Evidence in focus

Smith+Nephew

POLAR3◊ Clinical Evidence Compendium

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This compendium summarises the clinical evidence on POLAR3

14
clinical publications and registry reports

73,171
hips

User Guide

Click here to view the key

OXINIUM◊/XLPE had the lowest 5- and 9-year cumulative revision rate of all bearing combinations[16]

- 209,912 primary THRs, including 11,785 patients with OXINIUM on highly crosslinked or standard polyethylene (OXINIUM/[XL]PE) bearings*
- Compared survivorship for six bearing types:
  - OXINIUM/(XL)PE
  - Ceramic/XLPE
  - Ceramic/PE
  - Metal/PE
  - Metal/XLPE
  - Ceramic/Ceramic
- Maximum 10-year follow up

Cumulative rates of revision (all cause) for OXINIUM/(XL)PE were the lowest of all bearings

at 5 years **2.5%**

at 9 years **3.5%**

19% Lower risk of revision compared to Metal/PE

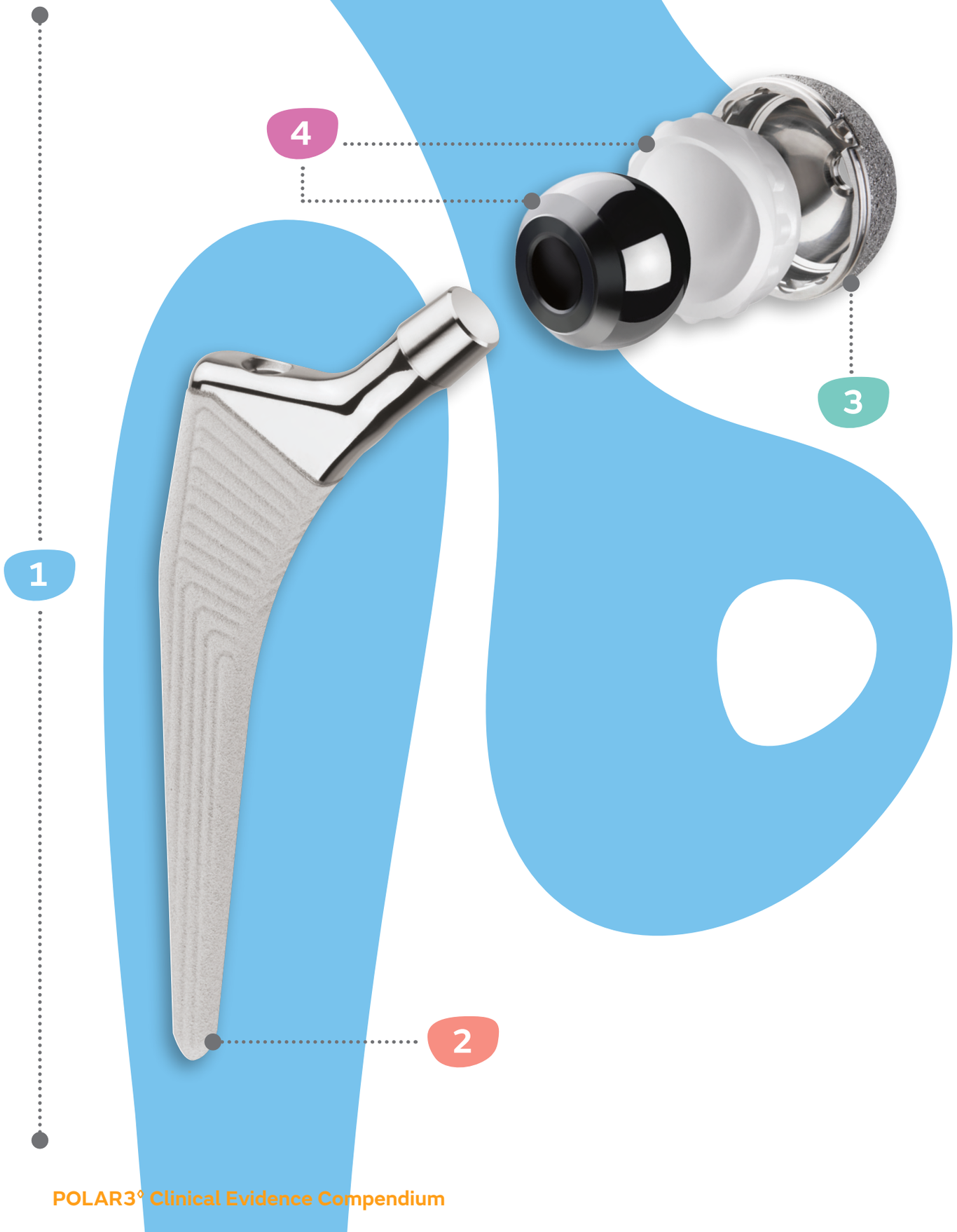
p<0.05

*Due to small group sizes, OXINIUM on standard polyethylene (PE) or highly-cross-linked polyethylene (XLPE) were analysed together.

Click here to view Manuscripts

Click here to view Evidence in Focus summaries

Navigate through pages here



POLAR3◊ for total hip replacement (THR)

- In response to the rise in demand for THR, there is an increasing emphasis on using implants underpinned by a strong evidence base to enable clinicians to optimise patient outcomes[1]
- Clinical studies and registries are key sources of evidence for implants[2]
- Essential outcomes include surgical complication rates and survivorship[2]
- Patient reported outcomes (PROMs) also capture important information about pain, function and quality of life[3]

Click below to view the evidence by subject of interest

1. POLAR3◊
2. POLARSTEM◊
3. R3◊
4. OXINIUM◊/XLPE

Click here to view Abbreviations, Terminology and References

POLAR3◊

This section contains data on:

- **Survivorship**
- **PROMs**

Main Menu

POLAR3◊ has a survivorship of 98% at 8 years[4]

9,952
primary THRs in
9,130
patients

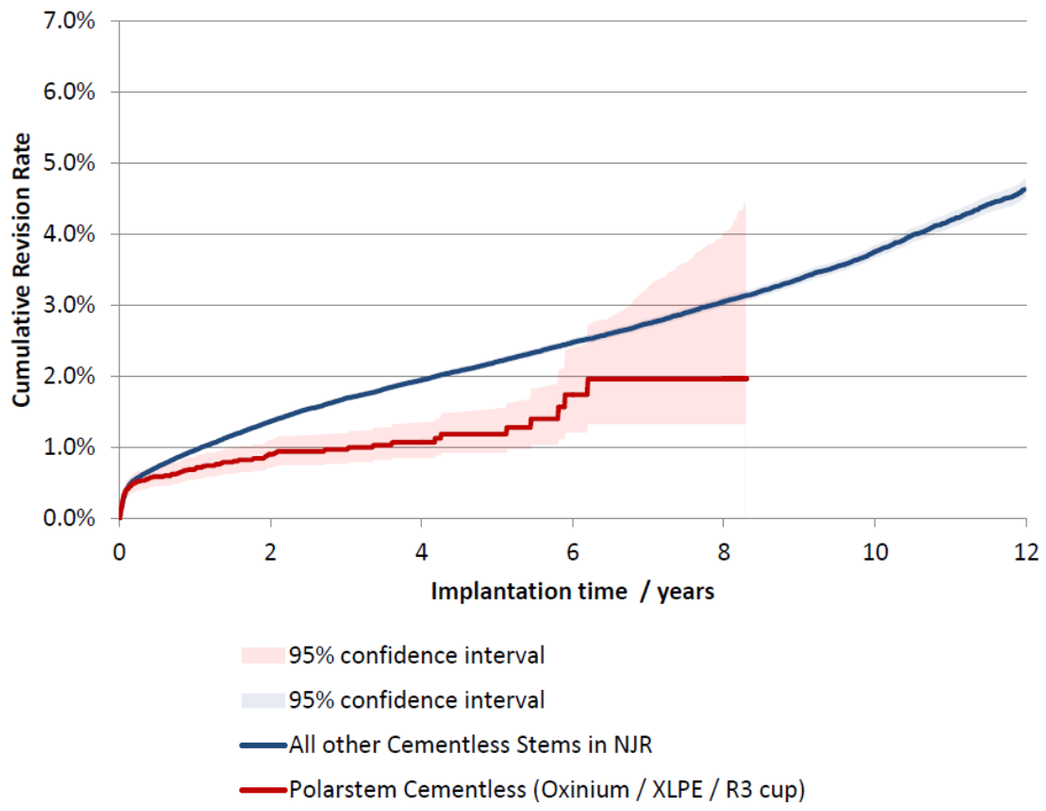
35%

Significantly lower
revision risk
compared to all other uncemented stems*

p<0.001

Cumulative revision rate

All reasons for revision, excluding metal-on-metal



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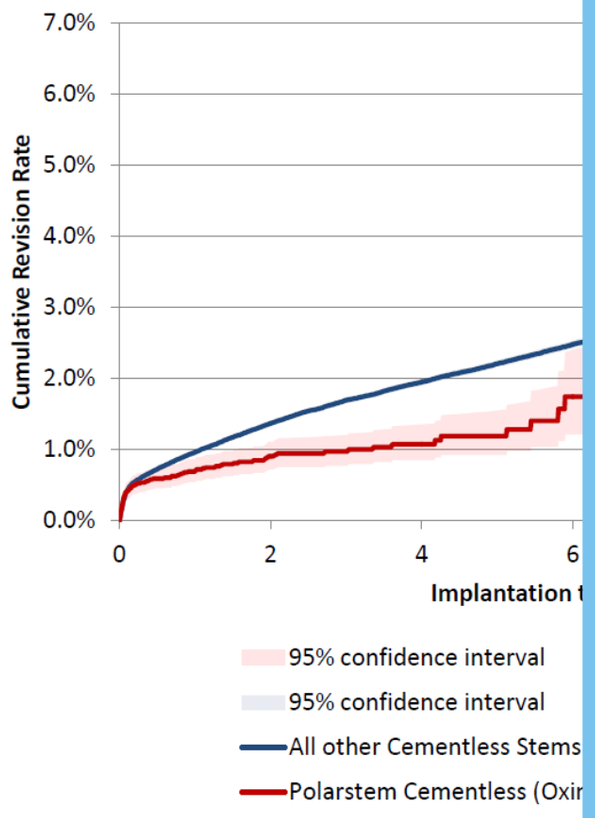

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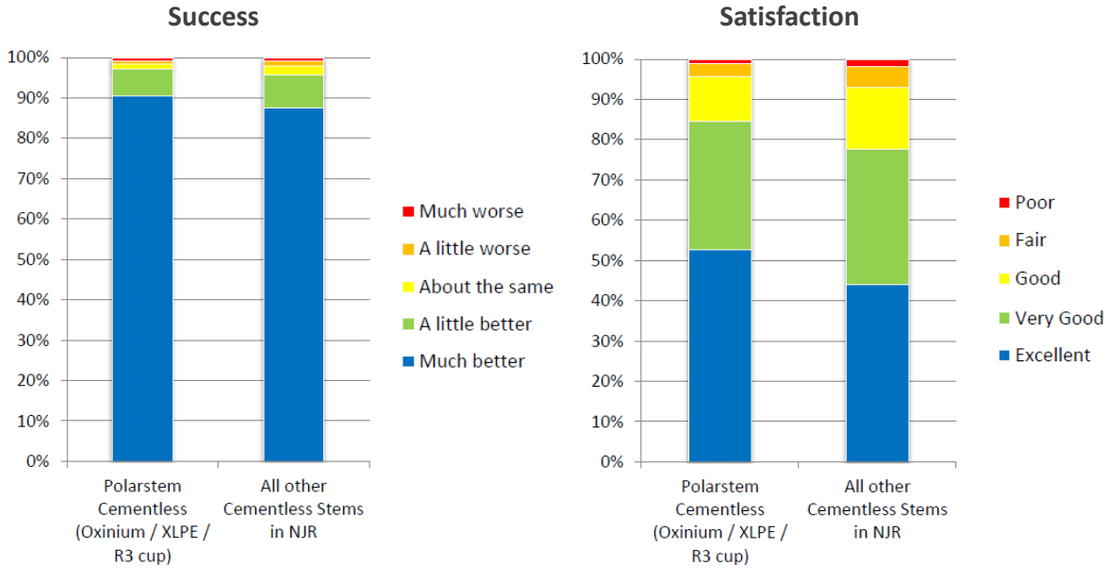
POLAR3◊ delivers higher than class average patient satisfaction and better PROMs[4]

Patients who received POLAR3...

Were **significantly more likely to be satisfied** with their THR, and to consider their procedure a **success** (p<0.001), after 6 months, compared to those who received other uncemented stems



Achieved **significantly better average 6-month PROM scores** compared to patients who received any type of uncemented stem (p<0.001)

PROMs	POLAR3	All NJR uncemented stems	p value
Oxford Hip Score	23.0 (22.7–23.2)	21.4 (21.4–21.5)	p<0.001
EQ-5D	0.468 (0.459–0.476)	0.439 (0.438–0.440)	
EQ-VAS	14.6 (13.9–15.2)	11.9 (11.8–12.0)	

Adjusted health gain scores (95% confidence interval) at 6 months after THR. Adjusted scores correspond to the NHS Digital version 3 case-mix-adjustment model. Using case-mix adjusted scores allows for a more accurate comparison between groups by taking into account variations in patient characteristics.

