

Implant Summary Report for:

Heraeus Medical

Knees using Palacos Cement

Comprising PRIMARY knees implanted up to:
NJR Database extract:

27 January 2026
26 February 2026

Produced on:
Licensed for use until:

10 March 2026
10 March 2027

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This report has been produced by the National Joint Registry (NJR). It summarises usage and outcomes associated with brand(s) Palacos up to the specified dates. Patients aged less than 18 have been excluded. This analysis is based on data collected by the NJR and PROMs data collected by the NHS for the components listed in Appendix A. This report excludes all procedures where major components from mixed manufacturers have been implanted.

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NJR Recorded Usage

Implant Usage

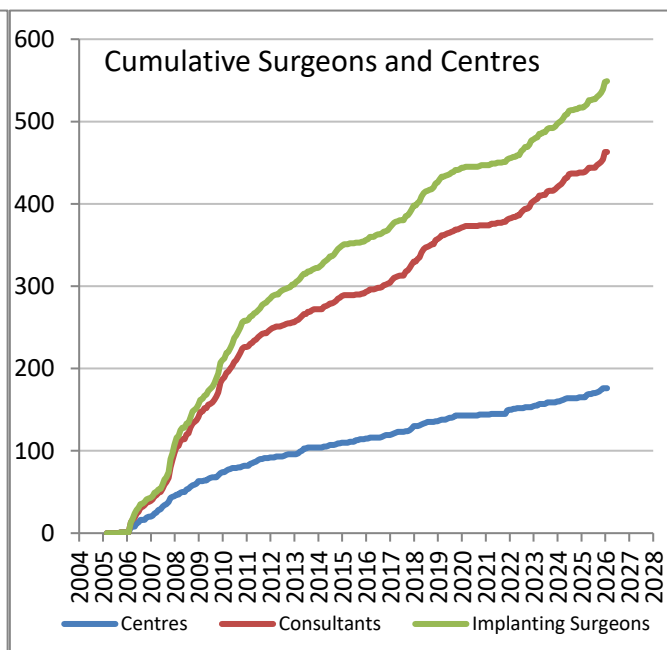
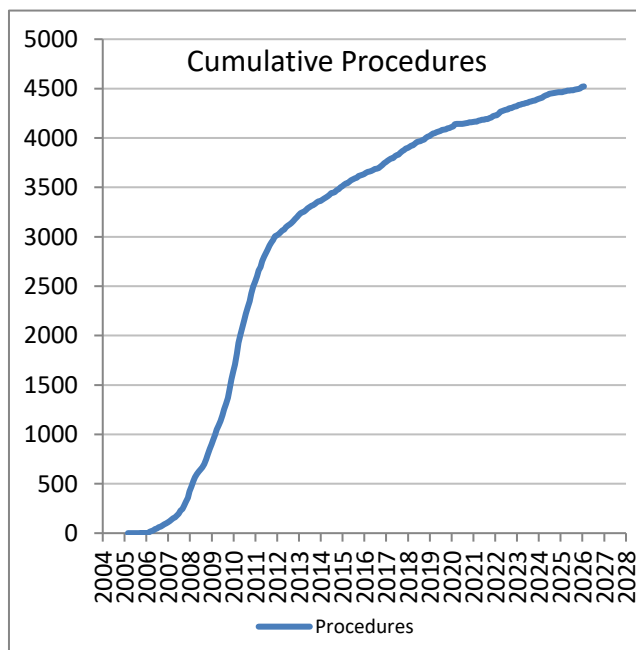
Date of first recorded usage in the NJR: **26 September 2005**

Date of last recorded usage in this dataset **20 January 2026**

Maximum implantation time: 19.9 years

Mean implantation time: 10.5 years

Totals Recorded in NJR	Cumulative Total
Procedures	4,522
Patients	4,218
Centres	176
Consultants	463
Implanting Surgeons	549



Current Outcome	Pre-2015	Year of implantation												Total	%
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026		
Death	1723	30	27	38	22	14	3	5	0	1	0	0	0	1863	41.2%
Revised	234	10	8	9	7	4	1	0	2	1	0	0	0	276	6.1%
Unrevised	1557	82	86	96	92	73	48	59	94	71	68	55	2	2383	52.7%
Total	3514	122	121	143	121	91	52	64	96	73	68	55	2	4522	100%

