C-Stem® AMT

Clinical Data

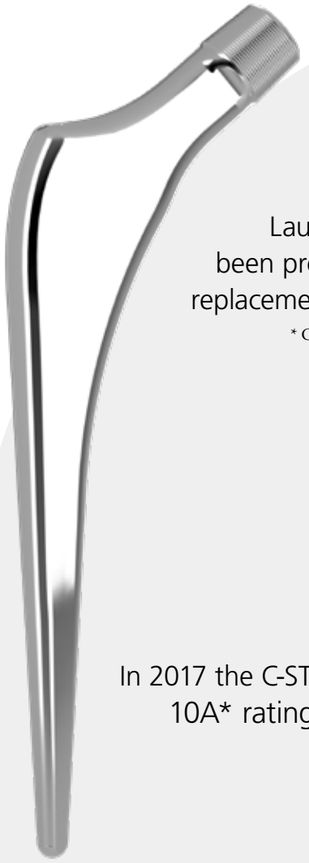
DePuy Synthes

PART OF THE Johnson&Johnson FAMILY OF COMPANIES

C-STEM®
TOTAL HIP SYSTEM

98.96%
survivorship at 14 years[1]

- The original C-STEM® Implant established a tapered slip stem that not only worked with the bone cement mantle, but was also designed to produce positive proximal bone remodelling due to more anatomic stress distribution.[2]
- C-STEM & ELITE PLUS OGEE® Cemented Cup are shown to have a 97,37% survival rate at 10 years in over 5,100 cases[3]
- In their patient series follow up, Sochart et al. (2009) noted "there was no evidence of negative bone modelling", which is an issue seen with other cemented stems.[4]



C-Stem® AMT

Launched in 2005* the C-STEM® AMT has been provided to patients in over 100,000 total hip replacements Worldwide with 50,000 in the UK alone.[6]

* C-STEM AMT standard and high offset stems launched in 2005.

C-STEM® AMT TOTAL HIP SYSTEM
ODEP 10A*

In 2017 the C-STEM AMT Total Hip System was awarded an ODEP 10A* rating by the Orthopaedic Data Evaluation Panel.[7]

98.64%[3]

C-STEM AMT and MARATHON Cemented Cup is shown to have a 98.64% survival rate at 7 years in over 8,100 cases.[3] In combination with the PINNACLE Cementless Cup it is shown to have a 96.21% survival rate at 10 years in over 10,000 cases.[3]

Combination	Implantations	Year 1	Year 3	Year 5	Year 7	Year 10
C-STEM AMT Cemented Stem/ MARATHON	8,111	0.43 (0.30-0.61)	0.94 (0.71-1.24)	1.23 (0.89-1.69)	*1.36 (0.96-1.92)*	-
C-STEM AMT Cemented Stem/ PINNACLE	10,027	0.70 (0.55-0.89)	1.22 (0.99-1.49)	1.75 (1.42-2.16)	2.23 (1.76-2.83)	3.79 (2.81-5.12)

National Joint Registry for England, Wales, Northern Ireland and the Isle of Man.
Revision rates (all-cause) for main hip stem and cup combinations (95% confidence intervals).

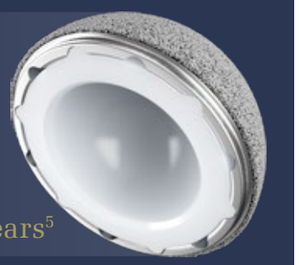
Note: Blue italics signify that fewer than 250 cases remained at risk at these time points

94.3%[8]

C-STEM AMT, used in combination with the PINNACLE cementless cup is shown to have a 94.3% survival rate at 10 years in more than 3,000 cases.[8]

Combination	Implantations	Year 1	Year 3	Year 5	Year 10
C-STEM AMT Cemented Stem/ PINNACLE	3,025	1.3 (0.9, 1.8)	2.4 (1.8, 3.1)	3.1 (2.4, 4.1)	5.7 (3.6, 8.8)

Extracted from Table HT13. Australian Orthopaedic Association National Joint Replacement Registry.
Cumulative Percent Revision of Primary Total Conventional Hip Replacement with Hybrid Fixation (95% confidence intervals).



PINNACLE® HIP SOLUTIONS

99.2%
survivorship at 10 years[5]

- With nearly 15 years clinical use the PINNACLE® Acetabular Cup System is DePuy Synthes' premium Acetabular System.
- PINNACLE Acetabular Cup System offers surgeons the ability to address existing pathologies whilst choosing from MARATHON® or ALTRX® cross linked polyethylene or CERAMAX™ Ceramic Liners.
- 10 years data in combination with C-STEM AMT Stem in the NJR with a survival rate of 96.21%[3]

C-Stem® AMT

96.9%
survivorship at 99 months[9]

- The C-STEM AMT builds upon the clinical heritage of the original C-STEM Hip and its specific triple tapered, highly polished design. The functional intra-medullary geometry of original C-STEM Stem has been maintained whilst the extra-medullary geometry has been enhanced with a raised lateral shoulder, designed to improve visualization during insertion, and the addition of the 12/14 ARTICUL/EZE™ mini-taper.
- Berstock et al (2014) followed 415 C-STEM AMT Hips in 386 patients for 5-8 years. There were only 2 femoral stem revisions, both for infection, and the Kaplan-Meier survivorship at 99 months was 96.9%.[9]
- Flatoy et al (2015) followed 70 hips using C-STEM AMT and MARATHON Cemented Cups utilising RSA analysis. At 2 years follow up, there were no revisions and authors concluded that the C-Stem AMT Stem displayed a pattern of migration and bone remodeling that predicts good clinical performance.[10]

MARATHON® CROSS-LINKED POLYETHYLENE

No failures
at 5 years[11]

- Introduced in 2008, MARATHON Cemented Cups utilise the cross linked polyethylene successfully used for over 10 years as a modular liner in the DURALOC® and PINNACLE Acetabular Systems.[5,12]
- MARATHON® Cross-Linked Polyethylene has been shown to be significantly more resistant to wear compared to non-crosslinked polyethylene - in 41 cases, Stone et al (2014) achieved 100% survivorship at 5.2 years with 83% reduction in wear versus ENDURON™ POLYETHYLENE.[11]
- The fixation features and bearing surface geometry of the MARATHON Cemented Cup are the same as the LPW version of the CHARNLEY® OGEE, CHARNLEY & ELITE PLUS OGEE CUPS.

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4. Sochart D,H. et al. Results of the C-STEM polished triple tapered femoral component. JBJS Br 2010; 92-B:SUPP I 99
5. Callaghan J,J. et al. Fixation and Wear With a Contemporary Acetabular Component and Cross-Linked Polyethylene at Minimum 10-Year Follow-Up. JOA 2014; 29: 1961-69
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8. Australian Orthopaedic Association National Joint Replacement Registry. Annual Report. Adelaide: AOA; 2018. Available from URL: https://aoanjrr.sahmri.com/annual-reports-2018. Extracted from Table HT13.

Table HT13 Cumulative Percent Revision of Primary Total Conventional Hip Replacement with Hybrid Fixation

Femoral Component	Acetabular Component	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
C-Stem AMT	Pinnacle	69	3025	1.3 (0.9, 1.8)	2.4 (1.8, 3.1)	3.1 (2.4, 4.1)	5.7 (3.6, 8.8)		

9. Berstock et al. A 5–8 Year Retrospective Follow-Up of the C-Stem AMT Femoral Component: Patient Reported Outcomes and Survivorship Analysis. J. Arthroplasty 2014 Sep; 29(9): 1753-7.
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