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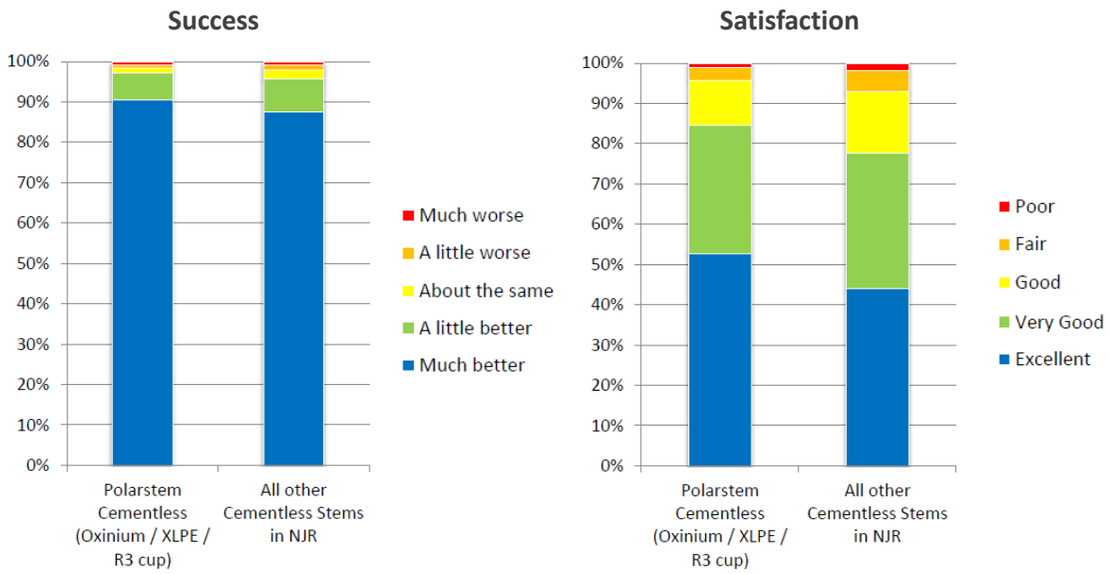

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POLAR3◊ Clinical Evidence Compendium

POLARSTEM®

This section contains data on:

- Survivorship
- PROMs
- Safety

Main Menu

POLARSTEM◊ with R3◊ demonstrates highest survivorship of all uncemented hip constructs at 10 years[5]

Cumulative revision rates for the six most frequently implanted uncemented THR prostheses with at least 10 years of results

ODEP 7A*
POLARSTEM
Uncemented Stem[6]

ODEP 10A*
R3
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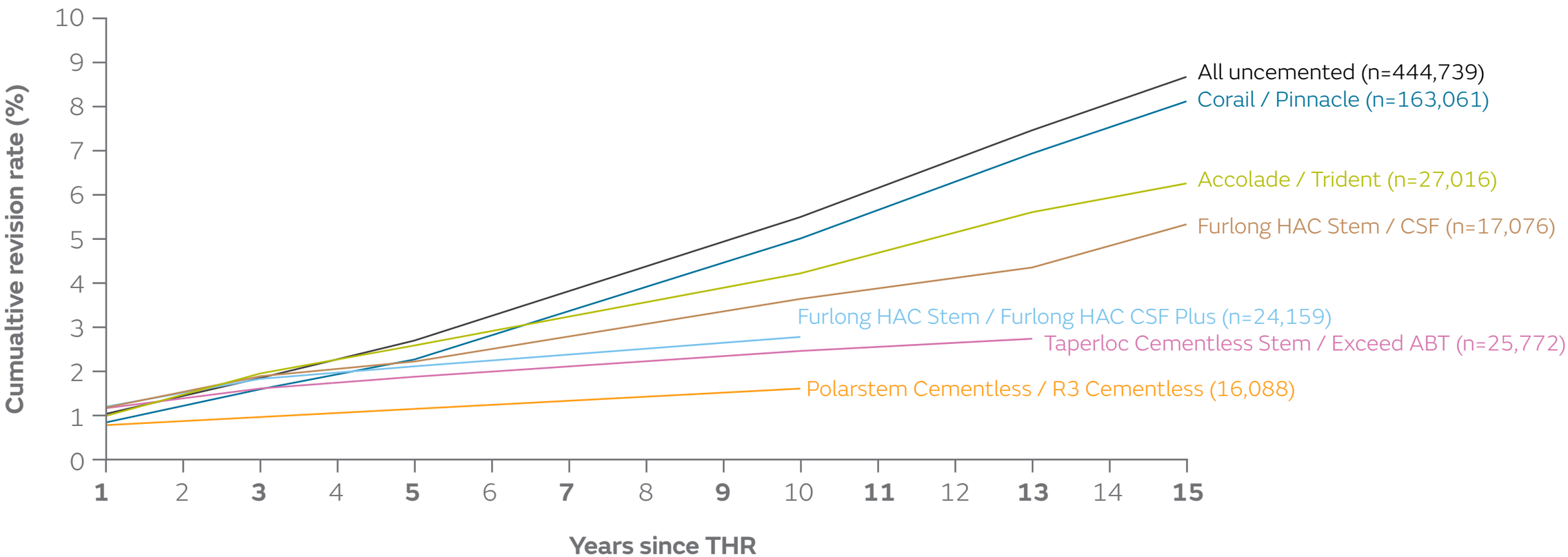

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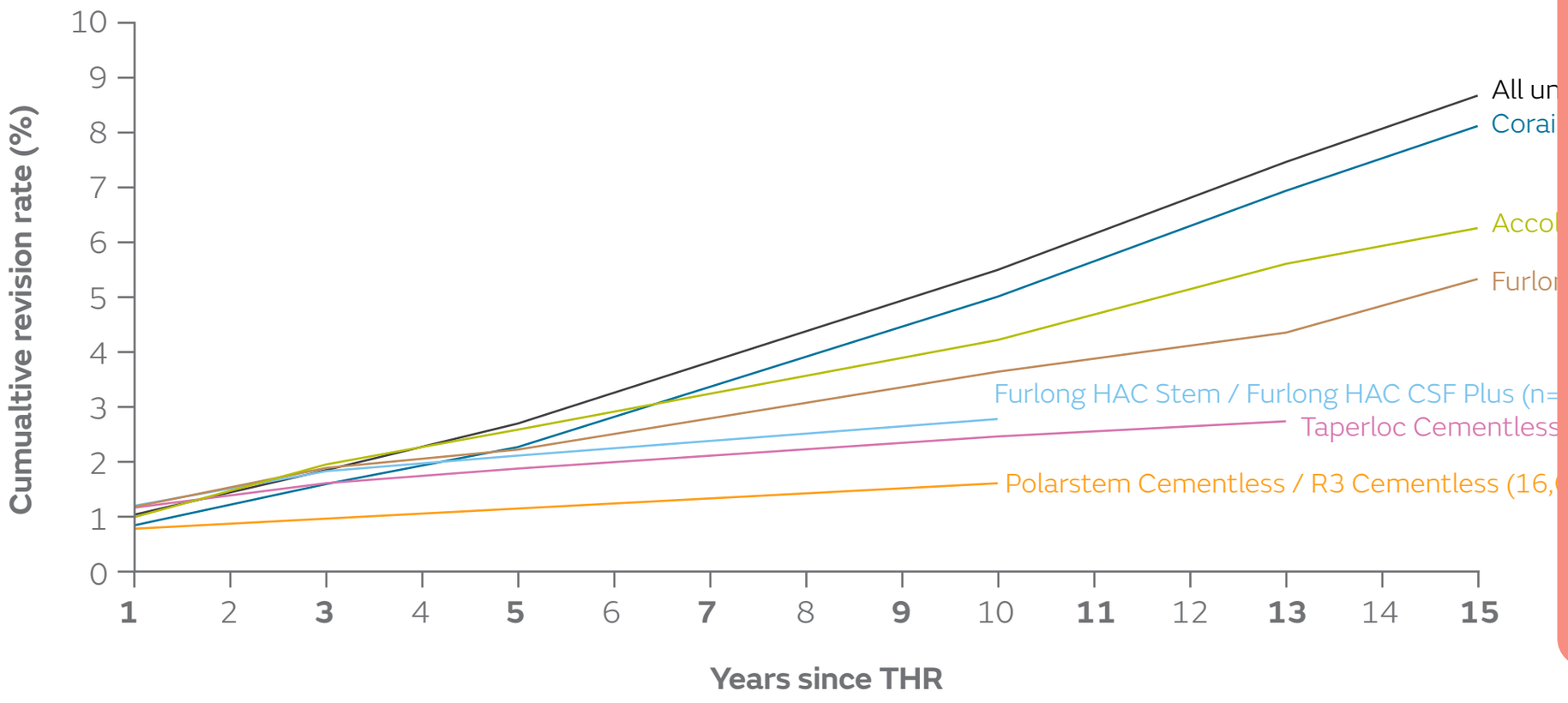

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POLARSTEM◊ has a survivorship of 98.3% at 10 years[7]

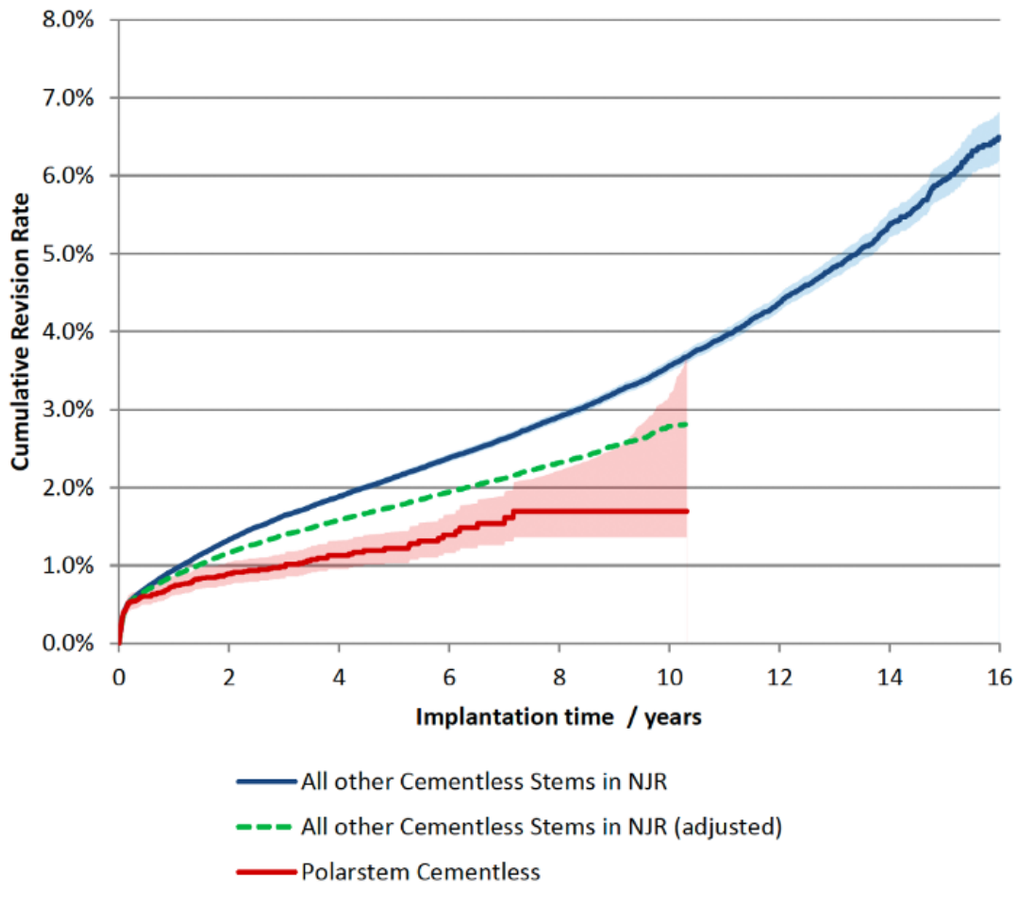
17,641 primary THRs in **16,066** patients

36% Significantly lower **revision risk** compared to all other uncemented stems*

p<0.001

Cumulative revision rate

All reasons for revision, excluding metal-on-metal



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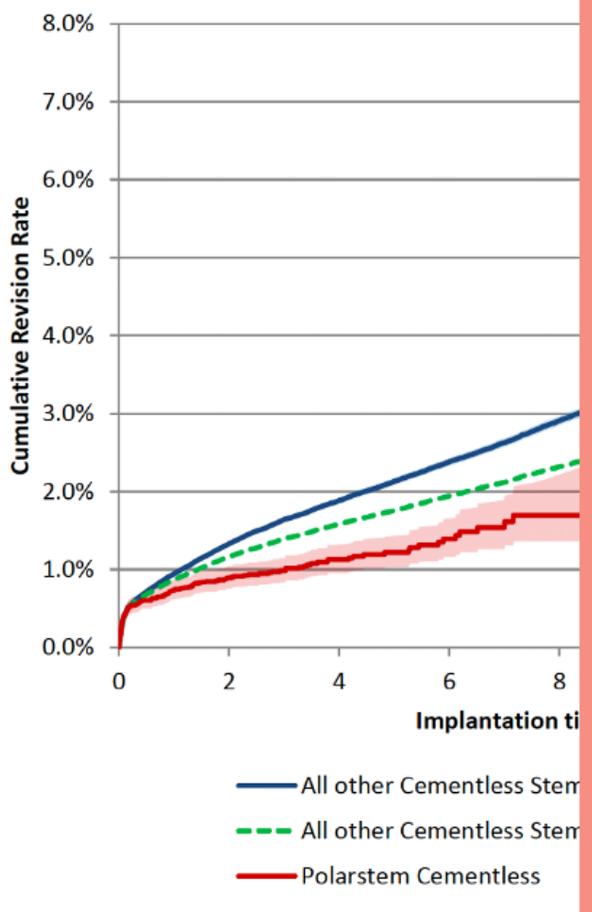

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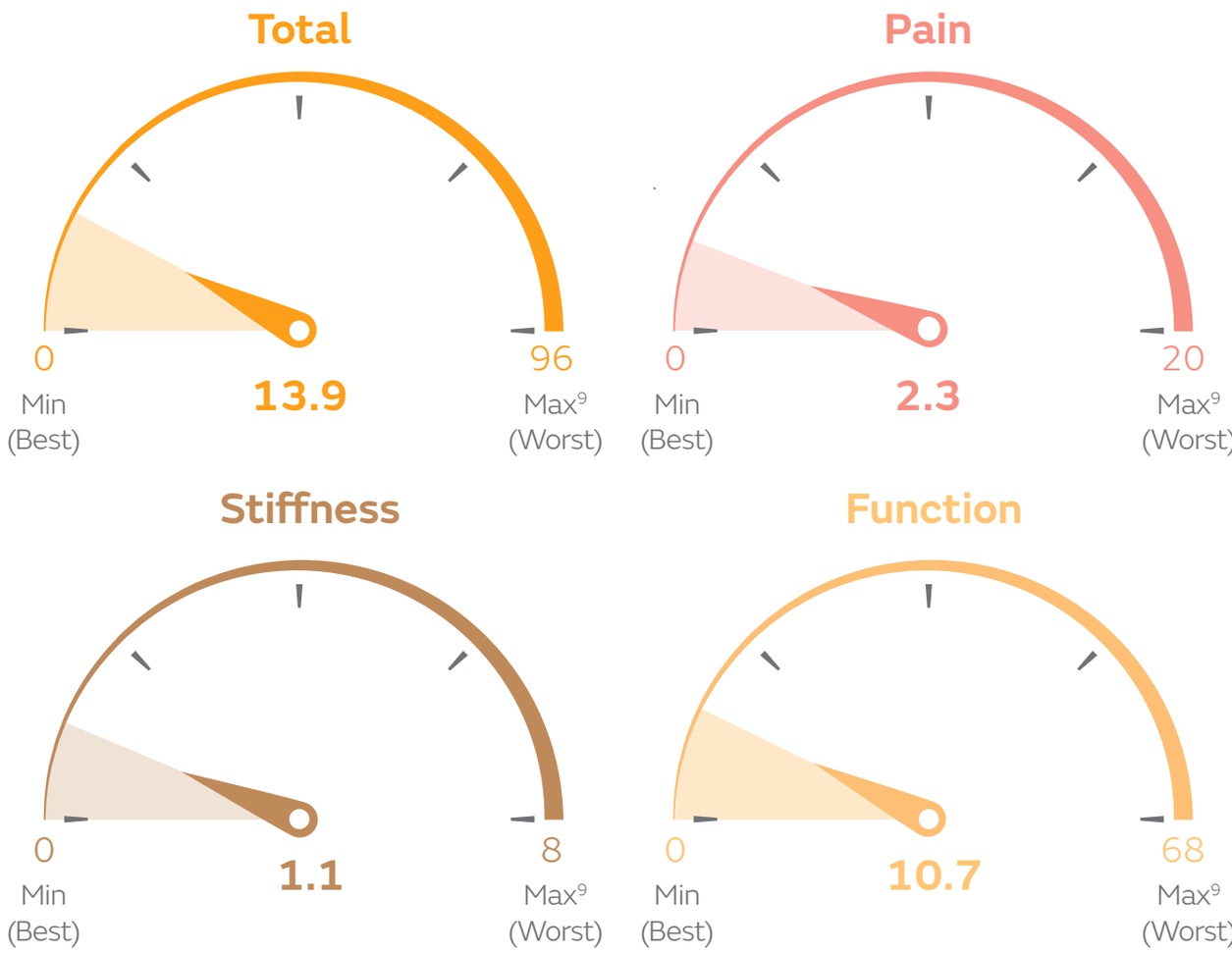
POLARSTEM◊ delivers high survivorship and excellent patient-reported function outcomes at 10 years[8]

