

*Demographics of
Shoulder, Elbow, Wrist, Ankle
and
Spinal Disc Arthroplasty*



**SUPPLEMENTARY REPORT
2008**

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DEMOGRAPHICS OF SHOULDER, ELBOW, WRIST, ANKLE AND SPINAL DISC ARTHROPLASTY

Introduction

Data presented in this report have been submitted to the Registry by both public and private hospitals. Currently this involves 292 hospitals nationally but varies from time to time due to hospital closures, new hospitals or changes to services within hospitals.

Most hospitals began providing data on these additional arthroplasty procedures on or after the official commencement date of the 15th November 2007. The Registry had approval to collect these additional arthroplasty procedures from a number of hospitals prior to the commencement date. These data have also been included. As a consequence there is variation in the starting date for these procedures.

The following table shows the reporting period for each type of joint replacement.

TYPE OF JOINT REPLACEMENT	START OF REPORTING PERIOD	END OF REPORTING PERIOD
Shoulder	16 th April 2004	30 th June 2008
Elbow	2 nd May 2005	30 th June 2008
Wrist	7 th July 2006	30 th June 2008
Ankle	28 th July 2006	30 th June 2008
Spinal Disc	19 th November 2007	30 th June 2008

Note: Procedures performed in 2008 have not been checked for mortality.

SHOULDER REPLACEMENT

Primary Partial Shoulder Replacement

- Partial Resurfacing ▪ Partial articular surface replacement
- Hemi Resurfacing ▪ Resurface humeral head
- Hemi Shoulder ▪ Replace humeral head

Primary Total Shoulder Replacement

- Total Resurfacing ▪ Resurface humeral head, replace glenoid
- Conventional Total Shoulder ▪ Replace humeral head and glenoid with a conventional ball/socket joint
- Reverse Total Shoulder ▪ Replace humeral head and glenoid with a reverse ball/socket joint

Revision Shoulder Procedure

- Exchange or removal of one or more components

Re-operation

- Re-operation without exchange or removal

Table SG1: Number of Shoulder Replacements by Gender

Type of Shoulder Replacement	Female		Male		Total	
	N	%	N	%	N	%
Partial Resurfacing	8	38.1	13	61.9	21	2.4
Hemi Resurfacing	110	48.7	116	51.3	226	26.3
Hemi Shoulder	463	75.7	149	24.3	612	71.2
Primary Partial Shoulder	581	67.6	278	32.4	859	100.0
Total Resurfacing	5	35.7	9	64.3	14	0.9
Conventional Total	557	61.7	346	38.3	903	59.1
Reverse Total	402	65.7	210	34.3	612	40.0
Primary Total Shoulder	964	63.0	565	37.0	1529	100.0
Revision Shoulder	167	63.5	96	36.5	263	100.0
Total	1712	64.6	939	35.4	2651	100.0

Table SG2: Number of Shoulder Replacements by Age

Type of Shoulder Replacement	<55		55-64		65-74		75-84		≥85		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Partial Resurfacing	12	57.1	2	9.5	3	14.3	4	19.0	.	.	21	2.4
Hemi Resurfacing	42	18.6	61	27.0	69	30.5	44	19.5	10	4.4	226	26.3
Hemi Shoulder	53	8.7	101	16.5	171	27.9	227	37.1	60	9.8	612	71.2
Primary Partial Shoulder	107	12.5	164	19.1	243	28.3	275	32.0	70	8.1	859	100.0
Total Resurfacing	2	14.3	4	28.6	6	42.9	2	14.3	.	.	14	0.9
Conventional Total	45	5.0	187	20.7	365	40.4	287	31.8	19	2.1	903	59.1
Reverse Total	7	1.1	54	8.8	199	32.5	297	48.5	55	9.0	612	40.0
Primary Total Shoulder	54	3.5	245	16.0	570	37.3	586	38.3	74	4.8	1529	100.0
Revision Shoulder	22	8.4	53	20.2	100	38.0	70	26.6	18	6.8	263	100.0
Total	183	6.9	462	17.4	913	34.4	931	35.1	162	6.1	2651	100.0

Figure SG1: Trends in Usage of Shoulder Replacement by State/Territory

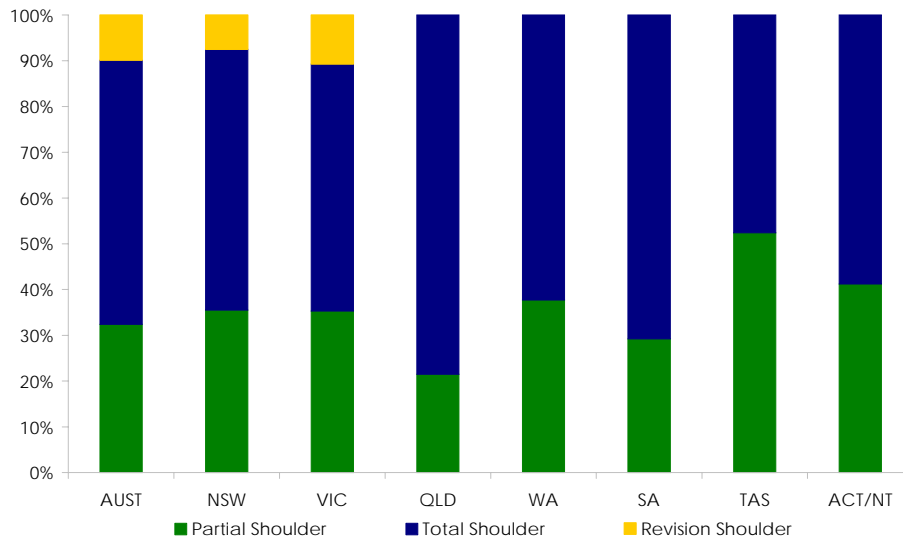


Table SG3: Time between Procedures for Bilateral Primary Shoulder Replacement

Bilateral Procedures	Same Day		6wks-6mths		6mths-3yrs		Total	
	N	%	N	%	N	%	N	%
Both Partial	2	6.5	3	9.7	2	6.5	7	22.6
Both Total	.	.	13	41.9	8	25.8	21	67.7
Total/Partial	.	.	1	3.2	2	6.5	3	9.7
Total	2	6.5	17	54.8	12	38.7	31	100.0

