

# Australian Orthopaedic Association National Joint Replacement Registry

2022 Metal/Metal Bearing Surface in  
Total Conventional Hip Arthroplasty  
Supplementary Report



**AOA**  
AUSTRALIAN  
ORTHOPAEDIC  
ASSOCIATION

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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.

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## Summary

This report provides information on total conventional hip replacement procedures performed with metal/metal bearing surfaces.

All hip replacement procedures recorded by the Registry from the commencement date to 31 December 2021 have been included in this report.

Summary data on the use of metal/metal bearings are provided, along with outcomes (revision rate, reason for revision and type of revision) according to patient and implant characteristics (e.g. head size, age and gender).

The use of metal/metal conventional hip replacements peaked between 2006 and 2008 (when over 3,000 were implanted each year) and then rapidly declined, with no metal/metal THRs implanted since 2016.

The revision rate for metal/metal THRs is higher than for other bearing surfaces, but the high revision rate is mainly restricted to prostheses with head sizes >32mm.

The most common reason for revision of a primary metal/metal hip replacement is metal related pathology, followed by loosening and infection.

# Metal/Metal

## OUTCOME

Since 2008, the Registry has identified metal/metal bearing surface as having a higher rate of revision compared to metal/polyethylene. In 2010, metal/metal bearing surfaces were identified as having a higher rate of revision compared to all other bearing surfaces. In the same year the Registry first identified the important relationship between head size and revision of metal/metal prostheses.

To further evaluate the effect of head size with metal/metal bearing surface, an analysis was undertaken comparing two head size groups ( $\leq 32$ mm and  $>32$ mm). Head sizes  $>32$ mm are associated with an increased rate of revision compared to  $\leq 32$ mm head sizes (Table MM2).

## DEMOGRAPHICS

Metal/metal bearing surface has been used in 22,107 primary total conventional hip replacements (Table MM1 and Figure MM1).

There have been 4,628 revisions of metal/metal primary total conventional hip replacement; 542 revisions with  $\leq 32$ mm and 4,086 revisions with  $>32$ mm head sizes. The majority of revisions with head sizes  $>32$ mm involve the acetabular component only (58.8%) followed by revision of both the femoral and acetabular components. For metal/metal with head sizes  $\leq 32$ mm, revision of the femoral component is most common (29.9%) followed by revisions of the acetabular component (24.9%) (0).

The main reasons for revision of  $>32$ mm head sizes are metal related pathology (47.5%), loosening (17.8%), infection (11.4%) and lysis (7.2%). The main reasons for revision of  $\leq 32$ mm head sizes are loosening (27.5%), prosthesis dislocation (17.7%), fracture (15.5%) and infection (13.8%) (Table MM4 and Figure MM2).

The Registry continues to report a relationship between age and head size. The rate of revision for head sizes  $>32$ mm is higher regardless of age. For head sizes  $>32$ mm, patients aged  $<65$  years have a higher rate of revision than patients aged  $\geq 65$  years after 4 years (Table MM5 and Figure MM3).

For head sizes  $>32$ mm, both males and females have a higher rate of revision, with females having the highest rate. When head sizes  $\leq 32$ mm are used, males have a lower rate of revision compared to females (Table MM6 and Figure MM4).

The differences in the reasons for revision between metal/metal and metal/polyethylene are more evident in metal/metal prostheses with  $>32$ mm head sizes. Metal related pathology is largely confined to  $>32$ mm head sizes. The cumulative incidence of metal related pathology at 15 years is 12.5% for head sizes  $>32$ mm and 1.0% for head sizes  $\leq 32$ mm. The incidence of metal related pathology is potentially higher as it is possible that undiagnosed metal related pathology contributes to the increased rate of loosening and infection reported in metal/metal prostheses with larger head sizes (Figure MM5).

