

Australian Orthopaedic Association National Joint Replacement Registry

2023 SUPPLEMENTARY REPORT

Demographics of Hip, Knee and Shoulder Arthroplasty



AOA
AUSTRALIAN
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Australian
Orthopaedic
Association
National
Joint
Replacement
Registry

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Registry**

**Demographics of Hip, Knee and Shoulder
Arthroplasty
2023 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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National Joint Replacement Registry

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Shoulder Arthroplasty
2023 Supplementary Report**

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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.

AOANJRR Clinical Director

Professor Paul Smith

AOANJRR Deputy Clinical Directors

Associate Professor Peter Lewis

Professor Chris Vertullo

Adjunct Professor Michael McAuliffe

AOANJRR Assistant Deputy Clinical Directors

Associate Professor Catherine McDougall

Dr James D Stoney

Associate Professor Chris Wall

Dr David Gill

AOA Registry Committee Membership

Neil Bergman

Chris Morrey

Paul Smith

Richard Page

Peter Stavrou

Michael Schuetz

Bill Walter

Joshua Petterwood

David Wysocki

Peter McEwen

Rob Kuru

Committee Chair

AOA President

Registry Clinical Director

Shoulder & Elbow Society

Foot & Ankle Society Representative

AOA Research Committee Chair

Arthroplasty Society President

TAS representative

WA representative

Knee Society Representative

Spine Society Representative

Clinical Advisors

Professor Richard Page

Dr Peter Stavrou

PROMs Advisor

Professor Ilana Ackerman

Data Linkage

Dr Katherine Duszynski (UniSA)

AUSTRALIAN ORTHOPAEDIC ASSOCIATION NATIONAL JOINT REPLACEMENT REGISTRY

Registry Executive Manager

Kathy Hill

Registry Nested Clinical Studies (RNCS) Manager

Durga Bastiras

PROMS & Core Manager

Bec Harvey

Ad Hoc Requests & Publications Manager

Sophie Corfield

Registry Executive Assistant

Jade Caboche

RNCS Team

Tania Alland

Libby Poole

Khashayar Ghadirinejad

Dianne Buranyi-Trevarton

William Du Moulin

Laura Busk

PROMs Team

Nea Ryan

David Metherell

Pablo Flores Figuera

Publications Team

Sarah Jameel

Administration Officer

Elise Tapper

SOUTH AUSTRALIAN HEALTH AND MEDICAL RESEARCH INSTITUTE (SAHMRI)

Senior Manager, Registry Science

Emma Heath

Biostatisticians

Michelle Lorimer

Alana Cuthbert

Carl Holder

Dylan Harries

Kara Cashman

Peiyao Du

Data Assistants

Georgina Daynes

Kirsty Modystach

Anh Pham

Jacinta Greer

Anna Fergusson

Vivien Do

Michael Crame

Andrew Ioakim

Anita Wright

Jeremy Durward

ICT

Andrew Brock

Nazia Dilnaz

Daina Ross

Vincent Talladira

Christian Boyd

Jen Coleman

Data Managers

Janey Barrow

Robert Armitage

Primali De Silva

Courtney Cullen

Contents

INTRODUCTION	1
HIP REPLACEMENT	2
Categories of Hip Replacement	2
Public and Private Sector	3
Incidence of Hip Replacement	11
Primary Partial Hip Replacement	17
Classes of Partial Hip Replacement.....	17
Primary Partial Resurfacing Hip Replacement.....	19
Primary Unipolar Monoblock Hip Replacement	20
Primary Unipolar Modular Hip Replacement	21
Primary Bipolar Hip Replacement	22
Primary Total Hip Replacement	23
Classes of Total Hip Replacement.....	23
Primary Total Conventional Hip Replacement.....	25
Primary Total Resurfacing Hip Replacement.....	27
Primary Thrust Plate Hip Replacement	28
Revision Hip Replacement	29
Classes of Revision Procedures	29
KNEE REPLACEMENT	32
Categories of Knee Replacement	32
Public and Private Sector	33
Primary Partial Knee Replacement	44
Classes of Partial Knee Replacement	44
Primary Partial Resurfacing Knee Replacement.....	46
Primary Unispacer Knee Replacement	46
Primary Bicompartamental Knee Replacement.....	47
Primary Patella/Trochlea Knee Replacement.....	47
Primary Unicompartmental Knee Replacement.....	48
Primary Total Knee Replacement.....	49
All Revision Knee Replacement	51
Classes of Revision Procedures	51
SHOULDER REPLACEMENT.....	54
Categories of Shoulder Replacement	54
Public and Private Sector	55
Primary Partial Shoulder Replacement	72
Classes of Partial Shoulder Replacement	72
Primary Partial Resurfacing Anatomic Shoulder Replacement.....	73
Primary Hemi Resurfacing Anatomic Shoulder Replacement	74
Primary Hemi Stemmed Anatomic Shoulder Replacement.....	74
Primary Hemi Stemless Anatomic Shoulder Replacement	75
Primary Total Shoulder Replacement	76
Classes of Total Shoulder Replacement	76
Primary Total Resurfacing Anatomic Shoulder Replacement.....	77
Primary Total Stemmed Anatomic Shoulder Replacement	78
Primary Total Stemmed Reverse Shoulder Replacement	79
Primary Total Stemless Anatomic Shoulder Replacement	80
Primary Total Stemless Reverse Shoulder Replacement	80
All Revision Shoulder Replacement.....	81
LIST OF TABLES	83
LIST OF FIGURES	84

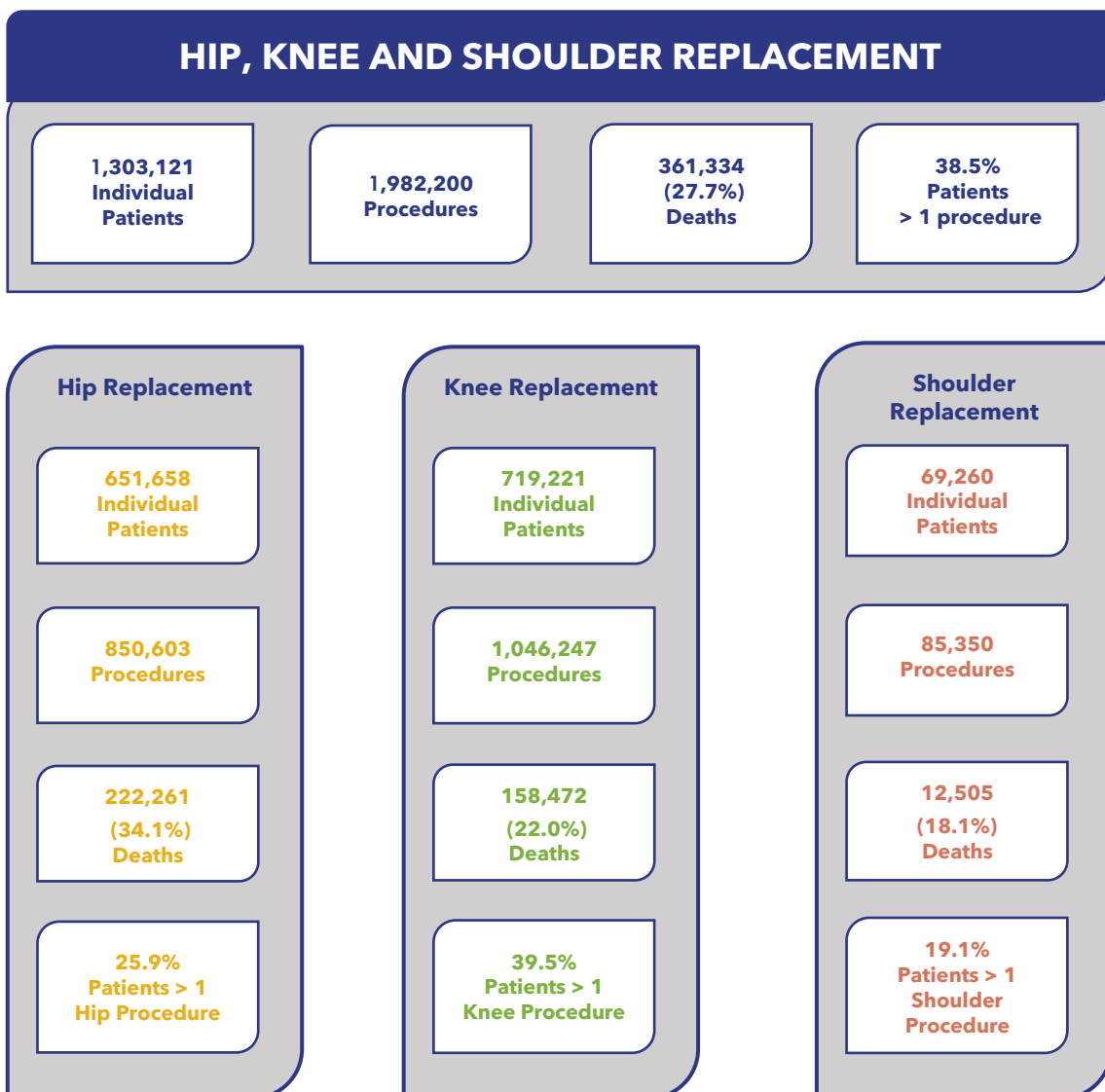
Introduction

Data presented in this report have been submitted to the Registry by both public and private hospitals. Currently, 364 hospitals contribute nationally but this number varies from time to time due to hospital closures, new hospitals or changes to services within hospitals.

