✚ Evidence in focus

POLAR3◊ Total Hip Solution

POLARSTEM◊/R3◊/OXINIUM◊ - Primary THA

Summarised in this PRISM asset and evidence grids:

25 publications*

>129,000 total patients studied†

1 randomised controlled trial (RCT)

1 prospective comparative study

5 registry reports

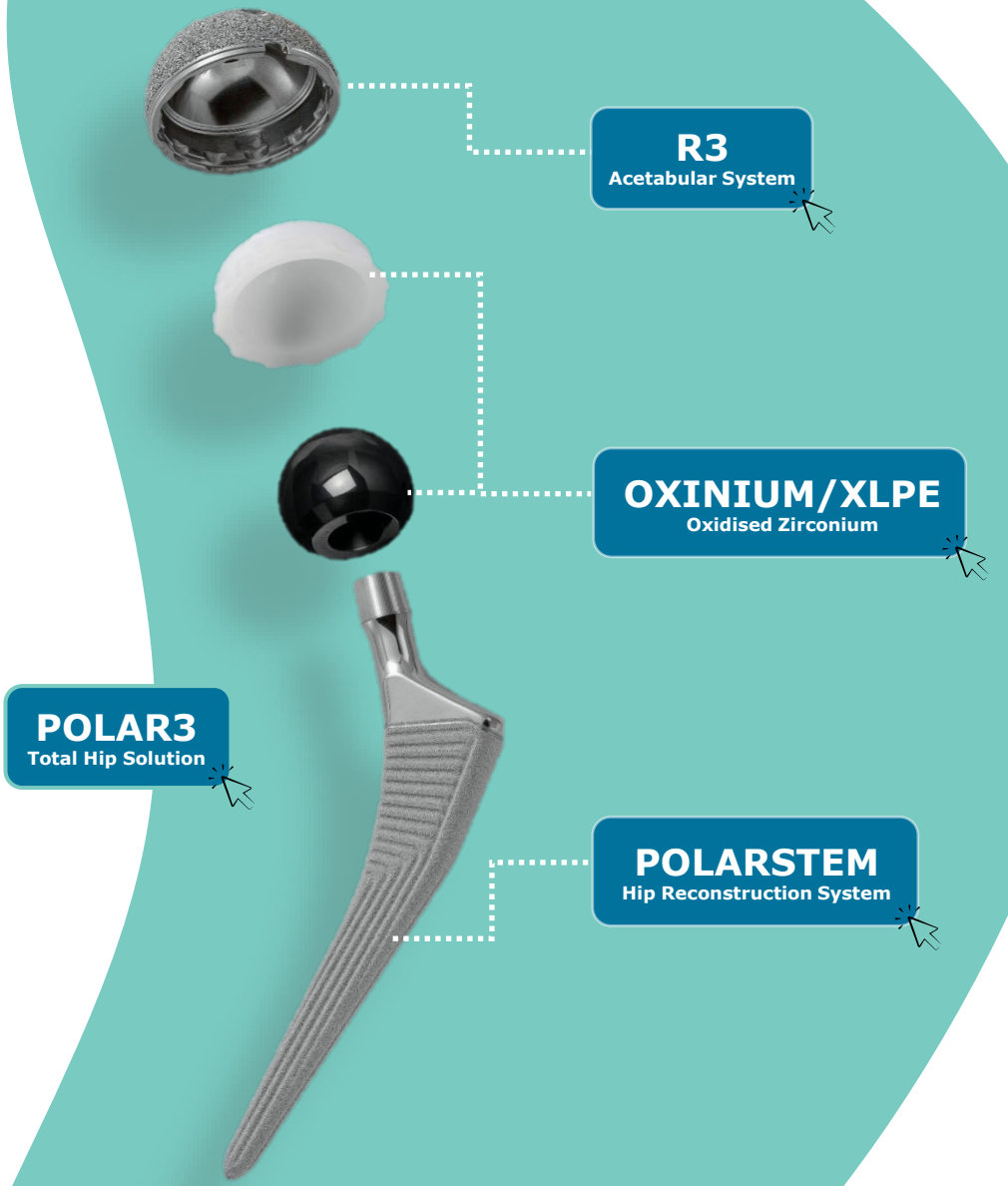
4 registry analyses

4 retrospective comparative studies

8 case series/single-arm cohort

2 cost/efficiency analyses

See how **RI.HIP NAVIGATION** reduces revision risk compared to conventional THA by clicking or scanning the QR code:



Smith+Nephew

*Including registry reports.
†Patients from included studies who received POLAR3 or any POLAR3 component.
Abbreviations: RCT = randomised controlled trial; THA = total hip arthroplasty.

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POLAR3◇
Total Hip Solution
Product summary

Access the POLAR3 clinical evidence summary by clicking or scanning the QR code:

6 studies reporting on POLAR3

10 years **Excellent survivorship** shown by real-world evidence in the UK NJR*[1]

98.1% survivorship

53.4% lower revision risk than class average

POLARSTEM◇/R3◇ is the **second most implanted** cementless THA prosthesis in the UK NJR

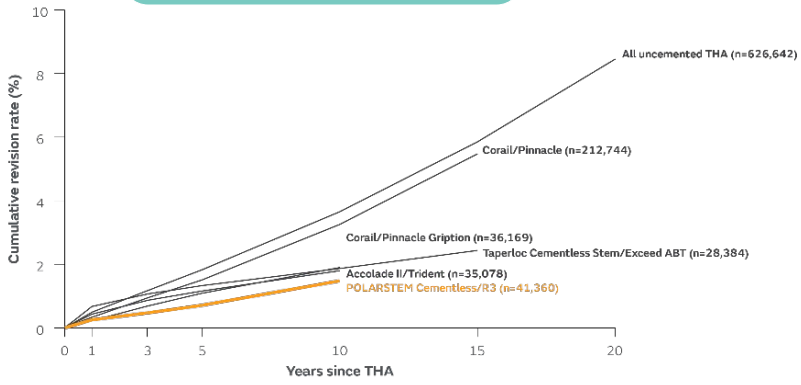
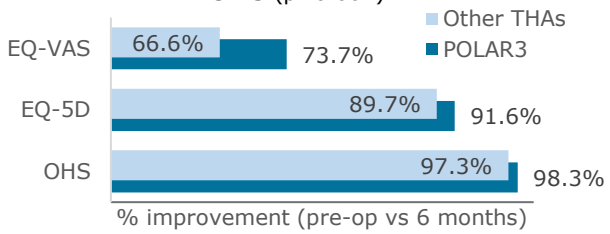


Figure. Cumulative revision of top five most implanted cementless THA prostheses

Improved patient outcomes versus all other stems in the UK NJR[2]

Significantly improved 6-month PROMs (p<0.001)



Significantly higher patient satisfaction (p<0.001)

Lower risk of revision due to aseptic loosening†

Reduced operating costs and length of stay versus other THAs[3]

In a propensity score matched study of patients from the Premier PINC AI Healthcare database (n=6,448):

$1,121
Lower cost of stay
($16,760 vs $17,881; p<0.001)

44%
Higher odds of being discharged home
(92.2% vs 89.1%, OR 1.44; p<0.001)

34%
Lower risk of 30-day readmission
(1.9% vs 2.9%, OR 0.66; p<0.001)

15%
Lower length of stay
(1.52 vs 1.78 days; p<0.001)

*POLARSTEM Cementless/R3 only. †Compared to expected revisions, probability of lower revision risk: >0.999.
Abbreviations: EQ-5D = EuroQol 5D; EQ-VAS = EuroQol Visual Analogue Scale; NJR = National Joint Registry; OHS = Oxford Hip Score; OR = odds ratio; PROMs = patient reported outcome measures; THA = total hip arthroplasty.

