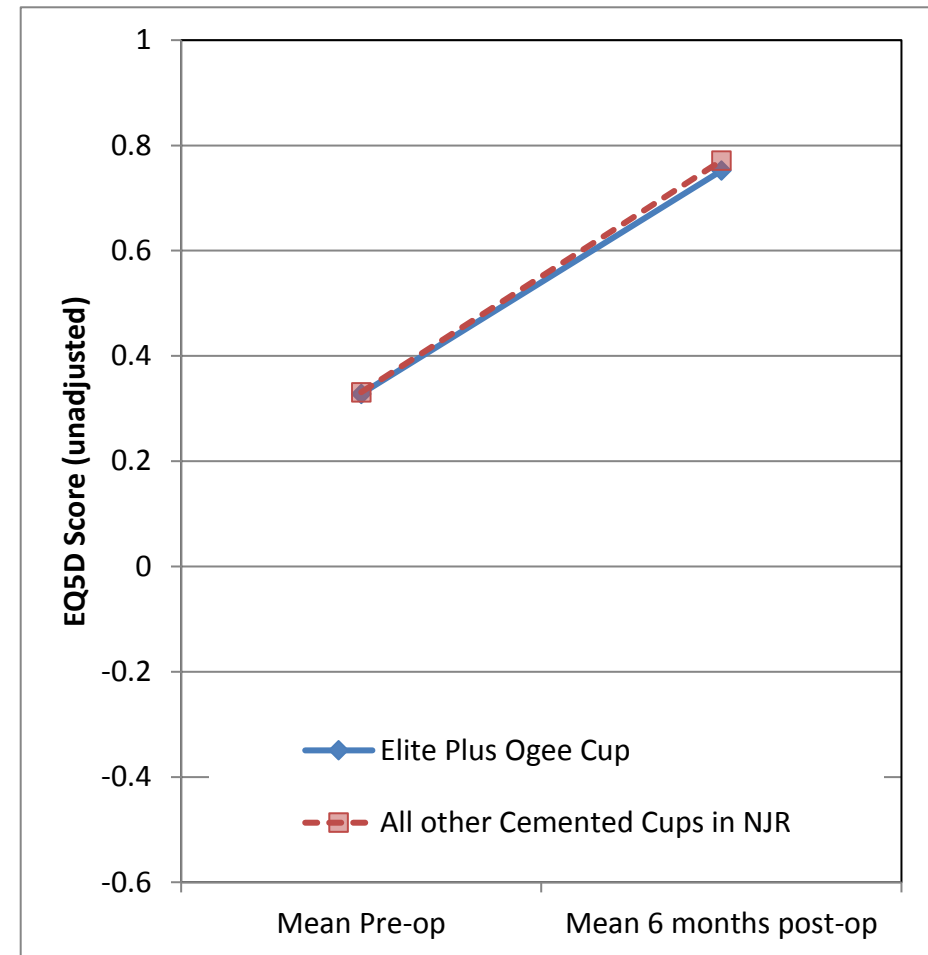
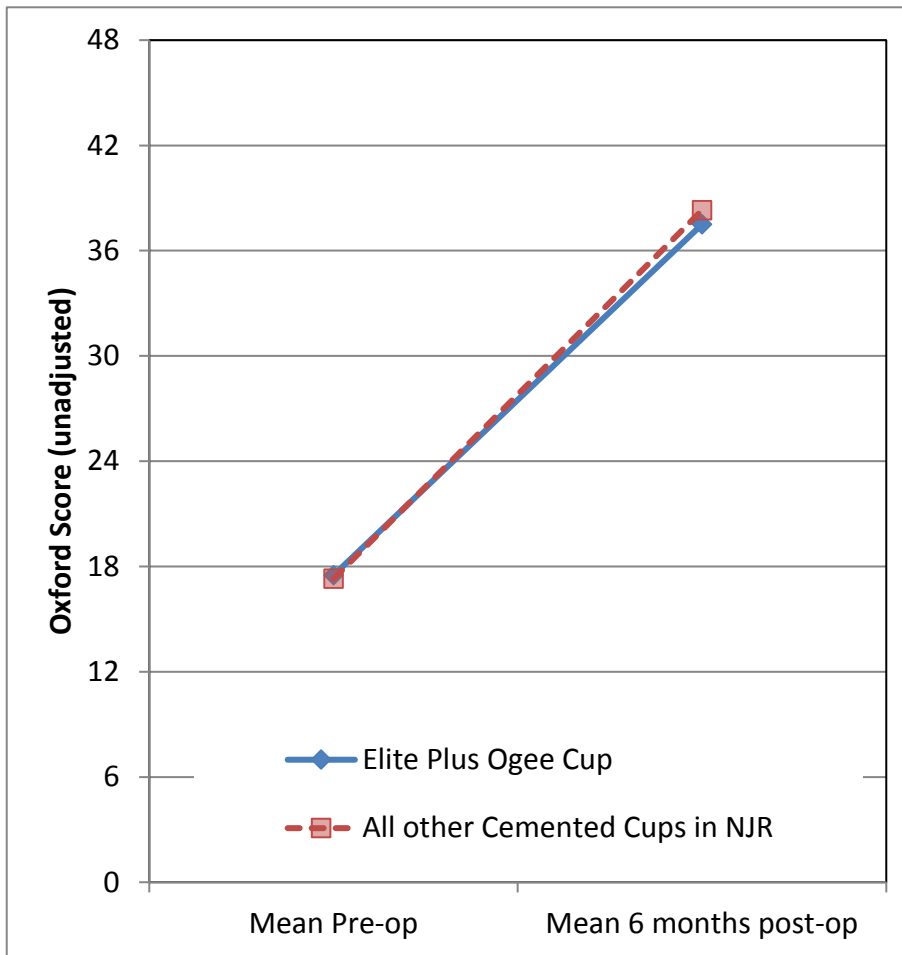
Cumulative revision rate with 95% confidence intervals