Patient / Procedure Details

Patient Details

	Knees using Palacos Cement	All other cement brands in NJR
Total Procedures	4,522	1,813,804
Total Patients	4,218	1,428,096
Demographics		
Mean age	70.4	69.7
< 50	2.2%	2.2%
50 – 59	11.8%	13.6%
60 – 69	32.5%	32.9%
70 – 79	36.8%	37.5%
≥ 80	16.7%	13.9%
Median BMI	30	30
% BMI information available	52.4%	71.0%
Underweight (BMI < 18.5)	0.3%	0.2%
Normal (18.5 ≤ BMI < 25)	11.7%	10.5%
Overweight (25 ≤ BMI < 30)	34.2%	34.1%
Obese I (30 ≤ BMI < 35)	29.6%	32.3%
Obese II (35 ≤ BMI < 40)	16.8%	16.6%
Obese III (BMI ≥ 40)	7.4%	6.4%
%Female	58.1%	56.6%
%Male	41.9%	43.4%
ASA Grades		
P1 - Fit and healthy	11.0%	9.2%
P2 - Mild disease not incapacitating	70.5%	71.9%
P3 - Incapacitating systemic disease	18.1%	18.6%
P4 / P5	0.4%	0.3%
Indications		
Osteoarthritis	97.92%	97.55%
RheumatoidArthritis	1.19%	1.27%
OtherInflammatoryArthropathy	0.57%	0.75%
PreviousTrauma	0.77%	0.67%
AvascularNecrosis	0.35%	0.37%
Other	0.40%	0.72%

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 [*]	Revision Rate Ratio (80% Cred. Int.)	Probability RRR < 1
Infection	72	32.79	1.82 - 2.46	< 0.001
Progressive Arthritis Remaining	29	37.43	0.61 - 0.97	0.93
Aseptic Loosening Femur	36	21.68	1.28 - 1.96	0.004
Aseptic Loosening Tibia	55	37.30	1.21 - 1.71	0.005
Aseptic Loosening Patella	0	3.75	0.09 - 0.67	0.98
Unexplained Pain	27	25.44	0.82 - 1.32	0.41
Stiffness	15	10.12	0.99 - 1.85	0.11
Malalignment	26	12.35	1.50 - 2.45	< 0.001
Instability	38	26.99	1.11 - 1.67	0.03
Dislocation / Subluxation	6	6.31	0.56 - 1.41	0.59
Periprosthetic Fracture	17	9.86	1.15 - 2.09	0.03
Wear of Polyethylene Component	16	15.62	0.73 - 1.34	0.49
Lysis - Tibia	19	9.69	1.32 - 2.32	0.008
Lysis - Femur	9	6.76	0.80 - 1.77	0.26
Component Dissociation	3	2.43	0.55 - 1.81	0.45
Implant Fracture	0	1.43	0.15 - 1.14	0.86
Other / Not recorded	10	12.24	0.55 - 1.17	0.76
Total Revised	276	191.35	1.33 - 1.55	< 0.001

[†] multiple reasons may be listed for one revision procedure ^{*} Based on All NJR Knees with Cement, adjusted for Age group, Sex, Implantation year and Indications