- Multicentre study (three centres)
- 502 THRs in 502 patients; 244 THRs were analysed
- Uncemented POLARSTEM and POLARCUP◊
- Minimum 10-year follow up (mean, 11.9 years)

Excellent 10-year mean WOMAC scores



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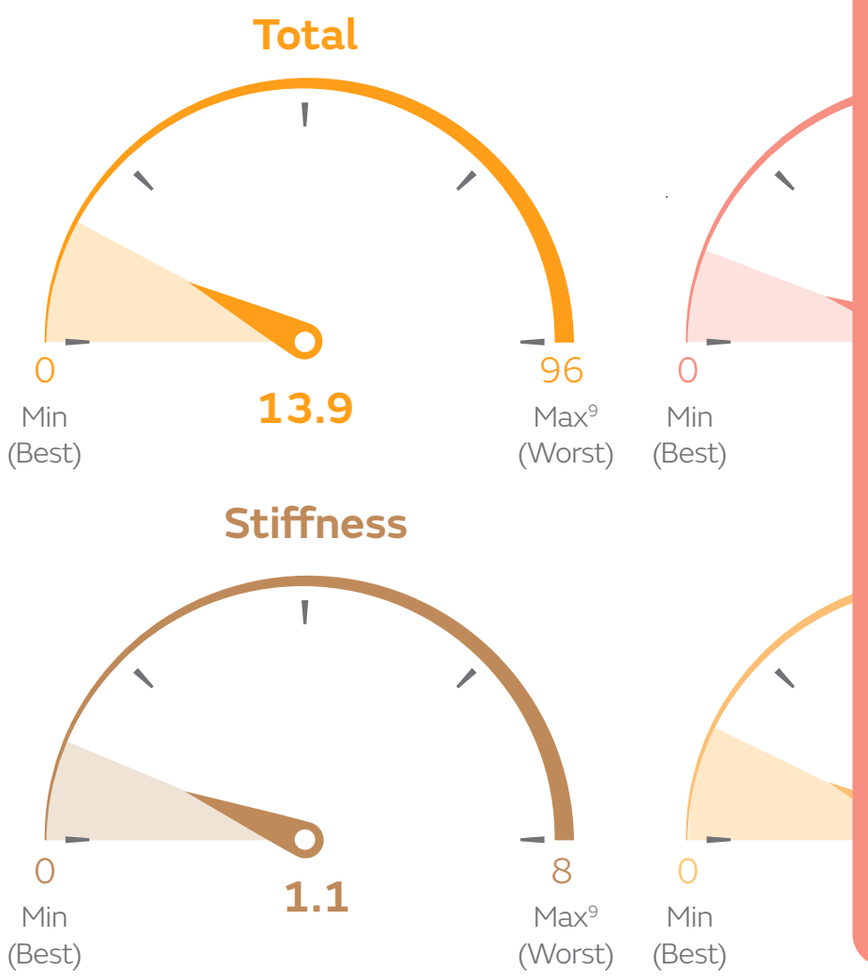

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- Single-centre study
- 144 THRs in 143 patients; 114 THRs were analysed
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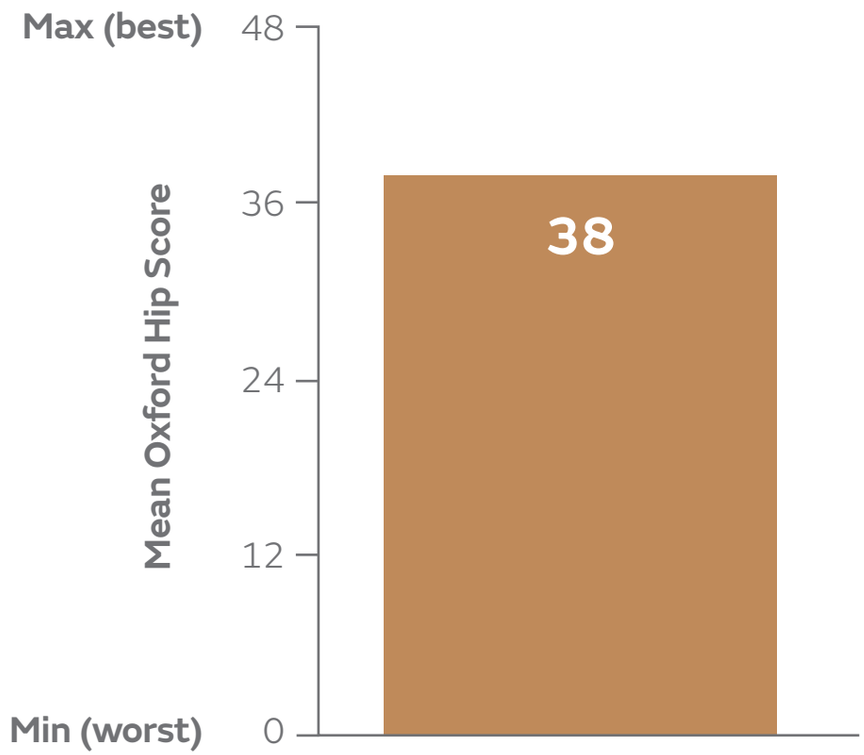
Excellent cumulative 7-year survivorship (all cause)

97.7%

High 7-year mean Oxford Hip Score



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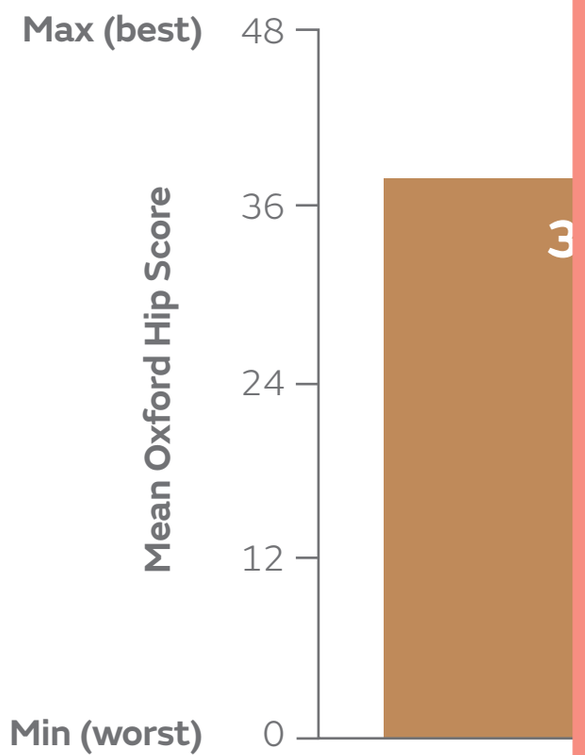

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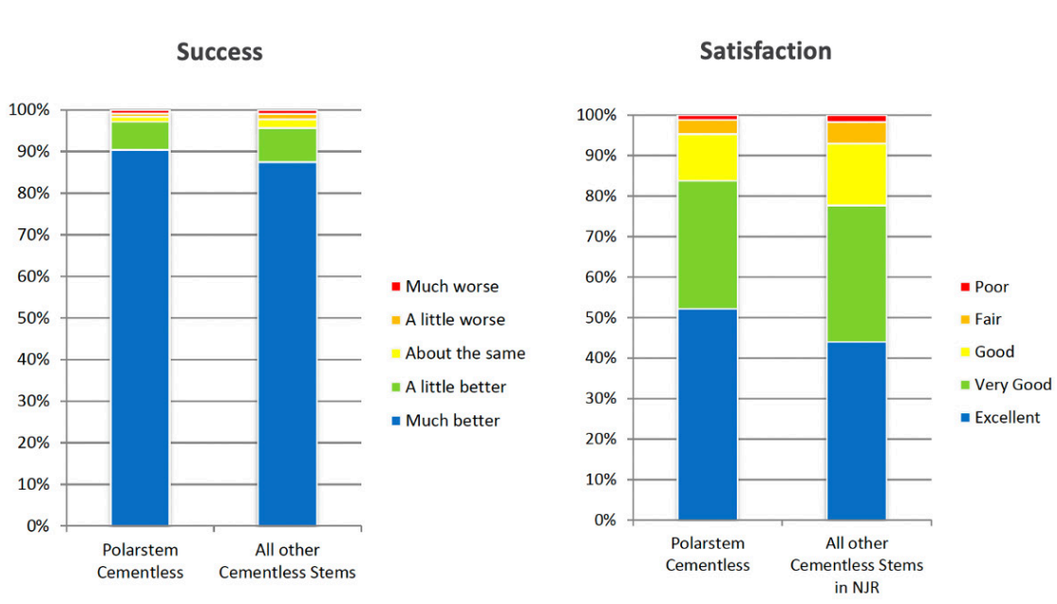

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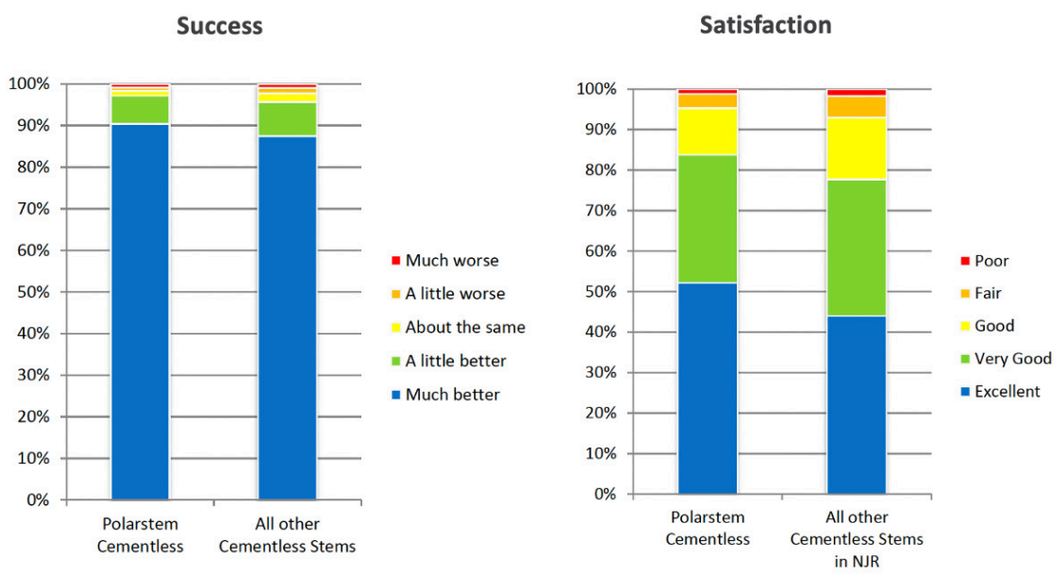

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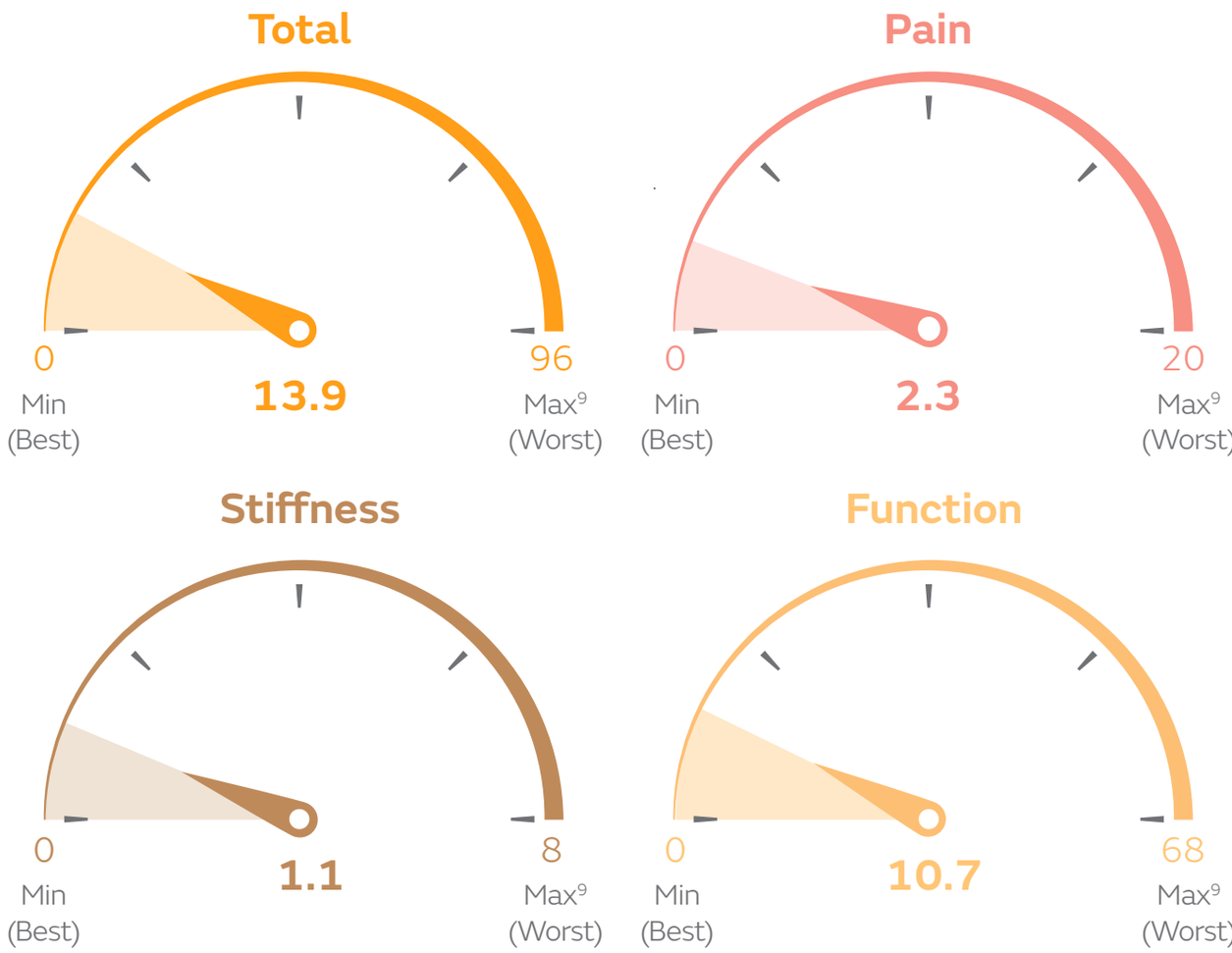

