

Multiple registries demonstrate OXINIUM[®] on XLPE provides highest survivorship of all bearing combinations in primary total hip replacement (THR)

+ Plus points

4 registries demonstrated OXINIUM/XLPE has the **lowest revision risk** of all bearing combinations¹⁻⁴

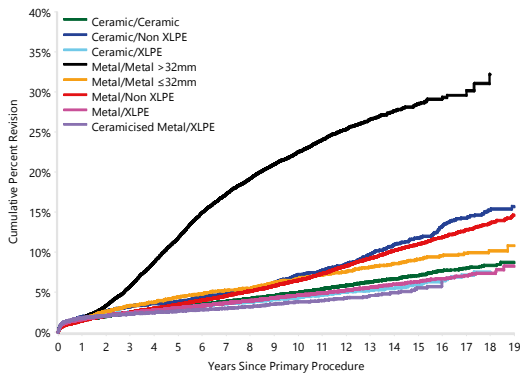
≥ 94.5% mid- to long-term survivorship¹⁻⁴

OXINIUM/XLPE delivers consistently **higher survivorship** than ceramic/XLPE¹⁻⁴



OXINIUM/XLPE has the highest survivorship of all bearing combinations at 15 years¹

Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR)



15 years survivorship **94.5%**

Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	19 Yrs
Ceramic/Ceramic	94733	88235	75367	60540	25246	7687	225
Ceramic/Non XLPE	7986	7195	5872	4826	3185	1735	260
Ceramic/XLPE	91245	74042	47213	28315	7380	1247	14
Metal/Metal >32mm	14422	14061	13215	11982	8459	833	16
Metal/Metal ≤32mm	5155	5024	4841	4637	3725	1764	73
Metal/Non XLPE	35265	33907	31463	28682	19728	8838	680
Metal/XLPE	165762	150139	121668	93002	34353	6968	65
Ceramicised Metal/XLPE	25323	22256	17318	12883	4341	624	0

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

Figure HT29 Cumulative percent revision of primary total conventional hip replacement by bearing surface (primary diagnosis OA)

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 (0.82, 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
 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

41% From 1 year, OXINIUM/XLPE significantly reduces the risk of revision compared to Metal/XLPE (p<0.001)

39% From 2 years, OXINIUM/XLPE significantly reduces the risk of revision compared to Metal/XLPE (p<0.001)

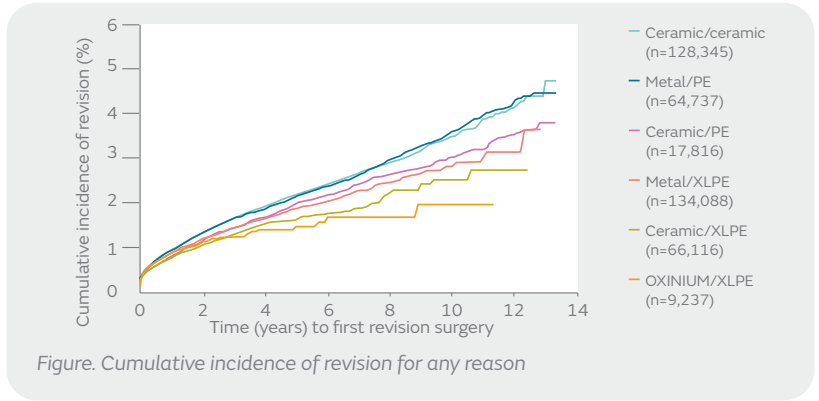
Comparing the rates of revision for these bearings, Ceramicised Metal/XLPE* has the lowest rate of revision at 15 years. As in previous years, the Registry urges caution in the interpretation of this result. This bearing is a single company product, used with a small number of femoral stem and acetabular 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'.