LCI > 100% higher than expected

LCI > 50% higher than expected

LCI > 20% higher than expected



UCI < 1/2 expected

UCI < 2/3 expected

UCI < 5/6 expected

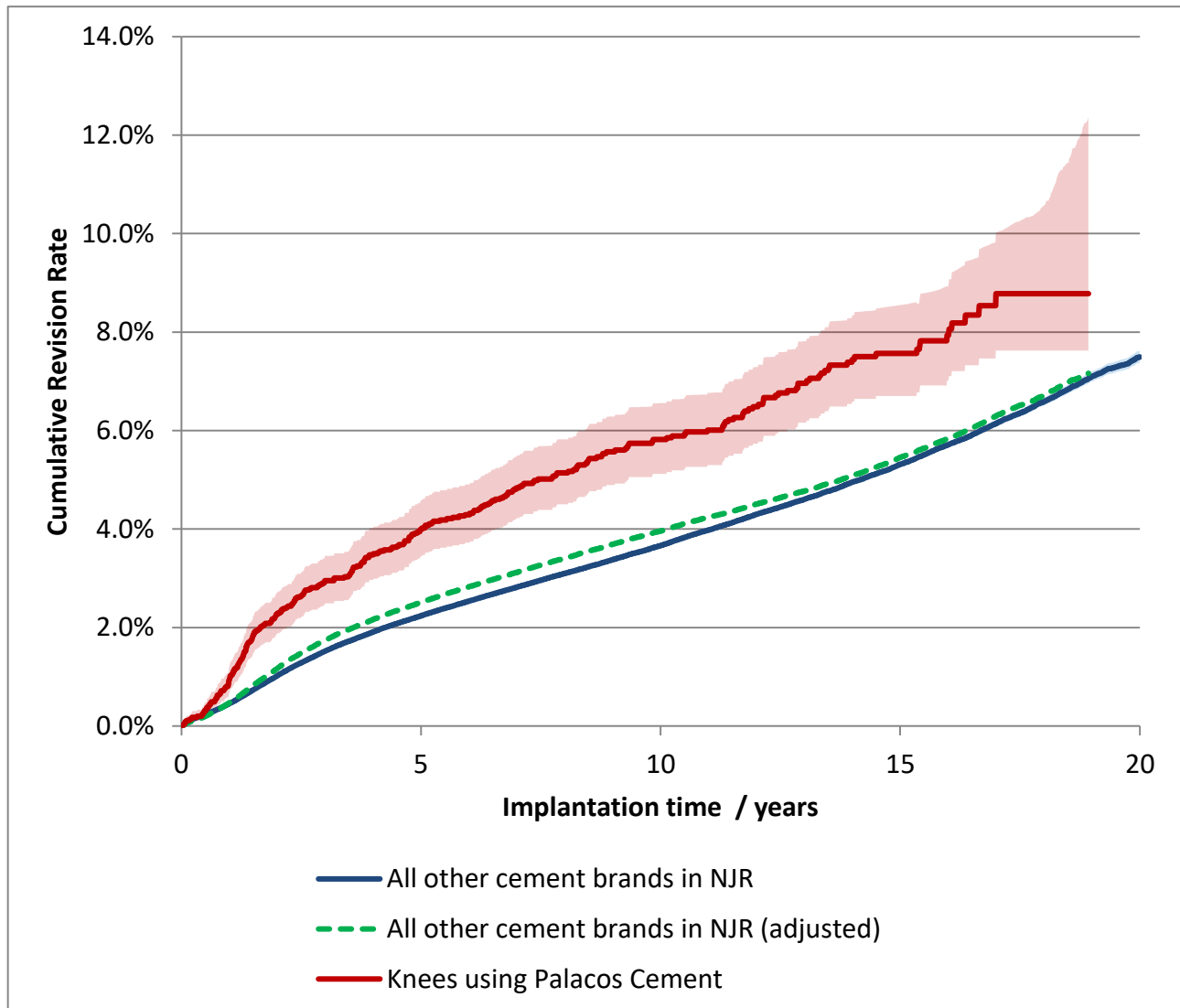


Components Revised	Knees using Palacos Cement		All other cement brands in NJR
Femoral only	14	5.1%	3.0%
Tibial only	10	3.6%	4.8%
Femoral and Tibial	214	77.5%	66.8%
Bearing exchange only	21	7.6%	13.3%
Secondary patella resurfacing only	14	5.1%	10.2%
Patella revision only	2	0.7%	0.9%
Not recorded	1	0.4%	0.9%

Revision and Survivorship

Cumulative Revision Rate

Endpoint: All reasons for revision.



Cox Proportional Hazards model for revision risk ratio of Knees using Palacos Cement / All other cement brands in NJR, with endpoint as any revision.

