

Bespoke Implant Report for:

DePuy

C-Stem AMT - Marathon vs. All other cemented hips

Comprising PRIMARY hips implanted up to: 06 October 2019
NJR Database extract: 05 December 2019

Produced on: 10 December 2019
Licensed for use until: 10 December 2021

Contents

Implant Usage	2
Patient Details	3
Reasons for Revision	4
Kaplan Meier Survival Chart and Analysis	5
Kaplan Meier Survival Table	6
Patient Reported Outcomes	8

This report has been produced by the National Joint Registry of England, Wales and Northern Ireland (NJR). It summarises usage and outcomes associated with DePuy C-Stem AMT - Marathon vs. All other cemented hips used in primary hips, based on data collected by the NJR and PROMs data collected by NHS Digital.

This report is subject to the National Joint Registry Supplier Feedback Terms and Conditions Use. In particular, this analysis must not be released to any third party, unless directly employed by the Supplier, without written permission of the the Healthcare Quality Improvement Partnership, with the exception of submissions to approved Regulatory Authorities.

Both groups exclude metal-on-metal and ceramic-on-metal bearings

Implant Usage

Totals Recorded in NJR	C-Stem AMT - Marathon	All other cemented hips
First usage in the NJR:	06-Jan-2008	01-Apr-2003
Last usage in this dataset:	06-Oct-2019	06-Oct-2019
Maximum implantation time (years):	11.7	16.5
Mean implantation time (years):	3.0	6.1
Procedures	12150	336266
Patients	11402	300249
Centres	117	467
Consultants	387	3078
Implanting Surgeons	585	5376

Group	Year of implantation													Total
	Pre-2008	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
C-Stem AMT - Marathon	0	30	72	171	290	413	620	1335	1648	1694	1931	2178	1768	12150
All other cemented hips	67744	19132	18425	18994	20673	23504	24873	25830	25366	25404	24561	23988	17772	336266
Total	67744	19162	18497	19165	20963	23917	25493	27165	27014	27098	26492	26166	19540	348416

Patient / Procedure Details

Patient Details

	C-Stem AMT - Marathon	All other cemented hips
Total Procedures	12150	336266
Total Patients	11402	300249
Demographics		
Mean age	74.8	73.6
< 50	0.9%	1.5%
50 – 59	4.0%	5.5%
60 – 69	18.2%	22.0%
70 – 79	45.8%	44.2%
≥ 80	31.0%	26.8%
Median BMI	28	28
% BMI information available	62.7%	60.2%
Underweight (BMI < 18.5)	1.2%	1.1%
Normal (18.5 ≤ BMI < 25)	22.8%	22.6%
Overweight (25 ≤ BMI < 30)	39.8%	40.2%
Obese I (30 ≤ BMI < 35)	24.9%	24.8%
Obese II (35 ≤ BMI < 40)	8.8%	8.6%
Obese III (BMI ≥ 40)	2.4%	2.7%
% Male	32.5%	33.4%
ASA Grades		
P1 - Fit and healthy	5.1%	10.8%
P2 - Mild disease not incapacitating	70.7%	68.0%
P3 - Incapacitating systemic disease	23.5%	20.5%
P4 / P5	0.7%	0.8%
Indications		
Osteoarthritis	86.70%	91.19%
Rheumatoid Arthritis	1.39%	1.36%
Other Inflammatory Arthropathy	1.61%	2.20%
Previous Trauma	9.78%	4.48%
Avascular Necrosis	0.40%	0.63%
Other	1.54%	2.14%

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

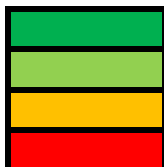
Reasons for revision of primary procedures in which the implant was used.

Reason for Revision	C-Stem AMT - Marathon		All other cemented hips		p value
	Revised [†]	Revised / Expected*	Revised [†]	Revised / Expected*	
Unexplained Pain	3	0.53	528	1.01	0.393
Dislocation / Subluxation	22	0.50	1687	1.01	<0.001
Adverse Soft Tissue Reaction	0	0.00	74	1.01	1
Infection	32	0.77	1402	1.01	0.155
Aseptic Loosening - Stem	3	0.42	687	1.01	0.181
Aseptic Loosening - Socket	9	0.57	1754	1.00	0.098
Periprosthetic Fracture Stem	37	1.40	1030	0.99	0.048
Periprosthetic Fracture Socket	2	1.42	66	0.99	0.653
Malalignment Stem	1	0.24	161	1.02	0.137
Malalignment Socket	0	0.00	284	1.02	0.008
Wear Of Acetabular Component	3	1.15	310	1.00	0.749
Lysis Stem	1	0.88	175	1.00	1
Lysis Socket	2	0.92	324	1.00	1
Implant Fracture Stem	2	1.24	136	1.00	0.677
Implant Fracture Socket	0	0.00	16	1.02	1
Implant Fracture Head	0	0.00	21	1.02	1
Dissociation of Liner	0	0.00	49	1.03	0.649
Other / reason not recorded	3	0.71	167	1.01	0.803
Total Revised	108	0.76	6674	1.01	0.003

