Smith+Nephew

OXINIUM◊ total knee arthroplasty (TKA)

An analysis of National Joint Registry for England, Wales and Northern Island (UK NJR) data

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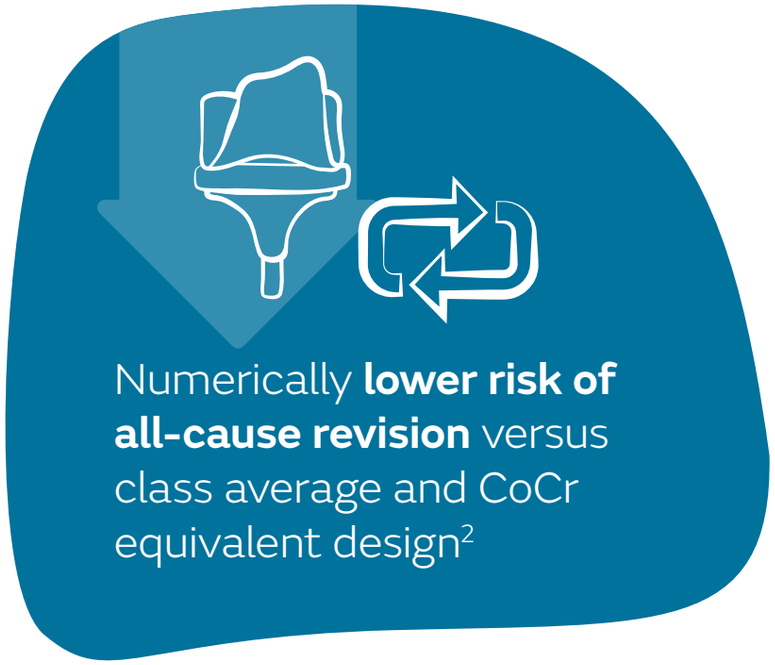
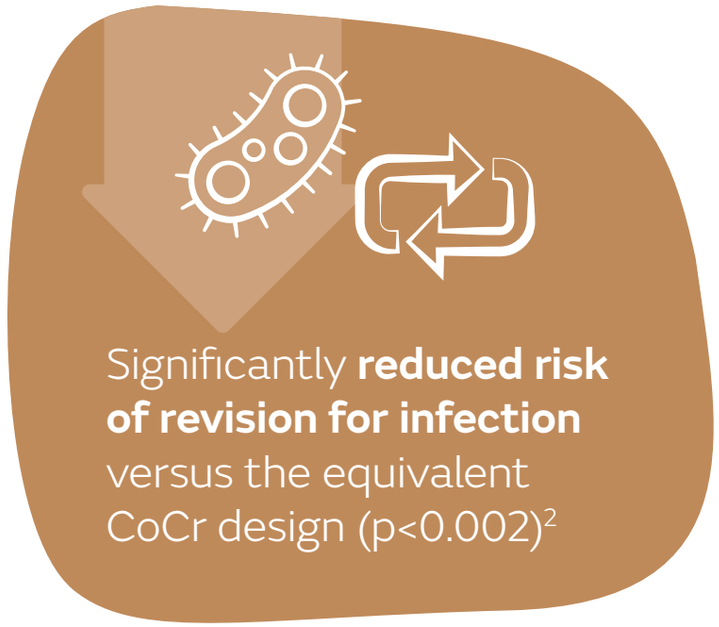
March 2026

Key points

OXINIUM◊ Knees (JOURNEY◊ II, LEGION◊ and GENESIS◊ II TKA) demonstrated:



Numerically **lower risk of all-cause revision** versus class average and CoCr equivalent design[2]



Significantly **reduced risk of revision for infection** versus the equivalent CoCr design ($p<0.002$)[2]

Significantly **reduced risk of revision from aseptic femoral loosening** ($p<0.001$)[2]

Abbreviations: CoCr = cobalt-chromium

Registry analysis and OXINIUM® TKA survivorship

Context

Previous registry analyses demonstrated that **OXINIUM implants can approximately halve the risk of revision** for patients under the age of 65[1]

Purpose

- New registry data[2] from the UK NJR was analysed to explore the influence of implant **material** and **design** on survivorship
- Registry analyses offer a real-world understanding of the influence of the OXINIUM technology and implant design on reducing the risk of all-cause revisions, aseptic loosening, infection and stability