Table SG4: Number of Shoulder Replacements by Age

Gender	N	%	Min	Max	Med	Mean	SD
Female	1712	64.6	22	97	74	72.6	9.5
Male	939	35.4	20	93	69	67.8	11.0
Total	2651	100.0	20	97	72	70.9	10.3

Figure SG2: Age and Sex - Shoulder Replacement

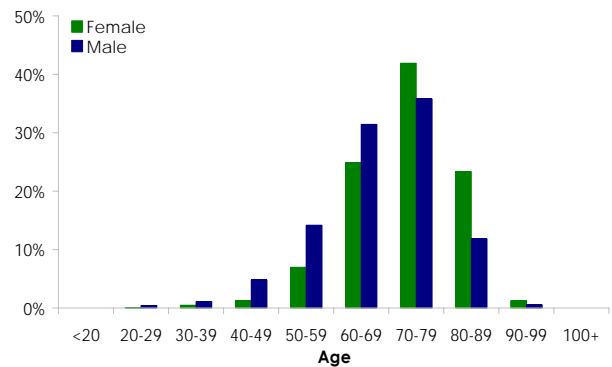


Table SG5: Primary Shoulder Replacement requiring Revision

Type of Shoulder Replacement	Number Revised	Total Number	Observed Component Years	Revisions per 100 Observed Component Years	Exact 95 CI
Partial Resurfacing	0	21	20	0.0	(0.00, 18.67)
Hemi Resurfacing	0	226	281	0.0	(0.00, 1.31)
Hemi Shoulder	10	612	710	1.4	(0.68, 2.59)
Primary Partial Shoulder	10	859	1011	1.0	(0.47, 1.82)
Total Resurfacing	1	14	22	4.5	(0.11, 25.30)
Conventional Total	8	903	1107	0.7	(0.31, 1.42)
Reverse Total Shoulder	15	612	711	2.1	(1.18, 3.48)
Primary Total Shoulder	24	1529	1840	1.3	(0.84, 1.94)
Total	34	2388	2850	1.2	(0.83, 1.67)

Table SG6: Yearly Cumulative Percent Revision of Primary Shoulder Replacement

CPR	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Partial Resurfacing	0				
Hemi Resurfacing	0				
Hemi Shoulder	1.4 (0.7, 2.9)				
Primary Partial Shoulder	1.0 (0.5, 2.1)				
Total Resurfacing	7.1 (1.0, 40.9)				
Conventional Total	1.0 (0.5, 2.0)				
Reverse Total Shoulder	2.5 (1.5, 4.1)				
Primary Total Shoulder	1.7 (1.1, 2.5)				

Primary Partial Shoulder Replacement

Table SG7: Primary Partial Shoulder Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	581	67.6	22	97	74	72.3	11.0
Male	278	32.4	20	87	64	63.3	13.4
Total	859	100.0	20	97	71	69.4	12.5

Table SG8: Principal Diagnosis of Primary Partial Shoulder Replacement

Principal Diagnosis	N	%
Osteoarthritis	408	47.5
Fracture and/or Dislocation	350	40.7
Rotator Cuff Arthropathy	29	3.4
Avascular Necrosis	27	3.1
Rheumatoid Arthritis	18	2.1
Tumour	7	0.8
Other Inflammatory Arthritis	5	0.6
Post Traumatic Arthritis	4	0.5
Instability	2	0.2
Other	9	1.0
Total	859	100.0

Table SG9: Revision Diagnosis of Known Primary Partial Shoulder Replacement

Revision Diagnosis	N	%
Instability	4	36.4
Dislocation of Prosthesis	2	18.2
Loosening	2	18.2
Other	3	27.3
Total	11	100.0

Note: Some patients have multiple diagnoses

Primary Partial Resurfacing Shoulder Replacement

Table SG10: Primary Partial Resurfacing Shoulder Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	8	38.1	46	82	72	68.6	11.4
Male	13	61.9	20	69	47	44.5	13.9
Total	21	100.0	20	82	54	53.7	17.5

Table SG11: Principal Diagnosis

Principal Diagnosis	N	%
Osteoarthritis	14	66.7
Fracture and/or Dislocation	2	9.5
Other	5	23.8
Total	21	100.0

Primary Hemi Resurfacing Shoulder Replacement

Table SG12: Primary Hemi Resurfacing Shoulder Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	110	48.7	31	93	70	69.3	10.9
Male	116	51.3	29	86	61	61.0	12.2
Total	226	100.0	29	93	66	65.0	12.3

Table SG13: Humeral Component Used

Rank	Humeral Head	N
1	Copeland	113
2	Global CAP	65
3	SMR	32
4	Epoca RH	14
5	Aequalis	1
6	Buechel-Pappas	1
Top 10 Usage		100.0%
Total Procedures		226
N Prosthesis Types		6

Table SG14: Principal Diagnosis

Principal Diagnosis	N	%
Osteoarthritis	203	89.8
Rotator Cuff Arthropathy	9	4.0
Avascular Necrosis	4	1.8
Rheumatoid Arthritis	3	1.3
Other Inflammatory Arthritis	2	0.9
Fracture and/or Dislocation	2	0.9
Post Traumatic Arthritis	1	0.4
Instability	1	0.4
Other	1	0.4
Total	226	100.0

Primary Hemi Shoulder Replacement

Table SG15: Primary Hemi Shoulder Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	463	75.7	22	97	75	73.1	10.8
Male	149	24.3	30	87	68	66.6	12.6
Total	612	100.0	22	97	74	71.5	11.6