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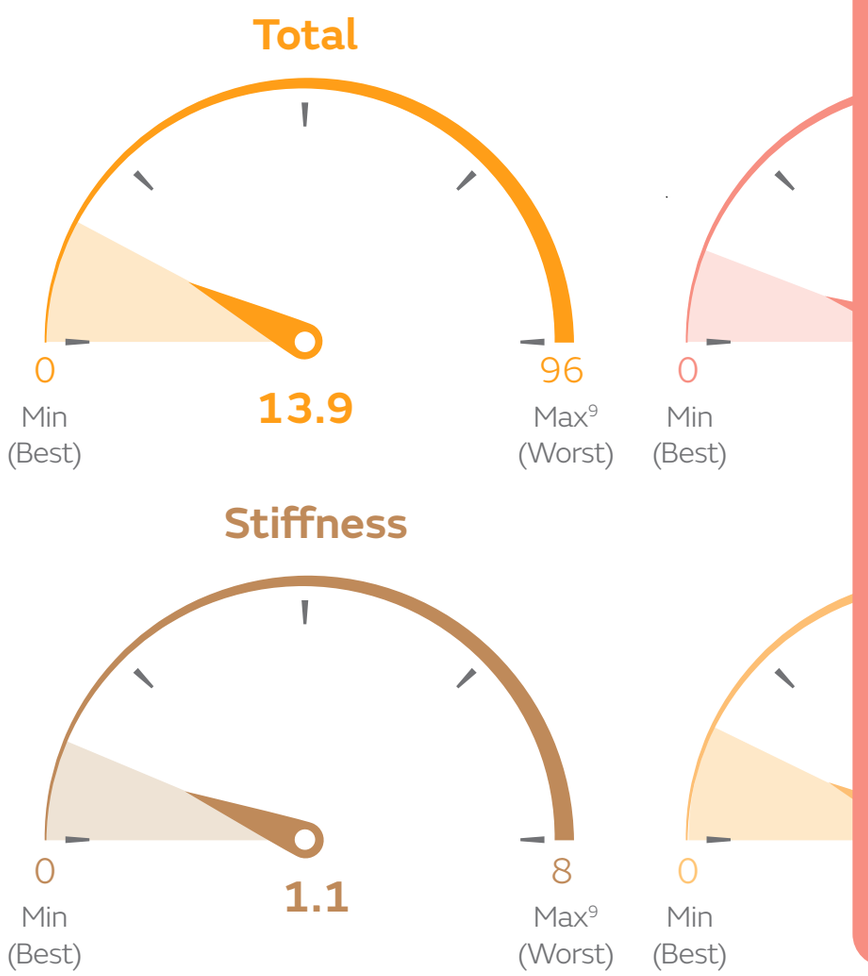

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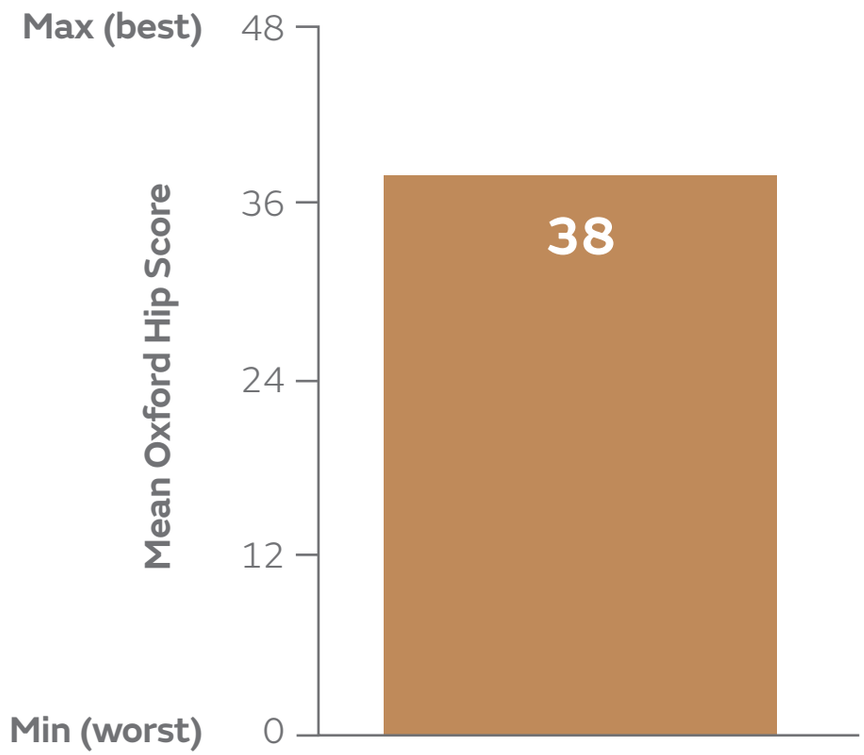

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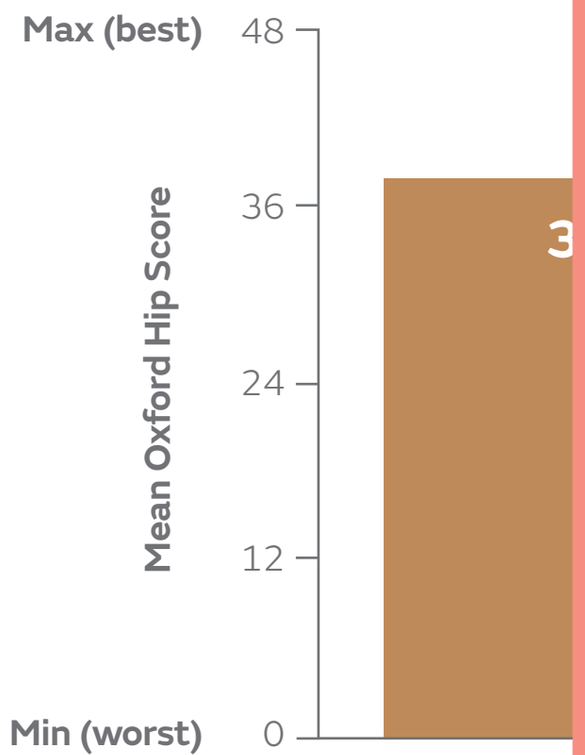

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POLARSTEM◊ with R3◊ delivers safety comparable to hybrid THR in an elderly patient cohort[11]

- Single-centre study
- Uncemented THR with POLARSTEM and R3 in 76 patients
- Hybrid THR with Exeter™ cemented stem and Trilogy Cup™ in 67 patients
- Minimum 5-year follow up (mean, 80.4 months)

Significantly lower complication and transfusion rates, and similar revision rates

Similar mean Oxford Hip Score, 40 in the uncemented group and 38 in the hybrid group

	Intraoperative complications	Blood transfusions	Revisions
	p=0.017	p=0.02	–
POLARSTEM & R3	1	6	2
Exeter™ & Trilogy Cup™	7	14	2

Number of events. No significant difference between groups in frequency of other complications.

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R3°

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- **Survivorship**
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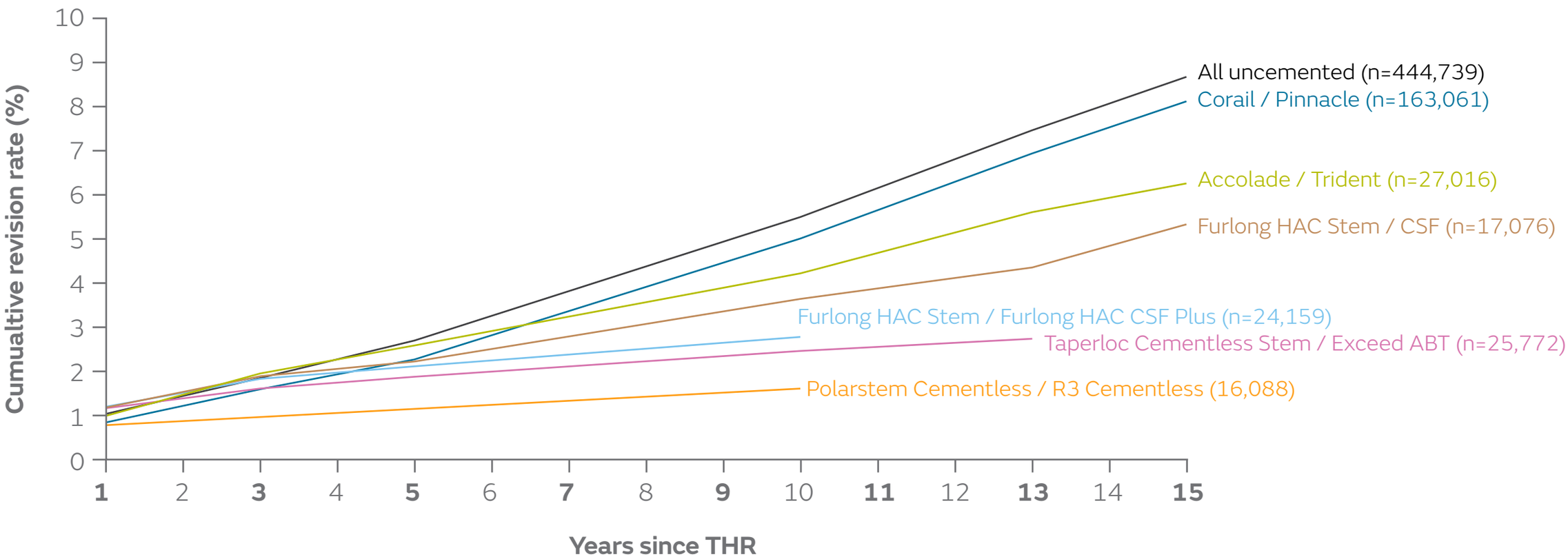

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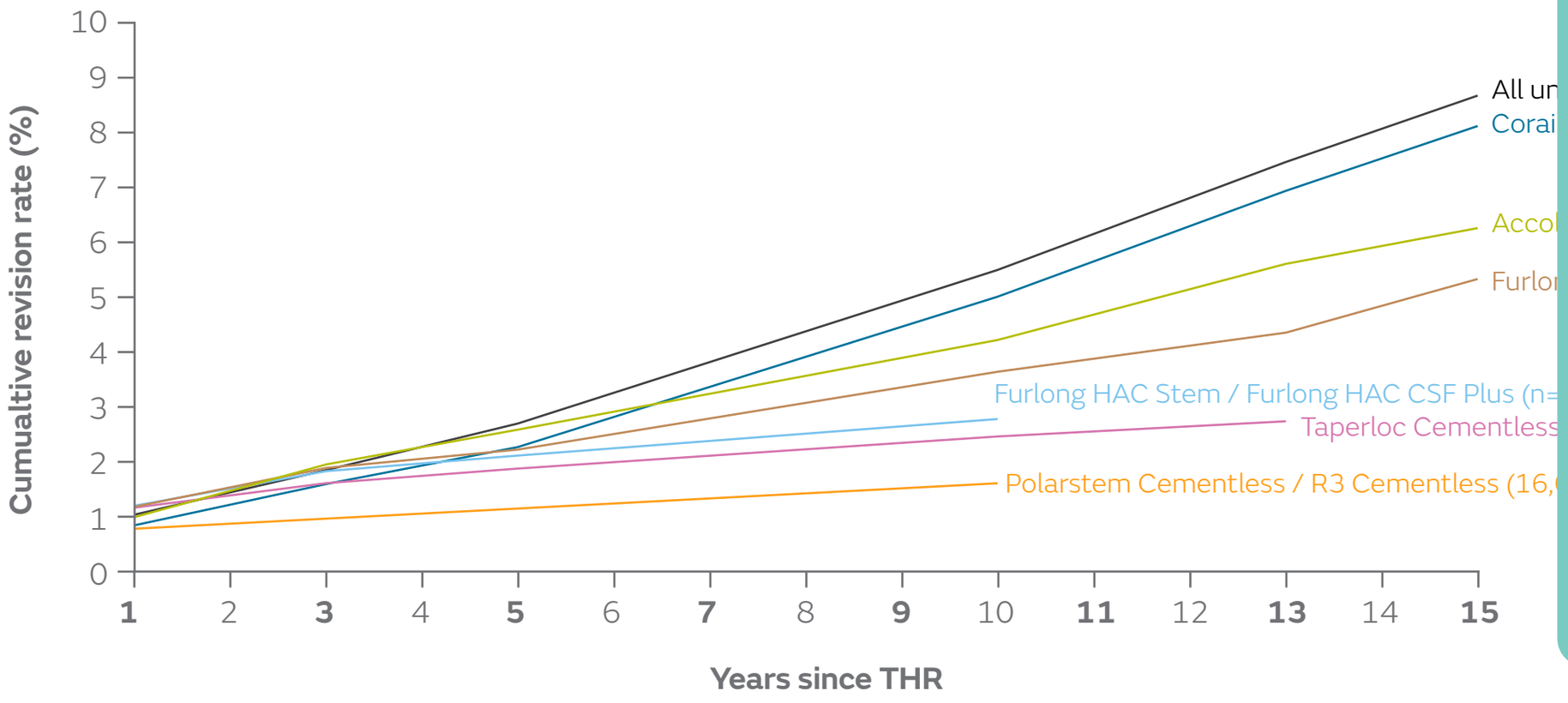