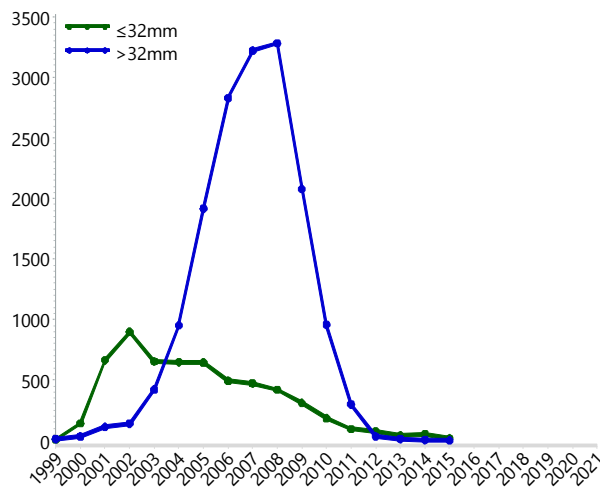
In order to determine if the higher revision rate of metal/metal prostheses with  $>32$ mm head sizes is prosthesis specific, the Registry has analysed all prosthesis head/acetabular combinations that have a head size  $>32$ mm and have  $>200$  procedures. There are 13 combinations that meet these criteria. The cumulative percent revision ranges from 7.4% to 45.3% at 10 years. In comparison, there are 8 head/acetabular combinations that have head sizes  $\leq 32$ mm and  $>50$  procedures. The cumulative percent revision at 10 years ranges from 1.6% to 11.7% (Table MM7 and Table MM8).

**Table MM1 Metal/Metal Primary Total Conventional Hip Replacement by Head Size and Year of Implant (All Diagnoses)**

Year of Implant	≤32mm		>32mm	
	Number Revised	Total Number	Number Revised	Total Number
1999	0	7	6	12
2000	17	141	18	34
2001	55	662	40	113
2002	77	896	20	138
2003	60	653	59	421
2004	58	647	175	952
2005	71	643	448	1915
2006	44	493	775	2828
2007	40	471	875	3220
2008	37	419	942	3282
2009	32	311	519	2078
2010	19	184	170	955
2011	14	94	35	298
2012	9	77	2	34
2013	4	40	2	14
2014	5	51	0	5
2015	0	18	0	1
2016				
2017				
2018				
2020				
2021				
<b>TOTAL</b>	<b>511</b>	<b>5807</b>	<b>3959</b>	<b>16300</b>

Note: The number of revisions refers to the revisions of primaries undertaken in that year

**Figure MM1 Metal/Metal Primary Total Conventional Hip Replacement by Head Size (All Diagnoses)**







**Table MM2 Cumulative Percent Revision of Metal/Metal Primary Total Conventional Hip Replacement by Head Size (All Diagnoses)**

Type	Head Size	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Metal/Metal	≤32mm	542	5807	1.8 (1.5, 2.2)	3.5 (3.1, 4.0)	4.6 (4.1, 5.2)	7.1 (6.4, 7.8)	9.9 (9.1, 10.8)	12.3 (11.2, 13.4)
	>32mm	4086	16300	1.8 (1.6, 2.0)	5.6 (5.3, 6.0)	11.6 (11.1, 12.1)	22.5 (21.8, 23.1)	28.5 (27.7, 29.3)	32.4 (30.1, 34.9)
<b>TOTAL</b>		<b>4628</b>	<b>22107</b>						

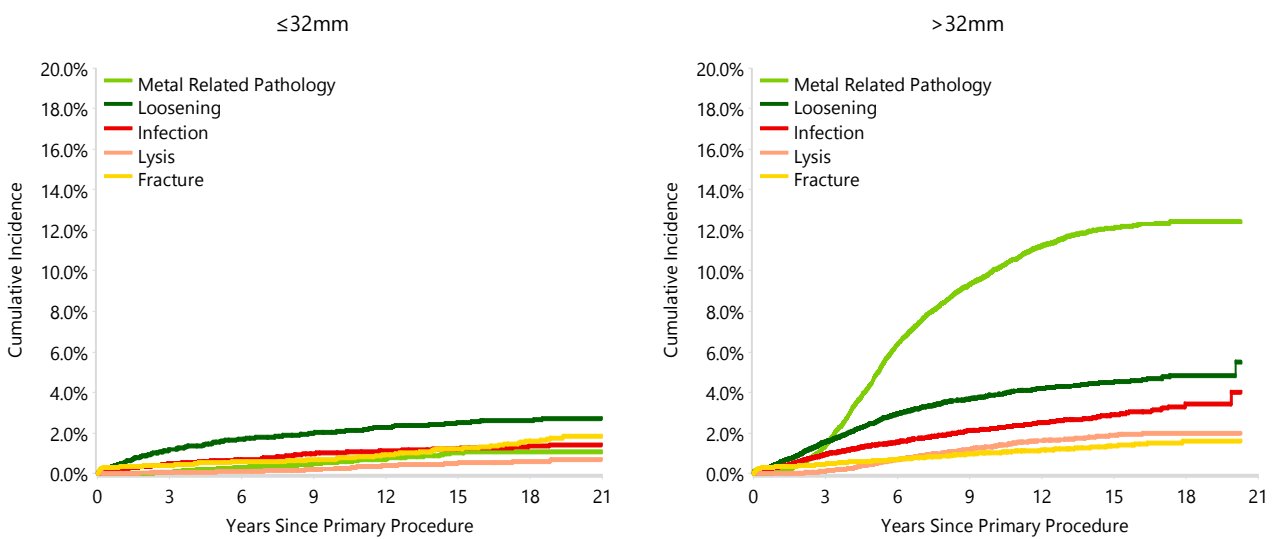
**Table MM3 Type of Revision of Metal/Metal Primary Total Conventional Hip Replacement by Head Size (All Diagnoses)**

