

Australian Orthopaedic Association National Joint Replacement Registry

2024 SUPPLEMENTARY REPORT

Mortality of Hip and Knee Arthroplasty



AOA
AUSTRALIAN
ORTHOPAEDIC
ASSOCIATION

Australian
Orthopaedic
Association
National
Joint
Replacement
Registry

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Australian Orthopaedic Association National Joint Replacement Registry

**Mortality Following Primary Hip and Knee
Arthroplasty**

2024 Supplementary Report

Clinical Director: Professor Paul Smith
E: admin@aoanjrr.org.au

Executive Manager: Ms Kathy Hill
E: khill@aoanjrr.org.au

AOANJRR
SAHMRI Building
North Terrace
ADELAIDE SA 5000
T: +61 8 8128 4280

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The Registry greatly appreciates the participation of all joint replacement patients throughout Australia. Their contribution allows ongoing improvements in arthroplasty outcomes to be achieved.

REGISTRY CLINICAL DIRECTOR

Professor Paul Smith

REGISTRY DEPUTY CLINICAL DIRECTORS

Associate Professor Peter Lewis

Professor Chris Vertullo

Adjunct Professor Michael McAuliffe

REGISTRY ASSISTANT DEPUTY CLINICAL DIRECTORS

Associate Professor Catherine McDougall

Dr James D Stoney

Associate Professor Chris Wall

Dr David Gill

AOA REGISTRY COMMITTEE MEMBERSHIP

Michael O'Sullivan	<i>Committee Chair</i>
Michael A Johnson	<i>AOA President</i>
Scott Fletcher	<i>AOA Vice President</i>
Paul Smith	<i>Registry Clinical Director</i>
Richard Page	<i>Shoulder & Elbow Society</i>
Peter Stavrou	<i>Foot & Ankle Society Representative</i>
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Joshua Petterwood	<i>TAS representative</i>
David Wysocki	<i>WA representative</i>
Tony Ganko	<i>Knee Society Representative</i>
Rob Kuru	<i>Spine Society Representative</i>

CLINICAL ADVISORS

Professor Richard Page

Dr Peter Stavrou

PROMS ADVISOR

Professor Ilana Ackerman

DATA LINKAGE

Professor Nicole Pratt

Dr Katherine Duszynski (UniSA)

Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR)

REGISTRY EXECUTIVE MANAGER

Kathy Hill

REGISTRY NESTED CLINICAL STUDIES MANAGER

Durga Bastiras

PROMS and CORE MANAGER

Nea Ryan (Acting) Bec Harvey

DATA REQUESTS and PUBLICATIONS MANAGER

Sophie Corfield

REGISTRY EXECUTIVE ASSISTANT

Nouara Zimmermann Estevam

Elise Tapper

RNCS TEAM

Tania Alland

Libby Poole

Laura Busk

Khashayar Ghadirinejad

Dianne Buranyi-Trevarton

PROMS TEAM

Kate Kennedy

David Metherell

Pablo Flores Figuera

DATA REQUESTS and PUBLICATIONS TEAM

Sarah Jameel

South Australian Health and Medical Research Institute (SAHMRI)

SENIOR MANAGER, REGISTRY SCIENCE

Michelle Lorimer

Emma Heath

(Acting)

BIostatisticians

Kara Cashman

Carl Holder

Peiyao Du

Qunyan Xu

Dylan Harries

Suzanne Edwards

DATA MANAGERS

Robert Armitage

Primali De Silva

Courtney Cullen

DATA ASSISTANT

Georgina Daynes

Kirsty Modystach

Anh Pham

Jacinta De Silva

Anna Fergusson

Vivien Do

Michael Crame

Andrew Ioakim

Anita Wright

Jeremy Durward

ICT

Andrew Brock

Nazia Dilnaz

Daina Ross

Christian Boyd

Vincent Talladira

Jen Coleman

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Summary

Mortality information has been obtained by matching all procedures reported to the Registry up to and including 31 December 2023 with the National Death Index (NDI). The NDI is the national mortality database maintained by the Australian Institute of Health and Welfare (AIHW). The Registry was granted access to this data following a formal ethics application to AIHW.

Adjusted mortality is obtained after direct standardisation of the crude cumulative mortality data by 5 year age intervals and gender to the Estimated Resident Population Status based on the 2001 census.

