

# NATIONAL JOINT REPLACEMENT REGISTRY



AOA

AUSTRALIAN  
ORTHOPAEDIC  
ASSOCIATION

Outcomes of Classes No Longer Used  
Hip and Knee Arthroplasty



## SUPPLEMENTARY REPORT 2016

CELEBRATING  
15 YEARS OF DATA

A decorative pattern of overlapping triangles in various shades of blue and white, creating a textured, crystalline effect.

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## Introduction

This report provides summary data and outcomes for classes of prostheses no longer used in Australia.

There are two classes of hip replacement no longer used, partial resurfacing and thrust plate. These are defined in the first section below, on hip replacement. These two classes of implant have not been used since 2009 and 2012, respectively.

There are two classes of partial knee replacement that are no longer used, unispacer and bicompartmental. These are defined in the second section of this report, on knee replacement. These two classes of implant have not been used since 2005 and 2012, respectively.

# Hip Replacement

## PARTIAL RESURFACING

Partial resurfacing is a sub-category of partial hip replacement. It involves the use of one or more button prostheses to replace part of the natural articulating surface on one or both sides of the hip joint.

The Registry has recorded 14 partial resurfacing hip procedures and seven of these have been revised. The last recorded procedure was in 2009 (Table NU1).

Osteonecrosis was the principal diagnosis (50.0%) (Table NU2). The majority of procedures were undertaken in males (78.6%) (Table NU3).

All but one of these prostheses was used to replace part of the femoral articular surface. The remaining procedure was a partial acetabular surface replacement.

The cumulative percent revision is 7.1% at one year and 35.7% at seven years (Table NU4 and Figure NU1).

Of the seven revisions, three are for osteonecrosis, two for loosening/lysis, one for prosthesis dislocation and one for 'other' (Table NU5). All have been revised to a total hip replacement (Table NU6).

**Table NU1** Number of Revisions of Primary Partial Resurfacing Hip Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2004	0	1
2005	1	2
2006	1	1
2007	2	5
2008	1	3
2009	2	2
<b>TOTAL</b>	<b>7</b>	<b>14</b>

**Table NU2** Primary Partial Resurfacing Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteonecrosis	7	50.0
Osteoarthritis	5	35.7
Osteochondritis Dissecans	1	7.1
Other	1	7.1
<b>TOTAL</b>	<b>14</b>	<b>100.0</b>

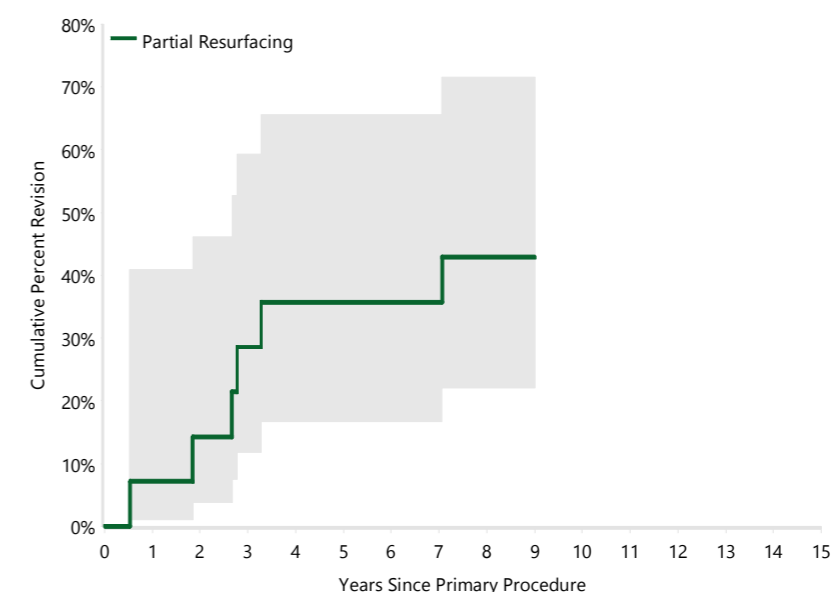
**Table NU3** Age and Gender of Primary Partial Resurfacing Hip Replacement

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	3	21.4%	17	53	23	31.0	19.3
Male	11	78.6%	18	39	29	26.7	6.9
<b>TOTAL</b>	<b>14</b>	<b>100.0%</b>	<b>17</b>	<b>53</b>	<b>26</b>	<b>27.6</b>	<b>9.9</b>