† multiple reasons may be listed for one revision procedure

* Logrank comparison, adjusted for Patient Gender, Age Group, Implantation year, and Indications (OA/non-OA)

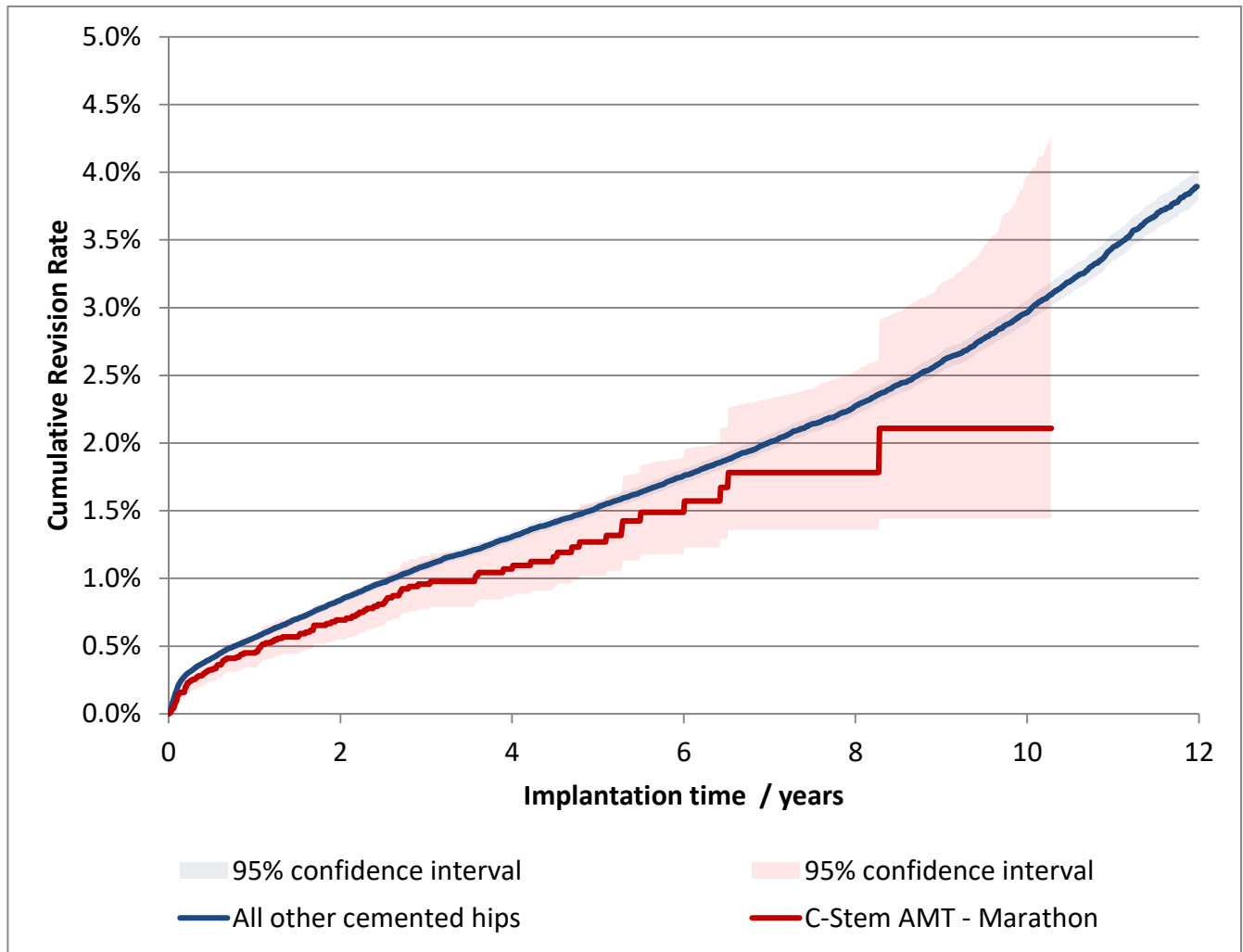
- Significantly better, p < 0.001
- Significantly better, p < 0.05
- Significantly worse p < 0.05
- Significantly worse p < 0.001



Components Revised	C-Stem AMT - Marathon		All other cemented hips	
	Count	Percentage	Count	Percentage
Femoral only	42	38.9%	1173	17.6%
Acetabular only	18	16.7%	1823	27.3%
Both femoral and acetabular	29	26.9%	3197	47.9%
Neither femoral nor acetabular revision recorded *	19	17.6%	481	7.2%