All hip, knee and shoulder replacement procedures recorded by the Registry from the commencement date to 31 December 2022 have been included in this report.

The Registry was implemented in a staged manner on a state-by-state basis. Implementation was completed nationally by mid-2002; therefore 2003 was the first year of complete national data.

Number of Patients and Procedures Recorded by the Registry Between 1/9/1999 and 31/12/2022



Hip Replacement

CATEGORIES OF HIP REPLACEMENT

The Registry groups hip replacement into three broad categories, primary partial, primary total and revision hip replacement.

A primary replacement is the initial replacement procedure undertaken on a joint and involves replacing either part (partial) or all (total) of the articular surface.

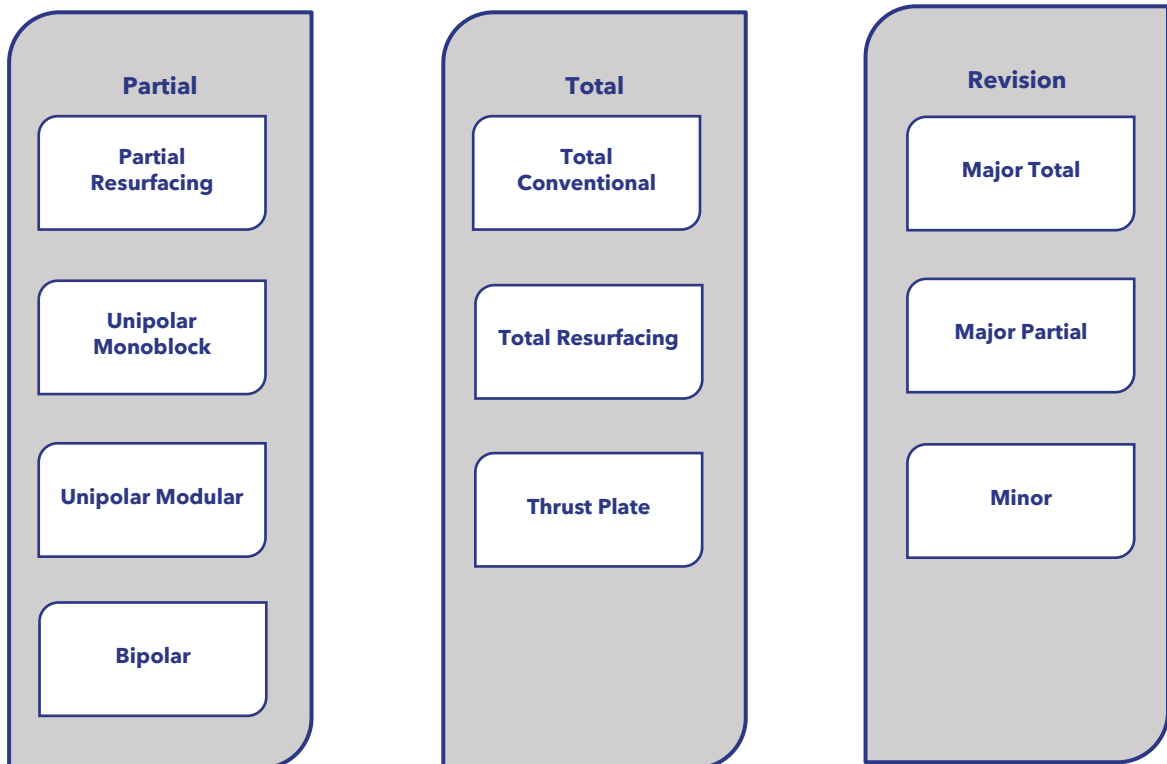
Primary partial and primary total hip replacement are further subcategorised into classes depending on the type of prostheses used. Partial hip classes are partial resurfacing, unipolar monoblock,

unipolar modular and bipolar. Total hip classes are resurfacing, conventional and thrust plate.

Revision hips are re-operations of previous hip replacements where one or more of the prosthetic components are replaced, removed, or another component is added. Revisions include re-operations of primary partial, primary total or previous revision procedures.

Hip revisions are subcategorised into three classes: major total, major partial or minor revisions. These are defined in the chapter on revision outcomes.

HIP REPLACEMENT



PUBLIC AND PRIVATE SECTOR

More than half of all hip replacement procedures reported to the Registry are undertaken in private hospitals (65.8% in 2022).

There were 34,786 private sector hip replacements reported in 2022, an increase of 1.6% compared to 2021. In the public sector, there were 18,077 hip replacements (Figure SD1). Since 2003, hip replacement in the private sector has increased by 131.4% compared to 56.2% in the public sector.

Primary partial hip replacement has increased in the public sector since 2021 (7.1%) and increased in the private sector (0.2%). In 2022, there were 5,623 primary partial hip replacements reported in the public sector and 863 in the private sector. Since 2003, primary partial hip replacement has increased in the public sector by 56.6% compared to a decrease of 7.2% in the private sector.

In 2022, 31,929 private sector primary total hip replacements were reported; an increase of 2.5% compared to 2021. In the public sector, there were 10,585 primary total hip replacements; a decrease of 8.4% compared to 2021. Since 2003, primary total hip replacement has increased in the private sector by 165.3% compared to an increase of 60.3% in the public sector.

There were 1,994 revision hip replacements reported in the private sector in 2022, which is less than the number recorded in 2021. In the public sector, there were 1,869 revision hip replacements, an increase of 2.2% compared to 2021. Since 2003, revision hip replacement in the private sector has decreased by 3.7%, and has increased by 36.0% in the public sector.

Figure SD1 Hip Replacement by Hospital Sector

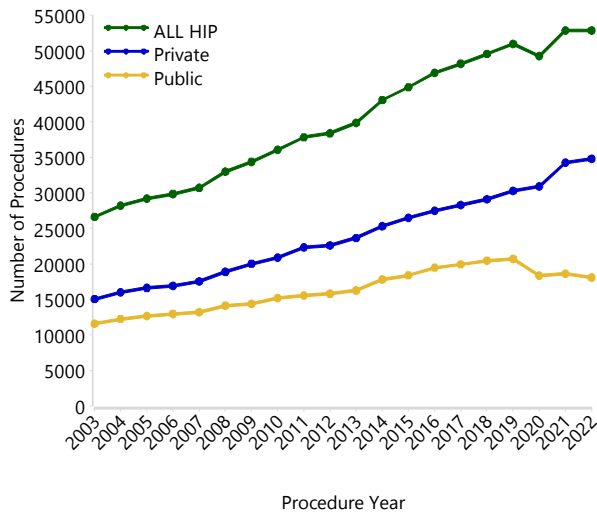


Table SD1 All Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Male	373813	43.9%	5	108	68	67.7	12.6
Female	476790	56.1%	9	108	73	71.7	12.3
TOTAL	850603	100.0%	5	108	71	69.9	12.6

Table SD2 Number of Hip Replacements by Gender

Hip Replacement	Female		Male		TOTAL	
	N	%	N	%	N	%
Partial Resurfacing	3	20.0	12	80.0	15	0.0
Unipolar Monoblock	21255	72.6	8002	27.4	29257	24.3
Unipolar Modular	38405	69.8	16623	30.2	55028	45.7
Bipolar	24791	68.6	11357	31.4	36148	30.0
All Primary Partial	84454	70.1	35994	29.9	120448	100.0
Total Resurfacing	3687	18.7	16065	81.3	19752	3.1
Total Conventional	342122	54.9	280830	45.1	622952	96.9
Thrust Plate	74	28.7	184	71.3	258	0.0
All Primary Total	345883	53.8	297079	46.2	642962	100.0
Major Total	11643	49.8	11748	50.2	23391	26.8
Major Partial	25782	54.6	21399	45.4	47181	54.1
Minor	9028	54.3	7593	45.7	16621	19.1
All Revisions	46453	53.3	40740	46.7	87193	100.0
ALL HIPS	476790	56.1	373813	43.9	850603	100.0