As the total population has a younger age structure than the population of the Registry, the adjusted mortality is substantially lower than the crude mortality. By minimising the effects of age and gender differences within groups, the adjusted measure may be used to compare the mortality of different procedures and is useful when comparing mortality over time.

The rate per 100 person years has been calculated from the date of the first joint procedure to either the date of death or 31 December 2023. This provides a true rate.

Primary Hip Replacement

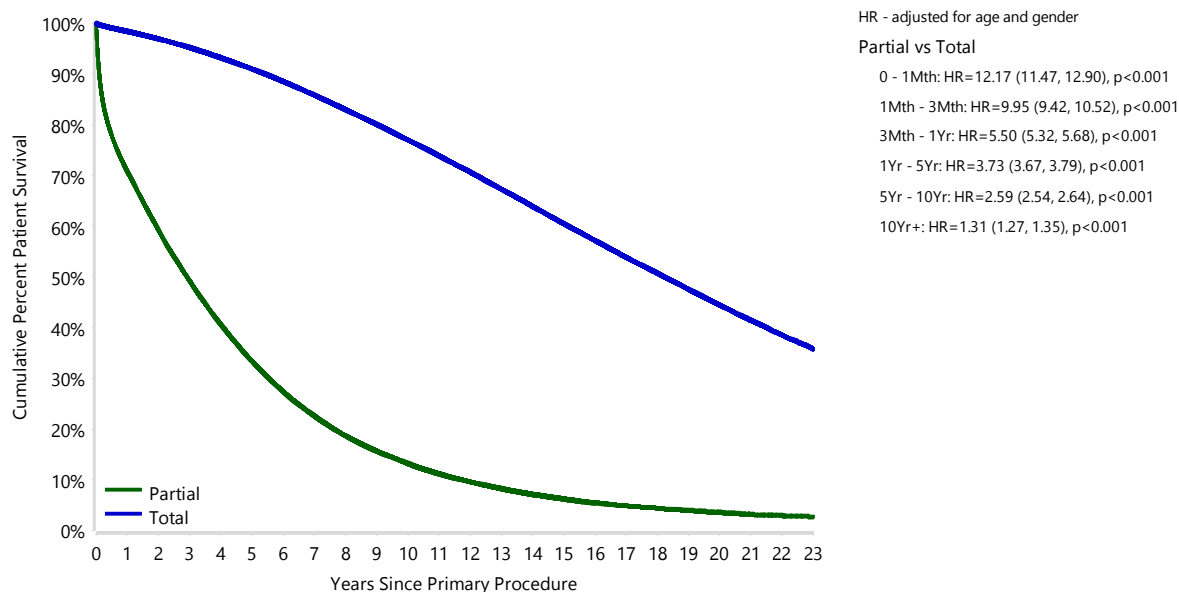
Table M1 Mortality following Primary Hip Replacement by Category

Hip Category	N Death	N Patients	% Deaths	Standardised Mortality	Person Years	Rate per 100 Person Yrs (95% CI)
Partial	88541	111581	79.4	41.7	396150	22.35 (22.20, 22.50)
Total	123078	496093	24.8	8.4	4147694	2.97 (2.95, 2.98)
TOTAL	211619	607674	34.8	9.9	4543844	4.66 (4.64, 4.68)

Table M2 Yearly Cumulative Percent Survival of Patients with Primary Hip Replacement by Category

CPS	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Partial	70.8 (70.5, 71.0)	49.2 (48.9, 49.5)	33.4 (33.1, 33.7)	13.2 (13.0, 13.5)	6.3 (6.1, 6.5)	3.6 (3.4, 3.8)
Total	98.4 (98.4, 98.5)	95.2 (95.1, 95.3)	91.0 (90.9, 91.1)	77.0 (76.9, 77.2)	60.5 (60.3, 60.7)	44.5 (44.2, 44.8)

Figure M1 Cumulative Percent Survival of Patients with Primary Hip Replacement by Category



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Partial	111581	74851	47039	28894	8469	2574	558
Total	496093	457650	388871	323383	177337	78153	19593