**Table NU4** Cumulative Percent Revision of Primary Partial Resurfacing Hip Replacement

CPR	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
Partial Resurfacing	7.1 (1.0, 40.9)	28.6 (11.8, 59.4)	35.7 (16.7, 65.7)	35.7 (16.7, 65.7)		

**Figure NU1** Cumulative Percent Revision of Primary Partial Resurfacing Hip Replacement



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
Partial Resurfacing	14	13	10	9	9	2	0

**Table NU5** Primary Partial Resurfacing Hip Replacement by Reason for Revision

Reason for Revision	Partial Resurfacing	
	N	Co%
Osteonecrosis	3	42.9
Loosening/Lysis	2	28.6
Prosthesis Dislocation	1	14.3
Other	1	14.3
<b>TOTAL</b>	<b>7</b>	<b>100.0</b>

**Table NU6** Primary Partial Resurfacing Hip Replacement by Type of Revision

Type of Revision	Partial Resurfacing	
	N	Co%
THR (Femoral/Acetabular)	7	100.0
<b>TOTAL</b>	<b>7</b>	<b>100.0</b>

## Thrust Plate

Thrust plate is a sub-category of total hip replacement. It includes acetabular replacement combined with resection of the femoral head and replacement with a femoral component that has a lateral fixation plate and femoral head prosthesis.

The Registry has recorded 258 thrust plate hip procedures, 17 of which have been revised. The last recorded procedure was in 2012 (Table NU7).

**Table NU7** Number of Revisions of Primary Thrust Plate Hip Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2000	0	15
2001	1	25
2002	3	31
2003	4	20
2004	1	22
2005	1	23
2006	3	14
2007	1	23
2008	2	20
2009	0	26
2010	0	15
2011	1	18
2012	0	6
<b>TOTAL</b>	<b>17</b>	<b>258</b>

**Table NU9** Age and Gender of Primary Thrust Plate Hip Replacement

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	74	28.7%	27	71	56	54.5	9.9
Male	184	71.3%	33	75	59	58.5	8.7
<b>TOTAL</b>	<b>258</b>	<b>100.0%</b>	<b>27</b>	<b>75</b>	<b>58</b>	<b>57.3</b>	<b>9.2</b>

Osteoarthritis was the principal diagnosis (94.2%) (Table NU8). The majority of procedures were undertaken in males (71.3%) (Table NU9). The cumulative percent revision is 6.5% at 10 years (Table NU10 and Figure NU2).

Of the 17 revisions, 11 are for loosening/lysis (Table NU11). The most common type of revision is of the femoral component (58.8%) (Table NU12).

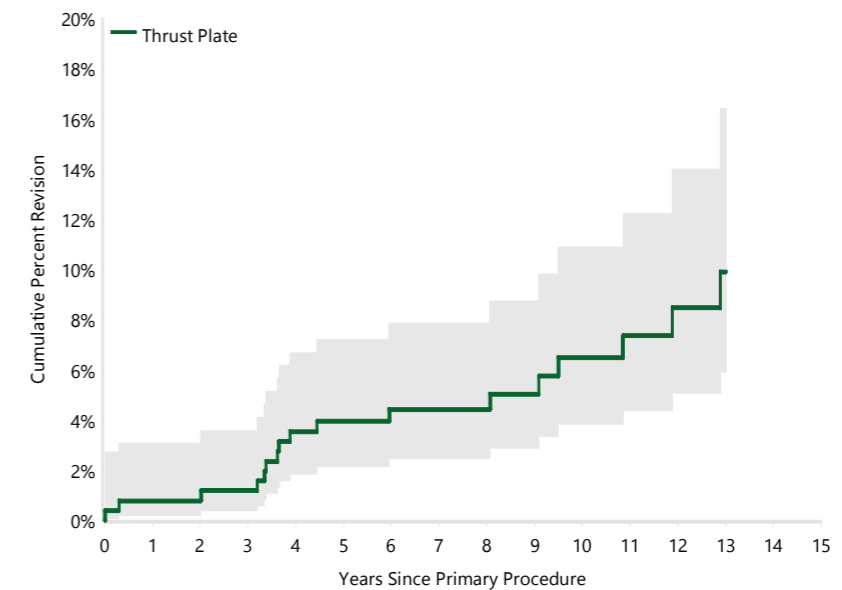
**Table NU8** Primary Thrust Plate Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	243	94.2
Rheumatoid Arthritis	6	2.3
Osteonecrosis	5	1.9
Developmental Dysplasia	3	1.2
Other Inflammatory Arthritis	1	0.4
<b>TOTAL</b>	<b>258</b>	<b>100.0</b>