Table SG16: Humeral Component Used

Rank	Humeral Stem	N
1	SMR	183
2	Global FX	142
3	Global Advantage	118
4	Aequalis	69
5	Bigliani/Flatow	33
6	Solar	20
7	Bio-Modular	11
8	Comprehensive SS	9
9	Trabecular Metal	7
10	Univers 3D	6
Top 10 Usage		97.7%
Total Procedures		612
N Prosthesis Types		18

Table SG17: Principal Diagnosis

Principal Diagnosis	N	%
Fracture and/or Dislocation	346	56.5
Osteoarthritis	191	31.2
Avascular Necrosis	23	3.8
Rotator Cuff Arthropathy	20	3.3
Rheumatoid Arthritis	15	2.5
Tumour	7	1.1
Other Inflammatory Arthritis	3	0.5
Post Traumatic Arthritis	3	0.5
Instability	1	0.2
Other	3	0.5
Total	612	100.0

Table SG18: Revision Diagnosis of Known Primary Hemi Shoulder Replacement

Revision Diagnosis	N	%
Instability	4	36.4
Dislocation of Prosthesis	2	18.2
Loosening	2	18.2
Other	3	27.3
Total	11	100.0

Note: Some patients have multiple diagnoses

Primary Total Shoulder Replacement

Table SG19: Primary Total Shoulder Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	964	63.0	36	94	74	73.2	8.1
Male	565	37.0	35	93	71	69.9	9.1
Total	1529	100.0	35	94	73	72.0	8.6

Table SG20: Principal Diagnosis of Primary Total Shoulder Replacement

Principal Diagnosis	N	%
Osteoarthritis	1214	79.4
Rotator Cuff Arthropathy	147	9.6
Fracture and/or Dislocation	78	5.1
Rheumatoid Arthritis	39	2.6
Avascular Necrosis	21	1.4
Other Inflammatory Arthritis	10	0.7
Instability	8	0.5
Tumour	3	0.2
Post Traumatic Arthritis	3	0.2
Other	6	0.4
Total	1529	100.0

Table SG21: Revision Diagnosis of Known Primary Total Shoulder Replacement

Revision Diagnosis	N	%
Dislocation of Prosthesis	11	36.7
Loosening	7	23.3
Instability	6	20.0
Fracture	3	10.0
Implant Breakage Glenoid	1	3.3
Lysis	1	3.3
Infection	1	3.3
Total	30	100.0

Note: Some patients have multiple diagnoses

Primary Total Resurfacing Shoulder Replacement

Table SG22: Primary Total Resurfacing Shoulder Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	5	35.7	62	79	70	69.8	7.0
Male	9	64.3	53	75	65	63.7	7.2
Total	14	100.0	53	79	66	65.9	7.5

Table SG23: Humeral/Glenoid Components Used

Rank	Humeral/Glenoid	N
1	SMR/SMR	5
2	Global CAP/Global	4
3	Copeland/Bio-Modular	2
4	Copeland/Copeland	1
5	Copeland/Univers 3D	1
6	Epoca RH/Epoca	1
Top 10 Usage		100.0%
Total Procedures		14
N Prosthesis Types		6

Table SG24: Principal Diagnosis

Principal Diagnosis	N	%
Osteoarthritis	13	92.9
Other Inflammatory Arthritis	1	7.1
Total	14	100.0

Table SG25: Revision Diagnosis of Known Primary Total Resurfacing Shoulder Replacement

Revision Diagnosis	N	%
Loosening	1	100.0
Total	1	100.0

Primary Conventional Total Shoulder Replacement

Table SG26: Primary Conventional Total Shoulder Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	557	61.7	37	92	72	71.8	8.1
Male	346	38.3	35	89	68	67.5	8.9
Total	903	100.0	35	92	71	70.2	8.6

Table SG27: Humeral/Glenoid Components Used

Rank	Humeral/Glenoid	N
1	SMR/SMR	300
2	Global Advantage/Global	234
3	Aequalis/Aequalis	130
4	Bigliani/Flatow/Bigliani/Flatow	84
5	Solar/Solar	34
6	Affinis/Affinis	30
7	Univers 3D/Univers 3D	29
8	Global AP/Global	22
9	Trabecular Metal/Bigliani/Flatow	12
10	Bio-Modular/Bio-Modular	7
Top 10 Usage		97.7%
Total Procedures		903
N Prosthesis Types		17

Table SG28: Principal Diagnosis

Principal Diagnosis	N	%
Osteoarthritis	849	94.0
Rheumatoid Arthritis	18	2.0
Avascular Necrosis	12	1.3
Fracture and/or Dislocation	11	1.2
Other Inflammatory Arthritis	5	0.6
Rotator Cuff Arthropathy	3	0.3
Post Traumatic Arthritis	2	0.2
Instability	1	0.1
Tumour	1	0.1
Other	1	0.1
Total	903	100.0

Table SG29: Revision Diagnosis of Known Primary Conventional Total Shoulder Replacement

Revision Diagnosis	N	%
Instability	4	40.0
Dislocation of Prosthesis	4	40.0
Loosening	2	20.0
Total	10	100.0

Note: Some patients have multiple diagnoses

Primary Reverse Total Shoulder Replacement

Table SG30: Primary Reverse Total Shoulder Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	402	65.7	36	94	76	75.2	7.8
Male	210	34.3	46	93	75	74.1	7.8
Total	612	100.0	36	94	76	74.8	7.8

Table SG31: Humeral/Glenoid Components Used

Rank	Humeral/Glenoid	N
1	SMR/SMR	247
2	Delta Xtend/Delta Xtend	171
3	Delta CTA/Delta CTA	75
4	Aequalis/Aequalis	71
5	Trabecular Metal/Trabecular Metal	45
6	Custom Made (Lima)/SMR	1
7	Generic Humeral Stem/SMR	1
8	SMR/Generic Glenosphere	1
Top 10 Usage		100.0%
Total Procedures		612
N Prosthesis Types		8