Type of Revision	Number	≤32mm		>32mm		
		% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Acetabular Component	135	2.3	24.9	2401	14.7	58.8
THR (Femoral/Acetabular)	80	1.4	14.8	758	4.7	18.6
Head/Insert	101	1.7	18.6	321	2.0	7.9
Femoral Component	162	2.8	29.9	291	1.8	7.1
Cement Spacer	20	0.3	3.7	157	1.0	3.8
Head Only	22	0.4	4.1	80	0.5	2.0
Head/Neck/Insert	8	0.1	1.5	37	0.2	0.9
Minor Components	8	0.1	1.5	23	0.1	0.6
Removal of Prostheses	3	0.1	0.6	7	0.0	0.2
Head/Neck	2	0.0	0.4	4	0.0	0.1
Bipolar Head and Femoral				2	0.0	0.0
Insert Only	1	0.0	0.2	2	0.0	0.0
Neck Only				1	0.0	0.0
Reinsertion of Components				1	0.0	0.0
Saddle				1	0.0	0.0
<b>N Revision</b>	<b>542</b>	<b>9.3</b>	<b>100.0</b>	<b>4086</b>	<b>25.1</b>	<b>100.0</b>
<b>N Primary</b>	<b>5807</b>			<b>16300</b>		

**Table MM4 Revision Diagnosis of Metal/Metal Primary Total Conventional Hip Replacement by Head Size (All Diagnoses)**

Revision Diagnosis	≤32mm			>32mm		
	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Metal Related Pathology	57	1.0	10.5	1940	11.9	47.5
Loosening	149	2.6	27.5	728	4.5	17.8
Infection	75	1.3	13.8	464	2.8	11.4
Lysis	32	0.6	5.9	296	1.8	7.2
Fracture	84	1.4	15.5	217	1.3	5.3
Prosthesis Dislocation/Instability	96	1.7	17.7	136	0.8	3.3
Pain	13	0.2	2.4	128	0.8	3.1
Implant Breakage Stem	4	0.1	0.7	47	0.3	1.2
Leg Length Discrepancy	7	0.1	1.3	21	0.1	0.5
Wear Acetabulum				18	0.1	0.4
Implant Breakage Acetabular	5	0.1	0.9	15	0.1	0.4
Incorrect Sizing	5	0.1	0.9	12	0.1	0.3
Malposition	4	0.1	0.7	11	0.1	0.3
Tumour				10	0.1	0.2
Synovitis	1	0.0	0.2	4	0.0	0.1
Implant Breakage Acetabular Insert	1	0.0	0.2	3	0.0	0.1
Osteonecrosis				3	0.0	0.1
Wear Acetabular Insert	3	0.1	0.6	2	0.0	0.0
Heterotopic Bone				1	0.0	0.0
Other	6	0.1	1.1	30	0.2	0.7
<b>N Revision</b>	<b>542</b>	<b>9.3</b>	<b>100.0</b>	<b>4086</b>	<b>25.1</b>	<b>100.0</b>
<b>N Primary</b>	<b>5807</b>			<b>16300</b>		

