

USING THE CORAIL® PINNACLE® TOTAL HIP REPLACEMENT SYSTEM COULD REDUCE THE FINANCIAL AND HEALTHCARE BURDEN ASSOCIATED WITH REVISION HIP ARTHROPLASTY

Total hip arthroplasty (THA) is one of the most successful operations worldwide and is recognised as a highly cost effective intervention providing improvements in pain and quality of life.^{1,2} The demand for arthroplasty has increased over the last ten years and has been shown to be insensitive to economic downturns in the United States.³

In 2010 in the US the total costs for hip and knee arthroplasty surgery combined exceeded 19 billion USD and the demand is expected to increase 174% by 2030.² This upward trend is also reported in several other countries. A paper by Patel et al (2015) estimates a 134% demand increase in the UK whilst the predicted incidence of THA for a Swedish citizen aged ≥ 40 years will increase from 332 per 100 000 people to 784 per 100 000 by 2030.³

Despite the success of THA, the number of revision THA procedures has increased. This effect is multi-factorial and is driven by a combination of higher absolute numbers, an expansion of indications to include younger and more active patients, and an increased prevalence of obesity.⁴

Over the last five years there has been a reported 49% rise in revision THA, and with 35% of hip and knee replacements now carried out in patients below the age of 65, and 12% below the age of 55, this revision burden could grow significantly.⁵

Several studies have illustrated the use of hospital resources and the cost of surgery are substantially greater for revision procedures than primary joint arthroplasty. In the UK in 2000 it was reported that the average cost of a revision THA ranged from £11,897 to £21,937 dependent on the nature of the procedure and the annual cost associated with revision surgery of the hip and knee exceeded £60 Million.⁶

These higher costs combined with growing patient volume may increase the pressure on hospitals, wider healthcare spending and waiting times.⁵

Using a proven, robust construct design with a strong supportive evidence base can potentially help reduce revision risk and the associated cost burden. The existing evidence highlights the excellent long-term stability and durability of the CORAIL stem and PINNACLE acetabular cup.

- CORAIL PINNACLE is the most widely used single company cementless construct in several registries including Australia and the UK.^{7,8} There are over 152,000⁹ documented cases included on registries worldwide with recorded survivorship up to 97.19% and 95.1% at ten years in the UK (Table 1) and Australian registries respectively.^{7,8} These robust registry results illustrate CORAIL PINNACLE delivers excellent clinical results with a broad surgeon and hospital user base.
- Independent published evidence demonstrates the CORAIL PINNACLE hip construct performs well and can be used in multiple indications as well as standard cases, including: complex primary cases and fractured neck of femurs.¹⁰⁻¹⁴ CORAIL PINNACLE has also demonstrated successful performance in young and high demand patients.^{15,16}
- CORAIL and PINNACLE have both been granted 10A* ratings by the Orthopedic Data Evaluation Panel (ODEP).¹⁷
- With its comprehensive and high quality evidence base, surgeons and providers can be confident they are using a proven construct that has the potential to limit the cost burden associated with revision hip arthroplasty.

Combination	Implantations	Year 3	Year 5	Year 10
CoC	35,092	1.78% (1.64%-1.94%)	2.38% (2.20%-2.57%)	4.00% (3.38%-4.74%)
CoP	16,320	1.26% (1.07%-1.48%)	1.90% (1.61%-2.24%)	<i>2.81% (2.13%-3.72%)</i>
MoP	42,469	1.42% (1.30%-1.55%)	1.77% (1.62%-1.93%)	3.16% (2.72%-3.66%)

Blue italics signify that fewer than 250 cases remained at risk at these timepoints.

Table 1. National Joint Registry for England, Wales, Northern Ireland and the Isle of Man, 13th Annual Report, 2016. Table 3.9. Available from www.njrreports.org.uk

