

**Bespoke Implant Report for:**

**DePuy**

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

**Comprising PRIMARY hips implanted up to:  
NJR Database extract:**

**04 February 2018  
05 April 2018**

**Produced on:**

**25 April 2018**

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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 DePuy C-Stem AMT - Marathon vs. All other cemented hips used in primary hips, based on data collected by the NJR.

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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:	18-Jan-2007	01-Apr-2003
Last usage in this dataset:	02-Feb-2018	04-Feb-2018
Maximum implantation time (years):	11.0	14.8
Mean implantation time (years):	2.5	5.6
Procedures	8234	292536
Patients	7790	262946
Centres	97	455
Consultants	306	2886
Implanting Surgeons	441	4964

Group	Year of implantation													Total
	Pre-2007	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
<b>C-Stem AMT - Marathon</b>	0	1	30	70	170	289	412	620	1334	1629	1673	1864	142	8234
<b>All other cemented hips</b>	47992	19663	19112	18380	18932	20600	23433	24588	25475	24829	24538	23459	1535	292536
<b>Total</b>	47992	19664	19142	18450	19102	20889	23845	25208	26809	26458	26211	25323	1677	300770

## Patient / Procedure Details

## Patient Details

	C-Stem AMT - Marathon	All other cemented hips
<b>Total Procedures</b>	8234	292536
<b>Total Patients</b>	7790	262946
<b>Demographics</b>		
Mean age	<b>74.6</b>	<b>73.5</b>
< 50	0.9%	1.5%
50 – 59	4.0%	5.4%
60 – 69	19.6%	22.5%
70 – 79	45.5%	44.2%
≥ 80	29.9%	26.3%
Median BMI	<b>27</b>	<b>28</b>
% BMI information available	58.1%	57.3%
Underweight ( BMI < 18.5)	1.5%	1.1%
Normal (18.5 ≤ BMI < 25)	23.4%	22.6%
Overweight (25 ≤ BMI < 30)	39.5%	40.2%
Obese I (30 ≤ BMI < 35)	24.2%	24.7%
Obese II (35 ≤ BMI < 40)	8.7%	8.5%
Obese III (BMI ≥ 40)	2.6%	2.7%
% Male	33.3%	33.5%
<b>ASA Grades</b>		
P1 - Fit and healthy	5.5%	11.3%
P2 - Mild disease not incapacitating	72.4%	68.5%
P3 - Incapacitating systemic disease	21.5%	19.4%
P4 / P5	0.6%	0.7%
<b>Indications</b>		
Osteoarthritis	86.80%	91.73%
Rheumatoid Arthritis	1.19%	1.36%
Other Inflammatory Arthropathy	1.43%	2.21%
Previous Trauma	9.75%	3.92%
Avascular Necrosis	0.49%	0.63%
Other	1.62%	2.13%

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**

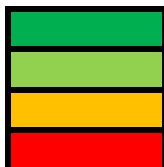
Reasons for revision of primary procedures in which the implant was used.

Reason for Revision	C-Stem AMT - Marathon		All other cemented hips		p value
	Revised <sup>†</sup>	Revised / Expected*	Revised <sup>†</sup>	Revised / Expected*	
Pain	1	0.16	485	1.01	0.025
Dislocation / Subluxation	13	0.51	1334	1.01	0.012
Adverse Soft Tissue Reaction	0	0.00	57	1.01	1
Infection	17	0.82	1089	1.00	0.505
Aseptic Loosening - Stem	2	0.41	554	1.01	0.254
Aseptic Loosening - Socket	1	0.10	1283	1.01	<0.001
Periprosthetic Fracture Stem	26	2.35	773	0.98	<0.001
Periprosthetic Fracture Socket	1	1.27	53	1.00	0.547
Malalignment Stem	0	0.00	132	1.02	0.18
Malalignment Socket	0	0.00	241	1.02	0.026
Wear Of Acetabular Component	2	1.10	219	1.00	0.704
Lysis Stem	1	1.01	134	1.00	1
Lysis Socket	1	0.66	219	1.00	1
Implant Fracture Stem	1	1.13	98	1.00	0.589
Implant Fracture Socket	0	0.00	12	1.02	1
Implant Fracture Head	0	0.00	18	1.02	1
Dissociation of Liner	0	0.00	39	1.02	1
Other / reason not recorded	3	1.15	127	1.00	0.748
<b>Total Revised</b>	<b>62</b>	<b>0.80</b>	<b>5136</b>	<b>1.00</b>	<b>0.085</b>

\* Logrank comparison, adjusted for Patient Gender, Age Group, and indications ()