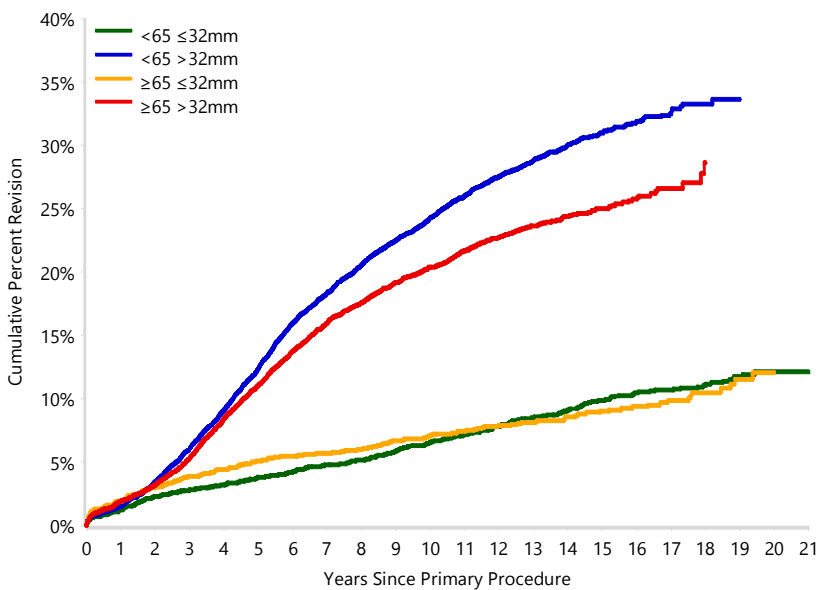
**Figure MM2 Cumulative Incidence Revision Diagnosis of Metal/Metal Primary Total Conventional Hip Replacement by Head Size (All Diagnoses)**



**Table MM5 Cumulative Percent Revision of Metal/Metal Primary Total Conventional Hip Replacement by Age and Head Size (Primary Diagnosis OA)**

Age	Head Size	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
<65		2493	10346	1.5 (1.2, 1.7)	5.2 (4.8, 5.7)	10.2 (9.6, 10.8)	19.7 (18.9, 20.5)	25.4 (24.6, 26.3)	27.8 (26.7, 29.0)
	≤32mm	266	2698	1.3 (0.9, 1.8)	2.8 (2.3, 3.5)	3.8 (3.2, 4.6)	6.6 (5.7, 7.6)	9.9 (8.8, 11.2)	12.1 (10.7, 13.7)
	>32mm	2227	7648	1.5 (1.3, 1.8)	6.1 (5.6, 6.6)	12.4 (11.7, 13.1)	24.3 (23.3, 25.3)	31.0 (29.9, 32.1)	
≥65		1628	9219	1.9 (1.7, 2.2)	4.9 (4.5, 5.4)	9.5 (8.9, 10.1)	16.8 (16.0, 17.6)	20.6 (19.7, 21.6)	23.9 (22.2, 25.7)
	≤32mm	201	2445	1.9 (1.5, 2.6)	3.9 (3.2, 4.7)	5.1 (4.3, 6.0)	7.1 (6.1, 8.2)	9.0 (7.8, 10.4)	12.1 (10.0, 14.5)
	>32mm	1427	6774	1.9 (1.6, 2.3)	5.3 (4.8, 5.9)	11.1 (10.3, 11.9)	20.4 (19.4, 21.4)	25.0 (23.8, 26.2)	
<b>TOTAL</b>		<b>4121</b>	<b>19565</b>						

**Figure MM3 Cumulative Percent Revision of Metal/Metal Primary Total Conventional Hip Replacement by Age and Head Size (Primary Diagnosis OA)**



HR - adjusted for gender

<65 ≤32mm vs <65 >32mm  
 0 - 2Wk: HR=0.59 (0.25, 1.37), p=0.217  
 2Wk - 2Yr: HR=0.64 (0.48, 0.85), p=0.001  
 2Yr - 5Yr: HR=0.16 (0.12, 0.22), p<0.001  
 5Yr - 5.5Yr: HR=0.05 (0.02, 0.16), p<0.001  
 5.5Yr - 6Yr: HR=0.16 (0.08, 0.32), p<0.001  
 6Yr - 6.5Yr: HR=0.25 (0.13, 0.47), p<0.001  
 6.5Yr - 7.5Yr: HR=0.08 (0.04, 0.18), p<0.001  
 7.5Yr+: HR=0.34 (0.28, 0.41), p<0.001

<65 ≤32mm vs ≥65 ≤32mm  
 0 - 5.5Yr: HR=0.72 (0.56, 0.94), p=0.013  
 5.5Yr+: HR=1.50 (1.14, 1.98), p=0.004

<65 >32mm vs ≥65 >32mm  
 0 - 4Yr: HR=1.11 (0.99, 1.24), p=0.061  
 4Yr+: HR=1.37 (1.26, 1.49), p<0.001