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: 29/03/2018



Patient Reported Outcomes

PROMs Analysis

Comprising PROMs data up to and including: 29/03/2018

Oxford Hip Score (0 - 48)	Elite Plus Ogee Cup	All other Cemented Cups in NJR	All THR in NJR
Paired Records	3,199	92,922	291,093
PreOp score	17.5 (17.2 - 17.8)	17.3 (17.3 - 17.4)	18.0 (18.0 - 18.0)
6 month score	37.5 (37.1 - 37.8)	38.3 (38.3 - 38.4)	39.3 (39.3 - 39.4)
6 month score (adjusted)	38.3 (38.0 - 38.6)	38.9 (38.9 - 39.0)	39.3 (39.3 - 39.4)
Health gain	20.0 (19.6 - 20.3)	21.0 (20.9 - 21.1)	21.3 (21.3 - 21.4)
Health gain (adjusted)	20.3 (20.0 - 20.6)	20.9 (20.8 - 21.0)	21.3 (21.3 - 21.4)
p value (adjusted health gain)	< 0.001		
Score Improved	96.0%	97.0%	97.2%

EQ-5D Index (-0.59 - 1.00)	Elite Plus Ogee Cup	All other Cemented Cups in NJR	All THR in NJR
Paired Records	2,925	84,845	267,698
PreOp score	0.328 (0.316 - 0.339)	0.331 (0.329 - 0.333)	0.355 (0.354 - 0.356)
6 month score	0.752 (0.742 - 0.761)	0.771 (0.769 - 0.772)	0.792 (0.791 - 0.792)
6 month score (adjusted)	0.772 (0.763 - 0.780)	0.782 (0.780 - 0.783)	0.792 (0.791 - 0.792)
Health gain	0.424 (0.411 - 0.436)	0.440 (0.438 - 0.442)	0.437 (0.435 - 0.438)
Health gain (adjusted)	0.417 (0.408 - 0.425)	0.427 (0.425 - 0.428)	0.437 (0.436 - 0.437)
p value (adjusted health gain)	0.031		
Score Improved	86.8%	88.9%	89.4%

EQ-VAS (0 - 100)	Elite Plus Ogee Cup	All other Cemented Cups in NJR	All THR in NJR
Paired Records	2,750	80,886	256,692
PreOp score	63.7 (62.9 - 64.5)	64.3 (64.2 - 64.5)	65.0 (64.9 - 65.1)
6 month score	74.6 (73.9 - 75.3)	75.2 (75.1 - 75.4)	76.8 (76.7 - 76.9)
6 month score (adjusted)	76.3 (75.7 - 76.9)	76.2 (76.1 - 76.3)	76.8 (76.7 - 76.8)
Health gain	10.9 (10.1 - 11.8)	10.9 (10.7 - 11.1)	11.8 (11.7 - 11.9)
Health gain (adjusted)	11.3 (10.7 - 11.9)	11.2 (11.1 - 11.3)	11.8 (11.7 - 11.8)
p value (adjusted health gain)	0.93		
Score Improved	63.4%	63.7%	65.6%