Adjustment	Hazard Ratio (95% CI)	p- value
Unadjusted.	1.53 ‡ (1.36 - 1.72)	< 0.001
Adjusted for age, sex, ASA, BMI, Op.date and indications.	1.44 ‡ (1.28 - 1.62)	< 0.001

‡ Hazard ratio varies with time

Revision and Survivorship

Cumulative Revision Rate

Endpoint: All revisions

Period /years	At Risk	Knees using Palacos Cement	All other cement brands in NJR
0	4522	0.00% (0.00% - 0.00%)	0.00% (0.00% - 0.00%)
1	4374	0.94% (0.70% - 1.23%)	0.46% (0.45% - 0.47%)
2	4194	2.27% (1.87% - 2.71%)	1.02% (1.01% - 1.04%)
3	4028	2.95% (2.49% - 3.46%)	1.52% (1.50% - 1.54%)
4	3808	3.48% (2.97% - 4.02%)	1.91% (1.89% - 1.93%)
5	3613	4.00% (3.45% - 4.58%)	2.24% (2.22% - 2.26%)
6	3437	4.29% (3.72% - 4.91%)	2.54% (2.51% - 2.56%)
7	3236	4.84% (4.22% - 5.49%)	2.82% (2.79% - 2.85%)
8	3003	5.14% (4.50% - 5.82%)	3.10% (3.07% - 3.13%)
9	2756	5.57% (4.89% - 6.28%)	3.38% (3.35% - 3.41%)
10	2518	5.82% (5.12% - 6.56%)	3.66% (3.63% - 3.70%)
11	2309	6.01% (5.30% - 6.77%)	3.98% (3.94% - 4.02%)
12	2068	6.49% (5.73% - 7.29%)	4.30% (4.26% - 4.34%)
13	1853	6.96% (6.16% - 7.81%)	4.60% (4.56% - 4.65%)
14	1594	7.44% (6.59% - 8.34%)	4.96% (4.91% - 5.00%)
15	1258	7.57% (6.70% - 8.55%)	5.31% (5.26% - 5.37%)
16	759	7.94% (7.01% - 8.93%)	5.71% (5.65% - 5.78%)
17	370	8.78% (7.62% - 10.02%)	6.14% (6.07% - 6.21%)
18	177	8.78% (7.62% - 10.56%)	6.59% (6.50% - 6.67%)
19			7.10% (7.00% - 7.20%)
20			7.50% (7.37% - 7.62%)