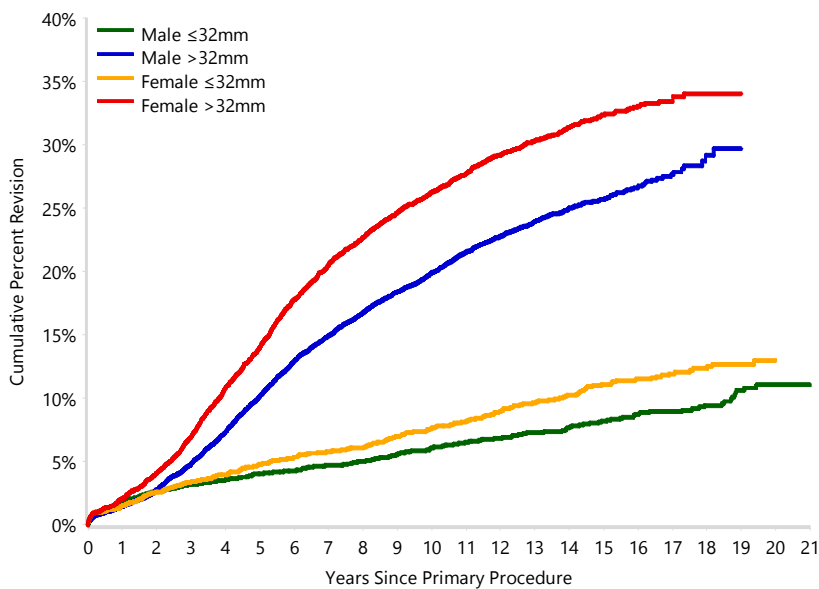
≥65 ≤32mm vs ≥65 >32mm  
 0 - 2Yr: HR=0.95 (0.74, 1.21), p=0.661  
 2Yr - 3Yr: HR=0.39 (0.26, 0.57), p<0.001  
 3Yr - 5.5Yr: HR=0.20 (0.15, 0.27), p<0.001  
 5.5Yr - 6Yr: HR=0.10 (0.05, 0.21), p<0.001  
 6Yr - 6.5Yr: HR=0.19 (0.10, 0.35), p<0.001  
 6.5Yr - 7Yr: HR=0.08 (0.03, 0.19), p<0.001  
 7Yr - 7.5Yr: HR=0.15 (0.09, 0.25), p<0.001  
 7.5Yr - 11Yr: HR=0.27 (0.20, 0.36), p<0.001  
 11Yr+: HR=0.40 (0.29, 0.56), p<0.001

Number at Risk		0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
<65	≤32mm	2698	2655	2578	2520	2258	1499	305
	>32mm	7648	7509	7096	6540	5401	1836	38
≥65	≤32mm	2445	2366	2262	2134	1644	882	77
	>32mm	6774	6552	6119	5439	3879	1019	14

**Table MM6 Cumulative Percent Revision of Metal/Metal Primary Total Conventional Hip Replacement by Gender and Head Size (Primary Diagnosis OA)**

Gender	Head Size	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
<b>Male</b>		<b>2117</b>	<b>11057</b>	<b>1.5 (1.3, 1.7)</b>	<b>4.4 (4.1, 4.8)</b>	<b>8.7 (8.2, 9.2)</b>	<b>16.6 (15.9, 17.3)</b>	<b>21.4 (20.6, 22.3)</b>	<b>24.7 (23.4, 26.0)</b>
	≤32mm	212	2673	1.7 (1.2, 2.2)	3.2 (2.6, 4.0)	4.0 (3.4, 4.9)	6.1 (5.2, 7.1)	8.2 (7.1, 9.4)	11.0 (9.5, 12.8)
	>32mm	1905	8384	1.4 (1.2, 1.7)	4.8 (4.4, 5.3)	10.1 (9.5, 10.8)	19.9 (19.0, 20.8)	25.7 (24.7, 26.7)	
<b>Female</b>		<b>2004</b>	<b>8508</b>	<b>1.9 (1.6, 2.2)</b>	<b>5.9 (5.4, 6.5)</b>	<b>11.3 (10.7, 12.0)</b>	<b>20.8 (19.9, 21.7)</b>	<b>26.0 (25.0, 27.1)</b>	<b>27.9 (26.6, 29.1)</b>
	≤32mm	255	2470	1.5 (1.1, 2.1)	3.4 (2.8, 4.2)	4.8 (4.0, 5.7)	7.6 (6.6, 8.7)	11.1 (9.8, 12.5)	13.0 (11.4, 14.8)
	>32mm	1749	6038	2.1 (1.7, 2.5)	7.0 (6.3, 7.6)	14.0 (13.2, 14.9)	26.3 (25.1, 27.4)	32.3 (31.0, 33.7)	
<b>TOTAL</b>		<b>4121</b>	<b>19565</b>						