Figure SD2 Percentage of Females by Type of Hip Replacement and Procedure Year

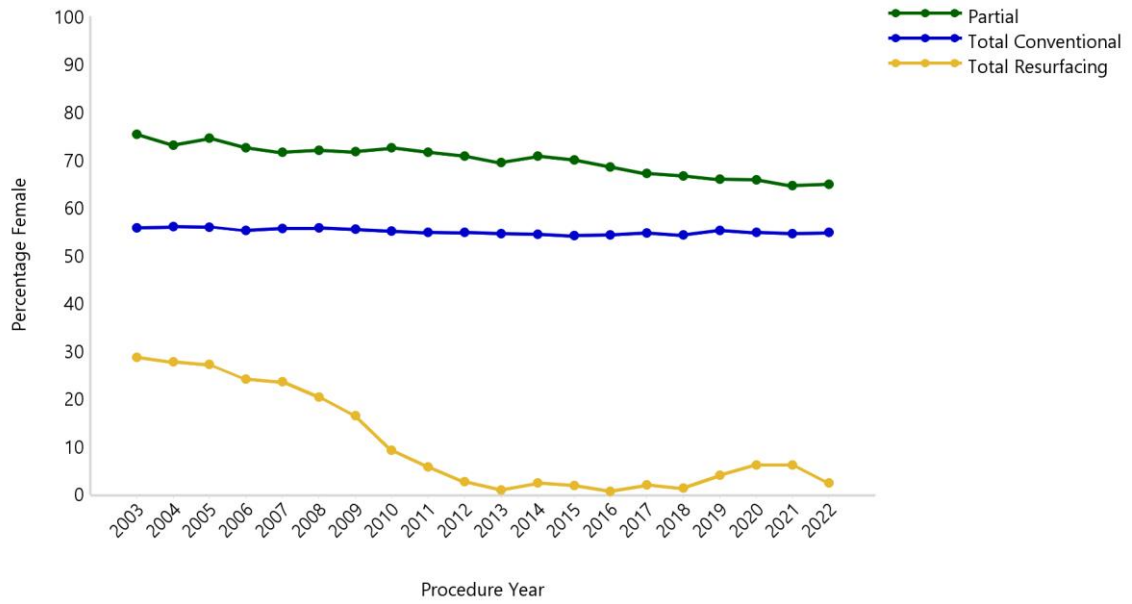


Figure SD3 Percentage of Females by Partial Hip Replacement and Procedure Year (Excluding Partial Resurfacing)

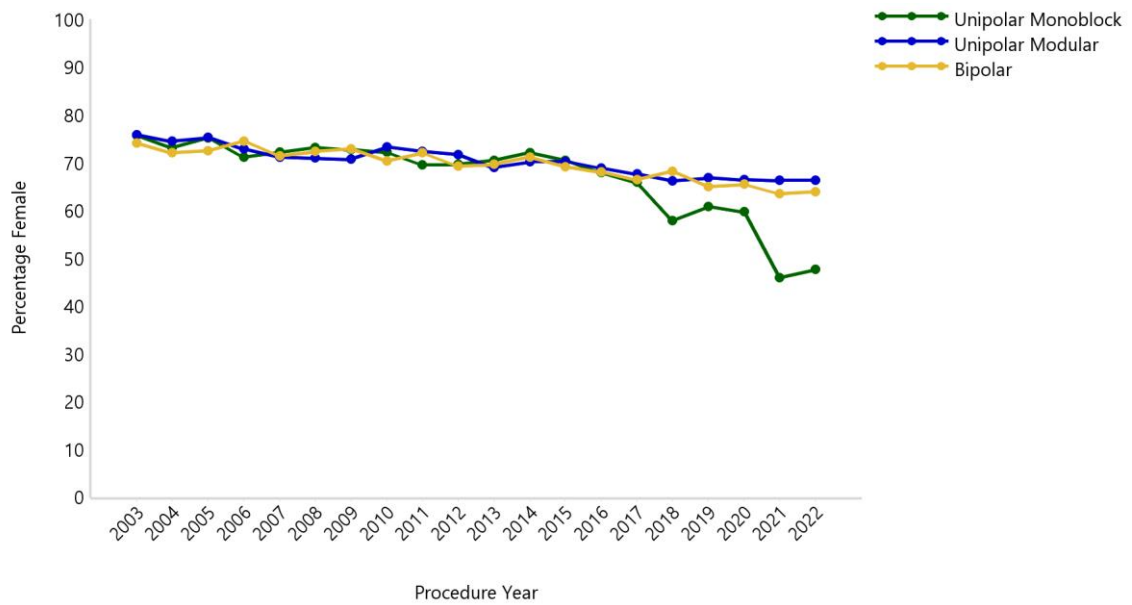


Figure SD4 Percentage of Females by Total Hip Replacement and Procedure Year (Excluding Thrust Plate)

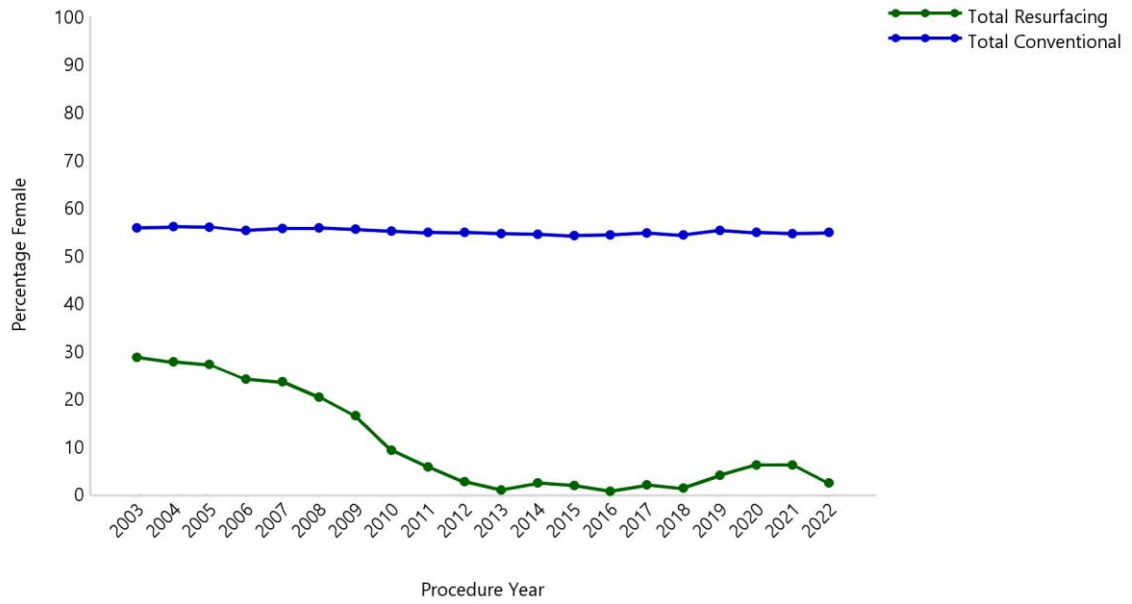


Figure SD5 Percentage of Females by Revision Hip Replacement and Procedure Year

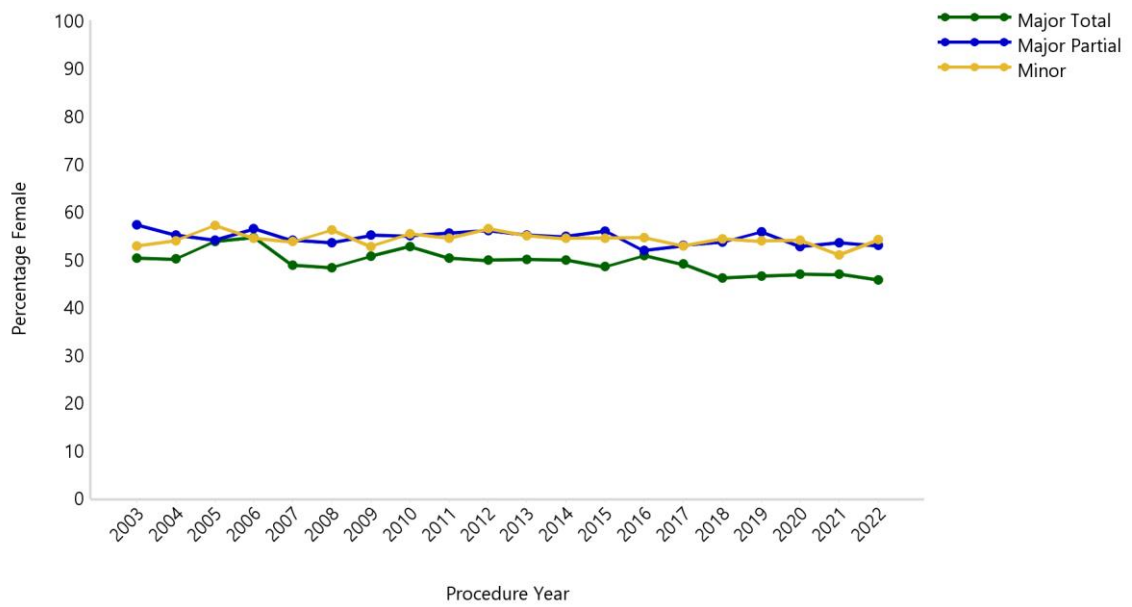


Figure SD6 Percentage of Patients Aged <65 Years by Type of Hip Replacement and Procedure Year