Table SG32: Principal Diagnosis

Principal Diagnosis	N	%
Osteoarthritis	352	57.5
Rotator Cuff Arthropathy	144	23.5
Fracture and/or Dislocation	67	10.9
Rheumatoid Arthritis	21	3.4
Avascular Necrosis	9	1.5
Instability	7	1.1
Other Inflammatory Arthritis	4	0.7
Tumour	2	0.3
Post Traumatic Arthritis	1	0.2
Other	5	0.8
Total	612	100.0

Table SG33: Revision Diagnosis of Known Primary Reverse Total Shoulder Replacement

Revision Diagnosis	N	%
Dislocation of Prosthesis	7	36.8
Loosening	4	21.1
Fracture	3	15.8
Instability	2	10.5
Implant Breakage Glenoid	1	5.3
Lysis	1	5.3
Infection	1	5.3
Total	19	100.0

Note: Some patients have multiple diagnoses

Revision Shoulder Procedures

Table SG34: All Revision Shoulder Procedures by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	167	63.5	36	93	71	70.4	11.0
Male	96	36.5	42	91	69	68.5	10.1
Total	263	100.0	36	93	70	69.7	10.7

Table SG35: Revision Diagnosis of All Revision Shoulder Procedures

Revision Diagnosis	N	%
Loosening	89	28.7
Instability	49	15.8
Dislocation of Prosthesis	48	15.5
Infection	24	7.7
Fracture	19	6.1
Rotator Cuff Arthropathy	18	5.8
Pain	16	5.2
Lysis	9	2.9
Glenoid Erosion	7	2.3
Wear Glenoid	5	1.6
Implant Breakage Glenoid	3	1.0
Implant Breakage Humeral	2	0.6
Progression of Disease	2	0.6
Avascular Necrosis	1	0.3
Heterotopic Bone	1	0.3
Incorrect Sizing	1	0.3
Other	16	5.2
Total	310	100.0

Note: Some patients have multiple diagnoses

ELBOW REPLACEMENT

Primary Partial Elbow Replacement

- Distal Humerus ▪ Replacement of distal humerus only
- Radial Head ▪ Replacement of radial head only

Primary Total Elbow Replacement

- Total Elbow without Radial Head ▪ Replacement of humerus and proximal ulna
- Total Elbow with Radial Head ▪ Replacement of distal humerus, proximal ulna and radial head

Revision Elbow Procedures

- Exchange or removal of one or more components

Table EG1: Number of Elbow Replacements by Gender

Type of Elbow Replacement	Female		Male		Total	
	N	%	N	%	N	%
Distal Humerus	6	100.0	.	.	6	10.9
Radial Head	26	53.1	23	46.9	49	89.1
Primary Partial Elbow	32	58.2	23	41.8	55	100.0
Total Elbow without Radial Head	44	71.0	18	29.0	62	87.3
Total Elbow with Radial Head	6	66.7	3	33.3	9	12.7
Primary Total Elbow	50	70.4	21	29.6	71	100.0
Revision Elbow	17	63.0	10	37.0	27	100.0
Total	99	64.7	54	35.3	153	100.0

Table EG2: Number of Elbow Replacements by Age

Type of Elbow Replacement	<55		55-64		65-74		75-84		≥85		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Distal Humerus	.	.	5	83.3	.	.	.	.	1	16.7	6	10.9
Radial Head	28	57.1	9	18.4	9	18.4	3	6.1	.	.	49	89.1
Primary Partial Elbow	28	50.9	14	25.5	9	16.4	3	5.5	1	1.8	55	100.0
Total Elbow without Radial Head	9	14.5	14	22.6	20	32.3	15	24.2	4	6.5	62	87.3
Total Elbow with Radial Head	1	11.1	3	33.3	2	22.2	3	33.3	.	.	9	12.7
Primary Total Elbow	10	14.1	17	23.9	22	31.0	18	25.4	4	5.6	71	100.0
Revision Elbow	4	14.8	7	25.9	9	33.3	7	25.9	.	.	27	100.0
Total	42	27.5	38	24.8	40	26.1	28	18.3	5	3.3	153	100.0

Figure EG1: Elbow Replacement by State/Territory

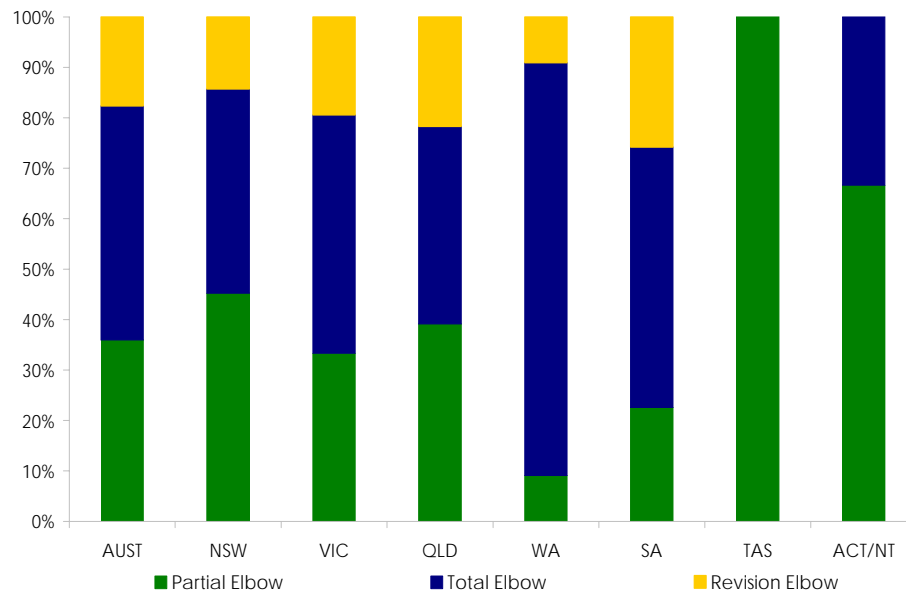


Table EG3: Number of Elbow Replacements by Age

Gender	N	%	Min	Max	Med	Mean	SD
Female	99	64.7	21	92	65	64.5	13.5
Male	54	35.3	18	83	57	55.0	17.5
Total	153	100.0	18	92	64	61.1	15.7