**Figure MM4 Cumulative Percent Revision of Metal/Metal Primary Total Conventional Hip Replacement by Gender and Head Size (Primary Diagnosis OA)**



HR - adjusted for gender

**Male @32mm vs Male >32mm**  
 0 - 2Yr: HR=0.91 (0.71, 1.17), p=0.466  
 2Yr - 5Yr: HR=0.18 (0.13, 0.25), p<0.001  
 5Yr - 6Yr: HR=0.08 (0.03, 0.17), p<0.001  
 6Yr - 7.5Yr: HR=0.15 (0.08, 0.26), p<0.001  
 7.5Yr - 8.5Yr: HR=0.27 (0.15, 0.49), p<0.001  
 8.5Yr - 11.5Yr: HR=0.30 (0.21, 0.43), p<0.001  
 11.5Yr - 12Yr: HR=0.08 (0.01, 0.55), p=0.010  
 12Yr+: HR=0.44 (0.32, 0.62), p<0.001

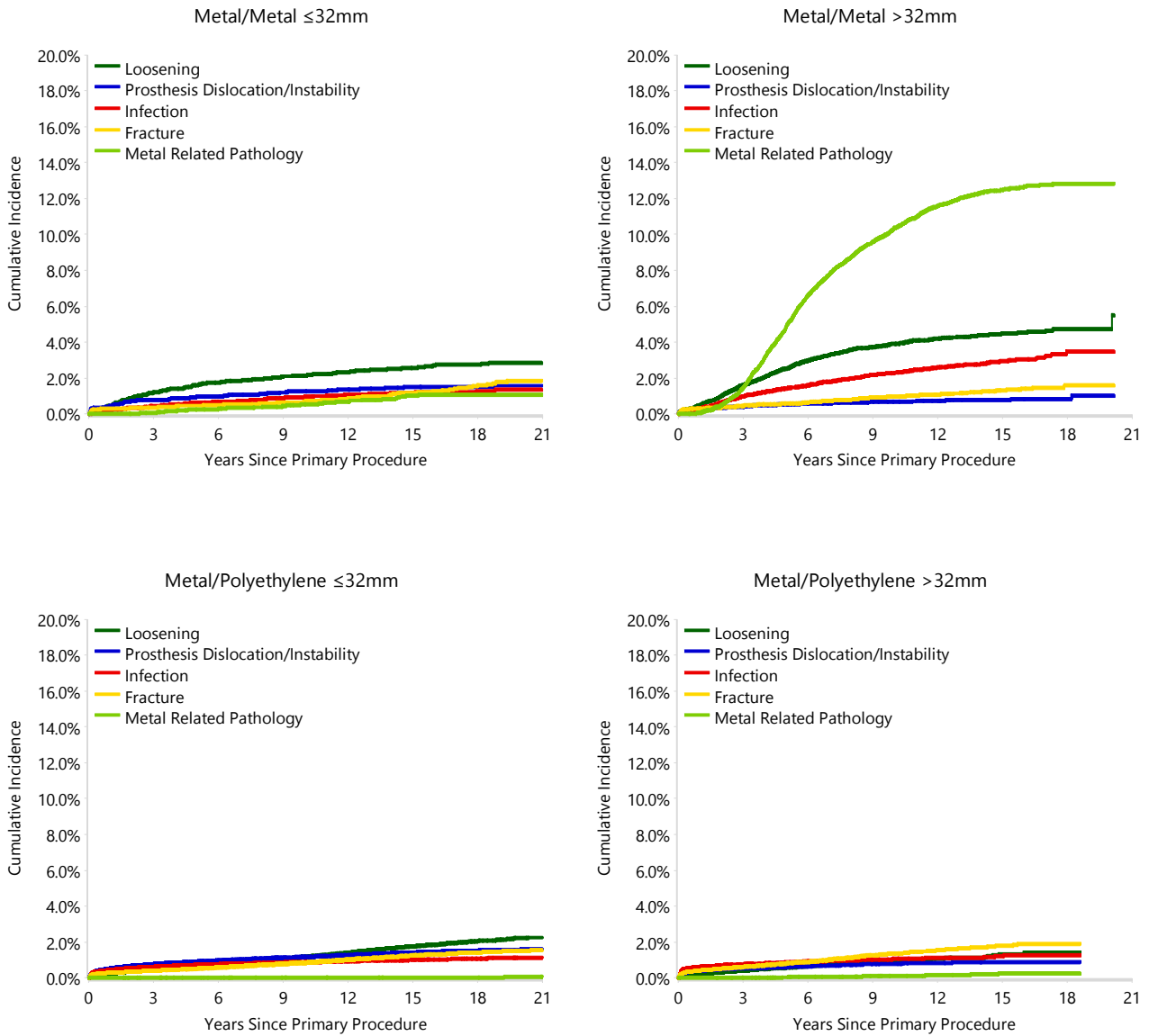
**Male @32mm vs Female @32mm**  
 Entire Period: HR=0.77 (0.64, 0.92), p=0.004