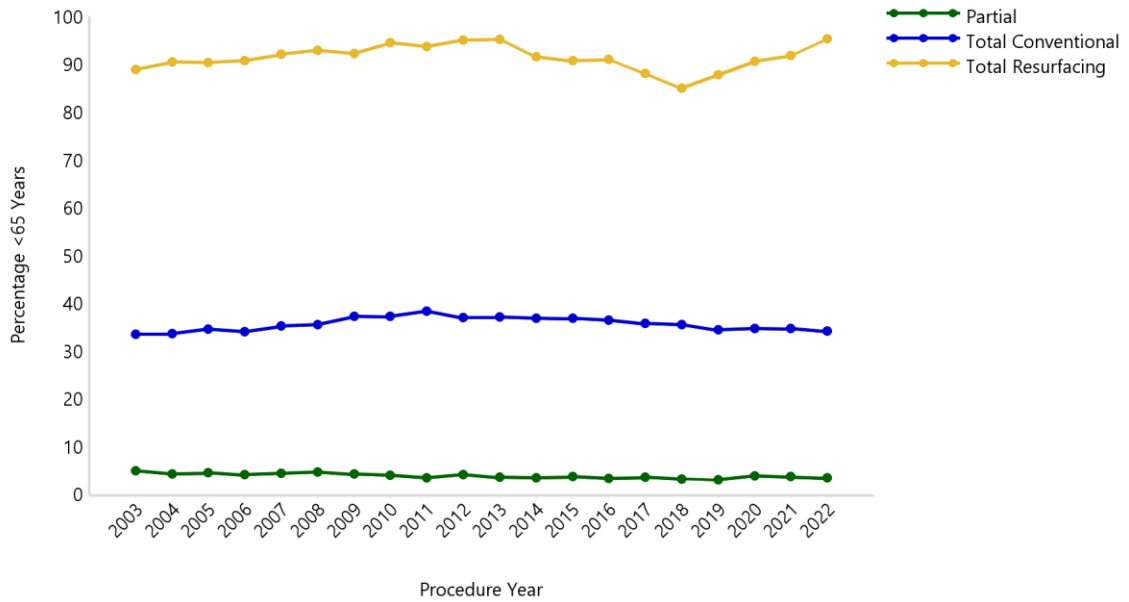


Figure SD7 Percentage of Patients Aged <65 Years by Partial Hip Replacement and Procedure Year (Excluding Partial Resurfacing)

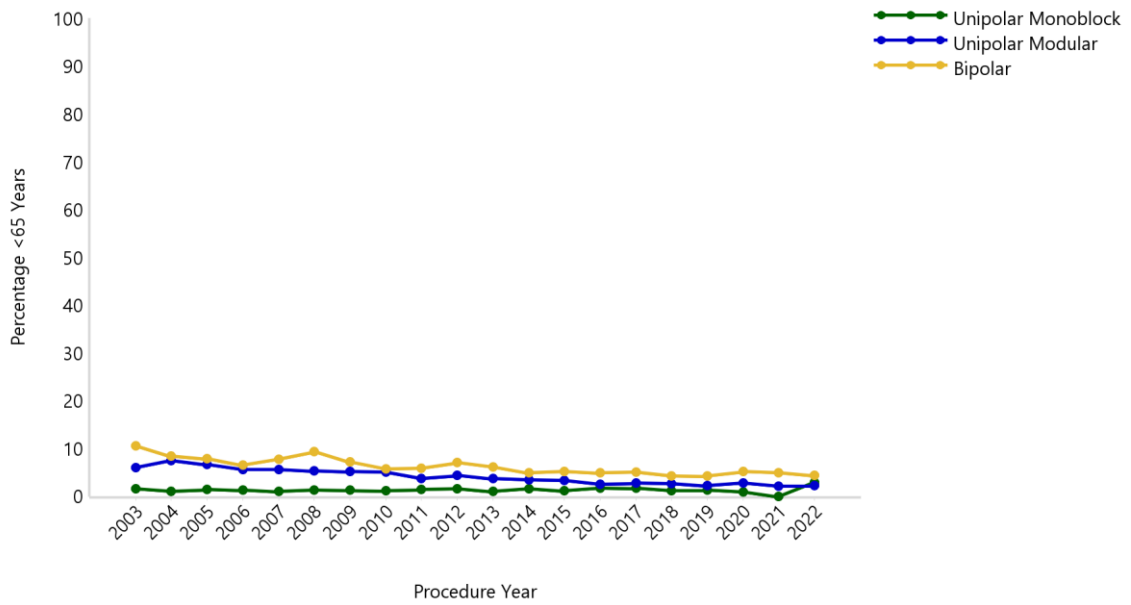


Figure SD8 Percentage of Patients Aged <65 Years by Total Hip Replacement and Procedure Year (Excluding Thrust Plate)

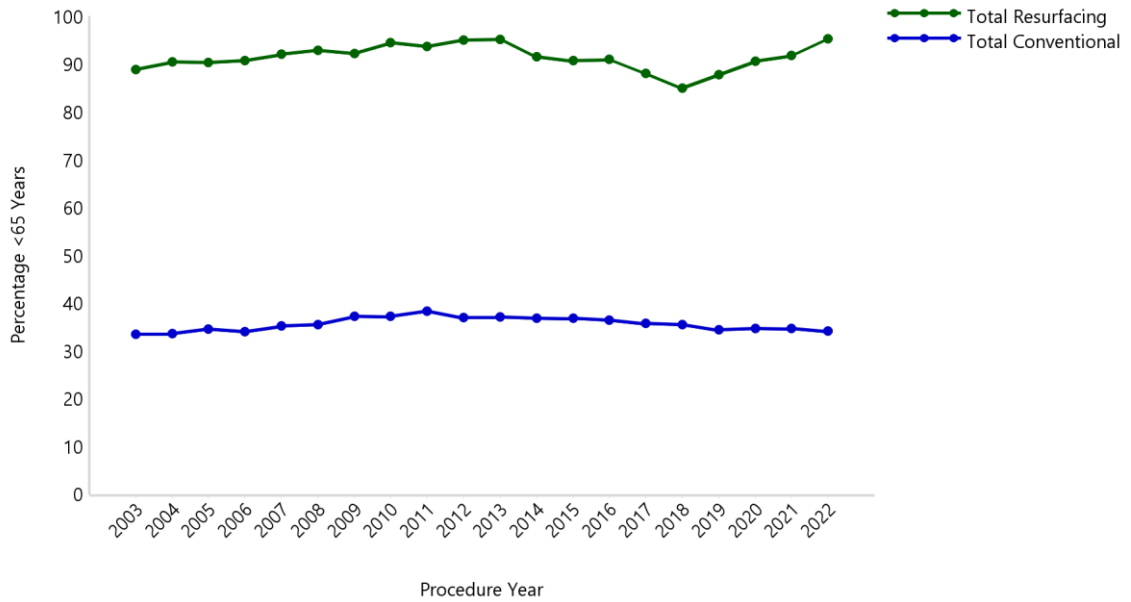


Figure SD9 Percentage of Patients Aged <65 Years by Revision Hip Replacement and Procedure Year