* includes isolated head and/or liner exchange

Endpoint: Revision for any reason



Stratified Log-rank test, with observed and expected number of revisions

Adjustment	C-Stem AMT - Marathon		All other cemented hips		p-value
	Observed	Expected	Observed	Expected	
Unadjusted	108	128.5	6674	6653.5	0.066
Adjusted	108	142.1	6674	6639.9	0.003

Cox Proportional Hazards model for revision risk ratio of C-Stem AMT - Marathon / All other cemented hips

Adjustment	Hazard Ratio (95% CI)	p-value
Unadjusted	0.84 (0.69 - 1.01)	0.066
Adjusted	0.75 (0.62 - 0.91)	0.003

Adjustment includes Patient Gender, Age Group, Implantation year, and Indications (OA/non-OA)

Revision and Survivorship

Cumulative Revision Rate

Endpoint: Revision for any reason

Period /years	C-Stem AMT - Marathon		All other cemented hips	
	At Risk	Revision Rate	At Risk	Revision Rate
0	12,150	-	336,266	-
1	9,555	0.45% (0.34% - 0.58%)	304,580	0.56% (0.54% - 0.59%)
2	7,326	0.69% (0.55% - 0.86%)	274,714	0.84% (0.81% - 0.87%)
3	5,401	0.96% (0.77% - 1.17%)	243,634	1.09% (1.06% - 1.13%)
4	3,713	1.07% (0.87% - 1.30%)	212,607	1.31% (1.27% - 1.35%)
5	2,194	1.27% (1.02% - 1.57%)	182,568	1.53% (1.48% - 1.57%)
6	1,188	1.49% (1.18% - 1.89%)	153,179	1.76% (1.71% - 1.81%)
7	701	1.78% (1.36% - 2.33%)	126,301	2.01% (1.95% - 2.06%)
8	376	1.78% (1.36% - 2.53%)	102,241	2.28% (2.21% - 2.34%)
9	166	2.11% (1.44% - 3.18%)	82,140	2.60% (2.52% - 2.67%)
10	53	2.11% (1.44% - 3.98%)	64,351	2.96% (2.88% - 3.05%)
11		(-)	48,683	3.45% (3.35% - 3.55%)
12		(-)	34,518	3.91% (3.79% - 4.03%)
13		(-)	22,385	4.44% (4.29% - 4.58%)
14		(-)	13,156	4.88% (4.71% - 5.06%)
15		(-)	5,886	5.45% (5.22% - 5.68%)

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: 29 March 2018

Oxford Hip Score (0 - 48)	C-Stem AMT - Marathon	All other cemented hips
Paired Records	3,256	86,565
PreOp score	17.3 (17.0 - 17.5)	17.3 (17.3 - 17.4)
6 month score	38.6 (38.3 - 38.9)	38.3 (38.2 - 38.4)
6 month score (adjusted)	39.3 (39.1 - 39.6)	38.9 (38.8 - 38.9)
Health gain	21.3 (21.0 - 21.7)	21.0 (20.9 - 21.0)
Health gain (adjusted)	21.3 (21.0 - 21.6)	20.9 (20.8 - 20.9)
p value (adjusted health gain)	0.018	
Score Improved	97.4%	97.0%

EQ-5D Index (-0.59 - 1.00)	C-Stem AMT - Marathon	All other cemented hips
Paired Records	2,960	79,070
PreOp score	0.330 (0.318 - 0.341)	0.332 (0.329 - 0.334)
6 month score	0.778 (0.769 - 0.786)	0.771 (0.769 - 0.773)
6 month score (adjusted)	0.789 (0.781 - 0.797)	0.782 (0.780 - 0.784)
Health gain	0.448 (0.436 - 0.460)	0.439 (0.437 - 0.442)
Health gain (adjusted)	0.434 (0.426 - 0.442)	0.427 (0.426 - 0.429)
p value (adjusted health gain)	0.2	
Score Improved	90.0%	88.9%

EQ-VAS (0 - 100)	C-Stem AMT - Marathon	All other cemented hips
Paired Records	2,790	75,351
PreOp score	65.2 (64.4 - 66.0)	64.4 (64.2 - 64.5)
6 month score	75.7 (75.0 - 76.4)	75.3 (75.1 - 75.4)
6 month score (adjusted)	76.6 (76.0 - 77.2)	76.3 (76.1 - 76.4)
Health gain	10.5 (9.6 - 11.3)	10.9 (10.7 - 11.1)
Health gain (adjusted)	11.6 (11.0 - 12.2)	11.2 (11.1 - 11.4)
p value (adjusted health gain)	0.26	
Score Improved	62.5%	63.6%