**Table NU10** Cumulative Percent Revision of Primary Thrust Plate Hip Replacement

Class	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
Thrust Plate	17	258	0.8 (0.2, 3.1)	1.2 (0.4, 3.6)	3.9 (2.1, 7.2)	4.4 (2.5, 7.8)	6.5 (3.8, 10.9)	
<b>TOTAL</b>	<b>17</b>	<b>258</b>						

**Figure NU2** Cumulative Percent Revision of Primary Thrust Plate Hip Replacement



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
Thrust Plate	258	255	253	222	176	122	14

**Table NU11** Primary Thrust Plate Hip Replacement by Reason for Revision

Reason for Revision	Thrust Plate	
	N	Col%
Loosening/Lysis	11	64.7
Fracture	2	11.8
Infection	1	5.9
Wear Acetabular Insert	1	5.9
Prosthesis Dislocation	1	5.9
Malposition	1	5.9
<b>TOTAL</b>	<b>17</b>	<b>100.0</b>

**Table NU12** Primary Thrust Plate Hip Replacement by Type of Revision

Type of Revision	Thrust Plate	
	N	Col%
Femoral Component	10	58.8
THR (Femoral/Acetabular)	2	11.8
Acetabular Component	1	5.9
Minor Components	1	5.9
Thrust Plate	1	5.9
Cement Spacer	1	5.9
Head/Insert	1	5.9
<b>TOTAL</b>	<b>17</b>	<b>100.0</b>

# Knee Replacement

## UNISPACER

Unispacer knee replacement involves the use of a medial or lateral femorotibial compartment articular spacer.

There have been 40 unispacer procedures reported to the Registry. The last recorded procedure was in 2005 (Table NU13).

Osteoarthritis is the primary diagnosis reported for all unispacer procedures (Table NU14). The majority of patients were male (52.5%) and aged less than 65 years (90.0%). (Table NU15)

At 10 years, the cumulative percent revision of unispacer knee replacement is 77.5% (Table NU16 and Figure NU3).

Two types of unispacer prostheses have been used, UniSpacer (Zimmer) (31) and InterCushion (Advance Biosurfaces Inc) (9).

All InterCushion prostheses were revised within one and half years. The 10 year cumulative percent revision of the Zimmer UniSpacer prosthesis is 71.0% (Table NU16).

The main reason for revision is pain (22.6%), followed by loosening/lysis and progression of disease (Table NU17).

Most unispacer procedures are revised to a unicompartmental knee replacement (64.5%) or a total knee (22.6%). The remainder of the revisions involved a further unispacer replacement (Table NU18).

**Table NU13** Number of Revisions of Primary Unispacer Knee Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2003	9	13
2004	21	26
2005	1	1
<b>TOTAL</b>	<b>31</b>	<b>40</b>

**Table NU14** Primary Unispacer Knee Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	40	100.0
<b>TOTAL</b>	<b>40</b>	<b>100.0</b>

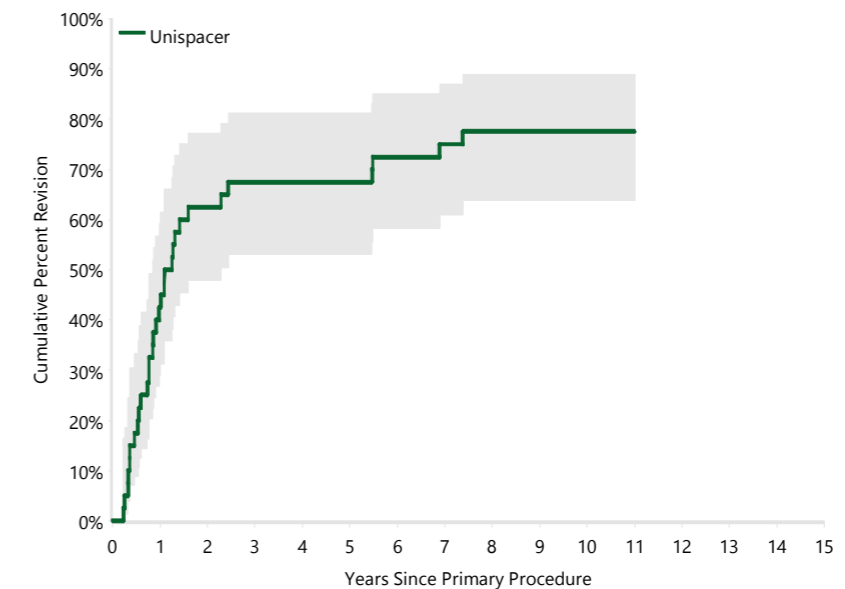
**Table NU15** Age and Gender of Primary Unispacer Knee Replacement