OXINIUM^o/XLPE demonstrates the highest survivorship of all bearing combinations at 10 years²
National Joint Registry of England, Wales and Northern Ireland (UK NJR)*

- Analysis of 420,339 primary THRs, including 9,237 patients with OXINIUM/XLPE with a minimum 10 years' follow up (bearing usage from 2004 to 2016)

OXINIUM/XLPE had **lowest risk of revision** of all bearing combinations in all patients, irrespective of age

at 10 years **1.96%**



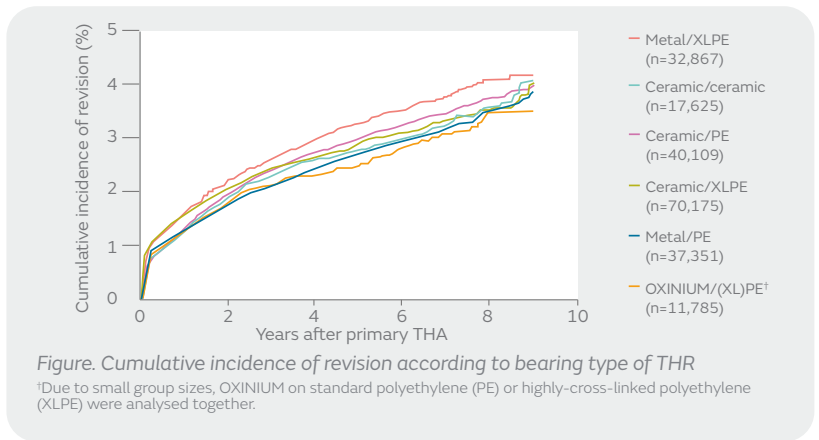
OXINIUM/XLPE has the highest 5- and 9-year survivorship of all bearing combinations³
Dutch Arthroplasty Register (LROI)

- Analysis of 209,912 primary THRs with a maximum 10 years' follow up (bearing usage from 2007 to 2016)

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

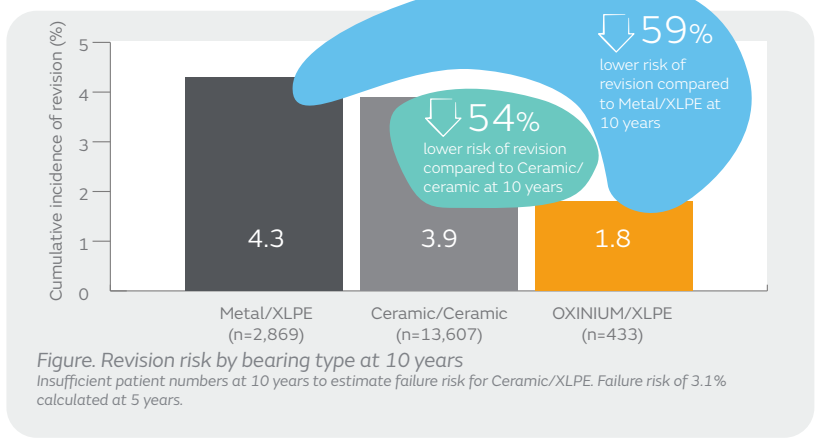
at 5 years **2.5%**

at 9 years **3.5%**



OXINIUM/XLPE has the highest 10-year survivorship of all bearing combinations⁴
Italian Register of Orthopaedic Prosthetic Implants (RIPO)

- Analysis of 20,963 uncemented THRs from 68 orthopaedic units, performed between 2000 and 2015 with 10 years' follow up



Conclusions

OXINIUM with XLPE has been shown to consistently deliver superior mid- to long-term survivorship compared to all other bearing combinations in four arthroplasty registries.

Acknowledgments: 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. 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.

References: 1. Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR) Hip, Knee & Shoulder Arthroplasty: 2020 Annual Report. Available at https://aoanjrr.sahmri.com/en_US/annual-reports-2020. Accessed 23 October 2020. 2. Davis ET, Pagkalos J, Kopjar B. Bearing surface and survival of cementless and hybrid total hip arthroplasty in the National Joint Registry of England, Wales, Northern Ireland and the Isle of Man. *JBJS OA*. 2020;5:e0075. 3. Peters RM, Van Steenberghe LN, Stevens M, Rijk PC, Bulstra SK, Zijlstra WP. The effect of bearing type on the outcome of total hip arthroplasty. *Acta Orthop*. 2018;89:163-169. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5901513/>. Accessed 31 January 2020. 4. Atrey A, Ancarani C, Fitch D, Bordini B. Impact of bearing couple on long-term component survivorship for primary cementless total hip replacement in a large arthroplasty registry. Poster presented at: Canadian Orthopedic Association; June 20-23, 2018; Victoria, British Columbia, Canada.