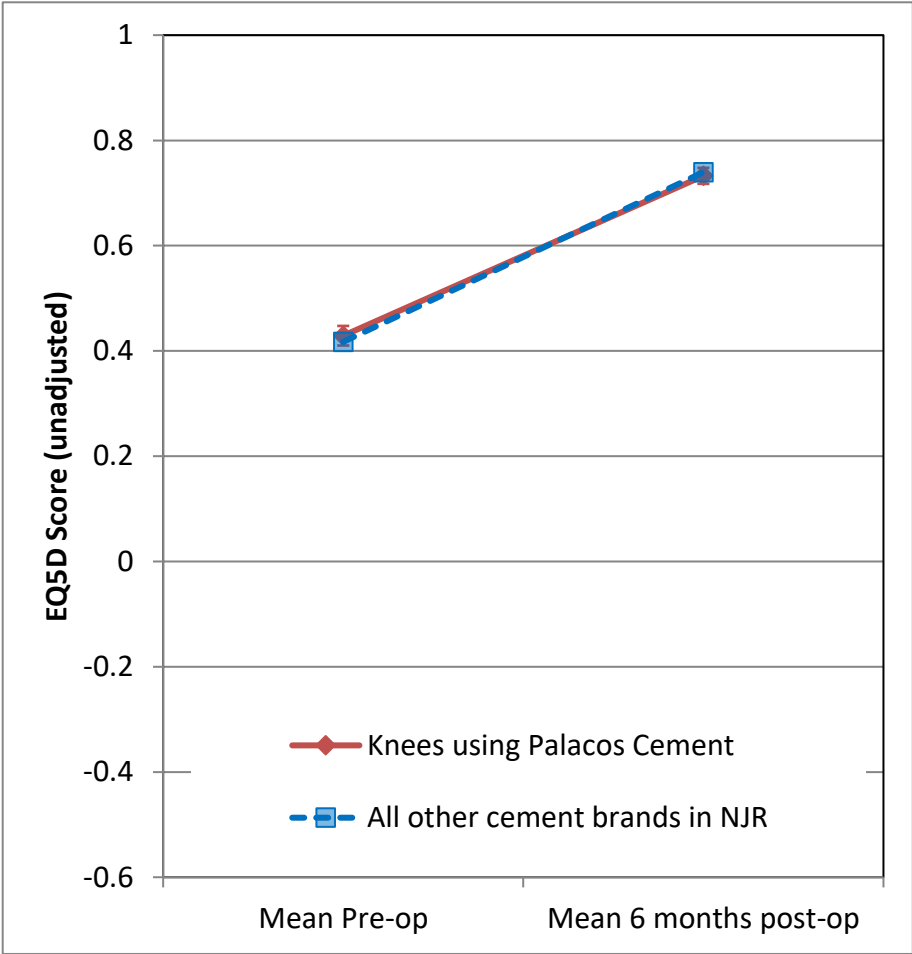
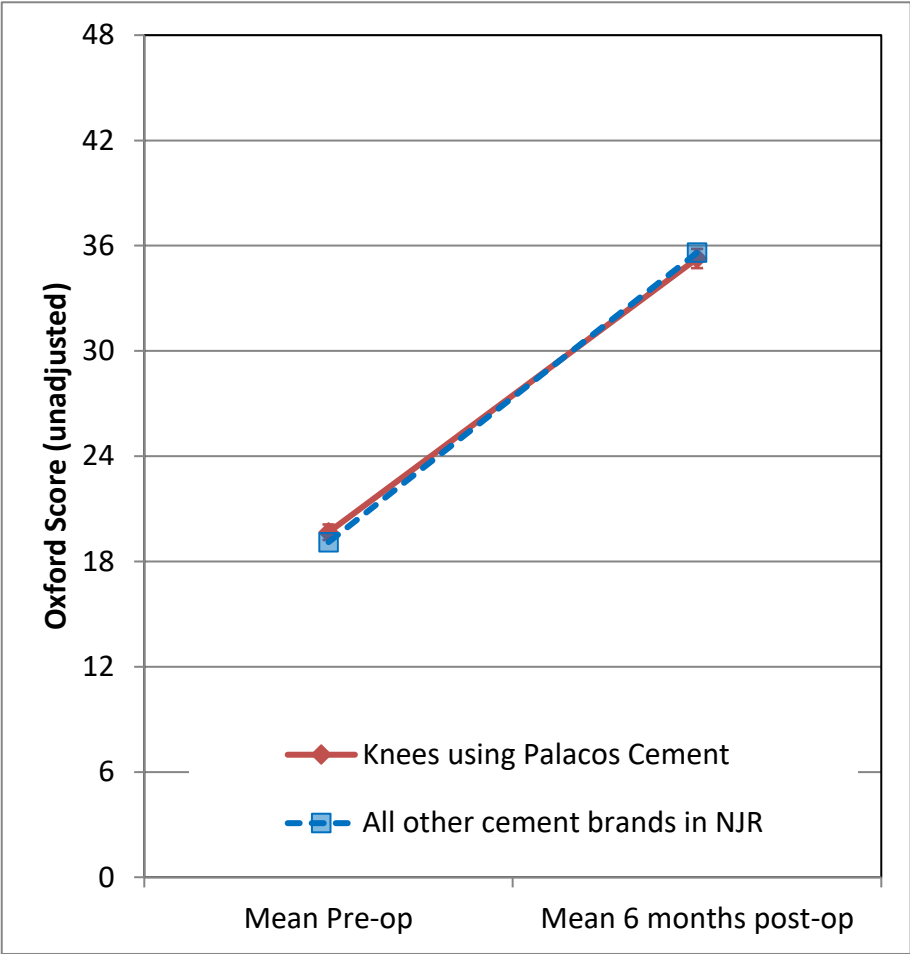
Cumulative revision rate with 95% confidence intervals

