

NJR Analysis of Collared and Collarless Total Hip Replacement using the cementless CORAIL® Total Hip System

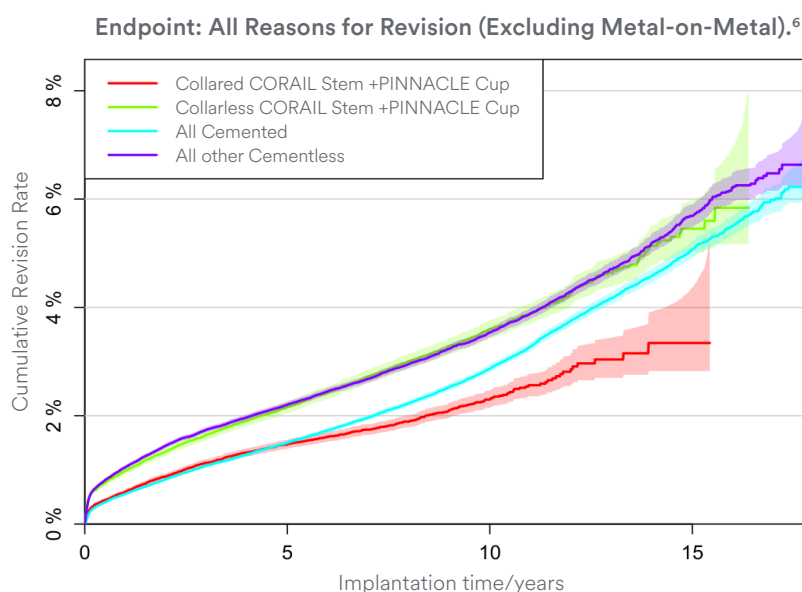
National Joint Registries provide valuable information on the revision rates and survivorship of orthopaedic implants. Typically they include large cohorts with data from all surgeons and from all centres, irrespective of surgeon experience level. The National Joint Registry for England, Wales, Northern Ireland and the Isle of Man (NJR) has been in operation since 2003 and in that time has collected data on over 1,191,000 primary total hip replacements (THR).¹

The cementless CORAIL® Total Hip System is available both with and without a collar. Proponents of the use of a collared prosthesis claim that it provides advantages in the early stability of the implant, allowing for earlier post-operative weight bearing², protection against subsidence, and a positive dispersion of the vertical forces via the collar into the medial calcar.³

The NJR has recently produced updated analysis examining the performance of the CORAIL Total Hip System, specifically the collared CORAIL Stem in combination with the PINNACLE® Cup.⁴ This analysis was commissioned by DePuy Synthes, but conducted and validated by the NJR. The reports detail 102,823 CORAIL Stem with PINNACLE Cup implantations (mean age 66.5, 42.3% male).

In order to better understand the performance of the combination of the collared CORAIL Stem with PINNACLE Cup the analysis compares to the class of all other cementless hips on the NJR (n=349,052). Analysis is also provided on the non-collared CORAIL Stem designs used with PINNACLE Cup (N=71,235).⁵ The cumulative revision rates (CRR) are presented on the chart below and the reports provide hazard ratios to compare the relative risk of revision. The hazard ratios are adjusted for differences in age, gender, diagnosis and year of implantation. All metal liners were excluded.

All reports can be accessed at <https://www.jnjmedicaldevices.com/en-EMEA/corail-pinnacle/resources/njr-bespoke-reports>



Key Messages

Collared CORAIL Stem with PINNACLE Cup has shown

29% reduced risk of revision (HR 0.71 (0.67, 0.75) $P < 0.001$)⁴

A **statistically significant adjusted health gain** at six months as measured by the Oxford Hip Score, EQ-5D and EQ-VAS (all $p < 0.001$).⁴

Statistically fewer than expected revisions due to **pain, dislocation and peri-prosthetic fracture** (all $p < 0.001$)⁴

when compared to all other cementless hips on the NJR.

In addition to survival analysis the NJR reports also examine the reasons for revision.⁴ The table below details the actual number of revisions reported for each reason within the collared CORAIL Stem, PINNACLE Cup cohort, as well as the number that would be expected for a cohort of 102,823, based on the data for all other cementless hips on the NJR. These numbers are then compared. Collared CORAIL Stem with PINNACLE Cup demonstrates statistically significantly fewer revisions than all other cementless hips across a range of revision reasons, including pain, dislocation and peri-prosthetic fracture (all p<0.001).

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

Reason for Revision	Revised [†]	Expected Revisions [*]	p value
Unexplained Pain	106	155.06	<0.001
Dislocation / Subluxation	328	401.11	<0.001
Adverse Soft Tissue Reaction	35	63.30	<0.001
Infection	279	331.36	0.001
Aseptic Loosening - Stem	333	331.14	0.905
Aseptic Loosening - Socket	71	115.52	<0.001
Periprosthetic Fracture Stem	107	324.81	<0.001
Periprosthetic Fracture Socket	13	40.04	<0.001
Malalignment Stem	63	75.03	0.142
Malalignment Socket	102	114.87	0.205
Wear Of Acetabular Component	51	69.25	0.019
Lysis Stem	25	29.42	0.438
Lysis Socket	13	19.93	0.127
Implant Fracture Stem	13	29.02	<0.001
Implant Fracture Socket	54	41.14	0.034
Implant Fracture Head	4	8.82	0.111
Dissociation of Liner	54	48.16	0.344
Other / Not recorded	68	89.89	0.011
Total Revised	1444	1888.16	<0.001

Significantly better, p <0.001

Significantly better, p <0.05

Significantly worse, p <0.05

Significantly worse, p <0.001

* Based on All Cementless Hips (excluding metal on metal), adjusted for age group, gender, indications, and implantation year

† Multiple reasons may be listed for one revision procedure

References

1. National Joint Registry for England, Wales, Northern Ireland and the Isle of Man, 17th Annual Report, 2020. Table 3.H1. Available from: www.njrreports.org.uk
2. H. Strom, O. Nilsson, J. Milbrink, et al. The effect of early weight bearing on migration pattern of the uncemented CLS stem in total hip arthroplasty. J Arthroplasty, 22 (2007), p. 1122
3. Demey G, Fary C, Lustig S, Neyret P, Ait si Selmi T. Does a Collar Improve the Immediate Stability of Uncemented Femoral Hip Stems in Total Hip Arthroplasty? A Bilateral Comparative Cadaver Study. J Arthroplasty 26 (2011), No.8, p. 1549
4. Bespoke Report. Corail Collared Stem with Pinnacle Cup vs Cementless Hips. NJR. Produced 15/06/21. Report can be accessed at <https://www.jnjmedicaldevices.com/en-EMEA/corail-pinnacle/resources/njr-bespoke-reports>
5. Bespoke Report. Corail Collarless Stem with Pinnacle Cup vs Cementless Hips. Produced 15/06/21. NJR. Report can be accessed at <https://www.jnjmedicaldevices.com/en-EMEA/corail-pinnacle/resources/njr-bespoke-reports>
6. Bespoke Implant Report (Corail Pinnacle Combinations) NJR. Produced 22/06/21. Report can be accessed at <https://www.jnjmedicaldevices.com/en-EMEA/corail-pinnacle/resources/njr-bespoke-reports>

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Please refer to the instructions for use for a complete list of indications, contraindications, warnings and precautions.



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