**Male >32mm vs Female >32mm**  
 Entire Period: HR=0.73 (0.68, 0.78), p<0.001

**Female @32mm vs Female >32mm**  
 0 - 2Yr: HR=0.71 (0.56, 0.89), p=0.002  
 2Yr - 2.5Yr: HR=0.34 (0.22, 0.52), p<0.001  
 2.5Yr - 3Yr: HR=0.22 (0.15, 0.34), p<0.001  
 3Yr - 6.5Yr: HR=0.15 (0.12, 0.19), p<0.001  
 6.5Yr - 7.5Yr: HR=0.08 (0.05, 0.16), p<0.001  
 7.5Yr - 8Yr: HR=0.31 (0.21, 0.45), p<0.001  
 8Yr - 9.5Yr: HR=0.32 (0.24, 0.41), p<0.001  
 9.5Yr - 11.5Yr: HR=0.35 (0.28, 0.46), p<0.001  
 11.5Yr+: HR=0.41 (0.32, 0.53), p<0.001

Number at Risk	0 Yr	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
<b>Male</b>	<b>11057</b>	<b>10790</b>	<b>10234</b>	<b>9477</b>	<b>7561</b>	<b>2872</b>	<b>249</b>
≤32mm	2673	2603	2498	2403	1988	1231	225
>32mm	8384	8187	7736	7074	5573	1641	24
<b>Female</b>	<b>8508</b>	<b>8292</b>	<b>7821</b>	<b>7156</b>	<b>5621</b>	<b>2364</b>	<b>185</b>
≤32mm	2470	2418	2342	2251	1914	1150	157
>32mm	6038	5874	5479	4905	3707	1214	28

**Figure MM5 Cumulative Incidence Revision Diagnosis of Metal/Metal and Metal/Polyethylene Primary Total Conventional Hip Replacement by Head Size (Primary Diagnosis OA)**



Note: Metal/Polyethylene includes both non cross-linked and cross-linked polyethylene

**Table MM7 Cumulative Percent Revision of Metal/Metal Primary Total Conventional Hip Replacement using Head Size ≤32mm by Head and Acetabular Surface (Primary Diagnosis OA)**

Head Surface	Acetabular Surface	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Articul/Eze	PINNACLE	12	105	1.0 (0.1, 6.6)	3.8 (1.5, 9.9)	4.8 (2.0, 11.2)	8.0 (4.1, 15.4)	14.1 (8.1, 23.9)	
Metamys	CBF Cup	9	84	0.0 (0.0, 0.0)	2.4 (0.6, 9.3)	3.6 (1.2, 10.8)	6.1 (2.6, 14.0)	10.4 (5.3, 19.8)	12.1 (6.4, 22.1)
Metasul	Armor	19	312	0.6 (0.2, 2.5)	1.6 (0.7, 3.8)	1.9 (0.9, 4.3)	2.7 (1.3, 5.3)	5.5 (3.3, 9.0)	7.7 (4.9, 11.9)
	Metasul	352	4014	1.6 (1.2, 2.0)	3.3 (2.8, 3.9)	4.5 (3.9, 5.2)	6.9 (6.1, 7.7)	9.4 (8.5, 10.5)	11.9 (10.5, 13.5)
S-Rom	S-Rom	4	129	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	1.6 (0.4, 6.2)	2.5 (0.8, 7.4)	3.4 (1.3, 8.9)
Stanmore	Ringloc	14	90	1.1 (0.2, 7.6)	4.5 (1.7, 11.5)	4.5 (1.7, 11.5)	10.4 (5.6, 19.1)	13.1 (7.4, 22.4)	
Taperloc	M2a	4	54	0.0 (0.0, 0.0)	1.9 (0.3, 12.4)	3.7 (0.9, 14.0)	5.7 (1.9, 16.6)	7.8 (3.0, 19.4)	7.8 (3.0, 19.4)
Transcend	Lineage	12	96	5.2 (2.2, 12.1)	6.4 (2.9, 13.6)	7.5 (3.6, 15.1)	8.7 (4.4, 16.6)	15.5 (8.9, 26.3)	15.5 (8.9, 26.3)
Other (31)		41	259	3.5 (1.8, 6.6)	5.8 (3.6, 9.5)	7.0 (4.5, 10.9)	11.7 (8.3, 16.4)	16.3 (12.1, 21.7)	
<b>TOTAL</b>		<b>467</b>	<b>5143</b>						