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	19	47.5%	40	69	56	54.1	8.4
Male	21	52.5%	41	75	55	55.2	9.2
<b>TOTAL</b>	<b>40</b>	<b>100.0%</b>	<b>40</b>	<b>75</b>	<b>55</b>	<b>54.7</b>	<b>8.7</b>

**Table NU16** Cumulative Percent Revision of Primary Unispacer Knee Replacement by Prosthesis Type

Unispacer	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
InterCushion	9	9	55.6 (28.1, 86.4)					
Unispacer	22	31	38.7 (24.2, 58.0)	58.1 (41.7, 75.3)	58.1 (41.7, 75.3)	67.7 (51.4, 83.1)	71.0 (54.7, 85.5)	
<b>TOTAL</b>	<b>31</b>	<b>40</b>	<b>42.5 (29.0, 59.2)</b>	<b>67.5 (53.0, 81.2)</b>	<b>67.5 (53.0, 81.2)</b>	<b>75.0 (61.0, 87.0)</b>	<b>77.5 (63.7, 88.8)</b>	

**Figure NU3** Cumulative Percent Revision of Primary Unispacer Knee Replacement



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
Unispacer	40	23	13	13	10	9	0

**Table NU17** Primary Unispacer Knee Replacement by Reason for Revision

Reason for Revision	Unispacer	
	N	Col%
Pain	7	22.6
Loosening/Lysis	5	16.1
Progression Of Disease	5	16.1
Synovitis	4	12.9
Implant Breakage Tibial	3	9.7
Prosthesis Dislocation	2	6.5
Osteonecrosis	1	3.2
Incorrect Sizing	1	3.2
Infection	1	3.2
Malalignment	1	3.2
Wear Tibial	1	3.2
<b>TOTAL</b>	<b>31</b>	<b>100.0</b>

**Table NU18** Primary Unispacer Knee Replacement by Type of Revision

Type of Revision	Unispacer	
	N	Col%
UKR (Uni Tibial/Uni Femoral)	20	64.5
TKR (Tibial/Femoral)	7	22.6
Unispacer	4	12.9
<b>TOTAL</b>	<b>31</b>	<b>100.0</b>

### BICOMPARTMENTAL

Bicompartmental knee replacement involves the replacement of the medial femoral and trochlear articular surface of the knee with a single femoral prosthesis, as well as the medial tibial articular surface with a unicompartmental tibial prosthesis. It may also include the use of a patella prosthesis.

The Registry has recorded 165 bicompartmental procedures. There have been no further procedures recorded since July 2012 (Table NU19).

The principal diagnosis for bicompartmental knee replacement was osteoarthritis (97.0%) (Table NU20). It was used more frequently in females (60.6%) and 55.8% of patients were aged less than 65 years at the time of surgery (Table NU21).

The bicompartmental knee replacement is a single company product. One femoral component, the Journey Deuce, has been combined with two different tibial components, the Journey (32.1%) and the Journey Deuce (67.3%). The majority of primary bicompartmental procedures included resurfacing of the patella (84.2%).

The cumulative percent revision of bicompartmental knee replacement is 6.1% at one year and 14.3% at seven years (Table NU22 and Figure NU4).

The main reasons for revision are patellofemoral pain and pain (21.7% each) (Table NU23). Of the 23 revisions, 11 have been revised to a total knee replacement and nine involve addition of a patella prosthesis (one is combined with a unicompartmental tibial insert). The remaining three revisions involve a cement spacer and replacement of the unicompartmental tibial component (Table NU24).