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R3◊ has a survivorship of 97.7% at 11 years[12]

31,901
primary THRs in
28,861
patients

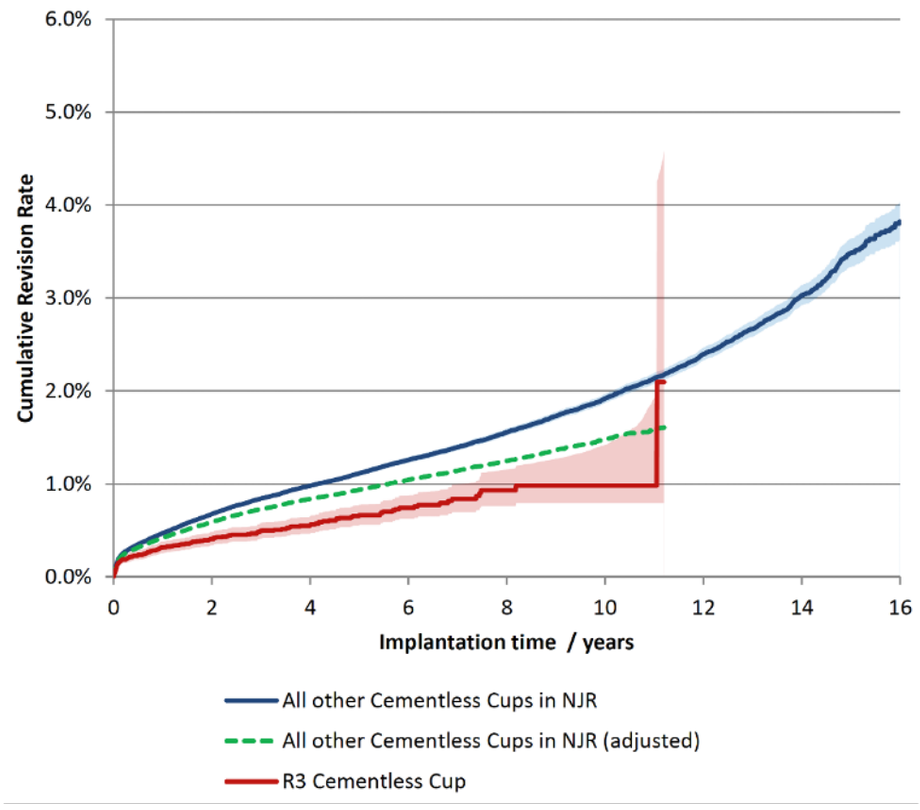
21%

Significantly lower
revision risk
compared to all other uncemented cups*

p<0.001

Cumulative revision rate

All reasons for revision, excluding metal-on-metal



*Unadjusted analysis.
†The cumulative revision rate graph presents results beyond the 11 year time point. At 11 years the revision rate is 2.3% with 98 patients remaining at risk.
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Cumulative revis

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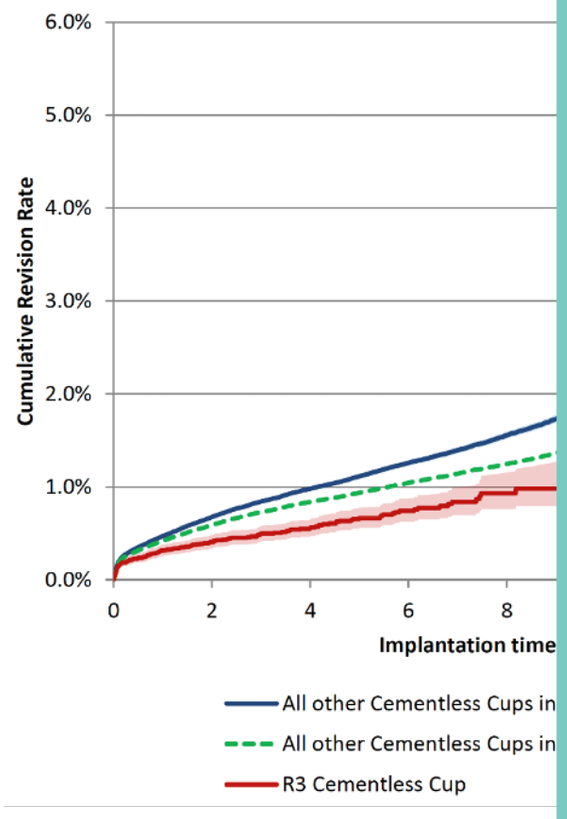

Key

- **Implant Summary Report***
- Annual Report
- Clinical Study
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Including data from the following registries:

- **UK (NJR)**
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*Unadjusted analysis.
†The cumulative revision rate graph presents results beyond the 11 year time point. At 11 years the revision rate is 2.3% with 98 patients remaining at risk.
All results reported exclude metal-on-metal bearings.
The term ‘cementless’ is equivalent to ‘uncemented’ reported on other slides.

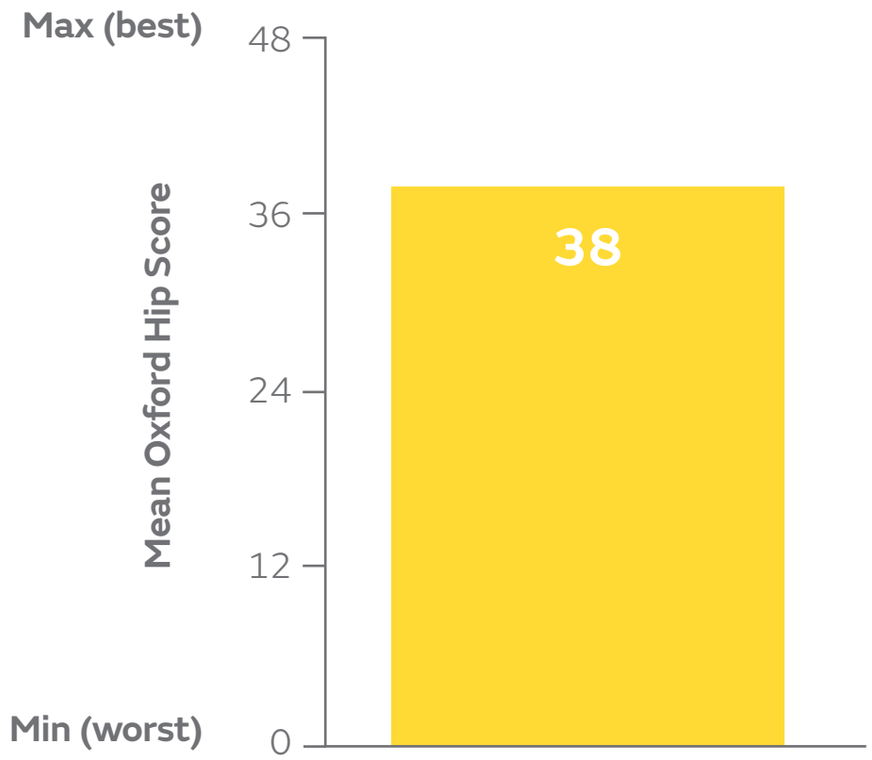
POLARSTEM◊ with R3◊ demonstrates excellent mid-term survivorship[10]

- Single-centre study
- 144 THRs in 143 patients; 114 THRs were analysed
- Uncemented POLARSTEM and R3
- Minimum 7-year follow up

Excellent cumulative 7-year survivorship (all cause)

97.7%

High 7-year mean Oxford Hip Score



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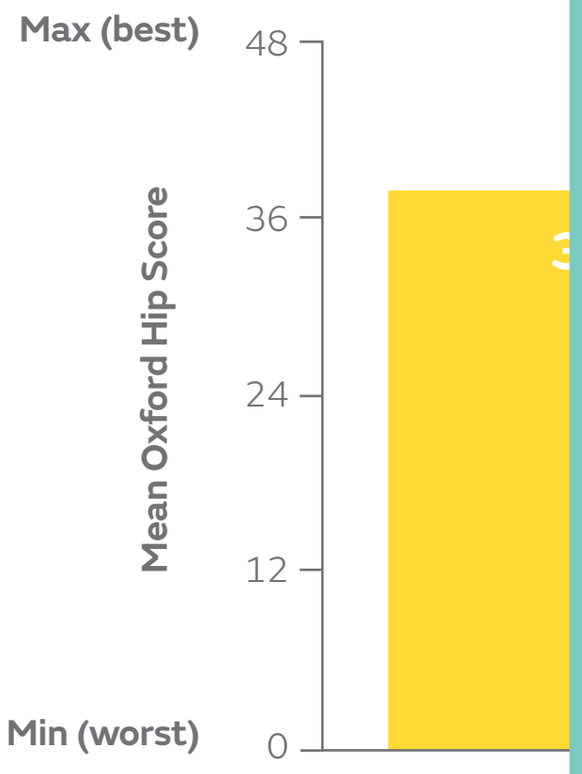

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R3◊ demonstrates higher 7-year survivorship than Pinnacle* with no cases of liner dissociation[13]

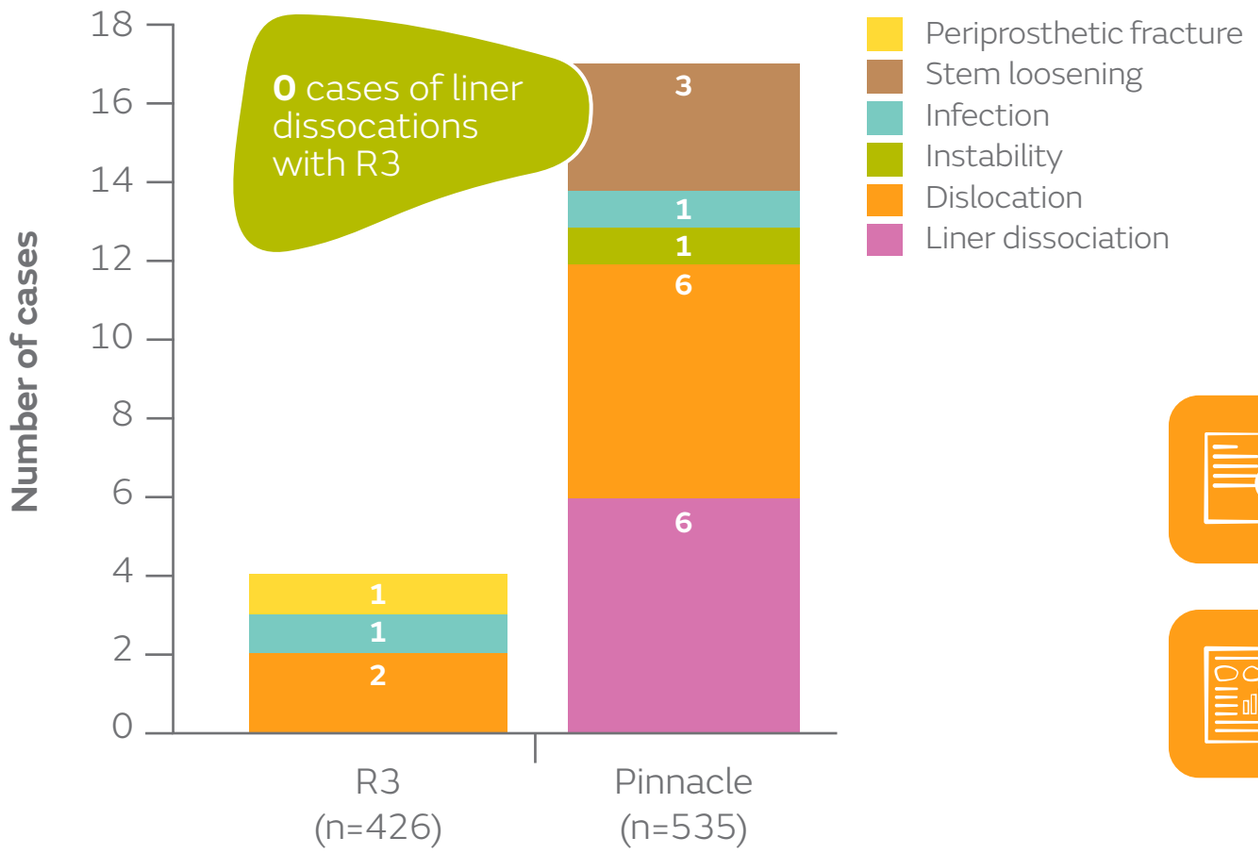
- Retrospective, comparative study; 2 centres, 10 surgeons
- R3/XLPE in 426 patients
- Pinnacle/Marathon polyethylene liners in 535 patients

7-year survival
(all cause)

R3: 99.0%
Pinnacle: 96.1%

(p=0.02)

Fewer revisions with R3 than Pinnacle at 7 years



*Pinnacle is a Trademark of Depuy Synthes

POLAR3◊ Clinical Evidence Compendium

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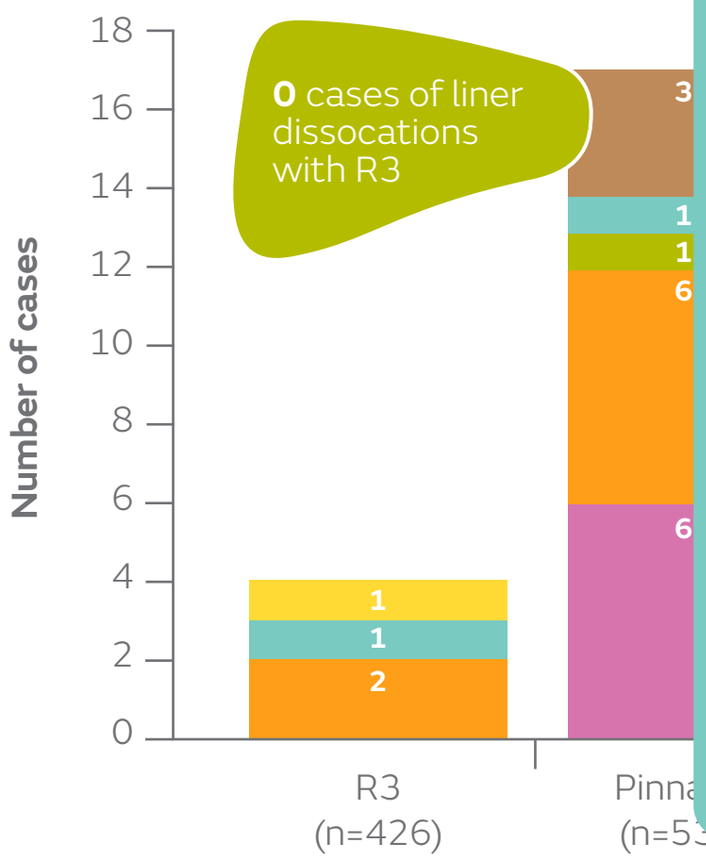