† multiple reasons may be listed for one revision procedure

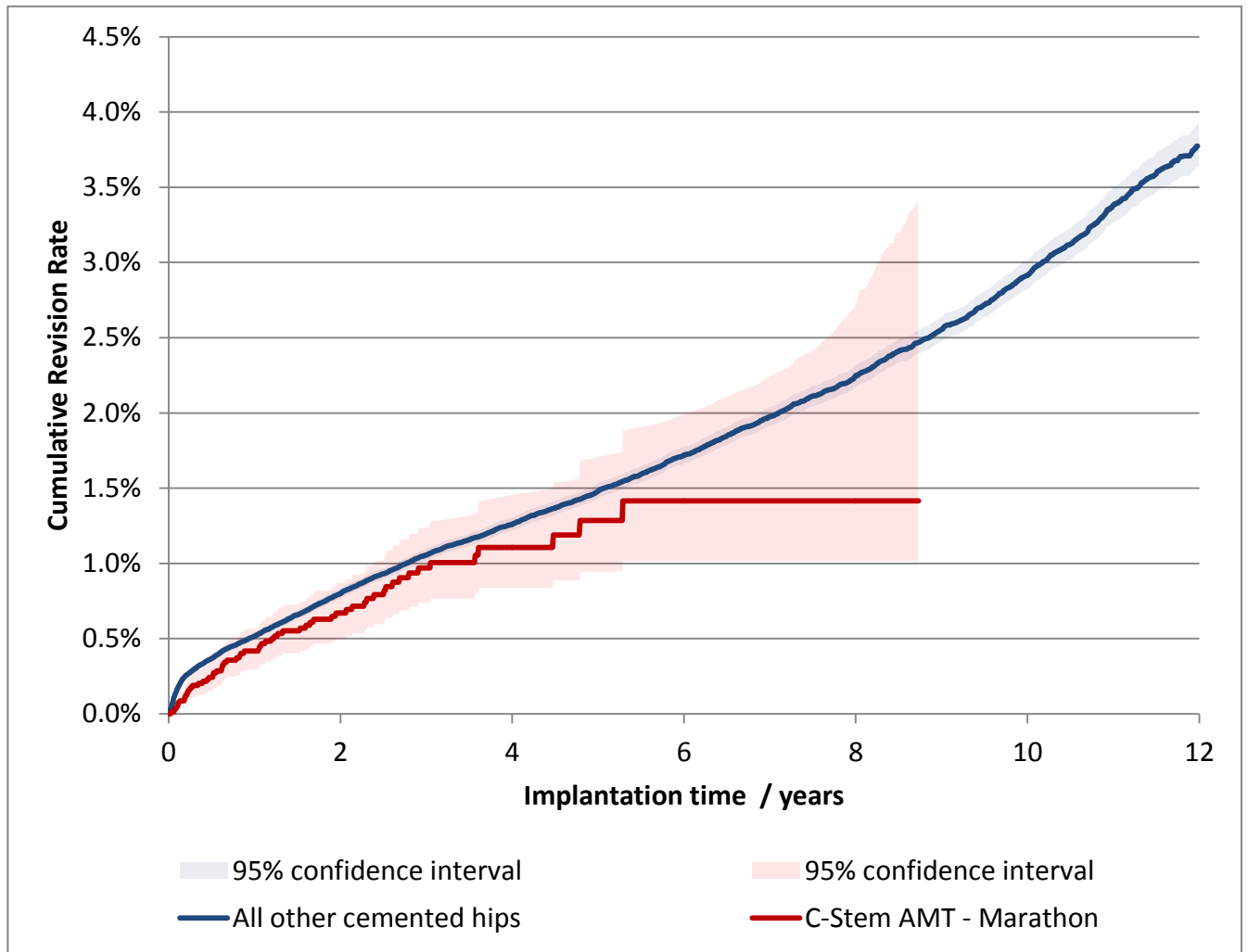
- Significantly better, p < 0.001
- Significantly better, p < 0.05
- Significantly worse p < 0.05
- Significantly worse p < 0.001



Components Revised	C-Stem AMT - Marathon		All other cemented hips	
	Count	Percentage	Count	Percentage
Femoral only	28	45.2%	905	17.6%
Acetabular only	5	8.1%	1422	27.7%
Both femoral and acetabular	23	37.1%	2512	48.9%
Neither femoral nor acetabular revision recorded *	6	9.7%	297	5.8%

\* 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	62	74.2	5136	5123.8	0.152
Adjusted	62	77.4	5136	5120.6	0.077

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	0.83 (0.65 - 1.07)	0.153
Adjusted	0.80 (0.62 - 1.03)	0.078

Adjustment includes Patient Gender, Age Group, and indications ( )

## 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	8,234	-	292,536	-
1	6,226	0.42% (0.29% - 0.57%)	262,863	0.52% (0.49% - 0.54%)
2	4,517	0.67% (0.50% - 0.87%)	233,225	0.80% (0.77% - 0.83%)
3	2,813	0.97% (0.74% - 1.24%)	203,526	1.05% (1.02% - 1.09%)
4	1,480	1.11% (0.84% - 1.46%)	174,060	1.26% (1.22% - 1.30%)
5	881	1.28% (0.94% - 1.71%)	145,833	1.48% (1.43% - 1.53%)
6	504	1.41% (1.01% - 1.99%)	119,934	1.72% (1.66% - 1.78%)
7	241	1.41% (1.01% - 2.24%)	97,539	1.98% (1.91% - 2.04%)
8	97	1.41% (1.01% - 2.72%)	78,190	2.25% (2.18% - 2.32%)
9		( - )	60,699	2.55% (2.47% - 2.64%)
10		( - )	44,710	2.91% (2.82% - 3.01%)
11		( - )	29,867	3.38% (3.26% - 3.50%)
12		( - )	18,674	3.79% (3.65% - 3.93%)
13		( - )	9,298	4.32% (4.14% - 4.51%)
14		( - )	3,209	4.77% (4.52% - 5.03%)
15		( - )		( - )

Cumulative revision rate with 95% confidence intervals

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

## Disclaimer

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