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POLARSTEM®

Hip Reconstruction System

Product summary

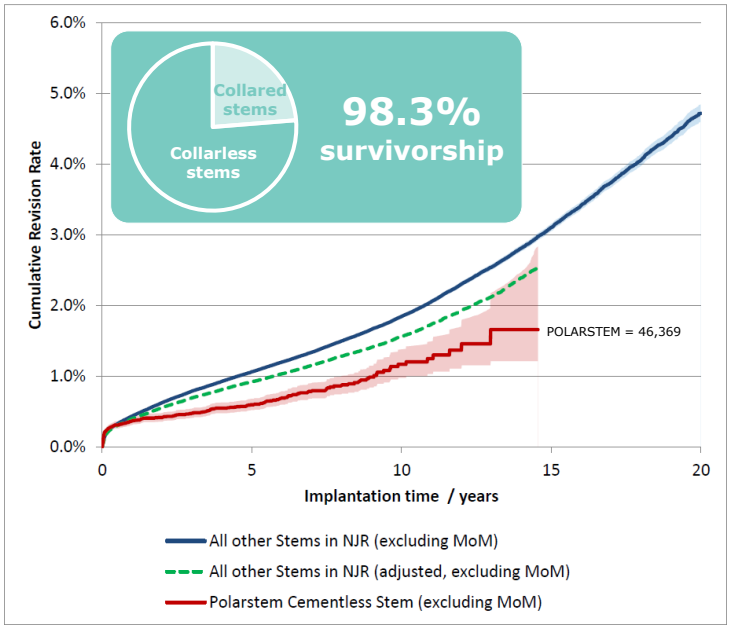
Access the POLARSTEM clinical evidence summary by clicking or scanning the QR code:

9 studies reporting on POLARSTEM

14 years **Excellent survivorship** shown by real-world evidence in the UK NJR[4]

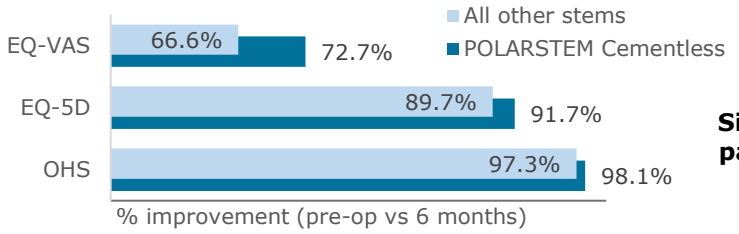
30% **lower revision risk than all other stems**
(HR 0.70; p<0.001)†

Endpoint: Femoral Revision. Excluding Metal-on-Metal



Improved patient outcomes versus all other stems in the UK NJR (p<0.001)[4]

Significantly improved 6-month PROMS



Significantly higher patient satisfaction

Excellent clinical performance with triple-taper design

Lower risk of revision due to aseptic loosening‡4

Excellent survivorship with both collared and collarless stems§5

ODEP 10A*6
POLARSTEM Cementless

ODEP 7A6
POLARSTEM Cemented

†HR varies with time. Adjusted for age, sex, ASA, BMI, Op.date and indications. ‡Compared to expected revisions, probability of lower revision risk: >0.999.
§No significant difference in 3-year revision rate with POLARSTEM Collared vs Collarless in the AOANJRR (98% vs 97.4%; p=0.409).
Abbreviations: EQ-5D = EuroQol 5D; EQ-VAS = EuroQol Visual Analogue Scale; HR = hazard ratio; MoM = metal-on-metal; NJR = National Joint Registry; OHS = Oxford Hip Score; PROMs = patient reported outcome measures; THA = total hip arthroplasty.