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POLAR3◊ Clinical Evidence Compendium

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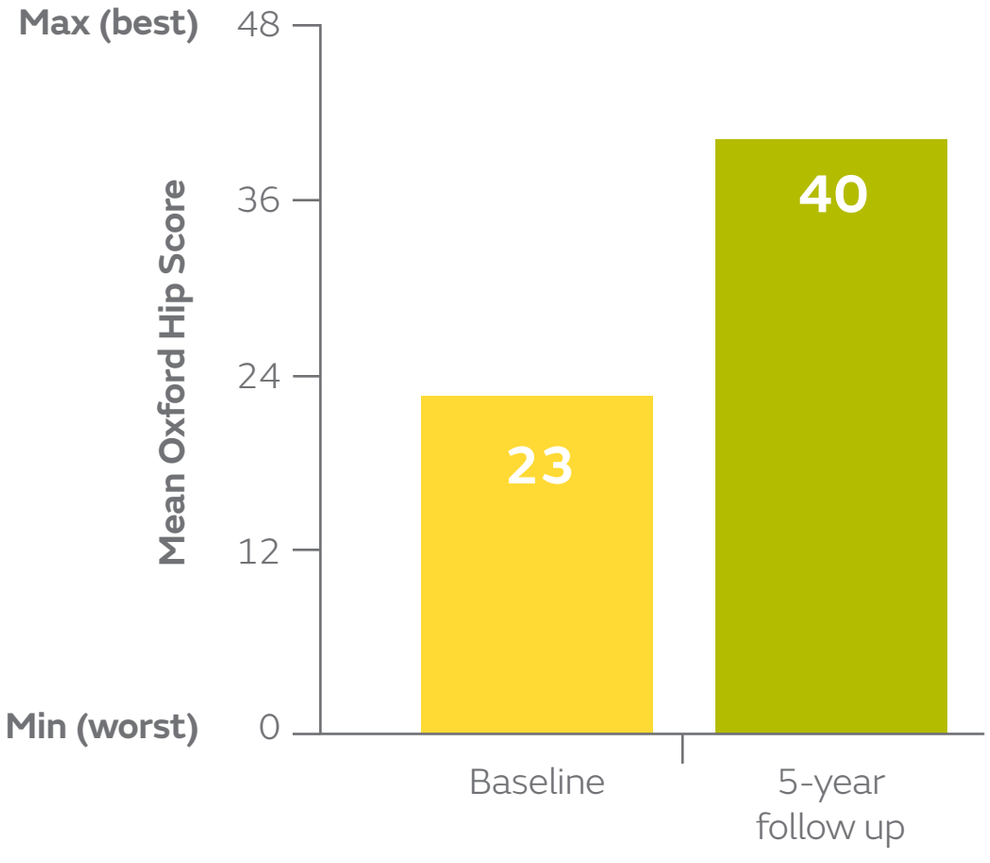
R3◊ demonstrates high survivorship and improvement in PROMs from baseline at 5 years[14]

- Single-centre study
- 293 THRs in 286 patients; all 293 THRs were analysed
- R3 with uncemented POLARSTEM◊ (97%) or hybrid combination (3%)

Excellent cumulative 5-year survivorship (all cause)

98.9%

17-point improvement in Oxford Hip Score



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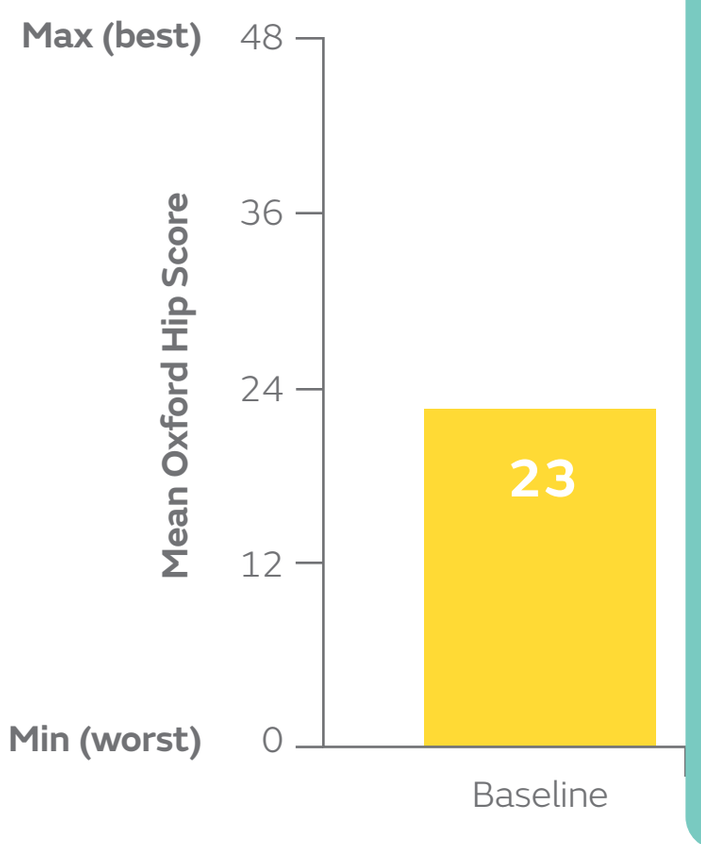

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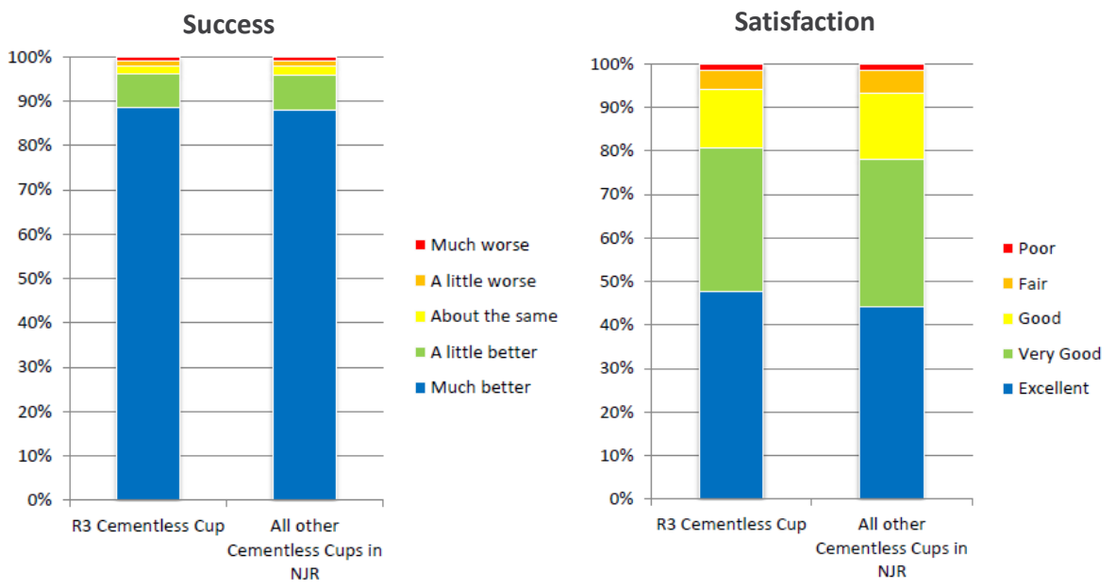
R3◊ delivers high patient satisfaction and better PROMs[12]

Patients who received R3...

Were **significantly more likely to be satisfied** with their THR (p<0.001) after 6 months, compared to those who received other uncemented cups



Achieved **significantly better average 6-month PROM scores** compared to patients who received other types of uncemented cup (p<0.001)

PROMs	R3	All other NJR uncemented cups	p value
Oxford Hip Score	22.2 (22.0–22.4)	21.6 (21.6–21.6)	p<0.001
EQ-5D	0.454 (0.449–0.459)	0.442 (0.441–0.443)	
EQ-VAS	13.3 (12.9–13.7)	12.0 (12.0–12.1)	

Adjusted health gain scores (95% confidence interval) at 6 months after THR. Adjusted scores correspond to the NHS Digital version 3 case-mix-adjustment model. Using case-mix adjusted scores allows for a more accurate comparison between groups by taking into account variations in patient characteristics.

The term 'cementless' is equivalent to 'uncemented' reported on other slides.

POLAR3◊ Clinical Evidence Compendium

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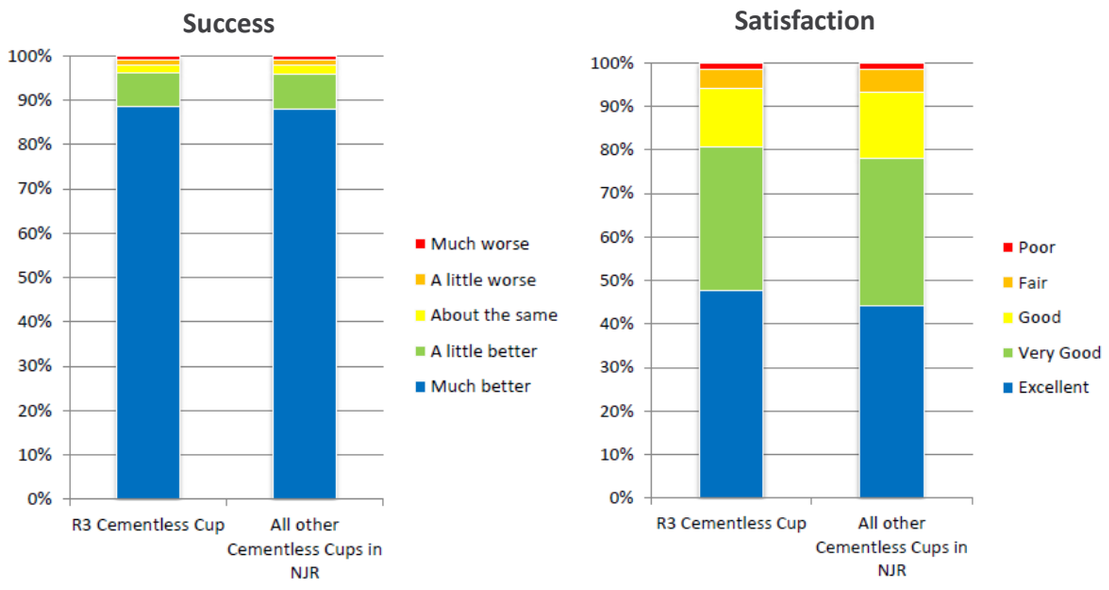

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PROMs	R3	All un
Oxford Hip Score	22.2 (22.0–22.4)	21
EQ-5D	0.454 (0.449–0.459)	0.4
EQ-VAS	13.3 (12.9–13.7)	12

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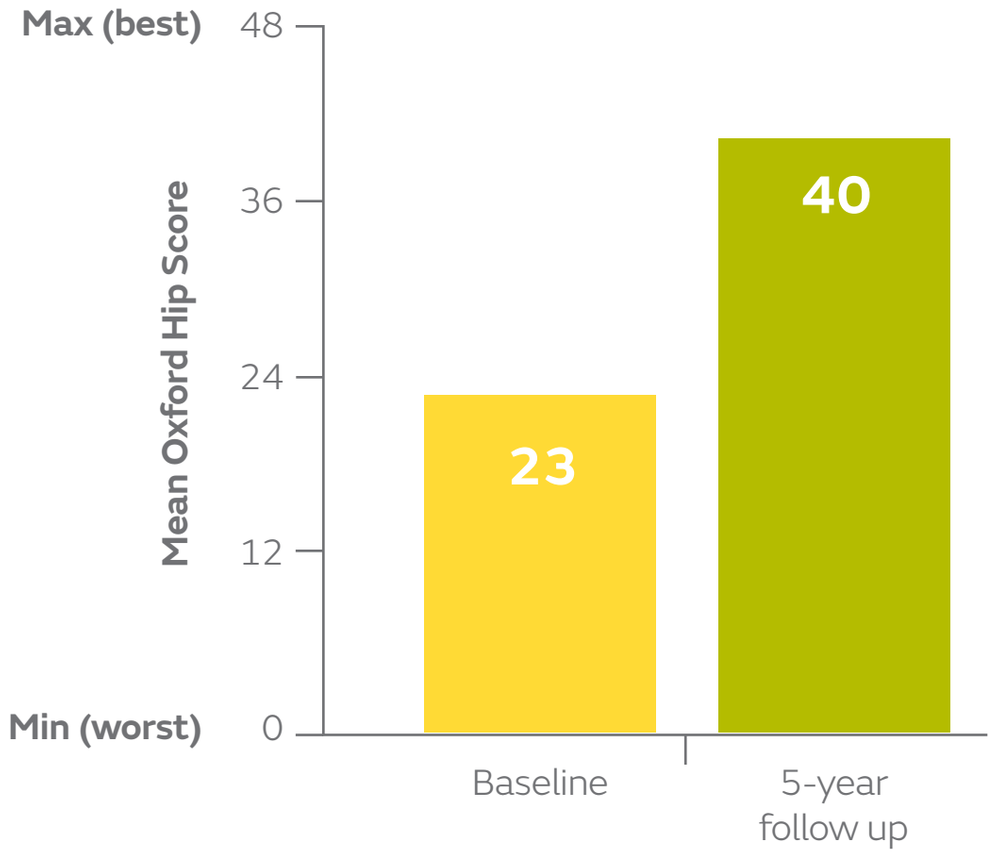

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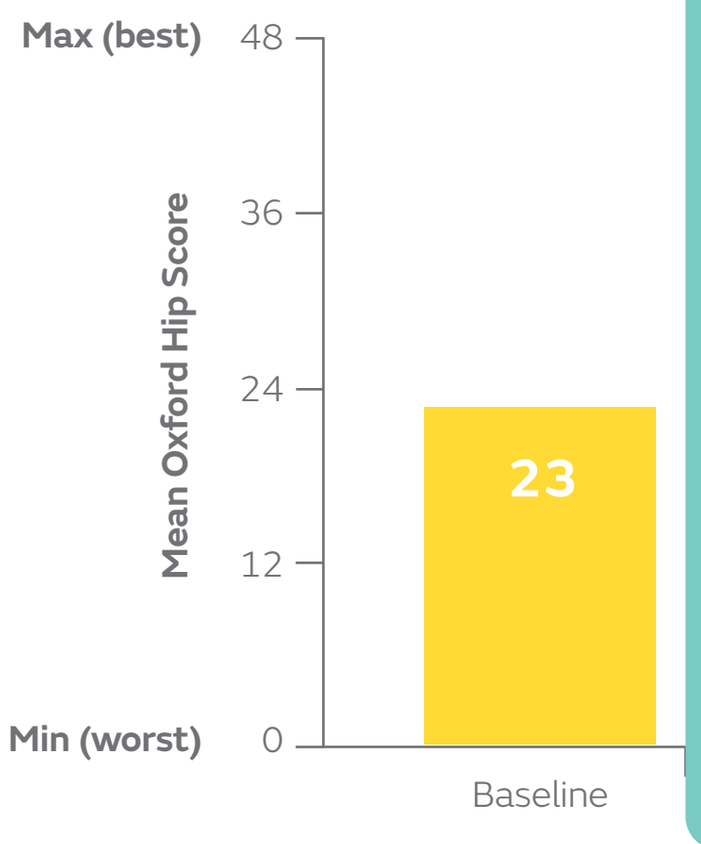

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POLARSTEM◊ with R3◊ delivers safety comparable to hybrid THR in an elderly patient cohort[11]

- Single-centre study
- Uncemented THR with POLARSTEM and R3 in 76 patients
- Hybrid THR with Exeter™ cemented stem and Trilogy Cup™ in 67 patients
- Minimum 5-year follow up (mean, 80.4 months)

Significantly lower complication and transfusion rates, and similar revision rates

Similar mean Oxford Hip Score, 40 in the uncemented group and 38 in the hybrid group

	Intraoperative complications	Blood transfusions	Revisions
	p=0.017	p=0.02	–
POLARSTEM & R3	1	6	2
Exeter™ & Trilogy Cup™	7	14	2

Number of events. No significant difference between groups in frequency of other complications.