References

1. Assmann G, Kasch R, Hofer A, Schultz AP, Kayser R, Lahm A, Merk H, Flessa S. An economic analysis of aseptic revision hip arthroplasty: Calculation of partial hospital costs in reduction to reimbursement. Arch Orthop Trauma Surg 2014 134:413-420
2. Shearer DW, Youm J, Bozic KJ. Short term complications have more effect on cost-effectiveness of THA than implant longevity. Clin Orthop Relat Res 2015 473:1702-1708
3. Patel A, Pavlou G, Mújica-Mota RE, Toms AD. The epidemiology of revision total knee and hip arthroplasty in England and Wales: a comparative analysis with projections for the United States. A study using the National Joint Registry dataset. Bone Joint J. 2015 Aug;97-B(8):1076-81. doi: 10.1302/0301-620X.97B8.35170.
4. Bozic KJ, Kamath AF, Ong K, Lau E, Kurtz S, Chan V, Vali TP, Rubash H, Berry DJ. Comparative epidemiology of revision arthroplasty: Failed THA poses greater clinical and economic burdens than failed TKA. Clin Orthop Relat Res 2015 473: 2131-2138
5. Briggs TWR. A national review of adult elective orthopaedic services in England: Getting it right first time. Available at: http://www.gettingitrightfirsttime.com/downloads/BriggsReportA4_FIN.pdf
6. Vanhegan IS, Malik AK, Jayakumar P, Islam s, Haddad FS. A financial analysis of revision hip arthroplasty. J Bone Joint Surg Br 2012; 94-B:619-23
7. National Joint Registry for England, Wales, Northern Ireland and the Isle of Man, 13th Annual Report, 2016. Table 3.9. Available from www.njrreports.org.uk
8. Australian Orthopaedic Association National Joint Replacement Registry. Annual Report. Adelaide: AOA; 2016. Available from URL: <https://aanjr.sahmri.com/annual-reports-2016>. Extracted from Table TY1.

Table TY1 Cumulative Percent Revision of Primary Total Conventional Hip Replacement Combinations with 10 Year Data (Primary Diagnosis OA)

Femoral Stem	Acetabular Component	N Revised	N Total	Type of Revision			1 Yr	5 Yrs	10 Yrs	
				THR	Femoral	Acetabular				Other
Corail	Pinnacle	740	29292	70	234	117	319	1.6 (1.5, 1.8)	3.0 (2.8, 3.2)	4.9 (4.3, 5.7)

9. 1986 - 2015 sales data on file, DePuy International Ltd.
10. Kendrick BJ1, Wilson HA, Lippett JE, McAndrew AR. Corail uncemented hemiarthroplasty with a Cathcart head for intracapsular hip fractures Bone Joint J. 2013 Nov;95-B(11):1538-43.
11. Schaller G, Black J, Asaad A, MD, Harper N, Webb S, Muirhead-Allwood S. Primary Collared Uncemented Total Hip Arthroplasties in the Elderly: A Safe and Reliable Treatment Option. The Journal of Arthroplasty 30 (2015) 407–410
12. Vidalain JP - The CORAIL Hip System: A Pratical approach based on 25 years of experience. 2011;Chapter 4.2.1:94-101
13. Hallan G, Lie SA, Furnes O, Engesaeter LB, Vollset SE, Havelin LI: Medium and long-term performance of 11,516 un-cemented primary femoral stems from the Norwegian arthroplasty register. Journal of Bone and Joint Surgery, 2007;89-B:1574-1580.
14. Bedard NA, Callaghan JJ, Stefl MD, Willman TJ, Liu SS, Goetz DD: Fixation and wear with a contemporary acetabular component and cross-linked polyethylene at minimum 10-year follow-up. J Arthroplasty. 2014 Oct;29(10):1961-9
15. Wangen H1, Lereim P, Holm I, Gunderson R. Hip arthroplasty in patients younger than 30 years: excellent ten to 16-year follow-up results with a HA-coated stem. Int Orthop. 2008 Apr;32(2):203-8
16. Greiner JJ, Callaghan JJ, Bedard NA, Liu SS, Gao Y, Goetz DD: Fixation and Wear With Contemporary Acetabular Components and Cross-Linked Polyethylene at 10-Years in Patients Aged 50 and Under. J Arthroplasty. 2015 Sep; 30(9):1577-85.
17. Orthopedic Data Evaluation Panel (ODEP) Available at: www.odep.org.uk.

This publication is not intended for distribution in the USA.

The third-party trademarks used herein are trademarks of their respective owners.



Johnson & Johnson Medical Limited PO BOX 1988, Simpson Parkway, Livingston, West Lothian, EH54 0AB, United Kingdom. Incorporated and registered in Scotland under company number SC132162.

DePuy Orthopaedics, Inc.
700 Orthopaedic Drive
Warsaw, IN 46582
USA
Tel: +1 (800) 366 8143
Fax: +1 (574) 267 7196

DePuy International Ltd
St Anthony's Road
Leeds LS11 8DT
England
Tel: +44 (0)113 270 0461

DePuy (Ireland)
Loughbeg
Ringaskiddy
Co. Cork
Ireland
Tel: +353 21 4914 000
Fax: +353 21 4914 199

depuysynthes.com

©Johnson & Johnson Medical Limited. 2017. All rights reserved.

CA#DSEM/JRC/1216/0729 Issued: 03/17