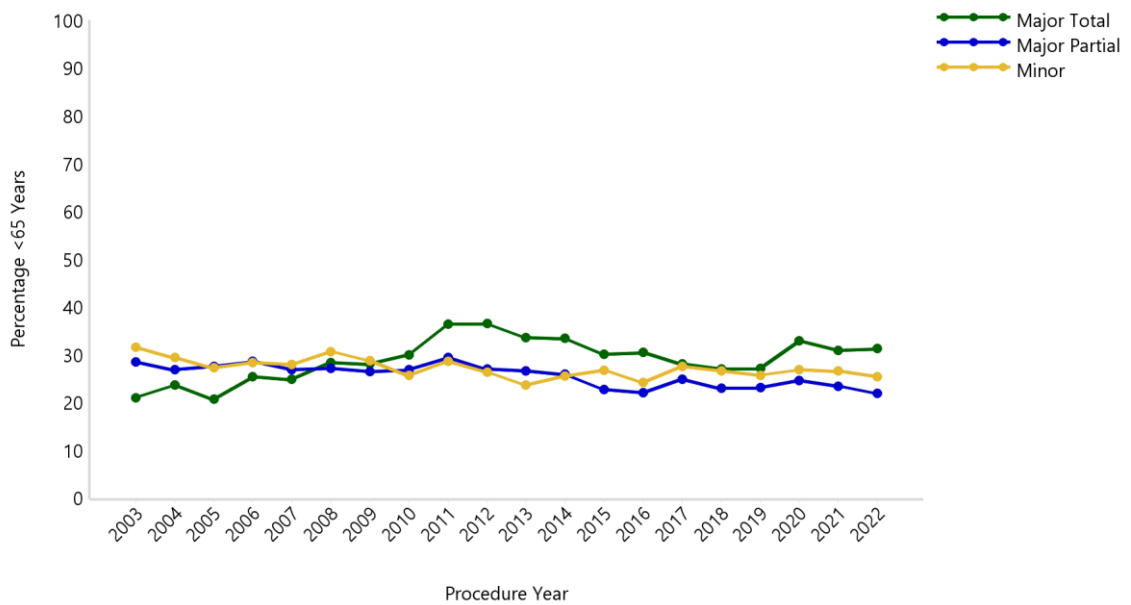


Figure SD10 Trends in Usage of Hip Replacement by Procedure Year

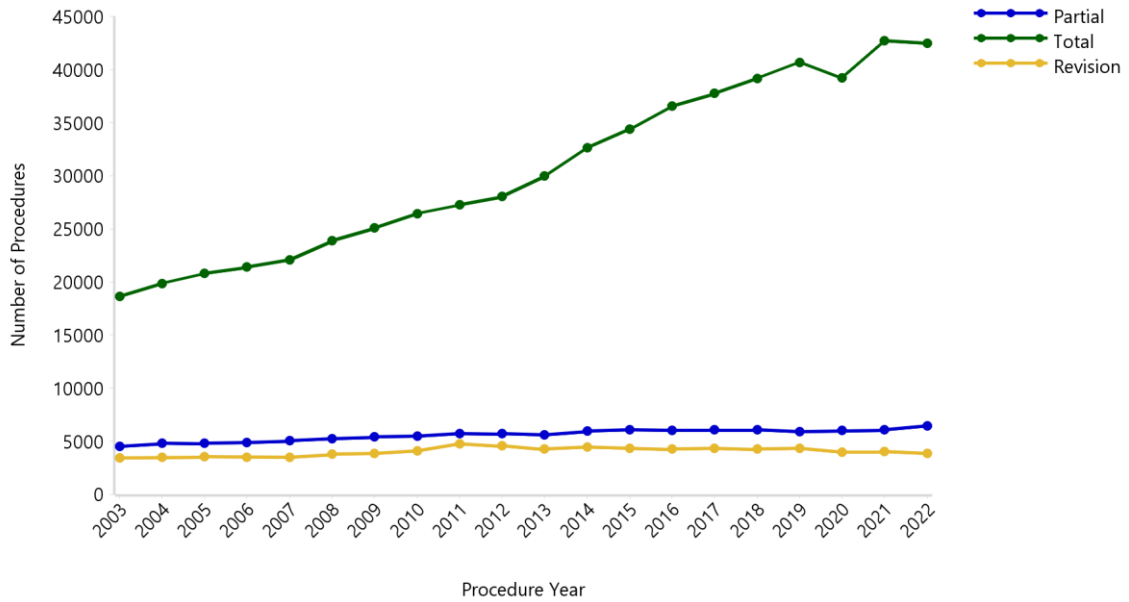


Figure SD11 Trends in Usage of Partial Hip Replacement by Procedure Year (Excluding Partial Resurfacing)

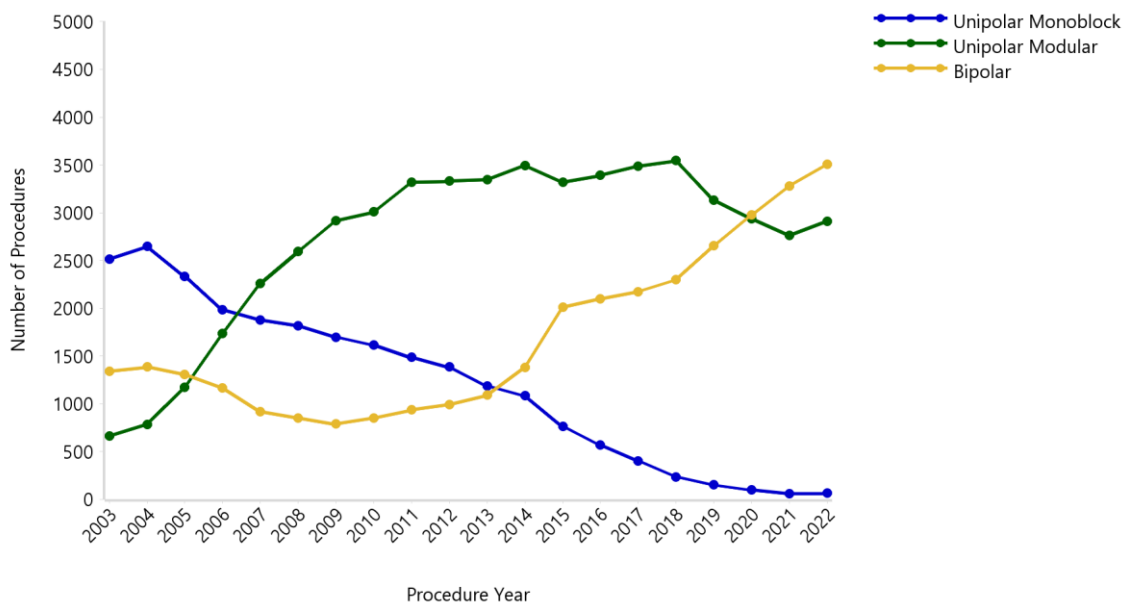


Figure SD12 Trends in Usage of Total Hip Replacement by Procedure Year (Excluding Thrust Plate)

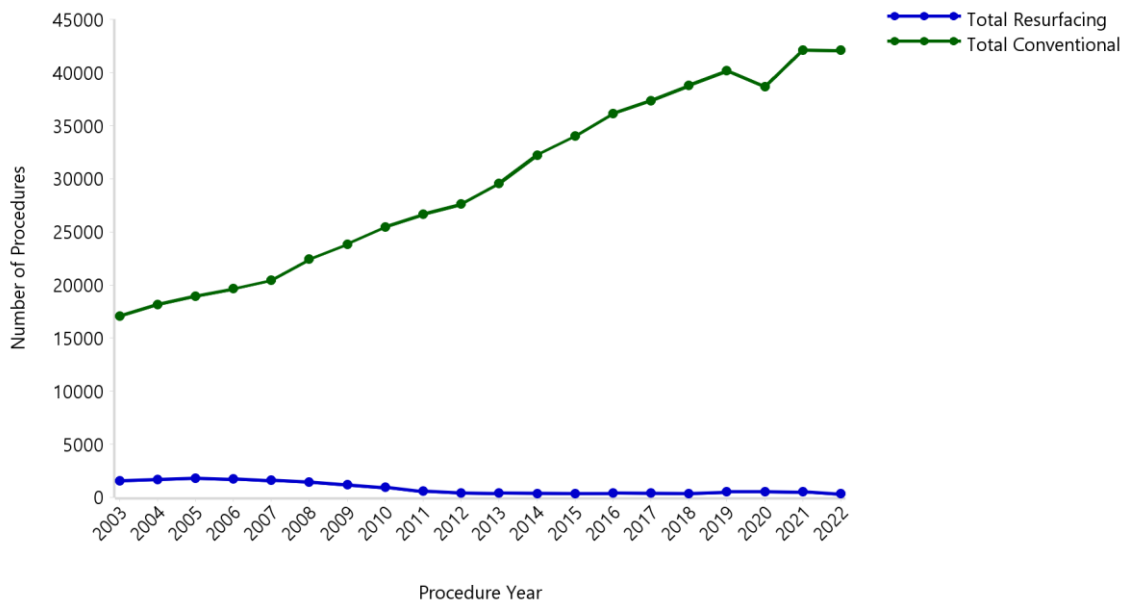
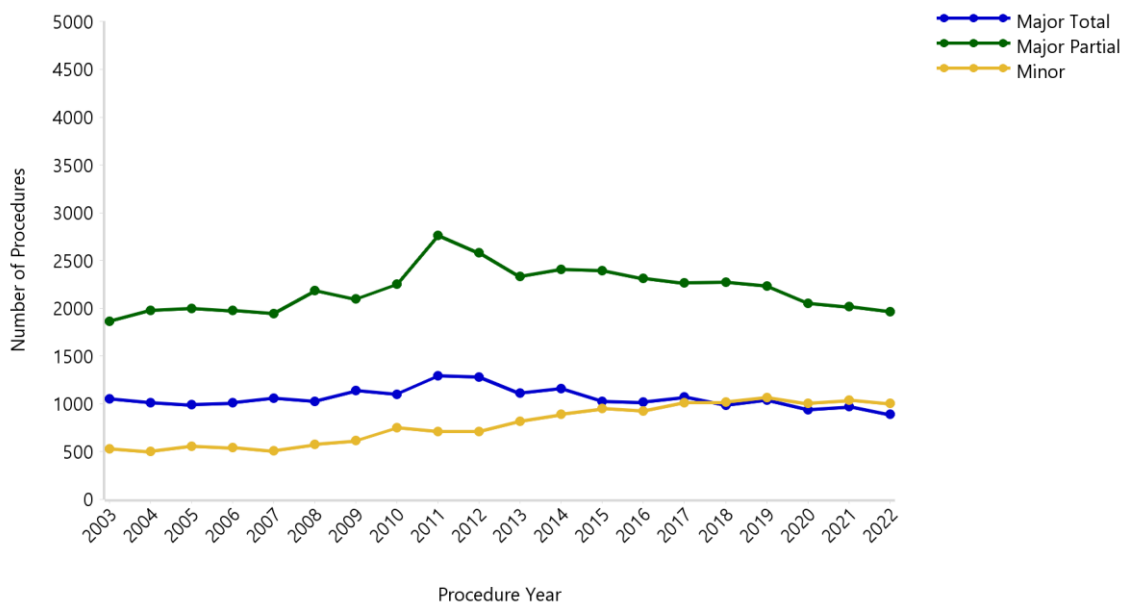