Considerations

The analyses performed:

- Included the data for all patients in the UK NJR who received a cemented TKA
- Adjusted for factors that might skew outcomes such as age, body mass index (BMI), complications
- Compared OXINIUM implants to CoCr implants with the same design and the class average

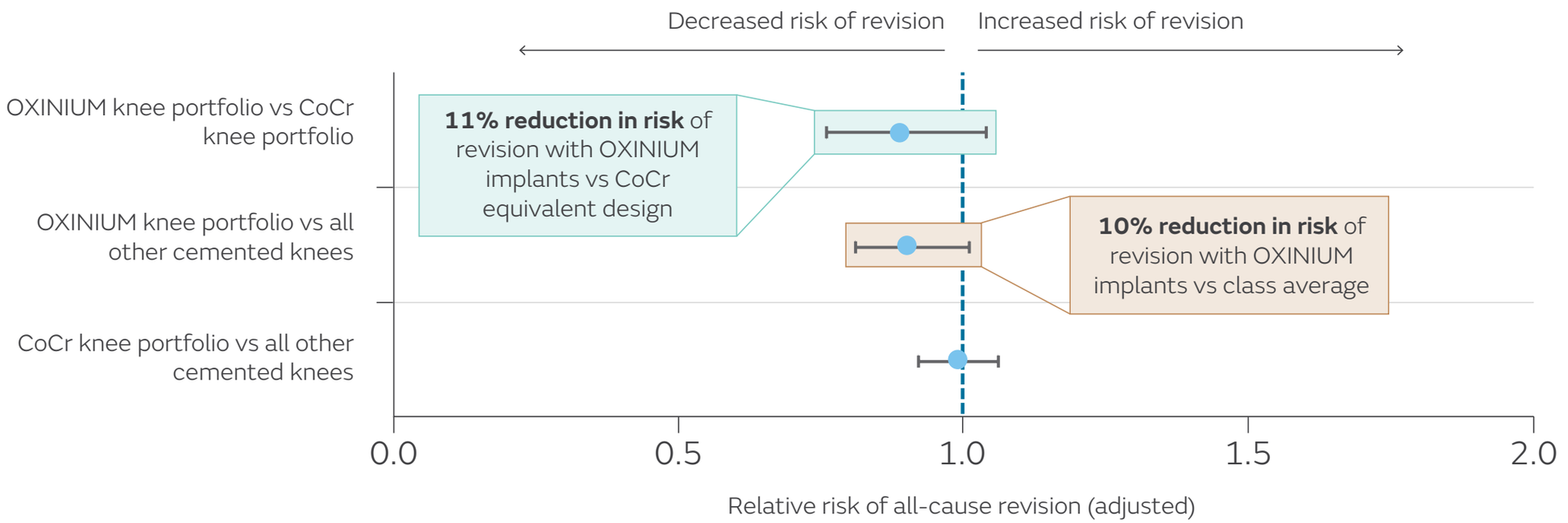
Abbreviations: CoCr = cobalt-chromium; UK NJR = National Joint Registry for England, Wales and Northern Ireland.

OXINIUM◊ JOURNEY◊ II/ LEGION◊/GENESIS◊ II implants: all-cause revision

The OXINIUM knee portfolio (with patella resurfacing) shows a numerically **lower risk of revision** when adjusting for population variables[2]

Cox Proportional Hazards model for All Reasons for Revision (95% CI). Adjustment includes Age Group, Gender, Year Cohort, BMI Group, ASA, Patella Used, PS/CR Constraint

OXINIUM vs CoCr	OXINIUM vs All Other Cemented TKR	CoCr vs All Other Cemented TKR
0.89 (0.76–1.04) p=0.131	0.90 (0.81–1.01) p=0.065	0.99 (0.92–1.06) p=0.724



