

**Bespoke Implant Report for:**

**DePuy**

**C-Stem AMT - Pinnacle vs. All other Hybrid 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 - Pinnacle vs. All other Hybrid 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 - Pinnacle	All other Hybrid hips
First usage in the NJR:	23-Jun-2005	01-Apr-2003
Last usage in this dataset:	03-Feb-2018	04-Feb-2018
Maximum implantation time (years):	12.6	14.8
Mean implantation time (years):	3.0	4.6
Procedures	9899	185088
Patients	9236	166966
Centres	131	444
Consultants	331	2195
Implanting Surgeons	537	3770

Group	Year of implantation													Total
	Pre-2007	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
<b>C-Stem AMT - Pinnacle</b>	136	167	140	184	280	426	623	782	1305	1646	1940	2109	161	9899
<b>All other Hybrid hips</b>	17038	8163	9027	9870	10591	11734	13033	15196	18651	20867	23602	25393	1923	185088
<b>Total</b>	17174	8330	9167	10054	10871	12160	13656	15978	19956	22513	25542	27502	2084	194987

## Patient / Procedure Details

## Patient Details

	C-Stem AMT - Pinnacle	All other Hybrid hips
<b>Total Procedures</b>	9899	185088
<b>Total Patients</b>	9236	166966
<b>Demographics</b>		
Mean age	<b>70.3</b>	<b>69.6</b>
< 50	3.3%	4.7%
50 – 59	9.8%	11.6%
60 – 69	29.2%	29.2%
70 – 79	40.7%	36.7%
≥ 80	17.0%	17.8%
Median BMI	<b>28</b>	<b>28</b>
% BMI information available	69.3%	64.5%
Underweight ( BMI < 18.5)	0.7%	1.0%
Normal (18.5 ≤ BMI < 25)	20.1%	22.0%
Overweight (25 ≤ BMI < 30)	39.4%	39.4%
Obese I (30 ≤ BMI < 35)	26.0%	25.0%
Obese II (35 ≤ BMI < 40)	10.5%	9.3%
Obese III (BMI ≥ 40)	3.3%	3.3%
% Male	37.3%	36.9%
<b>ASA Grades</b>		
P1 - Fit and healthy	10.3%	14.4%
P2 - Mild disease not incapacitating	72.1%	68.2%
P3 - Incapacitating systemic disease	17.1%	16.9%
P4 / P5	0.4%	0.6%
<b>Indications</b>		
Osteoarthritis	90.62%	89.74%
Rheumatoid Arthritis	1.32%	1.55%
Other Inflammatory Arthropathy	2.12%	2.91%
Previous Trauma	4.76%	4.60%
Avascular Necrosis	1.36%	1.87%
Other	1.52%	2.35%

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**

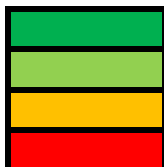
Reasons for revision of primary procedures in which the implant was used.

Reason for Revision	C-Stem AMT - Pinnacle		All other Hybrid hips		p value
	Revised <sup>†</sup>	Revised / Expected*	Revised <sup>†</sup>	Revised / Expected*	
Pain	7	0.68	293	1.01	0.344
Dislocation / Subluxation	31	0.82	866	1.01	0.317
Adverse Soft Tissue Reaction	3	1.54	60	0.98	0.446
Infection	24	0.84	682	1.01	0.445
Aseptic Loosening - Stem	3	0.45	229	1.02	0.171
Aseptic Loosening - Socket	7	0.76	254	1.01	0.613
Periprosthetic Fracture Stem	31	1.25	665	0.99	0.218
Periprosthetic Fracture Socket	4	1.08	82	1.00	0.788
Malalignment Stem	5	1.93	60	0.96	0.188
Malalignment Socket	9	1.15	191	0.99	0.584
Wear Of Acetabular Component	2	0.56	140	1.01	0.591
Lysis Stem	0	0.00	86	1.02	0.273
Lysis Socket	1	0.66	61	1.01	1
Implant Fracture Stem	0	0.00	72	1.02	0.425
Implant Fracture Socket	2	1.88	29	0.97	0.287
Implant Fracture Head	0	0.00	15	1.03	1
Dissociation of Liner	4	1.71	59	0.97	0.298
Other / reason not recorded	7	1.38	115	0.98	0.36
<b>Total Revised</b>	<b>113</b>	<b>0.91</b>	<b>3163</b>	<b>1.00</b>	<b>0.315</b>