Figure EG2: Age and Sex - Elbow Replacement

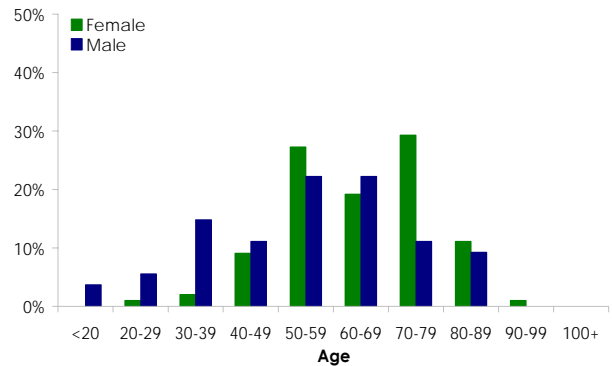


Table EG4: Primary Elbow Replacement requiring Revision

Type of Elbow Replacement	Number Revised	Total Number	Observed Component Years	Revisions per 100 Observed Component Years	Exact 95% CI
Radial Head	0	49	53	0.0	(0.00, 7.01)
Distal Humerus	0	6	7	0.0	(0.00, 54.39)
Total Elbow without Radial Head	1	62	78	1.3	(0.03, 7.13)
Total Elbow with Radial Head	0	9	10	0.0	(0.00, 36.80)
Total	1	126	148	0.7	(0.02, 3.78)

Primary Partial Elbow Replacement

Table EG5: Primary Partial Elbow Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	32	58.2	32	86	57	58.9	12.9
Male	23	41.8	18	82	39	42.4	16.5
Total	55	100.0	18	86	53	52.0	16.6

Table EG6: Principal Diagnosis for Primary Partial Elbow Replacement

Principal Diagnosis	N	%
Fracture and/or Dislocation	50	90.9
Osteoarthritis	4	7.3
Other	1	1.8
Total	55	100.0

Primary Radial Head Replacement

Table EG7: Primary Radial Head Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	26	53.1	32	78	56	57.7	13.2
Male	23	46.9	18	82	39	42.4	16.5
Total	49	100.0	18	82	52	50.5	16.6

Table EG8: Radial Components Used

Rank	Radial Head/Stem	N
1	Evolve	20
2	Radial Comp (Ascnsn)	13
3	RHS	4
4	rHead	4
5	Anatomic	3
6	MOPYC	3
7	ExploR	2
Top 10 Usage		100.0%
Total Procedures		49
N Prosthesis Types		7

Table EG9: Principal Diagnosis

Principal Diagnosis	N	%
Fracture and/or Dislocation	45	91.8
Osteoarthritis	4	8.2
Total	49	100.0

Primary Distal Humerus Replacement

Table EG10: Primary Distal Humerus Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	6	100.0	57	86	61	64.3	10.9
Total	6	100.0	57	86	61	64.3	10.9

Table EG11: Humeral Component Used

Rank	Humeral	N
1	Latitude	6
Top 10 Usage		100.0%
Total Procedures		6
N Prosthesis Types		1

Table EG12: Principal Diagnosis

Principal Diagnosis	N	%
Fracture and/or Dislocation	5	83.3
Other	1	16.7
Total	6	100.0

Primary Total Elbow Replacement

Table EG13: Primary Total Elbow Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	50	70.4	41	92	68	67.9	12.2
Male	21	29.6	38	83	66	63.7	12.0
Total	71	100.0	38	92	67	66.6	12.2

Table EG14: Principal Diagnosis for Primary Total Elbow Replacement

Principal Diagnosis	N	%
Rheumatoid Arthritis	28	39.4
Osteoarthritis	23	32.4
Fracture and/or Dislocation	15	21.1
Other Inflammatory Arthritis	1	1.4
Avascular Necrosis	1	1.4
Other	3	4.2
Total	71	100.0

Table EG15: Revision Diagnosis for Known Primary Total Elbow Replacement

Revision Diagnosis	N	%
Infection	1	100.0
Total	1	100.0

Primary Total Elbow Replacement without Radial Head

Table EG16: Primary Total Elbow Replacement without Radial Head by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	44	71.0	41	92	70	68.6	12.5
Male	18	29.0	38	82	62	62.1	11.4
Total	62	100.0	38	92	67	66.7	12.5

Table EG17: Humeral/Ulna Components Used

Rank	Humeral/Ulna	N
1	Coonrad/Morrey	40
2	Discovery	11
2	Latitude	11
Top 10 Usage		100.0%
Total Procedures		62
N Prosthesis Types		3

Table EG18: Principal Diagnosis

Principal Diagnosis	N	%
Rheumatoid Arthritis	23	37.1
Osteoarthritis	20	32.3
Fracture and/or Dislocation	14	22.6
Other Inflammatory Arthritis	1	1.6
Avascular Necrosis	1	1.6
Other	3	4.8
Total	62	100.0

Table EG19: Revision Diagnosis for Known Primary Total Elbow Replacement without Radial Head

Revision Diagnosis	N	%
Infection	1	100.0
Total	1	100.0

Primary Total Elbow Replacement with Radial Head

Table EG20: Primary Total Elbow Replacement with Radial Head by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	6	66.7	53	78	62	62.8	9.4
Male	3	33.3	58	83	79	73.3	13.4
Total	9	100.0	53	83	65	66.3	11.3