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OXINIUM®/XLPE

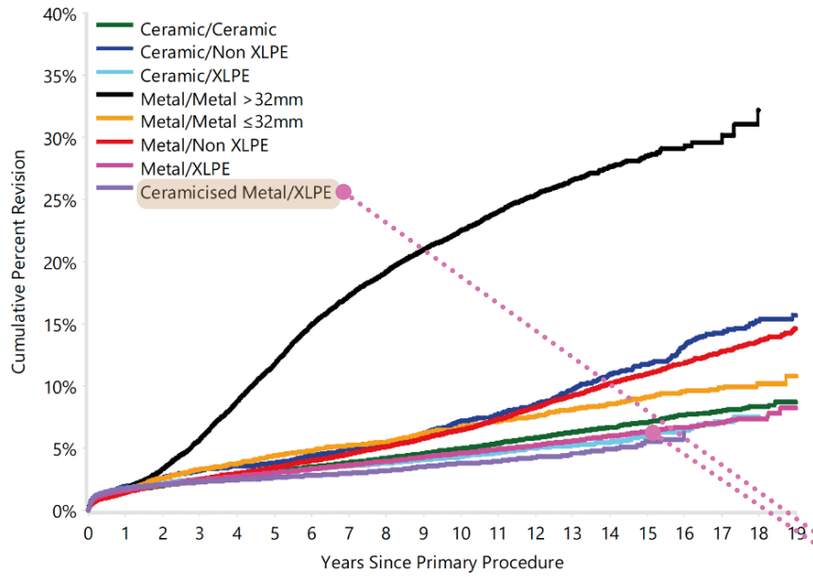
This section contains data on:

- Survivorship
- Costs
- Safety

Main Menu

OXINIUM®/XLPE had the lowest revision rate of all bearing combinations at 15 years[15]

Figure HT29 Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Bearing Surface (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	18 Yrs
Ceramic/Ceramic	89894	82930	69138	53688	20982	5406	232
Ceramic/Non XLPE	7401	6594	5457	4571	3098	1489	277
Ceramic/XLPE	75636	60443	37466	22237	5637	775	14
Metal/Metal >32mm	14422	14062	13216	11982	7297	352	18
Metal/Metal ≤32mm	5146	5024	4840	4595	3514	1400	74
Metal/Non XLPE	35054	33704	31218	28421	18999	7429	743
Metal/XLPE	154524	139087	110239	82551	28068	4404	74
Ceramicised Metal/XLPE	22783	19883	15342	11082	3596	192	0

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

HR adjusted for Age and Gender

Ceramic/Ceramic vs Metal/XLPE	Entire Period: HR=1.00 (0.96, 1.05),p=0.826	Metal/Metal ≤32mm vs Metal/XLPE	Entire Period: HR=1.32 (1.20, 1.47),p<0.001
Ceramic/XLPE vs Metal/XLPE	0 - 2Wk: HR=1.11 (0.96, 1.27),p=0.154 2Wk - 1Mth: HR=1.05 (0.93, 1.18),p=0.417 1Mth - 2Yr: HR=1.03 (0.97, 1.11),p=0.324 2Yr+: HR=0.83 (0.77, 0.91),p<0.001	Ceramicised Metal/XLPE vs Metal/XLPE	0 - 6Mth: HR=1.14 (1.03, 1.28),p=0.014 6Mth - 1Yr: HR=1.01 (0.79, 1.28),p=0.937 1Yr - 2Yr: HR=0.59 (0.46, 0.76),p<0.001 2Yr+: HR=0.61 (0.54, 0.70),p<0.001
Metal/Metal >32mm vs Metal/XLPE	0 - 2Wk: HR=1.29 (0.97, 1.72),p=0.074 2Wk - 1Mth: HR=0.47 (0.32, 0.69),p<0.001 1Mth - 3Mth: HR=0.83 (0.63, 1.10),p=0.195 3Mth - 6Mth: HR=1.09 (0.79, 1.52),p=0.592 6Mth - 9Mth: HR=1.19 (0.87, 1.73),p=0.363 9Mth - 1Yr: HR=2.56 (1.92, 3.42),p<0.001 1Yr - 1.5Yr: HR=2.63 (2.14, 3.24),p<0.001 1.5Yr - 2Yr: HR=4.26 (3.53, 5.15),p<0.001 2Yr - 3Yr: HR=6.26 (5.53, 7.09),p<0.001 3Yr - 5Yr: HR=9.66 (8.85, 10.55),p<0.001 5Yr - 5.5Yr: HR=11.16 (9.46, 13.15),p<0.001 5.5Yr - 7Yr: HR=8.46 (7.56, 9.47),p<0.001 7Yr - 8Yr: HR=7.27 (6.23, 8.48),p<0.001 8Yr - 10Yr: HR=5.44 (4.82, 6.14),p<0.001 10Yr - 12Yr: HR=4.81 (4.15, 5.57),p<0.001 12Yr+: HR=3.30 (2.72, 4.00),p<0.001	Metal/Non XLPE vs Metal/XLPE	0 - 2Wk: HR=0.76 (0.60, 0.98),p=0.031 2Wk - 1Mth: HR=0.73 (0.59, 0.90),p=0.002 1Mth - 6Mth: HR=0.92 (0.80, 1.07),p=0.272 6Mth - 2Yr: HR=1.36 (1.21, 1.52),p<0.001 2Yr - 3.5Yr: HR=1.32 (1.15, 1.52),p<0.001 3.5Yr - 5Yr: HR=1.55 (1.34, 1.79),p<0.001 5Yr - 7Yr: HR=1.69 (1.48, 1.92),p<0.001 7Yr - 10Yr: HR=1.96 (1.75, 2.19),p<0.001 10Yr+: HR=2.50 (2.28, 2.74),p<0.001
		Ceramic/Non XLPE vs Metal/XLPE	0 - 2Yr: HR=1.25 (1.08, 1.45),p=0.002 2Yr - 3.5Yr: HR=1.49 (1.12, 1.97),p=0.005 3.5Yr - 5Yr: HR=0.97 (0.65, 1.44),p=0.885 5Yr - 6.5Yr : HR=1.55 (1.11, 2.17),p=0.009 6.5Yr - 8Yr: HR=1.56 (1.08, 2.24),p=0.017 8Yr+: HR=2.60 (2.27, 2.99),p<0.001

15-year data show that OXINIUM/XLPE had the lowest revision risk of all bearing combinations analysed

Comparing the rates of revision for these bearings, Ceramicised Metal/XLPE* has the lowest rate of revision at 15 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.

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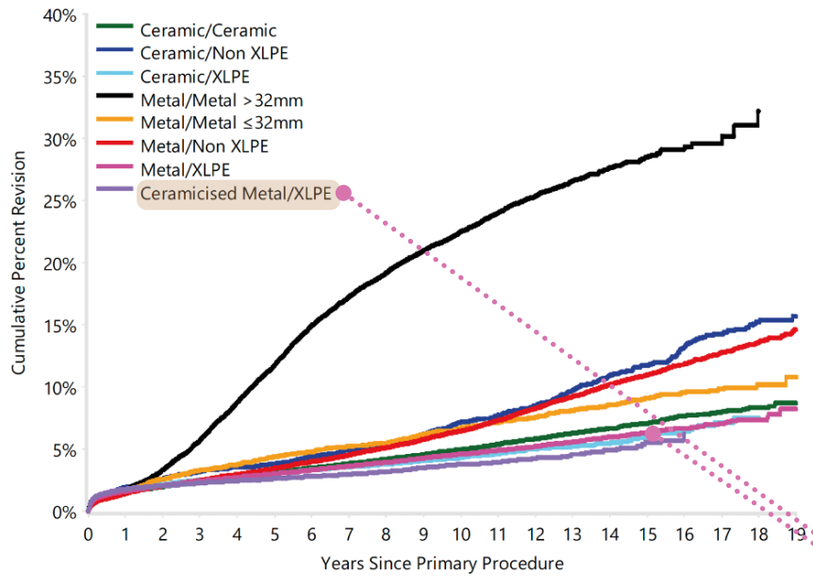
Figure HT29 Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Bearing Surface (Primary Diagnosis OA)



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

HR adjusted for Age and Gender

Ceramic/Ceramic vs Metal/XLPE	Entire Period: HR=1.00 (0.96, 1.05),p=0.826	Metal/Metal ≤32mm vs Meta
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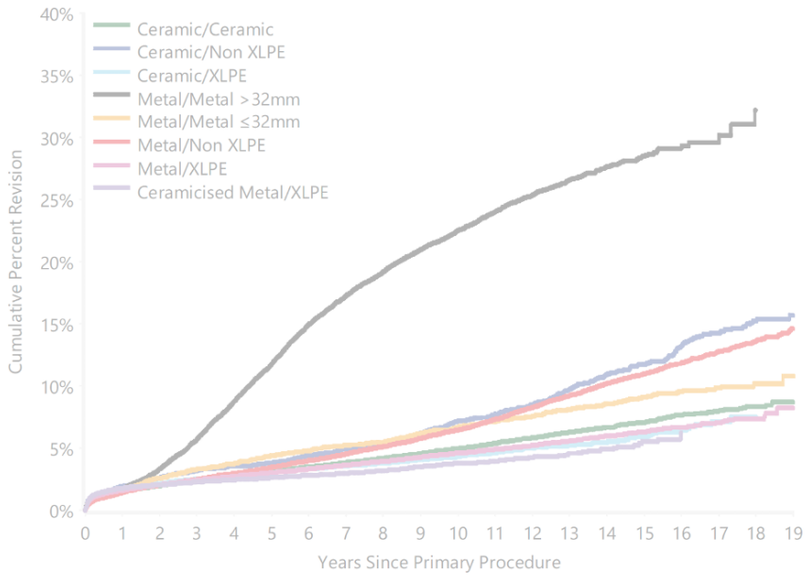
OXINIUM®/XLPE had the lowest revision rate of all bearing combinations at 15 years[15] (Cont.)

Figure HT29 Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Bearing Surface (Primary Diagnosis OA)



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1.5Yr - 2Yr: HR=4.26 (3.53, 5.15),p<0.001
2Yr - 3Yr: HR=6.26 (5.53, 7.09),p<0.001
3Yr - 5Yr: HR=9.66 (8.85, 10.55),p<0.001
5Yr - 5.5Yr: HR=11.16 (9.46, 13.15),p<0.001
5.5Yr - 7Yr: HR=8.46 (7.56, 9.47),p<0.001
7Yr - 8Yr: HR=7.27 (6.23, 8.48),p<0.001
8Yr - 10Yr: HR=5.44 (4.82, 6.14),p<0.001
10Yr - 12Yr: HR=4.81 (4.15, 5.57),p<0.001
12Yr+: HR=3.30 (2.72, 4.00),p<0.001

Metal/Metal ≤32mm vs Metal/XLPE
Entire Period: HR=1.32 (1.20, 1.47),p<0.001

Ceramicised Metal/XLPE vs Metal/XLPE
0 - 6Mth: HR=1.14 (1.03, 1.28),p=0.014
6Mth - 1Yr: HR=1.01 (0.79, 1.28),p=0.937
1Yr - 2Yr: HR=0.59 (0.46, 0.76),p<0.001
2Yr+: HR=0.61 (0.54, 0.70),p<0.001

Metal/Non XLPE vs Metal/XLPE*
0 - 2Wk: HR=0.76 (0.60, 0.98),p=0.031
2Wk - 1Mth: HR=0.73 (0.59, 0.90),p=0.002
1Mth - 6Mth: HR=0.92 (0.80, 1.07),p=0.272
6Mth - 2Yr: HR=1.36 (1.21, 1.52),p<0.001
2Yr - 3.5Yr: HR=1.32 (1.15, 1.52),p<0.001
3.5Yr - 5Yr: HR=1.55 (1.34, 1.79),p<0.001
5Yr - 7Yr: HR=1.69 (1.48, 1.92),p<0.001
7Yr - 10Yr: HR=1.96 (1.75, 2.19),p<0.001
10Yr+: HR=2.50 (2.28, 2.74),p<0.001

Ceramic/Non XLPE vs Metal/XLPE
0 - 2Yr: HR=1.25 (1.08, 1.45),p=0.002
2Yr - 3.5Yr: HR=1.49 (1.12, 1.97),p=0.005
3.5Yr - 5Yr: HR=0.97 (0.65, 1.44),p=0.885
5Yr - 6.5Yr : HR=1.55 (1.11, 2.17),p=0.009
6.5Yr - 8Yr: HR=1.56 (1.08, 2.24),p=0.017
8Yr+: HR=2.60 (2.27, 2.99),p<0.001

From 1 year, OXINIUM/XLPE significantly reduces the risk of revision compared to Metal/XLPE (p<0.001)

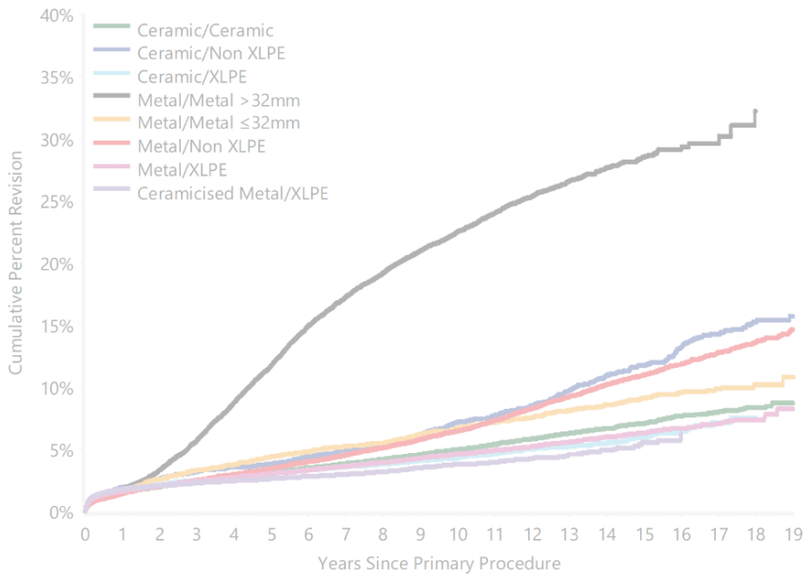
39% lower risk of revision with OXINIUM/XLPE versus Metal/XLPE from 2 years

Comparing the rates of revision for these bearings, Ceramicised Metal/XLPE* has the lowest rate of revision at 15 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', and the term 'Non XLPE' is equivalent to 'CPE' reported on other slides.