**Table NU19** Number of Revisions of Primary Bicompartmental Knee Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2006	1	4
2007	8	38
2008	3	50
2009	5	35
2010	4	24
2011	1	10
2012	1	4
<b>TOTAL</b>	<b>23</b>	<b>165</b>

**Table NU20** Primary Bicompartmental Knee Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	160	97.0
Osteonecrosis	3	1.8
Other Inflammatory Arthritis	1	0.6
Rheumatoid Arthritis	1	0.6
<b>TOTAL</b>	<b>165</b>	<b>100.0</b>

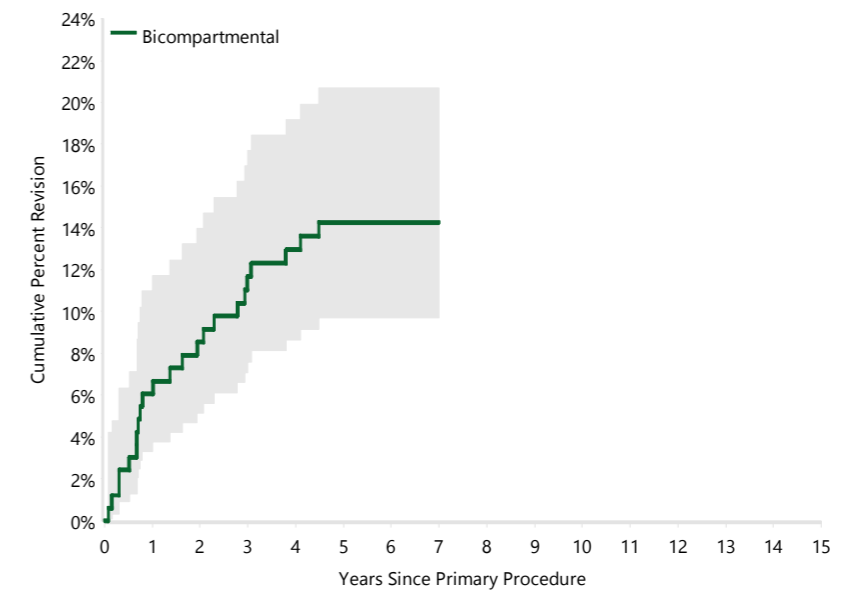
**Table NU21** Age and Gender of Primary Bicompartmental Knee Replacement

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	100	60.6%	46	84	61	63.8	10.6
Male	65	39.4%	45	86	62	65.1	9.9
<b>TOTAL</b>	<b>165</b>	<b>100.0%</b>	<b>45</b>	<b>86</b>	<b>62</b>	<b>64.3</b>	<b>10.3</b>

**Table NU22** Cumulative Percent Revision of Primary Bicompartmental Knee Replacement by Prosthesis Combination

Femoral	Tibial	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
Journey Deuce	Generic Uni Knee Tibial	1	1						
Journey Deuce	Journey	8	53	3.8 (1.0, 14.3)	13.3 (6.6, 25.9)	15.2 (7.9, 28.1)	15.2 (7.9, 28.1)		
Journey Deuce	Journey Deuce	14	111	7.2 (3.7, 13.9)	10.0 (5.7, 17.3)	12.9 (7.8, 20.8)	12.9 (7.8, 20.8)		
<b>TOTAL</b>		<b>23</b>	<b>165</b>	<b>6.1 (3.3, 11.0)</b>	<b>11.7 (7.6, 17.7)</b>	<b>14.3 (9.7, 20.7)</b>	<b>14.3 (9.7, 20.7)</b>		

**Figure NU4** Cumulative Percent Revision of Primary Bicompartmental Knee Replacement



Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs	15 Yrs
Bicompartmental	165	155	140	122	73	0	0

**Table NU23 Primary Bicompartmental Knee Replacement by Reason for Revision**

Reason for Revision	Bicompartmental	
	N	Col%
Patellofemoral Pain	5	21.7
Pain	5	21.7
Loosening/Lysis	4	17.4
Infection	3	13.0
Patella Erosion	1	4.3
Implant Breakage Patella	1	4.3
Patella Maltracking	1	4.3
Osteonecrosis	1	4.3
Progression Of Disease	1	4.3
Fracture	1	4.3
<b>TOTAL</b>	<b>23</b>	<b>100.0</b>

**Table NU24 Primary Bicompartmental Knee Replacement by Type of Revision**

Type of Revision	Bicompartmental	
	N	Col%
TKR (Tibial/Femoral)	11	47.8
Patella Only	8	34.8
Cement Spacer	2	8.7
Uni Tibial Component	1	4.3
Uni Insert/Patella	1	4.3
<b>TOTAL</b>	<b>23</b>	<b>100.0</b>

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