Figure SD13 Trends in Usage of Revision Hip Replacement by Procedure Year



INCIDENCE OF HIP REPLACEMENT

Table SD3 Incidence of Hip Replacement per 100,000 from 2003 to 2022

Hip Replacement	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	N	N	N	N	N	N	N	N	N	N	N
Partial Resurfacing	.	0.0	0.0	0.0	0.0	0.0	0.0	.	.	.	.
Unipolar Monoblock	12.7	13.3	11.6	9.7	9.0	8.6	7.8	7.3	6.7	6.1	5.1
Unipolar Modular	3.4	3.9	5.8	8.5	10.9	12.2	13.5	13.7	14.9	14.7	14.5
Bipolar	6.8	7.0	6.5	5.7	4.4	4.0	3.6	3.9	4.2	4.4	4.7
All Primary Partial	22.9	24.2	23.9	23.9	24.3	24.8	25.0	24.9	25.7	25.1	24.3
Total Resurfacing	7.8	8.5	9.1	8.6	7.9	6.9	5.6	4.4	2.6	2.0	1.7
Total Conventional	86.6	91.2	94.1	96.1	98.1	105.5	110.0	115.7	119.5	121.5	127.9
Thrust Plate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	.
All Primary Total	94.5	99.8	103.3	104.8	106.2	112.5	115.8	120.1	122.2	123.5	129.6
All Revisions	17.5	17.5	17.6	17.3	16.9	17.8	17.8	18.6	21.4	20.1	18.4
ALL HIPS	134.9	141.5	144.8	145.9	147.3	155.2	158.5	163.6	169.3	168.8	172.4

Hip Replacement	2014	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
	N	N	N	N	N	N	N	N	N	N
Partial Resurfacing	0.0	.	.	.	.	.	.	.	.	0.0
Unipolar Monoblock	4.6	3.2	2.3	1.6	1.0	0.6	0.4	0.2	0.3	5.2
Unipolar Modular	14.9	13.9	14.0	14.2	14.2	12.3	11.4	10.7	11.2	11.8
Bipolar	5.9	8.4	8.7	8.8	9.2	10.5	11.6	12.8	13.5	7.4
All Primary Partial	25.4	25.6	25.0	24.7	24.3	23.4	23.4	23.7	24.9	24.5
Total Resurfacing	1.6	1.5	1.7	1.6	1.5	2.1	2.2	2.2	1.4	3.8
Total Conventional	137.4	142.8	149.5	151.9	155.3	158.5	150.5	163.8	162.1	129.2
Thrust Plate	.	.	.	.	.	.	.	.	.	0.0
All Primary Total	139.0	144.4	151.3	153.5	156.8	160.6	152.7	166.0	163.5	133.0
All Revisions	19.0	18.4	17.6	17.7	17.1	17.1	15.6	15.7	14.9	17.6
ALL HIPS	183.4	188.4	193.9	195.9	198.3	201.1	191.7	205.3	203.3	175.2

Figure SD14 Incidence of Hip Replacement per 100,000 from 2003 to 2022

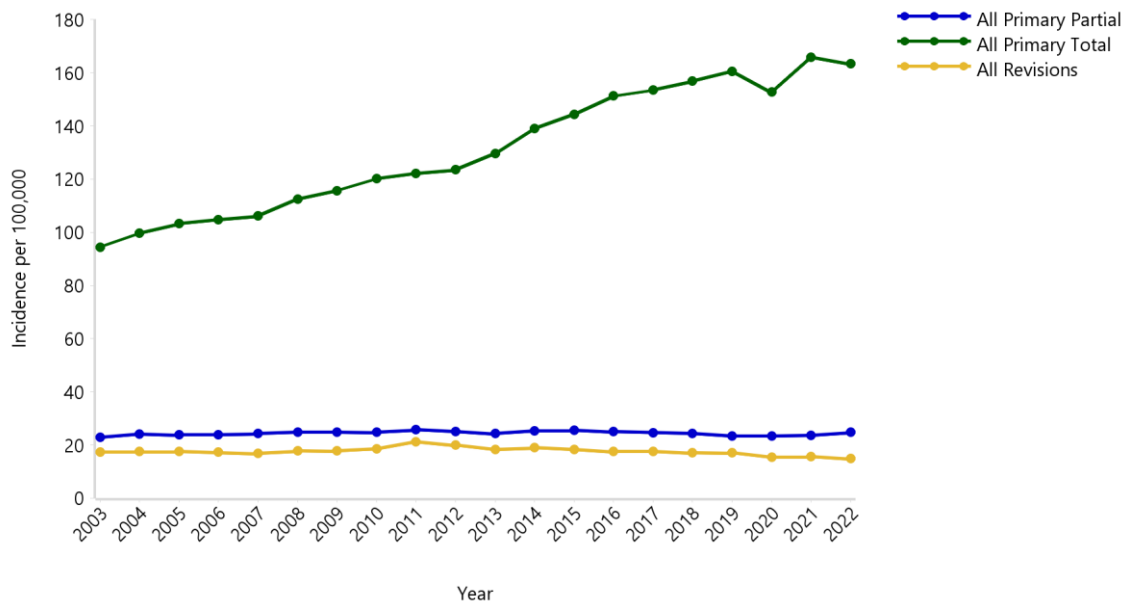


Table SD4 Incidence of Hip Replacement in Patients Aged <55 Years per 100,000 from 2003 to 2022

Hip Replacement	2003 N	2004 N	2005 N	2006 N	2007 N	2008 N	2009 N	2010 N	2011 N	2012 N	2013 N
Partial Resurfacing	.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	.0	.0	.0
Unipolar Monoblock	0.0	0.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unipolar Modular	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Bipolar	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1
All Primary Partial	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.3
Total Resurfacing	5.3	5.7	5.8	6.0	5.3	5.0	4.2	3.5	2.2	1.7	1.5
Total Conventional	13.1	13.0	14.4	14.9	15.3	16.4	18.2	19.9	20.6	21.3	22.9
Thrust Plate	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0
All Primary Total	18.5	18.7	20.3	20.9	20.7	21.5	22.5	23.4	22.9	23.0	24.4
All Revisions	2.2	2.3	2.2	2.3	2.1	2.4	2.3	2.4	3.2	3.0	2.3
ALL HIPS	21.1	21.4	22.8	23.5	23.2	24.3	25.1	26.0	26.4	26.3	27.0

Hip Replacement	2014 N	2015 N	2016 N	2017 N	2018 N	2019 N	2020 N	2021 N	2022 N	TOTAL N
Partial Resurfacing	0.0	.0	.0	.0	.0	.0	.0	.0	.0	0.0
Unipolar Monoblock	0.0	0.0	0.0	0.0	.0	0.0	.0	.0	.0	0.0
Unipolar Modular	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1
Bipolar	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.2
All Primary Partial	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.4	0.3
Total Resurfacing	1.3	1.2	1.4	1.1	1.1	1.6	1.8	1.8	1.3	2.8
Total Conventional	24.6	25.5	25.8	25.9	26.4	25.5	24.6	26.1	26.0	21.3
Thrust Plate	.0	.0	.0	.0	.0	.0	.0	.0	.0	0.0
All Primary Total	25.9	26.7	27.1	27.0	27.5	27.1	26.3	27.9	27.2	24.2
All Revisions	2.6	2.3	2.0	2.4	2.1	1.9	2.2	2.2	1.9	2.3
ALL HIPS	28.8	29.3	29.4	29.7	29.8	29.2	28.8	30.3	29.4	26.8