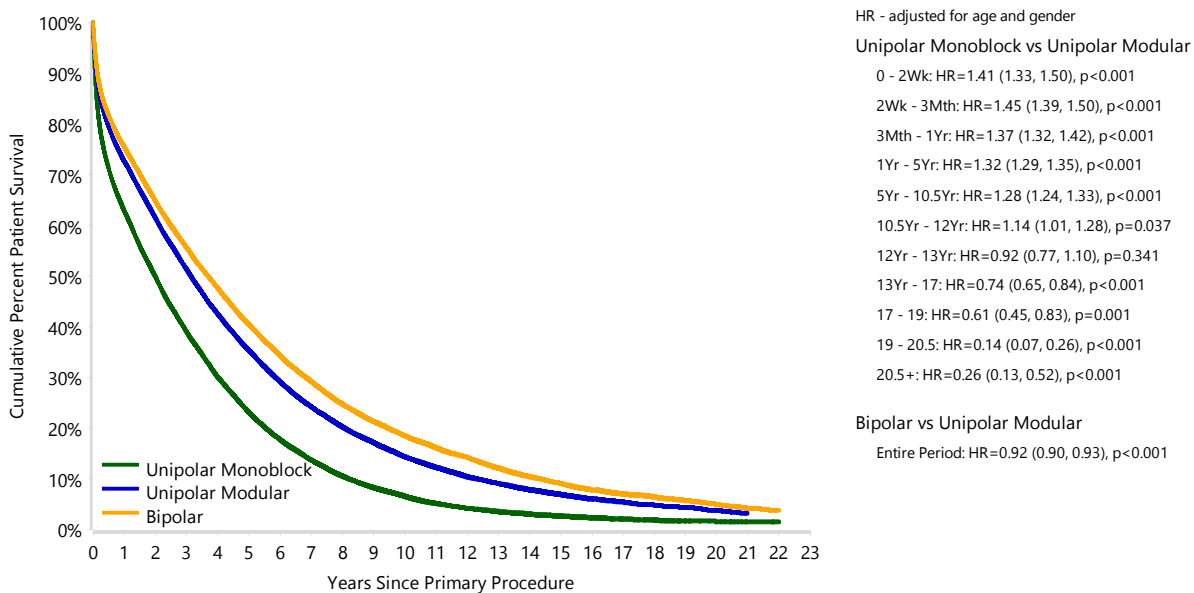
Table M3 Mortality following Primary Partial Hip Replacement by Class (Primary Diagnosis Fractured NOF)

Partial Hip Class	N Death	N Patients	% Deaths	Standardised Mortality	Person Years	Rate per 100 Person Yrs (95% CI)
Unipolar Monoblock	25630	26452	96.9	34.9	85102	30.12 (29.75, 30.49)
Unipolar Modular	37285	47816	78.0	37.6	175868	21.20 (20.99, 21.42)
Bipolar	21523	32261	66.7	33.7	115483	18.64 (18.39, 18.89)
TOTAL	84438	106529	79.3	37.6	376453	22.43 (22.28, 22.58)

Table M4 Yearly Cumulative Percent Survival of Patients with Primary Partial Hip Replacement by Class (Primary Diagnosis Fractured NOF)

CPS	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Unipolar Monoblock	62.7 (62.2, 63.3)	39.0 (38.4, 39.6)	23.1 (22.6, 23.6)	6.6 (6.3, 6.9)	2.7 (2.5, 2.9)	1.6 (1.5, 1.8)
Unipolar Modular	72.6 (72.1, 73.0)	51.3 (50.8, 51.8)	35.3 (34.9, 35.8)	14.4 (14.0, 14.8)	7.0 (6.6, 7.3)	3.8 (3.4, 4.2)
Bipolar	75.4 (74.9, 75.9)	55.6 (55.0, 56.1)	40.4 (39.8, 41.0)	18.5 (18.0, 19.1)	9.1 (8.7, 9.6)	5.0 (4.6, 5.5)

Figure M2 Cumulative Percent Survival of Patients with Primary Partial Hip Replacement by Class (Primary Diagnosis Fractured NOF)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Unipolar Monoblock	26452	16561	10248	6033	1630	535	169
Unipolar Modular	47816	33128	21311	13297	3797	884	107
Bipolar	32261	21873	13307	8130	2505	931	232