OXINIUM◊/XLPE had the lowest revision rate of all bearing combinations at 15 years[15] (Cont.)

Figure HT29 Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Bearing Surface (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	18 Yrs
Ceramic/Ceramic	89894	82930	69138	53688	20982	5406	232
Ceramic/Non XLPE	7401	6594	5457	4571	3098	1489	277
Ceramic/XLPE	75636	60443	37466	22237	5637	775	14
Metal/Metal >32mm	14422	14062	13216	11982	7297	352	18
Metal/Metal ≤32mm	5146	5024	4840	4595	3514	1400	74
Metal/Non XLPE	35054	33704	31218	28421	18999	7429	743
Metal/XLPE	154524	139087	110239	82551	28068	4404	74
Ceramicised Metal/XLPE	22783	19883	15342	11082	3596	192	0

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

Ceramic/Ceramic vs Metal/XLPE — Entire Period: HR=1.00 (0.96, 1.05),p=0.826

Ceramic/XLPE vs Metal/XLPE
- 0 - 2Wk: HR=1.11 (0.96, 1.27),p=0.154
- 2Wk - 1Mth: HR=1.05 (0.93, 1.18),p=0.417
- 1Mth - 2Yr: HR=1.03 (0.97, 1.11),p=0.324
- 2Yr+: HR=0.83 (0.77, 0.91),p<0.001

Metal/Metal >32mm vs Metal/XLPE
- 0 - 2Wk: HR=1.29 (0.97, 1.72),p=0.074
- 2Wk - 1Mth: HR=0.47 (0.32, 0.69),p<0.001
- 1Mth - 3Mth: HR=0.83 (0.63, 1.10),p=0.195
- 3Mth - 6Mth: HR=1.09 (0.79, 1.52),p=0.592
- 6Mth - 9Mth: HR=1.19 (0.82, 1.73),p=0.363
- 9Mth - 1Yr: HR=2.56 (1.92, 3.42),p<0.001
- 1Yr - 1.5Yr: HR=2.63 (2.14, 3.24),p<0.001
- 1.5Yr - 2Yr: HR=4.26 (3.53, 5.15),p<0.001
- 2Yr - 3Yr: HR=6.26 (5.53, 7.09),p<0.001
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Metal/Metal ≤32m

Ceramicised Metal

Metal/Non XLPE vs

Ceramic/Non XLPE

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Key

- Implant Summary Report*
- **Annual Report**
- Clinical Study
- Health Economic Analysis
- Registry Analysis

Including data from the following registries:

- UK (NJR)
- **Australian (AOANJRR)**
- Dutch (LROI)
- Italian (RIPO)

OXINIUM®/XLPE had the lowest revision rate of all bearing combinations at 10 years[16]

- 420,399 primary THRs, including 9,237 patients with Ceramicised Metal/XLPE (equivalent to OXINIUM/XLPE)
- Compared survivorship for six bearing types:
  - Ceramicised Metal/XLPE
  - Ceramic/Ceramic
  - Ceramic/PE
  - Ceramic/XLPE
  - Metal/PE
  - Metal/XLPE
- Maximum 13-year follow up

Cumulative all cause revision rate

OXINIUM/XLPE demonstrated lowest risk of revision of all bearing combinations

OXINIUM/XLPE had lowest risk of revision of all bearing combinations in patients <55 years

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OXINIUM®/XLPE had the lowest 5- and 9-year cumulative revision rate of all bearing combinations[17]

- 209,912 primary THRs, including 11,785 patients with OXINIUM on highly crosslinked or standard polyethylene (OXINIUM/[XL]PE) bearings*
- Compared survivorship for six bearing types:
  - OXINIUM/XLPE
  - Ceramic/XLPE
  - Ceramic/PE
  - Metal/PE
  - Metal/XLPE
  - Ceramic/Ceramic
- Maximum 10-year follow up

Cumulative rates of revision (all cause) for OXINIUM/(XL)PE were the lowest of all bearings

at 5 years **2.5%**

at 9 years **3.5%**

19%

Lower risk of revision compared to Metal/PE

p<0.05

*Due to small group sizes, OXINIUM on standard polyethylene (PE) or highly-cross-linked polyethylene (XLPE) were analysed together.

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- 20,963 uncemented THRs, including 433 patients with OXINIUM on highly crosslinked polyethylene (OXINIUM/XLPE)
- Compared survivorship for four bearing types:
  - OXINIUM/XLPE
  - Ceramic/XLPE
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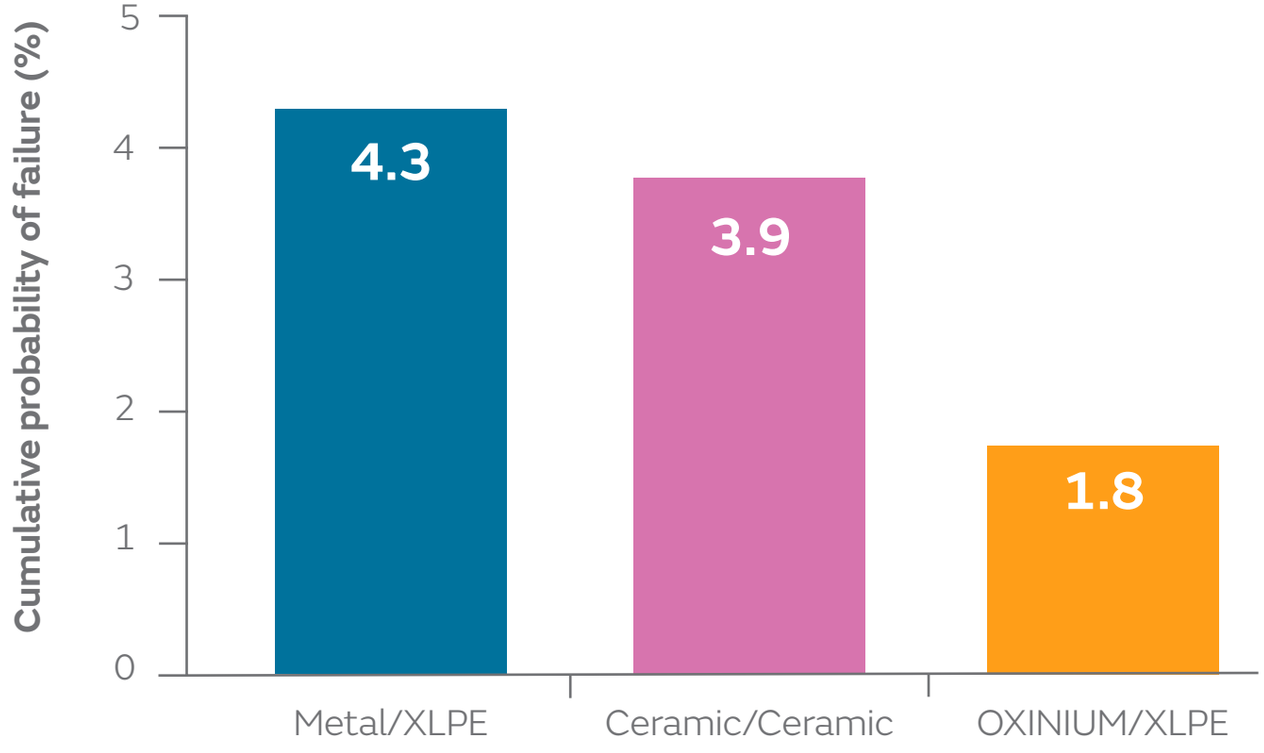
At 10 years OXINIUM/XLPE had the lowest cumulative probability of failure of all bearing types*



*Insufficient patient numbers at 10 years to estimate failure risk for Ceramic/XLPE. Failure risk of 3.1% calculated at 5 years.

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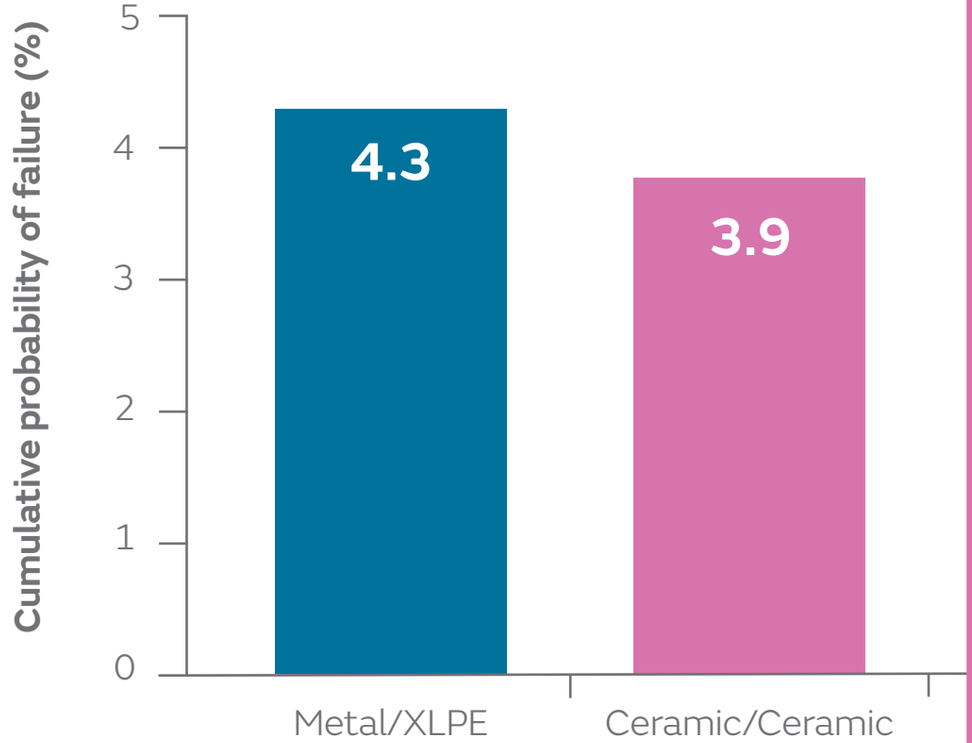

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OXINIUM◊ associated with lower 90-day episode of care costs[19]

- Retrospective analysis of 90-day episode of care costs for THR from a US database
- 1,758 patients with OXINIUM (oxidised zirconium) bearings
- 8,790 patients with non-oxidised zirconium bearings

9.9%

$595

Lower average **post-acute** cost per 90-day episode of care

$602

Cost per 90-day episode of care was **significantly lower** with OXINIUM bearings

p=0.003

21.3%

30-day all cause readmissions

p=ns

12.7%

90-day all cause readmissions

p=ns

15.9%

Rate of discharge to SNF

p=0.002

11.9%

LOS in SNF

p=0.005

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OXINIUM◊ offers better short-term clinical outcomes with a small increase in cost[20]

- Retrospective analysis of primary THR in a US database
- 818 patients with OXINIUM bearings
- 62,565 patients with non-oxidised zirconium bearings

21.8%

Significantly shorter LOS

p=0.0001

$609 (4%)

OXINIUM bearings were associated with a **small increase** in total hospital costs

p=0.0046

Significantly lower odds of:

OR=0.16

Transfusion

p<0.001

OR=0.56

30-day readmission

p=0.0412

Significantly higher odds of being discharged to home:

OR=1.36

Discharge to home

p=0.0112

OR=0.82

Discharge to SNF

p=ns

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Abbreviations

Abbreviation	Definition
AOANJRR	Australian Orthpaedic Association National Joint Replacement Registry
EQ-5D	EuroQol 5-Dimensions
HEA	Health economic analysis
HR	Hazard ratio
ISR	Implant Summary Report*
LOS	Length of stay
NJR	National Joint Registry†
ns	Not significant
OA	Osteoarthritis
ODEP	Orthopaedic Data Evaluation Panel
PE	Polyethylene
PROM	Patient reported outcome measure
RIPO	Register of Orthopaedic Prosthetic Implants
SNF	Skilled nursing facility
THR	Total hip replacement
VAS	Visual analogue scale
WOMAC	Western Ontario and McMaster Universities Osteoarthritis Index

Terminology

Ceramic/Ceramic	Ceramic on ceramic
Ceramic/PE	Ceramic on polyethylene
Ceramic/XLPE	Ceramic on polyethylene
CMoXLPE or OXINIUM◊/XLPE	Ceramicised metal on XLPE
CPE	Conventional polyethylene
Metal/PE	Metal on polyethylene
Metal/XLPE	Metal on XLPE
XLPE**	Highly crosslinked polyethylene

*ISRs are produced by the National Joint Registry of England, Wales and Northern Ireland and summarises usage and outcomes associated with the specific combinations of products. These analyses are based on data collected by the NJR and PROMs data collected by NHS Digital. Disclaimer relating to the use of ISRs: The data used for this analysis was obtained from the NJR Supplier Feedback System. The Healthcare Quality Improvement Partnership ('HQIP') and/or the National Joint Registry ('NJR') take no responsibility 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.

†We thank the patients and staff of all the hospitals in England, Wales and Northern Ireland who have contributed data to the National Joint Registry. We are grateful to the Healthcare Quality Improvement Partnership (HQIP), the NJR Steering Committee and staff at the NJR Centre for facilitating this work. {Additional Contributors to be added where necessary}. The views expressed represent those of the authors and do not necessarily reflect those of the National Joint Registry Steering Committee or the Health Quality Improvement Partnership (HQIP) who do not vouch for how the information is presented.

**XLPE is classified as ultra-high molecular weight polyethylene that has been irradiated by high dose (>50kGy) gamma or electron beam radiation.[1]

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