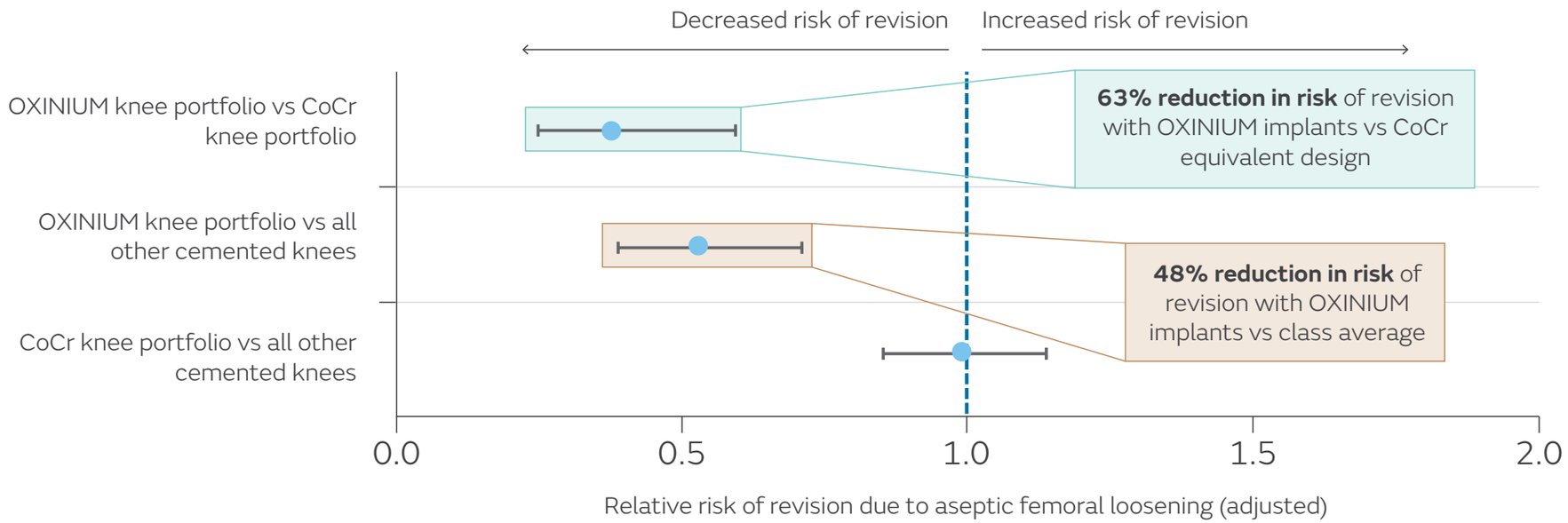
Abbreviations: ASA = American Society of Anaesthesiologists; CI = confidence interval; CoCr = cobalt-chromium; CR = cruciate-retaining; PS = posterior-stabilised; TKR = total knee replacement.

OXINIUM◊ JOURNEY◊ II/ LEGION◊/GENESIS◊ II implants: aseptic femoral loosening

OXINIUM knee implants demonstrates **significantly lower risk of revision for aseptic femoral loosening**, a leading cause for revision in TKAs,[3,4] compared to the class average in the UK NJR[2] when adjusting for population variables. This registry analysis suggests that implant material has a greater contribution to reducing aseptic loosening than implant design.

Cox Proportional Hazards model for Revision for Aseptic Loosening of Femoral Component (95% CI). Adjustment includes Age Group, Gender, Year Cohort, BMI Group, ASA, Patella Used, PS/CR Constraint

OXINIUM vs CoCr	OXINIUM vs All Other Cemented TKR	CoCr vs All Other Cemented TKR
0.37 (0.24–0.59) p<0.001	0.52 (0.38–0.71) p<0.001	0.99 (0.85–1.14) p=0.842



In vitro testing has repeatedly shown a lower pro-inflammatory response to OXINIUM Oxidized Zirconium compared to CoCr[5,6]