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R3◇
Acetabular System
Product summary

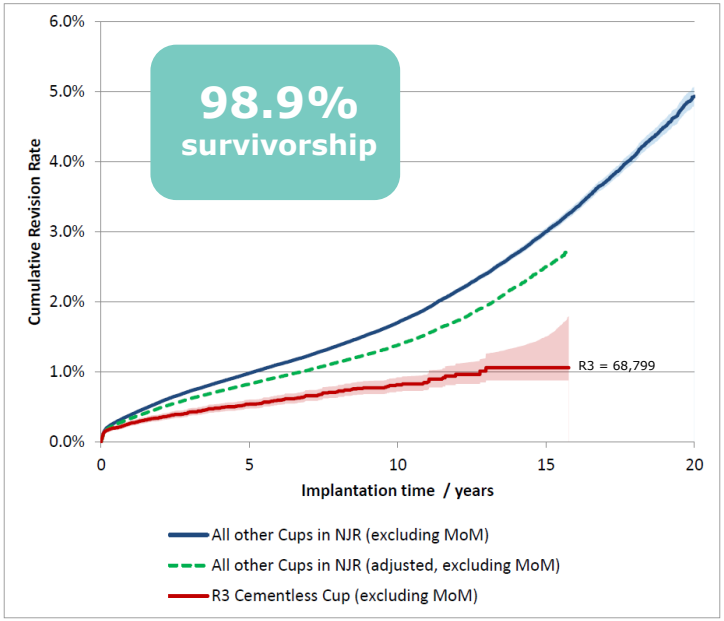
Access the R3 clinical evidence summary by clicking or scanning the QR code:

8 studies reporting on R3

15 years **Excellent survivorship** shown by real-world evidence in the UK NJR[7]

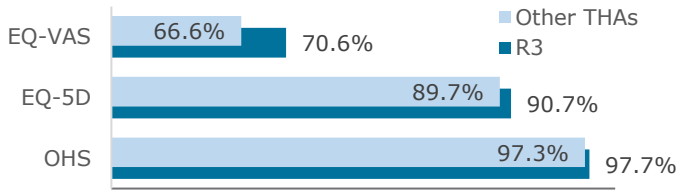
39% **lower revision risk than all other cups**
(HR 0.61; p<0.001)†

Endpoint: Acetabular Revision. Excluding Metal-on-Metal



Improved patient outcomes versus all other cups in the UK NJR (p<0.001)[7]

Significantly improved 6-month PROMS



Significantly higher patient satisfaction

Excellent clinical performance

Lower risk of revision due to aseptic loosening or liner dissociation‡[7]

7 years

Significantly lower liner dissociation rate compared with Pinnacle
(0% vs 1.12%; p=0.038)[8]

ODEP 15A*[6]
R3 HA-coated

ODEP 10A[6]
R3 non-HA coated

†HR varies with time. Adjusted for age, sex, ASA, BMI, Op.date and indications. ‡Compared to expected revisions, probability of lower revision risk: >0.999.
Abbreviations: EQ-5D = EuroQol 5D; EQ-VAS = EuroQol Visual Analogue Scale; HR = hazard ratio; MoM = metal-on-metal; NJR = National Joint Registry; OHS = Oxford Hip Score; PROMs = patient reported outcome measures; THA = total hip arthroplasty.

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OXINIUM®/XLPE
Oxidised Zirconium
Product summary

Access the OXINIUM clinical evidence summary by clicking or scanning the QR code:

6 studies reporting on OXINIUM

20 years — OXINIUM/XLPE: lowest revision risk of all bearing types in the AOANJRR[5]

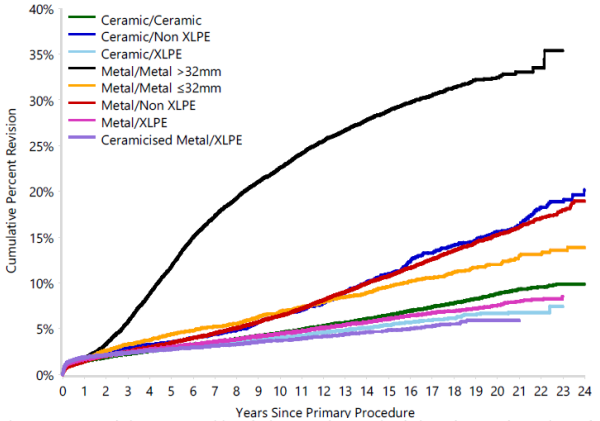


Figure HT45 Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Bearing Surface (Primary Diagnosis OA)