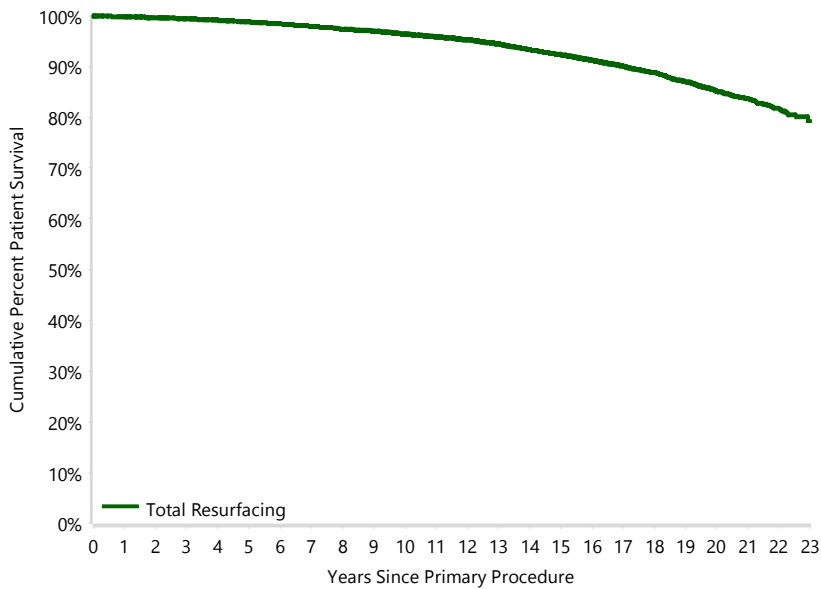
Table M5 Mortality following Primary Total Resurfacing Hip Replacement (Primary Diagnosis OA)

Total Hip Class	N Death	N Patients	% Deaths	Standardised Mortality	Person Years	Rate per 100 Person Yrs (95% CI)
Total Resurfacing	1441	15548	9.3	9.0	222459	0.65 (0.61, 0.68)
TOTAL	1441	15548	9.3	9.0	222459	0.65 (0.61, 0.68)

Table M6 Yearly Cumulative Percent Survival of Patients with Primary Total Resurfacing Hip Replacement (Primary Diagnosis OA)

CPS	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Resurfacing	99.9 (99.8, 99.9)	99.4 (99.3, 99.5)	98.8 (98.6, 99.0)	96.4 (96.1, 96.7)	92.4 (91.9, 92.8)	85.2 (84.3, 86.0)

Figure M3 Cumulative Percent Survival of Patients with Primary Total Resurfacing Hip Replacement (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Resurfacing	15548	15184	14405	13547	11892	8907	2595

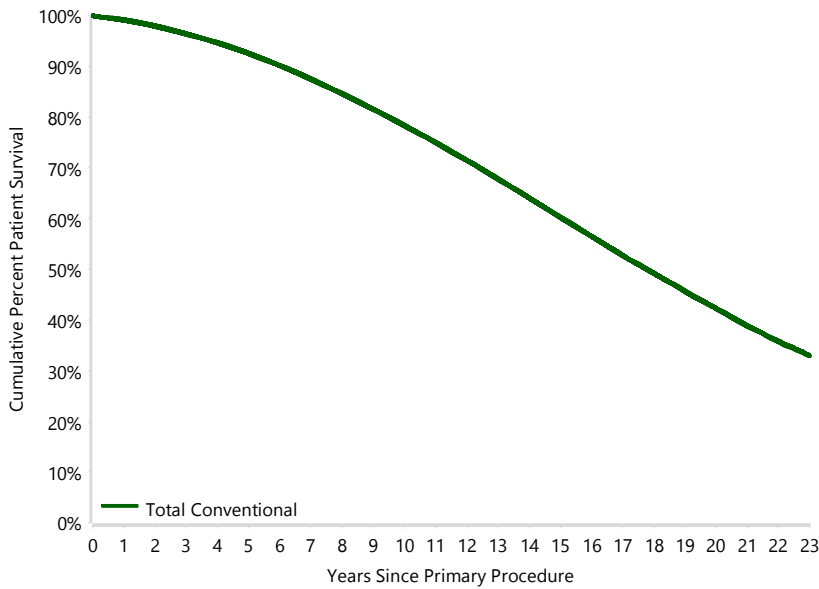
Table M7 Mortality following Primary Total Conventional Hip Replacement (Primary Diagnosis OA)

Total Hip Class	N Death	N Patients	% Deaths	Standardised Mortality	Person Years	Rate per 100 Person Yrs (95% CI)
Total Conventional	99717	414660	24.0	7.2	3469914	2.87 (2.86, 2.89)
TOTAL	99717	414660	24.0	7.2	3469914	2.87 (2.86, 2.89)