More information is available in the OXINIUM material science compendium

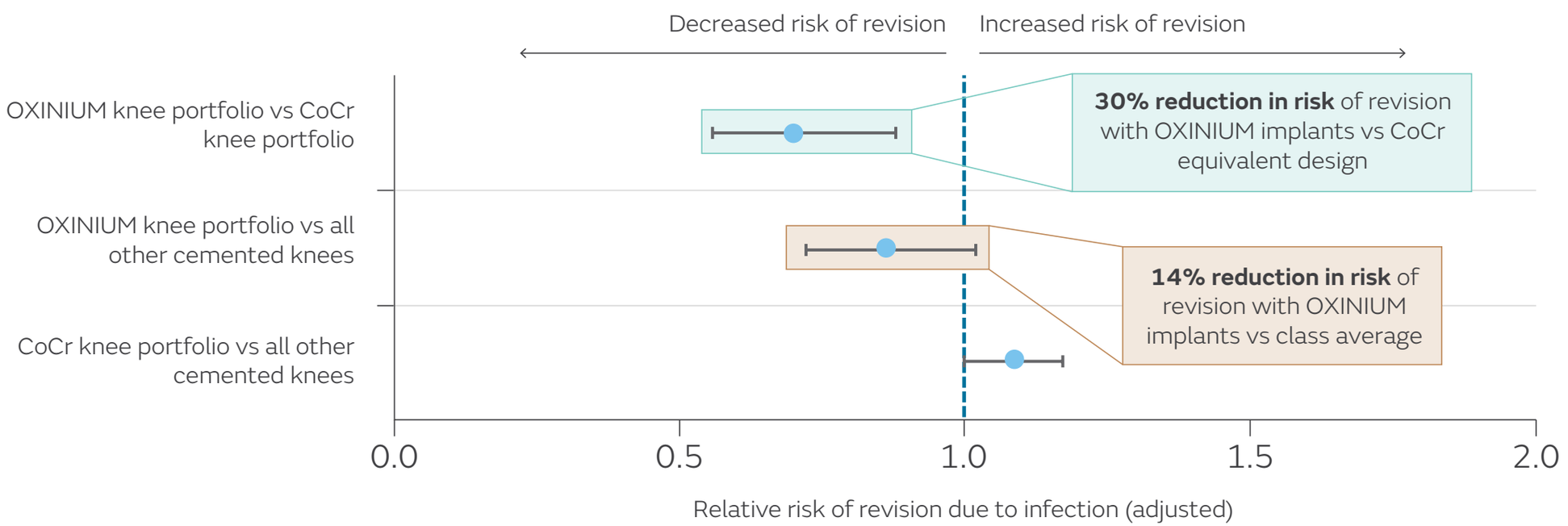
Abbreviations: ASA = American Society of Anaesthesiologists; CI = confidence interval; CoCr = cobalt-chromium; CR = cruciate-retaining; PS = posterior-stabilised; TKR = total knee replacement; UK NJR = National Joint Registry for England, Wales and Northern Ireland.

OXINIUM◊ JOURNEY◊ II/ LEGION◊/GENESIS◊ II implants: infection

The OXINIUM knee portfolio demonstrates a **significantly lower risk of revision for infection,** a major cause for TKA revisions,[3,4] compared to equivalent CoCr designs[2] and a numerically lower risk of revision versus the class average[2] when adjusting for population variables

Cox Proportional Hazards model for Revision for Infection (95% CI). Adjustment includes Age Group, Gender, Year Cohort, BMI Group, ASA, Patella Used, PS/CR Constraint