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

Patient Reported Outcomes

PROMs Analysis

Comprising PROMs data up to and including: 30/03/2024



Patient Reported Outcomes

PROMs Analysis

Comprising PROMs data up to and including: 30/03/2024

Oxford Knee Score (0 - 48)	Knees using Palacos Cement	All other cement brands in NJR	All knees in NJR
Paired Records	1,170	421,873	443,828
PreOp score	19.7 (19.2 - 20.1)	19.1 (19.1 - 19.1)	19.1 (19.1 - 19.1)
6 month score	35.3 (34.7 - 35.8)	35.6 (35.6 - 35.6)	35.6 (35.6 - 35.6)
6 month score (adjusted)	34.9 (34.4 - 35.4)	35.6 (35.6 - 35.6)	35.6 (35.6 - 35.6)
Health gain	15.6 (15.1 - 16.1)	16.5 (16.5 - 16.5)	16.5 (16.5 - 16.5)
Health gain (adjusted)	15.8 (15.2 - 16.4)	16.5 (16.5 - 16.5)	16.5 (16.5 - 16.5)
p value (adjusted health gain)	0.003		
Score Improved	93.1%	94.0%	94.0%

EQ-5D Index (-0.59 - 1.00)	Knees using Palacos Cement	All other cement brands in NJR	All knees in NJR
Paired Records	1,068	392,082	412,599
PreOp score	0.429 (0.410 - 0.448)	0.417 (0.416 - 0.418)	0.418 (0.417 - 0.419)
6 month score	0.733 (0.717 - 0.748)	0.740 (0.739 - 0.740)	0.740 (0.739 - 0.741)
6 month score (adjusted)	0.724 (0.711 - 0.738)	0.740 (0.739 - 0.741)	0.740 (0.739 - 0.741)
Health gain	0.304 (0.290 - 0.317)	0.322 (0.322 - 0.323)	0.322 (0.321 - 0.323)
Health gain (adjusted)	0.306 (0.287 - 0.326)	0.322 (0.321 - 0.323)	0.322 (0.321 - 0.323)
p value (adjusted health gain)	0.032		
Score Improved	80.8%	81.5%	81.5%

EQ-VAS (0 - 100)	Knees using Palacos Cement	All other cement brands in NJR	All knees in NJR
Paired Records	1,016	374,637	394,462
PreOp score	68.9 (67.7 - 70.1)	67.7 (67.7 - 67.8)	67.7 (67.7 - 67.8)
6 month score	72.8 (71.7 - 74.0)	74.1 (74.0 - 74.1)	74.1 (74.0 - 74.1)
6 month score (adjusted)	72.3 (71.3 - 73.3)	74.1 (74.0 - 74.1)	74.1 (74.0 - 74.1)
Health gain	3.9 (2.9 - 4.9)	6.3 (6.3 - 6.4)	6.3 (6.3 - 6.4)
Health gain (adjusted)	4.6 (3.2 - 5.9)	6.3 (6.3 - 6.4)	6.3 (6.3 - 6.4)
p value (adjusted health gain)	<0.001		
Score Improved	50.9%	56.8%	56.8%

