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## Appendix

### Study design

#### Additional Information.

Surgeons who had a routine resurfacing preference used a patella component  $\geq 90\%$  of the time, and the patient cohort treated by those surgeons has been termed 'routinely resurfaced'. Surgeons who had a selective resurfacing preference used a patella between 10% and  $< 90\%$  of the time, and the patient cohort treated by those surgeons has been termed 'selectively resurfaced'.

Surgeons who had an infrequent preference to resurface the patella, used a patella  $< 10\%$  of the time, and the patient cohort treated by those surgeons has been termed 'infrequently resurfaced'.

Time to first revision was the principal outcome measure with revision being defined as any procedure that involves the insertion, removal and/or replacement of a prosthesis.

The AOANJRR defines MS prostheses as those that have a flat or dished tibial articulation regardless of congruency, hence this group includes cruciate retaining, ultracongruent polyethylene and medial pivot options.<sup>1</sup>

The AOANJRR commenced collection of patients' ASA Scores in 2012 and Body Mass Index in 2015, hence this data is only available for a subset of patients.

#### Statistical Analysis

Cumulative percent revision (CPR), defined as the complement of the Kaplan-Meier estimate of survivorship, was used to estimate the time to the first revision, with right censoring for death or closure of the database at the time of analysis.

95% confidence intervals (CI), were calculated using unadjusted point wise Greenwood estimates.

All tests were two-tailed at the 5% level of significance and p-values were not adjusted for multiple testing.

Hazard ratios (HR) were calculated using Cox proportional hazard models and adjusted for age and sex.

#### Ethics

The AOANJRR is approved by the Australian Federal Government as a Declaration of Quality Assurance Activity under section 124X of the Australian Federal Health Insurance Act, 1973. All investigations were conducted in accordance with ethical principles of research (the Helsinki Declaration II).

## Results

### Revision Diagnosis of Primary Total Knee Replacement by Surgeon Patella Usage (Primary Diagnosis OA)

Revision Diagnosis	Routinely Resurfacing			Selectively Resurfacing			Uncommonly Resurfacing		
	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Infection	309	0.7	37.9	425	0.5	25.1	73	0.5	19.9
Loosening	149	0.3	18.3	294	0.4	17.4	71	0.5	19.4
Patellofemoral Pain	31	0.1	3.8	227	0.3	13.4	55	0.4	15.0
Instability	102	0.2	12.5	162	0.2	9.6	43	0.3	11.7
Pain	60	0.1	7.4	146	0.2	8.6	30	0.2	8.2
Patella Erosion	12	0.0	1.5	144	0.2	8.5	38	0.3	10.4
Arthrofibrosis	30	0.1	3.7	66	0.1	3.9	14	0.1	3.8
Fracture	32	0.1	3.9	48	0.1	2.8	11	0.1	3.0
Malalignment	25	0.1	3.1	35	0.0	2.1	6	0.0	1.6
Incorrect Sizing	8	0.0	1.0	23	0.0	1.4	2	0.0	0.5
Lysis	8	0.0	1.0	20	0.0	1.2	3	0.0	0.8
Wear Tibial Insert	12	0.0	1.5	18	0.0	1.1	6	0.0	1.6
Patella Maltracking	5	0.0	0.6	15	0.0	0.9	3	0.0	0.8
Implant Breakage Patella	2	0.0	0.2	10	0.0	0.6	1	0.0	0.3
Prosthesis Dislocation	1	0.0	0.1	8	0.0	0.5			
Synovitis	1	0.0	0.1	8	0.0	0.5	2	0.0	0.5
Bearing Dislocation				7	0.0	0.4	2	0.0	0.5
Metal Related Pathology	4	0.0	0.5	6	0.0	0.4	2	0.0	0.5
Osteonecrosis	6	0.0	0.7	5	0.0	0.3	1	0.0	0.3
Implant Breakage Tibial Insert	2	0.0	0.2	3	0.0	0.2			
Implant Breakage Femoral				1	0.0	0.1			
Implant Breakage Tibial	1	0.0	0.1	1	0.0	0.1			
Wear Tibial				1	0.0	0.1			
Other	15	0.0	1.8	21	0.0	1.2	3	0.0	0.8
<b>N Revision</b>	<b>815</b>	<b>1.8</b>	<b>100.0</b>	<b>1694</b>	<b>2.2</b>	<b>100.0</b>	<b>366</b>	<b>2.5</b>	<b>100.0</b>
<b>N Primary</b>	<b>44195</b>			<b>77415</b>			<b>14506</b>		

### *References*

1. AOA National Joint Registry. Australian Orthopaedic Association National Joint Replacement Registry 2017 annual report. 2017.  
<https://aoanjrr.sahmri.com/documents/10180/397736/Hip%2C%20Knee%20%26%20Shoulder%20Arthroplasty>. Accessed 2019 Mar 6.