Figure SD15 Incidence of Hip Replacement in Patients Aged <55 Years per 100,000 from 2003 to 2022

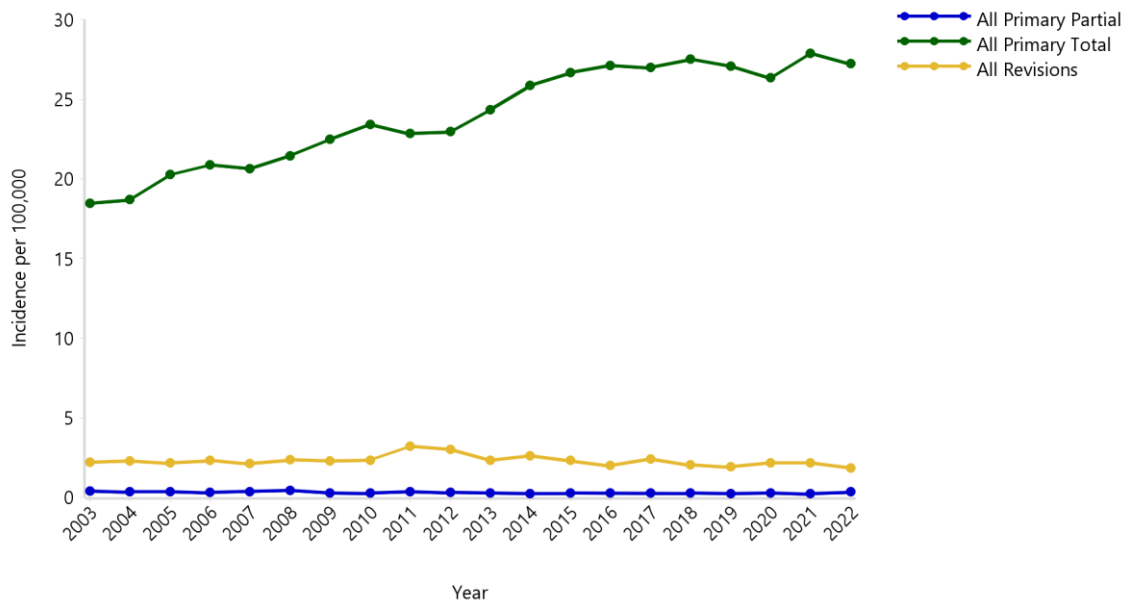


Table SD5 Incidence of Hip Replacement in Patients Aged 55-64 Years per 100,000 from 2003 to 2022

Hip Replacement	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	N	N	N	N	N	N	N	N	N	N	N
Unipolar Monoblock	1.7	1.2	1.3	1.2	0.6	0.9	0.8	0.7	0.8	0.8	0.3
Unipolar Modular	1.5	2.1	2.8	3.2	4.4	4.4	4.8	4.9	3.4	4.5	3.8
Bipolar	4.9	4.1	3.4	2.4	2.1	2.1	1.8	1.4	1.4	1.9	1.8
All Primary Partial	8.1	7.3	7.4	6.8	7.1	7.4	7.5	7.1	5.6	7.3	5.9
Total Resurfacing	28.4	32.1	35.2	30.4	29.2	23.5	17.7	13.3	7.2	5.7	4.9
Total Conventional	186.8	197.8	201.1	195.9	207.8	223.9	242.3	247.6	265.7	255.9	268.0
Thrust Plate	0.3	0.5	0.3	0.4	0.4	0.4	0.4	0.2	0.4	0.1	.
All Primary Total	215.5	230.3	236.6	226.7	237.4	247.8	260.4	261.1	273.2	261.6	272.9
All Revisions	29.3	27.3	26.7	27.5	25.8	28.7	27.9	29.7	37.4	32.6	30.0
ALL HIPS	252.9	265.0	270.8	261.0	270.3	283.9	295.8	297.9	316.2	301.5	308.8

Hip Replacement	2014	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
	N	N	N	N	N	N	N	N	N	N
Unipolar Monoblock	0.6	0.3	0.3	0.2	0.1	0.0	0.0	.	0.1	0.5
Unipolar Modular	3.7	3.2	2.6	2.7	2.8	1.8	2.5	1.7	1.8	3.1
Bipolar	1.9	3.0	2.6	3.0	2.3	2.9	3.6	4.4	3.3	2.7
All Primary Partial	6.2	6.5	5.4	5.9	5.3	4.8	6.2	6.1	5.2	6.4
Total Resurfacing	4.7	4.8	5.0	5.2	4.4	6.0	6.2	5.9	3.9	12.5
Total Conventional	284.6	295.9	311.0	307.3	311.3	311.8	297.7	328.2	316.5	268.2
Thrust Plate	.	.	.	.	.	.	.	.	.	0.2
All Primary Total	289.3	300.8	316.0	312.5	315.7	317.8	304.0	334.1	320.4	280.9
All Revisions	29.3	25.9	24.9	25.0	23.9	24.7	22.9	21.7	20.6	26.9
ALL HIPS	324.8	333.1	346.3	343.5	344.8	347.3	333.1	362.0	346.2	314.1

Figure SD16 Incidence of Hip Replacement in Patients Aged 55-64 Years per 100,000 from 2003 to 2022

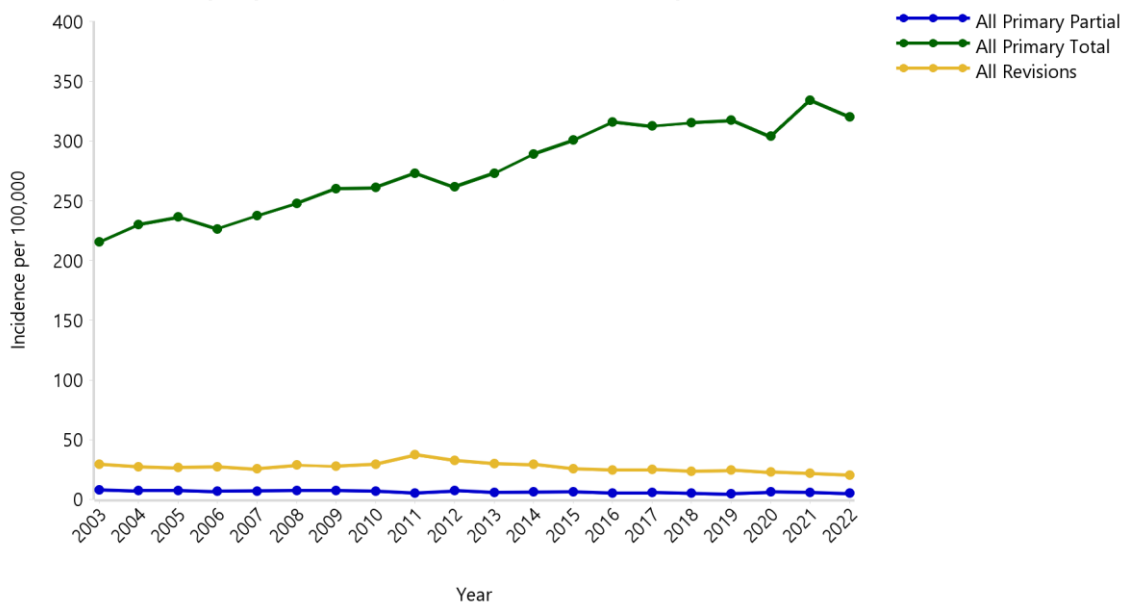


Table SD6 Incidence of Hip Replacement in Patients Aged 65-74 Years per 100,000 from 2003 to 2022

Hip Replacement	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	N	N	N	N	N	N	N	N	N	N	N
Unipolar Monoblock	13.9	15.8	13.0	9.9	10.1	9.0	6.9	6.1	5.9	4.4	4.0
Unipolar Modular	8.0	10.4	16.2	18.6	22.6	23.4	25.5	21.7	22.7	21.7	18.7
Bipolar	19.1	19.4	15.3	10.7	9.3	8.2	7.8	6.0	7.4	6.2	7.1
All Primary Partial	41.0	45.7	44.5	39.2	42.0	40.5	40.2	33.8	35.9	32.4	29.9
Total Resurfacing	11.7	11.2	12.4	11.4	8.5	6.5	5.9	3.1	2.1	1.2	0.9
Total Conventional	446.6	457.9	466.8	471.6	464.6	501.4	499.6	524.3	521.1	527.8	549.7
Thrust Plate	0.2	0.4	0.5	0.2	0.5	0.5	0.5	0.3	0.4	0.1	.
All Primary Total	458.5	469.4	479.7	483.2	473.7	508.4	506.0	527.7	523.6	529.2	550.7
All Revisions	79.6	77.7	75.7	74.5	71.3	74.1	67.7	76.6	88.1	79.1	68.8
ALL HIPS	579.1	592.8	599.9	597.0	586.9	623.0	613.8	638.1	647.6	640.7	649.3