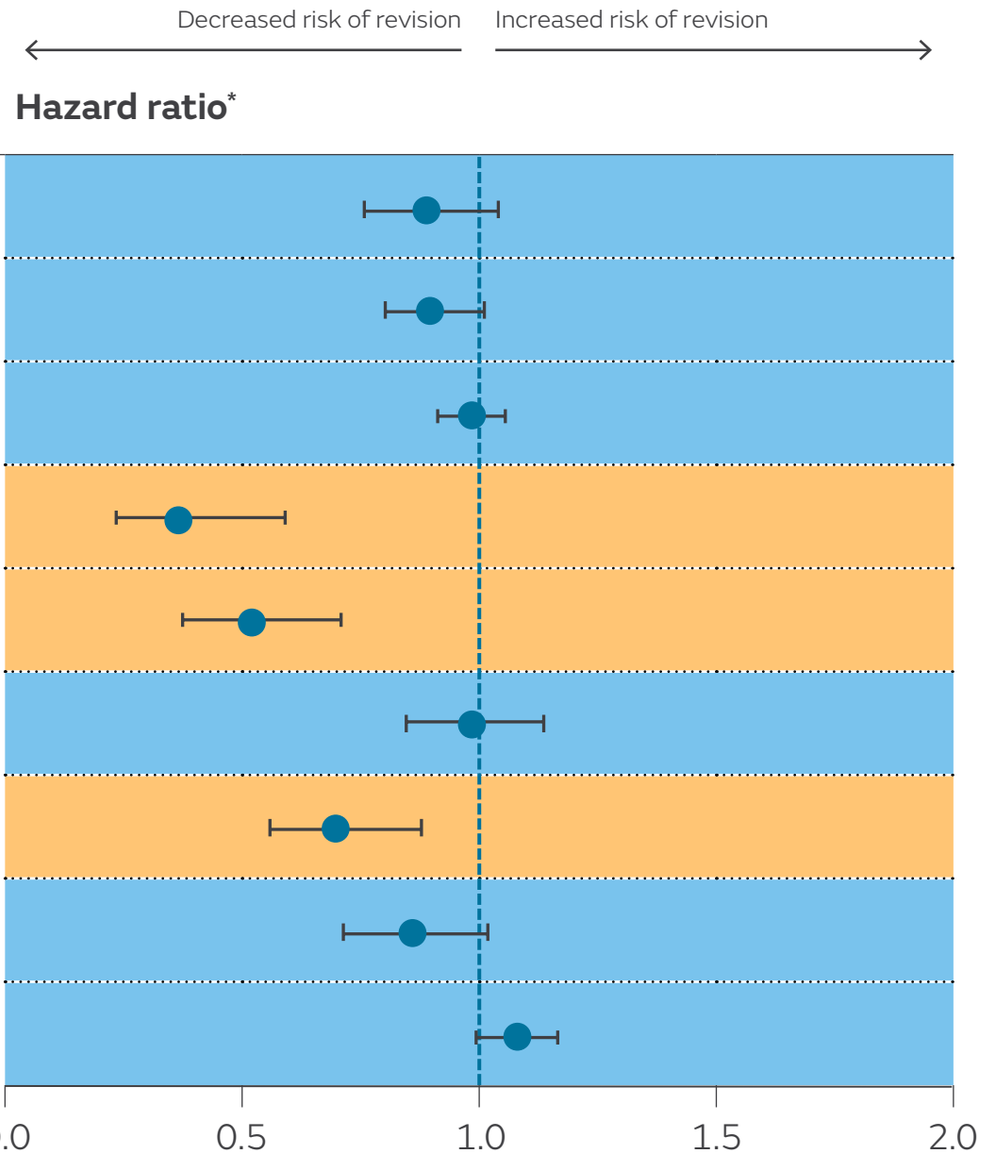
OXINIUM vs CoCr	OXINIUM vs All Other Cemented TKR	CoCr vs All Other Cemented TKR
0.70 (0.56–0.88) p=0.002	0.86 (0.72–1.02) p=0.083	1.08 (1.00–1.17) p=0.039



Abbreviations: ASA = American Society of Anaesthesiologists; CI = confidence interval; CoCr = cobalt-chromium; CR = cruciate-retaining; PS = posterior-stabilised.

Summary of OXINIUM◊ UK NJR data analysis

Outcome	Comparison	Hazard ratio*
All-cause revision	OXINIUM knee portfolio vs CoCr knee portfolio	
	OXINIUM knee portfolio vs all other cemented knees	
	CoCr knee portfolio vs all other cemented knees	
Revision for aseptic femoral loosening	OXINIUM knee portfolio vs CoCr knee portfolio	
	OXINIUM knee portfolio vs all other cemented knees	
	CoCr knee portfolio vs all other cemented knees	
Revision for infection	OXINIUM knee portfolio vs CoCr knee portfolio	
	OXINIUM knee portfolio vs all other cemented knees	
	CoCr knee portfolio vs all other cemented knees	



Favours OXINIUM implant

No significant difference

*Adjusted for population variables (age group, gender, year, BMI group, ASA grade, PS/CR and patella resurfacing).
Abbreviations: CoCr = cobalt-chromium; CR = cruciate-retaining; PS = posterior-stabilised; TKA = total knee arthroplasty; UK NJR = National Joint Registry for England, Wales and Northern Ireland.

References and acknowledgements

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← References and acknowledgements