† multiple reasons may be listed for one revision procedure

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

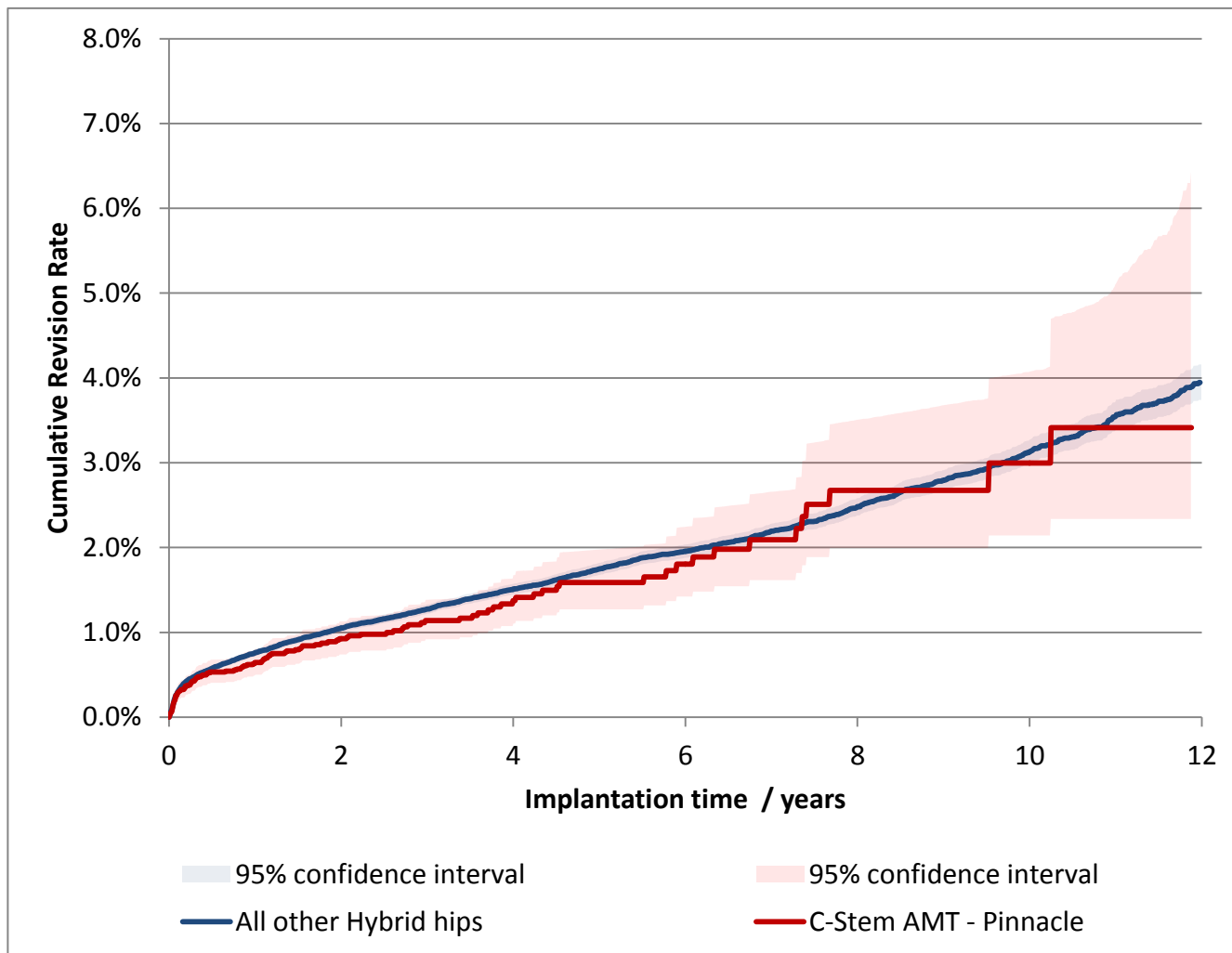
- Significantly better, p < 0.001
- Significantly better, p < 0.05
- Significantly worse p < 0.05
- Significantly worse p < 0.001



Components Revised	C-Stem AMT - Pinnacle		All other Hybrid hips	
	Count	Percentage	Count	Percentage
Femoral only	31	27.4%	866	27.4%
Acetabular only	22	19.5%	712	22.5%
Both femoral and acetabular	44	38.9%	1239	39.2%
Neither femoral nor acetabular revision recorded *	16	14.2%	346	10.9%

\* 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 - Pinnacle		All other Hybrid hips		p-value
	Observed	Expected	Observed	Expected	
Unadjusted	113	124.3	3163	3151.7	0.300
Adjusted	113	124.4	3163	3151.6	0.296

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

Adjustment	Hazard Ratio (95% CI)	p-value
Unadjusted	0.91 (0.75 - 1.09)	0.300
Adjusted	0.90 (0.75 - 1.09)	0.296

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

## Revision and Survivorship

### Cumulative Revision Rate

Endpoint: Revision for any reason

Period /years	C-Stem AMT - Pinnacle		All other Hybrid hips	
	At Risk	Revision Rate	At Risk	Revision Rate
0	9,899	-	185,088	-
1	7,646	0.64% (0.50% - 0.81%)	156,505	0.76% (0.72% - 0.80%)
2	5,634	0.92% (0.74% - 1.13%)	130,655	1.05% (1.00% - 1.10%)
3	3,915	1.14% (0.92% - 1.38%)	107,854	1.27% (1.22% - 1.33%)
4	2,564	1.37% (1.10% - 1.67%)	87,801	1.51% (1.45% - 1.57%)
5	1,781	1.59% (1.27% - 1.98%)	71,348	1.75% (1.68% - 1.82%)
6	1,206	1.80% (1.42% - 2.25%)	57,824	1.96% (1.88% - 2.04%)
7	797	2.09% (1.62% - 2.66%)	46,078	2.19% (2.10% - 2.28%)
8	520	2.67% (1.99% - 3.51%)	35,877	2.48% (2.38% - 2.58%)
9	357	2.67% (1.99% - 3.68%)	26,768	2.79% (2.68% - 2.91%)
10	259	3.00% (2.14% - 4.07%)	19,155	3.13% (2.99% - 3.27%)
11	132	3.42% (2.34% - 5.10%)	12,573	3.55% (3.38% - 3.72%)
12		( - )	7,558	3.95% (3.74% - 4.16%)
13		( - )	3,612	4.25% (4.00% - 4.51%)
14		( - )	1,187	4.86% (4.45% - 5.29%)
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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