Table EG21: Humeral/Ulna/Radial Components Used

Rank	Humeral/Ulna/Radial	N
1	Latitude	9
Top 10 Usage		100.0%
Total Procedures		9
N Prosthesis Types		1

Table EG22: Principal Diagnosis

Principal Diagnosis	N	%
Rheumatoid Arthritis	5	55.6
Osteoarthritis	3	33.3
Fracture and/or Dislocation	1	11.1
Total	9	100.0

Revision Elbow Procedures

Table EG23: Revision Elbow Procedures by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	17	63.0	21	83	71	64.8	15.1
Male	10	37.0	47	81	66	65.6	11.0
Total	27	100.0	21	83	66	65.1	13.5

Table EG24: Revision Diagnosis for All Elbow Procedures

Revision Diagnosis	N	%
Loosening	10	34.5
Infection	6	20.7
Fracture	2	6.9
Implant Breakage Elbow	2	6.9
Dislocation of Prosthesis	2	6.9
Polyethelyene Wear	2	6.9
Implant Breakage Humeral	2	6.9
Heterotopic Bone	1	3.4
Malposition	1	3.4
Lysis	1	3.4
Total	29	100.0

Note: Some patients have multiple diagnoses

WRIST REPLACEMENT

Primary Partial Wrist Replacement

- Distal Ulna ▪ Replace Distal Ulna only

Primary Total Wrist Replacement

- Total Wrist ▪ Replace Carpus and Distal Radius

Revision Wrist Procedure

- Exchange or removal of one or more components and fusion

Table WG1: Number of Wrist Replacements by Gender

Type of Wrist Replacement	Female		Male		Total	
	N	%	N	%	N	%
Primary Distal Ulna	3	50.0	3	50.0	6	40.0
Primary Total Wrist	5	62.5	3	37.5	8	53.3
Revision Wrist	1	100.0	.	.	1	6.7
Total	9	60.0	6	40.0	15	100.0

Table WG2: Number of Wrist Replacements by Age

Type of Wrist Replacement	<55		55-64		65-74		75-84		≥85		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Primary Distal Ulna	2	33.3	2	33.3	2	33.3	.	.	.	.	6	40.0
Primary Total Wrist	4	50.0	2	25.0	1	12.5	1	12.5	.	.	8	53.3
Revision Wrist	.	.	1	100.0	.	.	.	.	.	.	1	6.7
Total	6	40.0	5	33.3	3	20.0	1	6.7	.	.	15	100.0

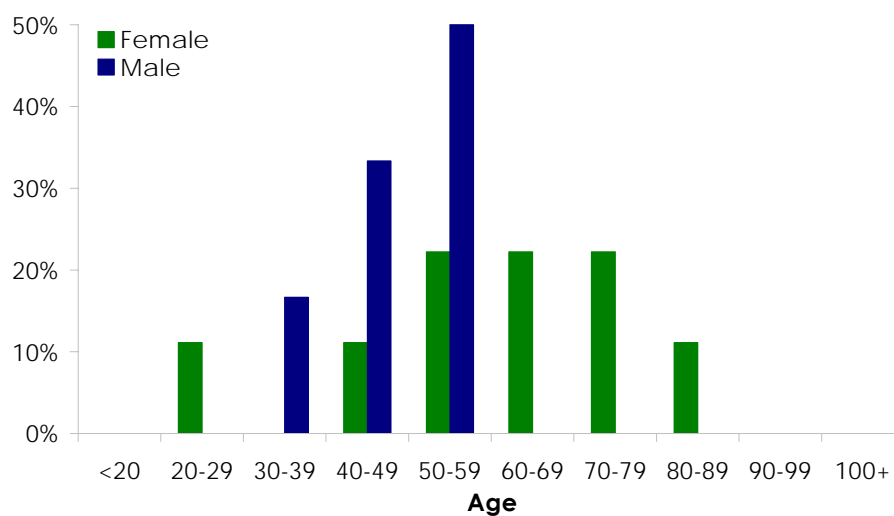
Table WG3: Primary Wrist Replacement requiring Revision

Type of Wrist Replacement	Number Revised	Total Number	Observed Component Years	Revisions per 100 Observed Component Years	Exact 95% CI
Primary Distal Ulna	0	6	6	0.0	(0.00, 64.01)
Primary Total Wrist	0	8	9	0.0	(0.00, 40.42)
Total	0	14	15	0.0	(0.00, 24.78)

Table WG4: Number of Wrist Replacements by Age

Gender	N	%	Min	Max	Med	Mean	SD
Female	9	60.0	22	80	64	59.9	17.8
Male	6	40.0	36	59	52	50.5	8.6
Total	15	100.0	22	80	57	56.1	15.1

Figure WG1: Age and Sex - Wrist Replacement



Primary Distal Ulna Wrist Replacement

Table WG5: Primary Distal Ulna Wrist Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	3	50.0	46	74	66	62.0	14.4
Male	3	50.0	36	59	56	50.3	12.5
Total	6	100.0	36	74	58	56.2	13.7

Table WG6: Ulna Component Used

Rank	Ulna Stem	N
1	uHead	3
2	Herbert UHP	2
3	Eclipse	1
Top 10 Usage		100.0%
Total Procedures		6
N Prosthesis Types		3

Table WG7: Principal Diagnosis

Principal Diagnosis	N	%
Osteoarthritis	2	33.3
Fracture and/or Dislocation	2	33.3
Rheumatoid Arthritis	2	33.3
Total	6	100.0

Primary Total Wrist Replacement

Table WG8: Primary Total Wrist Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	5	62.5	22	80	59	57.8	22.7
Male	3	37.5	47	57	48	50.7	5.5
Total	8	100.0	22	80	56	55.1	17.8