Table M8 Yearly Cumulative Percent Survival of Patients with Primary Total Conventional Hip Replacement (Primary Diagnosis OA)

CPS	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Conventional	99.1 (99.0, 99.1)	96.4 (96.3, 96.4)	92.5 (92.4, 92.6)	78.3 (78.1, 78.5)	60.2 (60.0, 60.4)	42.2 (41.9, 42.6)

Figure M4 Cumulative Percent Survival of Patients with Primary Total Conventional Hip Replacement (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Conventional	414660	384973	328970	274694	148418	61699	14781

Primary Knee Replacement

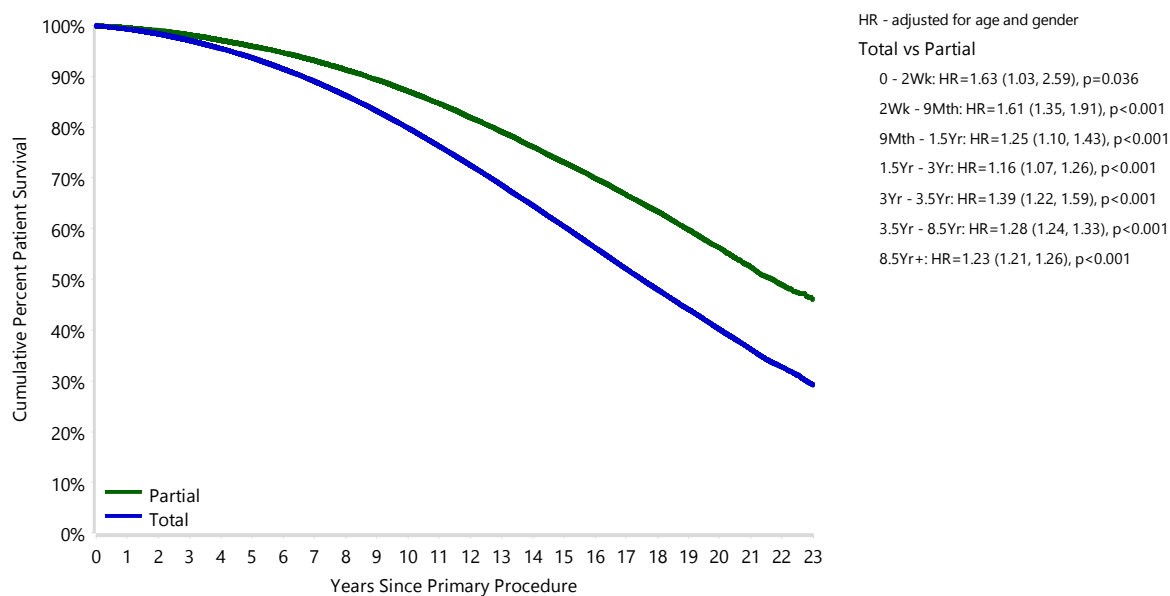
Table M9 Mortality following Primary Knee Replacement by Category

Knee Category	N Death	N Patients	% Deaths	Standardised Mortality	Person Years	Rate per 100 Person Yrs (95% CI)
Partial	13049	60673	21.5	11.2	634069	2.06 (2.02, 2.09)
Total	144303	637061	22.7	12.4	5261874	2.74 (2.73, 2.76)
TOTAL	157352	697734	22.6	12.1	5895943	2.67 (2.66, 2.68)

Table M10 Yearly Cumulative Percent Survival of Patients with Primary Knee Replacement by Category

CPS	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Partial	99.6 (99.6, 99.7)	98.1 (98.0, 98.2)	95.9 (95.8, 96.1)	87.1 (86.8, 87.4)	73.1 (72.6, 73.5)	56.2 (55.5, 56.9)
Total	99.3 (99.3, 99.3)	97.1 (97.0, 97.1)	93.6 (93.6, 93.7)	79.8 (79.7, 79.9)	60.4 (60.2, 60.6)	40.1 (39.8, 40.4)

Figure M5 Cumulative Percent Survival of Patients with Primary Knee Replacement by Category



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Partial	60673	57775	51758	45213	30214	17564	5079
Total	637061	590275	506987	424225	225637	86743	17563