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

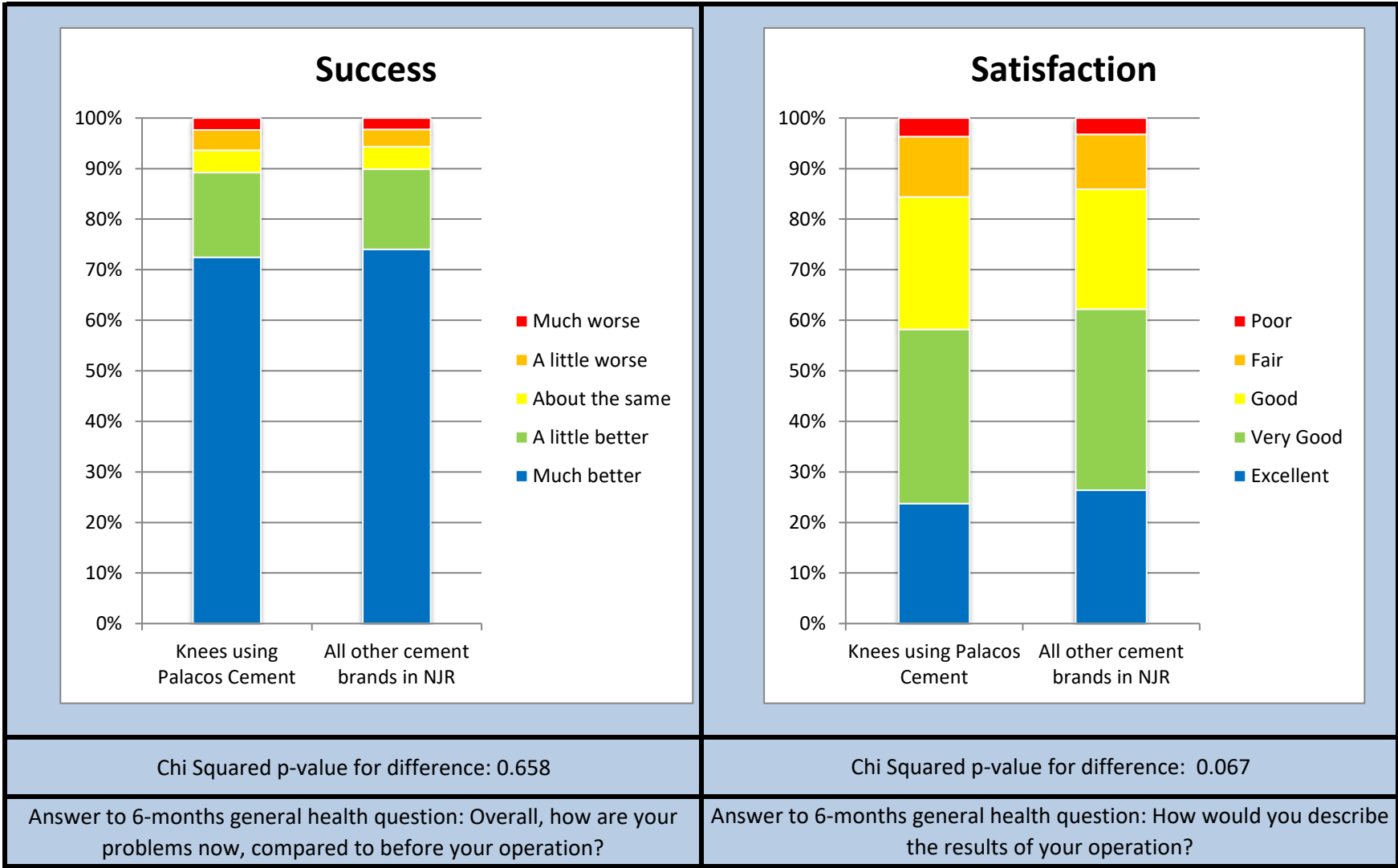
Figures in parentheses represent the 95% confidence interval for the mean

Summary Report for:

Knees using Palacos Cement

Responses are not case mix adjusted

Patient Reported Outcomes



Patient Reported Outcomes

Success

Response	Knees using Palacos Cement	All other cement brands in NJR
Much better	866	322977
A little better	200	69208
About the same	53	19508
A little worse	48	14764
Much worse	28	9802

Answer to 6-months general health question:

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

Satisfaction

Response	Knees using Palacos Cement	All other cement brands in NJR
Excellent	283	114927
Very Good	410	155742
Good	312	103450
Fair	142	47167
Poor	44	14060

Answer to 6-months general health question:

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

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Appendix A: Component List

Catalogue Number	Description	Number Implanted
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Cement		
66017777	PALACOS R 2x40 g	3962
66017778	PALACOS R 1x40 g	129
66017788	PALACOS LV 1x40 g	13
66031982	PALACOS MV 1x40 g	413
66031984	PALACOS MV plain 2x40g	3
66037893	PALACOS LV 1x20g	1
Multiple Found	Multiple Found	1