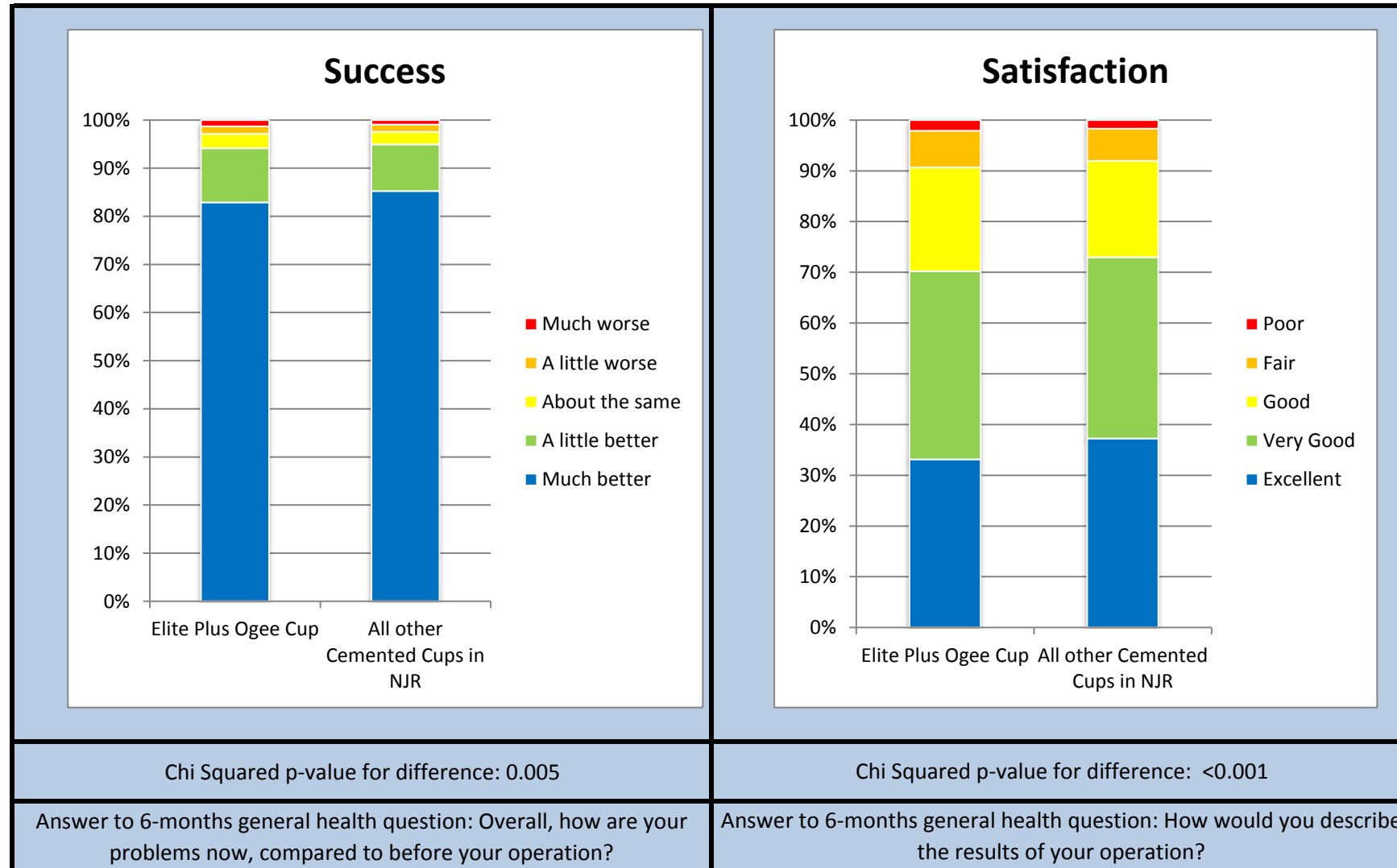
Adjusted scores correspond to the NHS Digital version 3 casemix-adjustment model. This includes patient variables from PROMs, HES, and IMD data.

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

Summary Report for:

Responses are not case mix adjusted

Patient Reported Outcomes



Chi Squared p-value for difference: 0.005

Chi Squared p-value for difference: <0.001

Answer to 6-months general health question: Overall, how are your problems now, compared to before your operation?

Answer to 6-months general health question: How would you describe the results of your operation?

Patient Reported Outcomes

Success

Response	Elite Plus Ogee Cup	All other Cemented Cups in NJR
Much better	2684	80477
A little better	364	9176
About the same	97	2497
A little worse	50	1381
Much worse	42	897

Answer to 6-months general health question:

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

Satisfaction

Response	Elite Plus Ogee Cup	All other Cemented Cups in NJR
Excellent	1075	35133
Very Good	1205	33653
Good	664	17929
Fair	233	5963
Poor	69	1601

Answer to 6-months general health question:

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

Disclaimer

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Appendix A: Component List

Catalogue Number	Description	Number Implanted
2009-06	custom elite plus ogee cup 53x28.6	3
962517000	ELITE PLUS OGEE CUP 32/47mm	958
962518000	ELITE PLUS OGEE CUP 32/50mm	484
962519000	ELITE PLUS OGEE CUP 32/53mm	144
965326040	ELITE PLUS OGEE CUP 26/40mm	111
965326043	ELITE PLUS OGEE CUP 26/43mm	174
965326047	ELITE PLUS OGEE CUP 26/47mm	79
965326050	ELITE PLUS OGEE CUP 26/50mm	26
965326053	ELITE PLUS OGEE CUP 26/53mm	12
965328040	ELITE PLUS OGEE CUP 28/40mm	2372
965328043	ELITE PLUS OGEE CUP 28/43mm	5411
965328047	ELITE PLUS OGEE CUP 28/47mm	3947
965328050	ELITE PLUS OGEE CUP 28/50mm	1541
965328053	ELITE PLUS OGEE CUP 28/53mm	579
965331000	RSA OGEE CUP 28/43	1