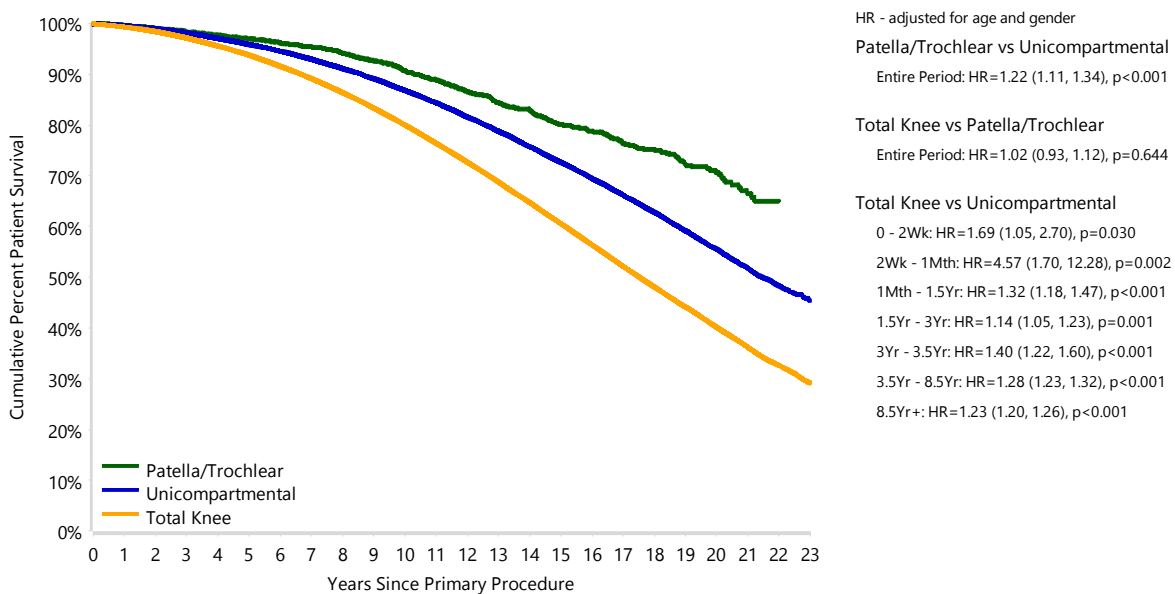
Table M11 Mortality following Primary Knee Replacement by Class (Primary Diagnosis OA)

Knee Class	N Death	N Patients	% Deaths	Standardised Mortality	Person Years	Rate per 100 Person Yrs (95% CI)
Partial Resurfacing	16	199	8.0	6.3	2704	0.59 (0.34, 0.96)
Unispacer	8	38	21.1	6.2	714	1.12 (0.48, 2.21)
Patella/Trochlear	450	3874	11.6	6.3	36145	1.24 (1.13, 1.37)
Unicompartmental	12332	55736	22.1	7.3	585522	2.11 (2.07, 2.14)
Bicompartmental	36	120	30.0	9.6	1606	2.24 (1.57, 3.10)
Total Knee	139809	622953	22.4	6.9	5140495	2.72 (2.71, 2.73)
TOTAL	152651	682920	22.4	6.8	5767185	2.65 (2.63, 2.66)

Table M12 Yearly Cumulative Percent Survival of Patients with Primary Knee Replacement by Class (Primary Diagnosis OA)

CPS	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Patella/Trochlear	99.7 (99.5, 99.8)	98.4 (97.9, 98.7)	97.1 (96.4, 97.6)	90.7 (89.5, 91.8)	80.2 (78.2, 82.0)	70.7 (67.5, 73.6)
Unicompartmental	99.6 (99.6, 99.7)	98.1 (98.0, 98.2)	95.9 (95.7, 96.1)	86.8 (86.5, 87.2)	72.7 (72.2, 73.2)	55.5 (54.8, 56.3)
Total Knee	99.3 (99.3, 99.4)	97.2 (97.1, 97.2)	93.7 (93.7, 93.8)	80.0 (79.9, 80.1)	60.6 (60.4, 60.8)	40.1 (39.8, 40.4)

Figure M6 Cumulative Percent Survival of Patients with Primary Knee Replacement by Class (Primary Diagnosis OA)



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Patella/Trochlear	3874	3653	3203	2772	1682	760	194
Unicompartmental	55736	53101	47610	41562	27876	16436	4814
Total Knee	622953	577242	495700	414700	220369	84390	16931

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AOANJRR
SAHMRI Building
North Terrace, Adelaide SA 5000
T: +61 8 8128 4280
aoanjrr.sahmri.com
aoa.org.au

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