Table WG9: Carpal/Radial Components Used

Rank	Carpal/Radial	N
1	Universal 2	5
2	Re-Motion	3
Top 10 Usage		100.0%
Total Procedures		8
N Prosthesis Types		2

Table WG10: Principal Diagnosis

Principal Diagnosis	N	%
Rheumatoid Arthritis	5	62.5
Osteoarthritis	3	37.5
Total	8	100.0

Revision Wrist Procedures

Table WG11: Revision Wrist Procedures by Age and Gender

Gender	N	%	Min	Max	Med	Mean
Female	1	100.0	64	64	64	64.0
Total	1	100.0	64	64	64	64.0

Table WG12: Diagnosis Revision Wrist Procedures

Diagnosis	N	%
Contracture	1	100.0
Total	1	100.0

ANKLE REPLACEMENT

Primary Partial Ankle Replacement

- Partial Resurfacing
 - Partial articular surface replacement

Primary Total Ankle Replacement

- Total Ankle
 - Replace Talar and Distal Tibial articular surfaces

Revision Ankle Procedure

- Exchange or removal of one or more components

Table AG1: Number of Ankle Replacements by Gender

Type of Ankle Replacement	Female		Male		Total	
	N	%	N	%	N	%
Primary Partial Resurfacing	1	100.0	.	.	1	0.7
Primary Total Ankle	48	37.8	79	62.2	127	92.0
Revision Ankle	3	30.0	7	70.0	10	7.2
Total	52	37.7	86	62.3	138	100.0

Table AG2: Number of Ankle Replacements by Age

Type of Ankle Replacement	<55		55-64		65-74		75-84		≥85		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Primary Partial Resurfacing	.	.	1	100.0	.	.	.	.	.	.	1	0.7
Primary Total Ankle	15	11.8	42	33.1	44	34.6	25	19.7	1	0.8	127	92.0
Revision Ankle	1	10.0	1	10.0	6	60.0	2	20.0	.	.	10	7.2
Total	16	11.6	44	31.9	50	36.2	27	19.6	1	0.7	138	100.0

Figure AG1: Trends in Usage of Ankle Replacement by State/Territory

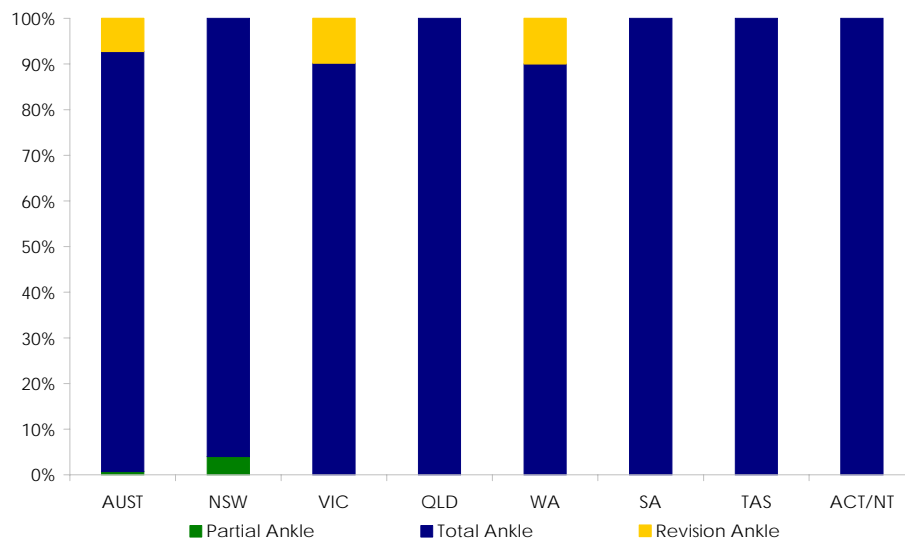


Table AG3: Primary Ankle Replacement requiring Revision

Type of Ankle Replacement	Number Revised	Total Number	Observed Component Years	Revisions per 100 Observed Component Years	Exact 95% CI
Primary Partial Resurfacing	0	1	1	0.0	(0.00, 508.4)
Primary Total Ankle	1	127	134	0.7	(0.02, 4.16)
Total	1	128	135	0.7	(0.02, 4.13)

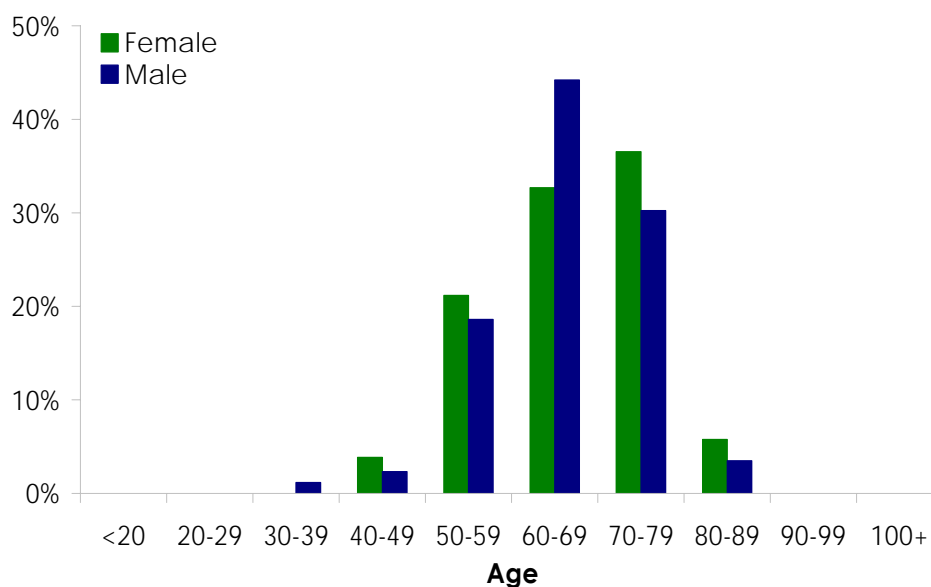
Table AG4: Yearly Cumulative Percent Revision of Primary Ankle Replacement