HR - adjusted for age and gender

Ceramic/Ceramic vs Ceramic/XLPE
0 - 2Wk: HR=0.96 (95% CI 0.84, 1.09), p=0.525
2Wk - 3Mth: HR=0.74 (95% CI 0.68, 0.80), p<0.001
3Mth - 9Mth: HR=0.90 (95% CI 0.80, 1.01), p=0.063
9Mth - 2.5Yr: HR=1.16 (95% CI 1.07, 1.26), p<0.001
2.5Yr+: HR=1.35 (95% CI 1.27, 1.42), p<0.001

Ceramic/Non XLPE vs Ceramic/XLPE
0 - 3Mth: HR=0.94 (95% CI 0.79, 1.13), p=0.518
3Mth - 8Yr: HR=1.57 (95% CI 1.40, 1.76), p<0.001
8Yr+: HR=3.59 (95% CI 3.19, 4.04), p<0.001

Metal/Metal ≤32mm vs Ceramic/XLPE
0 - 2Wk: HR=1.17 (95% CI 0.72, 1.89), p=0.532
2Wk - 6Mth: HR=0.66 (95% CI 0.48, 0.91), p=0.010
6Mth+: HR=2.07 (95% CI 1.87, 2.28), p<0.001

Metal/Non XLPE vs Ceramic/XLPE
0 - 3Mth: HR=0.75 (95% CI 0.67, 0.85), p<0.001
3Mth - 6Mth: HR=0.99 (95% CI 0.78, 1.26), p=0.954
6Mth - 1.5Yr: HR=1.65 (95% CI 1.45, 1.88), p<0.001
1.5Yr - 3Yr: HR=1.54 (95% CI 1.34, 1.76), p<0.001
3Yr - 8Yr: HR=2.20 (95% CI 2.02, 2.40), p<0.001
8Yr+: HR=3.40 (95% CI 3.16, 3.66), p<0.001

Metal/XLPE vs Ceramic/XLPE
0 - 2Wk: HR=0.95 (95% CI 0.85, 1.07), p=0.394
2Wk - 1Mth: HR=1.13 (95% CI 1.04, 1.23), p=0.005
1Mth - 3Mth: HR=0.99 (95% CI 0.91, 1.07), p=0.737
3Mth - 3Yr: HR=1.12 (95% CI 1.06, 1.18), p<0.001
3Yr+: HR=1.24 (95% CI 1.17, 1.31), p<0.001

Ceramicised Metal/XLPE vs Ceramic/XLPE
0 - 3Mth: HR=1.16 (95% CI 1.05, 1.27), p=0.002
3Mth+: HR=0.83 (95% CI 0.77, 0.90), p<0.001

Metal/Metal >32mm vs Ceramic/XLPE
0 - 2Wk: HR=1.24 (95% CI 0.94, 1.65), p=0.132
2Wk - 1Mth: HR=0.45 (95% CI 0.31, 0.65), p<0.001
1Mth - 3Mth: HR=0.69 (95% CI 0.52, 0.92), p=0.010
3Mth - 9Mth: HR=1.20 (95% CI 0.94, 1.54), p=0.144
9Mth - 1.5Yr: HR=3.13 (95% CI 2.65, 3.71), p<0.001
1.5Yr - 2Yr: HR=4.95 (95% CI 4.11, 5.96), p<0.001
2Yr - 11Yr: HR=10.48 (95% CI 9.90, 11.09), p<0.001
11Yr+: HR=4.66 (95% CI 4.24, 5.13), p<0.001

Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Ceramic/Ceramic	114611	108892	98951	88144	54363	21062	6019
Ceramic/Non XLPE	11499	10490	8760	7126	3924	2288	1177
Ceramic/XLPE	191223	163266	118949	83965	24624	5830	926
Metal/Metal >32mm	14424	14063	13212	11972	9298	6384	629
Metal/Metal ≤32mm	5143	5022	4841	4653	4020	3050	1339
Metal/Non XLPE	36447	34925	32329	29622	21301	12653	5076
Metal/XLPE	217882	201897	172790	144132	72096	23528	4284
Ceramicised Metal/XLPE	41361	36888	29950	23315	11085	3364	471

Note: Only bearing surfaces with >5,000 procedures have been listed

94.1% survivorship

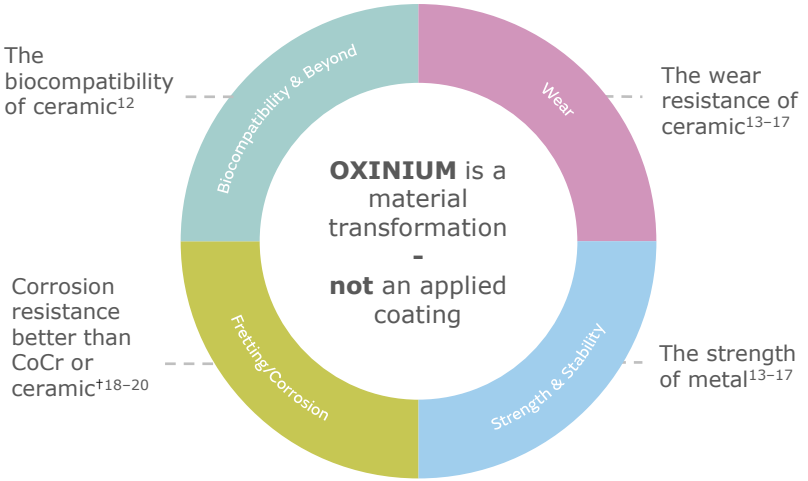
17%

From 3 months, OXINIUM/XLPE has the **lowest risk of revision** of all bearing combinations vs ceramic/XLPE (HR 0.83; p<0.001)

Comparing the rates of revision for these bearings, Ceramicised Metal/XLPE* has the lowest rate of revision at 20 years. As in previous years, the Registry urges caution in the interpretation of this result. This bearing is a single company product, used with a small number of femoral stem and acetabular component combinations. This may have a confounding effect on the outcome, making it unclear if the lower rate of revision is an effect of the bearing surface or reflects the limited combinations of femoral and acetabular prostheses. Tables and graphs have been reproduced in exact and complete form.
*The term 'Ceramicised Metal/XLPE' is equivalent to 'OXINIUM/XLPE'.

Data from four joint registries has shown OXINIUM heads have the **highest survivorship**[*5,9–11]

During manufacturing, the zirconium alloy core undergoes a transformation upon heating to form a ~5µm thick ceramicised surface, offering a strong, resilient implant material.[12]



*vs all other reported bearing combinations; NJR data from 2004-2016; RIPO data from 2000-2015; LROI data from 2007-2016; AOANJRR 2025 annual report.
†Aldinger et al. (2017) shows OXINIUM demonstrates a markedly reduced susceptibility to taper fretting compared to CoCr and ceramic during in vitro testing.[20]
Abbreviations: AOANJRR = Australian Orthopaedic Association National Joint Replacement Registry; CoCr = cobalt chrome; HR = hazard ratio; OA = osteoarthritis; XLPE = highly cross-linked polyethylene.

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*The data used for this analysis was obtained from the National Joint Registry ("NJR"), part of the HQIP, the NJR and/or its contractor, NEC Software Solutions (UK) Limited ("NEC") take no responsibility (except as prohibited by law) for the accuracy, currency, reliability and correctness of any data used or referred to in this report, nor for the accuracy, currency, reliability and correctness of links or references to other information sources and disclaims all warranties in relation to such data, links and references to the maximum extent permitted by legislation including any duty of care to third party readers of the data analysis.

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