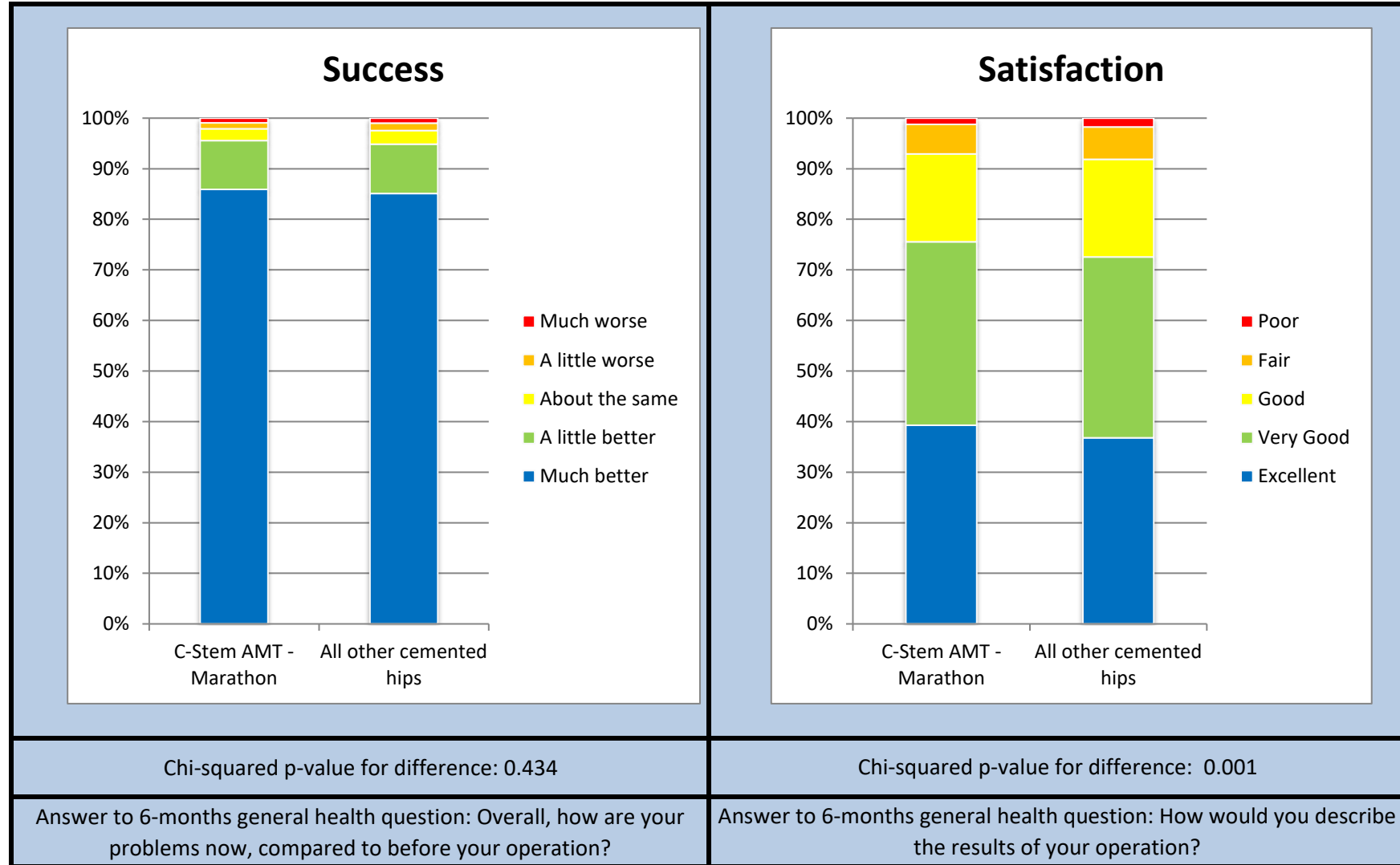
Adjusted scores correspond to the NHS Digital version 3 casemix-adjustment model. This includes patient variables from PROMs, HES, and IMD data.

Bespoke report on:

C-Stem AMT - Marathon vs. All other cemented hips

Responses are not case mix adjusted

Patient Reported Outcomes



Disclaimer

Disclaimer

The National Joint Registry (NJR) produces this report through its contractor, Northgate Public Services (UK) Limited (NPS) using data collected, collated and provided by third parties. As a result, neither NJR or NPS takes any responsibility for the accuracy, currency, reliability and correctness of any data used or referred to in this report, and disclaims all warranties in relation to such data, in each case to the maximum extent permitted by legislation.

To the maximum extent permitted by law, neither the NJR or NPS 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.