CPR	1 Yr	2 Yrs	3 Yrs	5 Yrs	7 Yrs
Primary Total Ankle	0.8 (0.1, 5.5)				

Table AG5: Number of Ankle Replacements by Age

Gender	N	%	Min	Max	Med	Mean	SD
Female	52	37.7	44	85	66	65.9	9.9
Male	86	62.3	35	84	66	65.8	8.8
Total	138	100.0	35	85	66	65.9	9.2

Figure AG2: Age and Sex - Ankle Replacement



Primary Partial Resurfacing Ankle Replacement

Table AG6: Primary Partial Resurfacing Ankle Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean
Female	1	100.0	57	57	57	57.0
Total	1	100.0	57	57	57	57.0

Table AG7: Principal Diagnosis

Principal Diagnosis	N	%
Osteochondritis Dissecans	1	100.0
Total	1	100.0

Primary Total Ankle Replacement

Table AG8: Primary Total Ankle Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	48	37.8	44	85	67	66.4	9.7
Male	79	62.2	35	84	65	65.4	9.0
Total	127	100.0	35	85	66	65.8	9.3

Table AG9: Talar/Tray Components Used

Rank	Talar/Tray Components	N
1	Mobility	78
2	Buechel-Pappas	27
3	Hintegra	15
4	Salto	3
5	Agility	2
6	Ankle Joint (Eska)	1
7	S.T.A.R	1
Top 10 Usage		100.0%
Total Procedures		127
N Prosthesis Types		7

Table AG10: Principal Diagnosis

Principal Diagnosis	N	%
Osteoarthritis	112	88.2
Rheumatoid Arthritis	11	8.7
Post Traumatic Arthritis	2	1.6
Other	2	1.6
Total	127	100.0

Table AG11: Revision Diagnosis for Known Primary Total Ankle Replacement

Revision Diagnosis	N	%
Infection	1	100.0
Total	1	100.0

Revision Ankle Procedures

Table AG12: Revision Ankle Procedures by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	3	30.0	51	76	55	60.7	13.4
Male	7	70.0	65	75	69	70.1	4.1
Total	10	100.0	51	76	68	67.3	8.5

Table AG13: Revision Diagnosis for All Ankle Replacement

Revision Diagnosis	N	%
Loosening	3	25.0
Soft Tissue Impingement	2	16.7
Arthrofibrosis	1	8.3
Instability	1	8.3
Lysis	1	8.3
Infection	1	8.3
Bone Impingement	1	8.3
Pain	1	8.3
Bone Cyst	1	8.3
Total	12	100.0

Note Some patients have multiple diagnoses

SPINAL DISC REPLACEMENT

Primary Spinal Disc Replacement

- Replacement of spinal disc and adjacent end plates in either the Cervical, Thoracic or Lumbar Region

Revision Spinal Disc Replacement

- Exchange or removal of one or more components

Post Spinal Disc Replacement Fusion

- Fusion of level inclusion of previous disc replacement with or without Exchange or removal of one or more components

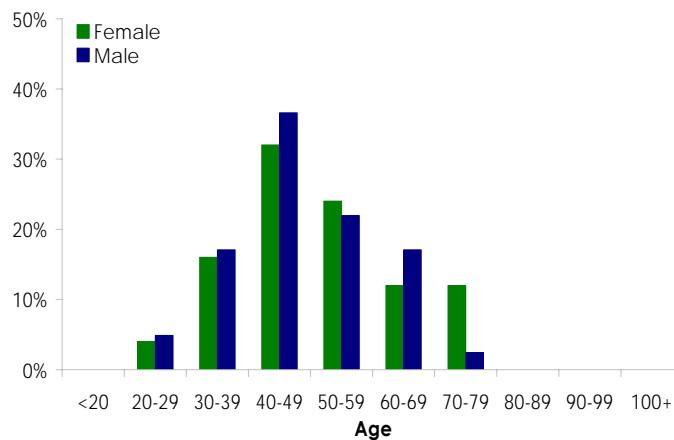
Table SDG1: Number of Spinal Disc Replacement by Gender

Type of Spinal Disc Replacement	Female		Male		Total	
	N	%	N	%	N	%
Primary Spine	25	37.9	41	62.1	66	100.0
Total	25	37.9	41	62.1	66	100.0

Table SDG2: Number of Spinal Disc Replacement by Age

Type of Spinal Disc Replacement	<55		55-64		65-74		75-84		≥85		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Primary Spinal Disc	49	74.2	8	12.1	7	10.6	2	3.0	.	.	66	100.0
Total	49	74.2	8	12.1	7	10.6	2	3.0	.	.	66	100.0

Figure SDG2: Age and Sex - Spinal Disc Replacement



Primary Spinal Disc Replacement

Table SDG3: Primary Spinal Disc Replacement by Age and Gender

Gender	N	%	Min	Max	Med	Mean	SD
Female	25	37.9	26	77	49	50.9	13.4
Male	41	62.1	22	78	49	48.1	12.1
Total	66	100.0	22	78	49	49.2	12.6

Table SDG4: Principal Diagnosis for Primary Spinal Disc Replacement

Principal Diagnosis	N	%
Disc Disease With Radiculopathy	28	42.4
Disc Disease Without Radiculopathy	11	16.7
Spondylolisthesis	8	12.1
Post Laminectomy or Discectomy	6	9.1
Pain of Unknown Cause	4	6.1
Adjacent To Concurrent Fusion	2	3.0
Discogenic Pain	1	1.5
Tumour	1	1.5
Adjacent Segment Syndrome	1	1.5
Other	4	6.1
Total	66	100.0