Note: Only prostheses with over 50 procedures have been listed

**Table MM8 Cumulative Percent Revision of Metal/Metal Primary Total Conventional Hip Replacement using Head Size >32mm by Head and Acetabular Surface (Primary Diagnosis OA)**

Head Surface	Acetabular Surface	N Revised	N Total	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
ASR	ASR	1866	3982	1.8 (1.4, 2.2)	9.8 (8.9, 10.7)	24.9 (23.5, 26.2)	45.3 (43.7, 46.9)	51.8 (50.1, 53.5)	
Articul/Eze	PINNACLE	204	1627	1.9 (1.3, 2.6)	3.0 (2.3, 4.0)	4.9 (3.9, 6.1)	10.6 (9.1, 12.2)	13.9 (12.1, 15.9)	
BHR	BHR	404	2223	1.0 (0.7, 1.5)	3.3 (2.6, 4.1)	6.2 (5.2, 7.3)	14.6 (13.1, 16.2)	21.3 (19.4, 23.3)	
	R3	134	535	2.3 (1.3, 3.9)	7.4 (5.5, 10.0)	11.7 (9.2, 14.8)	21.7 (18.4, 25.6)		
BMHR	BHR	41	279	1.8 (0.7, 4.3)	3.9 (2.2, 7.0)	5.7 (3.6, 9.2)	12.6 (9.2, 17.2)		
Bionik	Bionik	98	377	3.7 (2.2, 6.2)	8.1 (5.8, 11.4)	15.6 (12.2, 19.7)	25.3 (21.0, 30.2)	29.7 (25.0, 35.1)	
Icon	Icon	91	341	2.4 (1.2, 4.7)	7.2 (4.9, 10.6)	12.5 (9.4, 16.6)	24.3 (19.9, 29.5)	31.2 (26.0, 37.2)	
M2a	M2a	116	779	1.8 (1.1, 3.0)	4.3 (3.1, 6.0)	6.5 (5.0, 8.5)	11.4 (9.3, 13.9)	16.1 (13.6, 19.1)	
M2a Magnum	Recap	99	924	1.5 (0.9, 2.6)	2.5 (1.7, 3.8)	4.3 (3.2, 5.9)	8.5 (6.8, 10.5)	12.2 (10.0, 14.9)	
Metasul	Durom	180	1100	1.2 (0.7, 2.0)	3.9 (2.9, 5.2)	5.6 (4.4, 7.2)	13.3 (11.4, 15.6)	18.3 (16.0, 21.0)	
Mitch TRH	Mitch TRH	137	648	1.7 (0.9, 3.0)	5.1 (3.7, 7.1)	8.5 (6.6, 10.9)	16.2 (13.5, 19.4)		
Optimom	Cormet	125	701	1.4 (0.8, 2.6)	3.6 (2.4, 5.3)	5.1 (3.7, 7.0)	13.1 (10.7, 15.9)	22.8 (19.0, 27.2)	
S-Rom	PINNACLE	28	284	2.1 (1.0, 4.6)	3.5 (1.9, 6.5)	3.9 (2.2, 6.9)	7.4 (4.9, 11.3)	9.6 (6.6, 13.9)	
Other (23)		131	622	2.6 (1.6, 4.2)	6.4 (4.7, 8.6)	9.6 (7.5, 12.2)	16.4 (13.6, 19.7)	24.2 (20.5, 28.4)	28.2 (23.4, 33.8)
<b>TOTAL</b>		<b>3654</b>	<b>14422</b>						

Note: Only prostheses with over 200 procedures have been listed

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