Hip Replacement	2014	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
	N	N	N	N	N	N	N	N	N	N
Unipolar Monoblock	3.4	2.7	1.5	1.3	0.9	0.8	0.3	0.3	0.2	4.6
Unipolar Modular	19.4	17.3	15.2	15.4	15.4	13.1	11.6	9.9	10.5	16.4
Bipolar	8.7	13.1	12.1	12.8	13.2	15.4	16.2	16.5	18.3	12.4
All Primary Partial	31.5	33.1	28.8	29.5	29.5	29.2	28.0	26.7	29.0	33.4
Total Resurfacing	1.5	1.7	1.7	2.0	2.5	2.6	2.1	1.7	0.6	3.9
Total Conventional	578.4	593.7	612.4	609.4	616.3	626.5	580.8	607.1	600.1	554.5
Thrust Plate	.	.	.	.	.	.	.	.	.	0.1
All Primary Total	579.9	595.4	614.1	611.4	618.8	629.1	582.9	608.8	600.6	558.6
All Revisions	68.8	68.7	65.7	61.4	60.9	57.7	50.0	50.2	46.4	66.3
ALL HIPS	680.2	697.3	708.6	702.3	709.2	716.0	660.9	685.7	676.1	658.2

Figure SD17 Incidence of Hip Replacement in Patients Aged 65-74 Years per 100,000 from 2003 to 2022

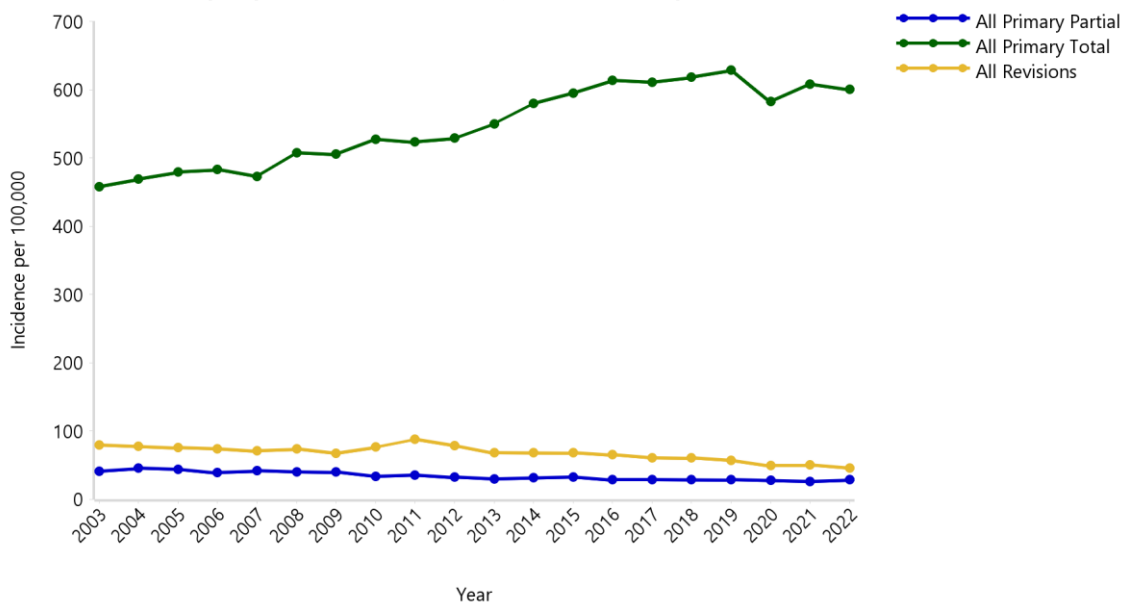


Table SD7 Incidence of Hip Replacement in Patients Aged ≥75 Years per 100,000 from 2003 to 2022

Hip Replacement	2003 N	2004 N	2005 N	2006 N	2007 N	2008 N	2009 N	2010 N	2011 N	2012 N	2013 N
Unipolar Monoblock	194.7	199.3	171.4	143.4	132.2	125.9	116.9	109.1	97.2	89.3	75.0
Unipolar Modular	44.2	48.7	70.5	108.9	139.4	159.7	176.7	182.5	200.1	194.6	195.3
Bipolar	80.4	83.5	80.3	74.4	55.2	49.4	45.7	51.4	54.0	56.5	60.8
All Primary Partial	319.3	331.5	322.2	326.6	326.8	335.0	339.2	343.0	351.3	340.4	331.0
Total Resurfacing	1.3	0.8	0.5	0.2	0.5	0.5	0.2	0.2	0.1	.	0.1
Total Conventional	456.9	486.8	485.2	502.0	504.3	529.9	538.3	548.9	546.4	558.0	568.9
All Primary Total	458.2	487.6	485.7	502.2	504.8	530.5	538.5	549.2	546.5	558.0	569.0
All Revisions	124.1	126.3	129.4	119.4	120.2	122.9	130.2	126.5	127.8	126.2	121.9
ALL HIPS	901.6	945.5	937.3	948.2	951.7	988.4	1007.9	1018.7	1025.5	1024.7	1021.9

Hip Replacement	2014 N	2015 N	2016 N	2017 N	2018 N	2019 N	2020 N	2021 N	2022 N	TOTAL N
Unipolar Monoblock	66.3	45.4	33.2	22.6	12.8	7.5	5.1	2.9	3.1	73.3
Unipolar Modular	198.5	184.9	188.0	186.6	183.7	157.4	141.0	128.8	130.2	153.5
Bipolar	76.0	106.2	109.6	109.3	112.9	124.8	133.3	142.2	145.9	91.8
All Primary Partial	340.8	336.5	330.8	318.4	309.4	289.7	279.5	273.9	279.2	318.6
Total Resurfacing	0.2	.	0.1	0.3	0.1	0.3	0.2	0.2	0.2	0.3
Total Conventional	608.1	617.9	641.7	664.4	669.1	685.8	627.3	671.6	657.4	588.6
All Primary Total	608.3	617.9	641.8	664.7	669.2	686.1	627.5	671.8	657.5	588.9
All Revisions	125.0	121.7	116.0	114.7	109.8	110.9	94.6	92.1	88.4	115.7
ALL HIPS	1074.1	1076.1	1088.6	1097.9	1088.4	1086.7	1001.7	1037.8	1025.1	1023.2

Figure SD18 Incidence of Hip Replacement in Patients Aged ≥75 Years per 100,000 from 2003 to 2022

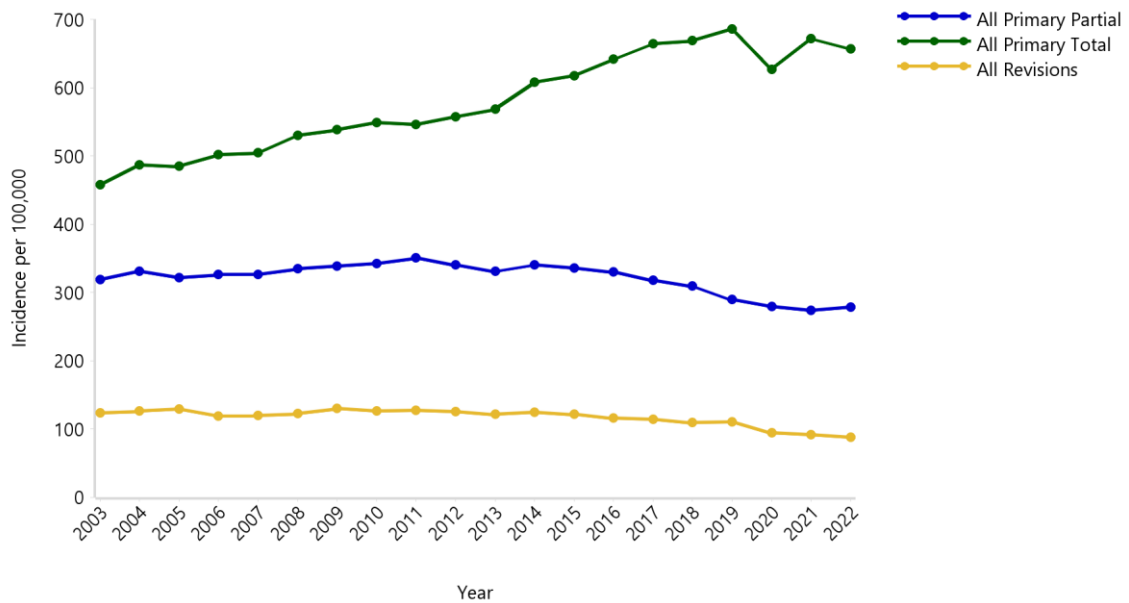


Figure SD19 Trends in Usage of Hip Replacement by State/Territory and Year

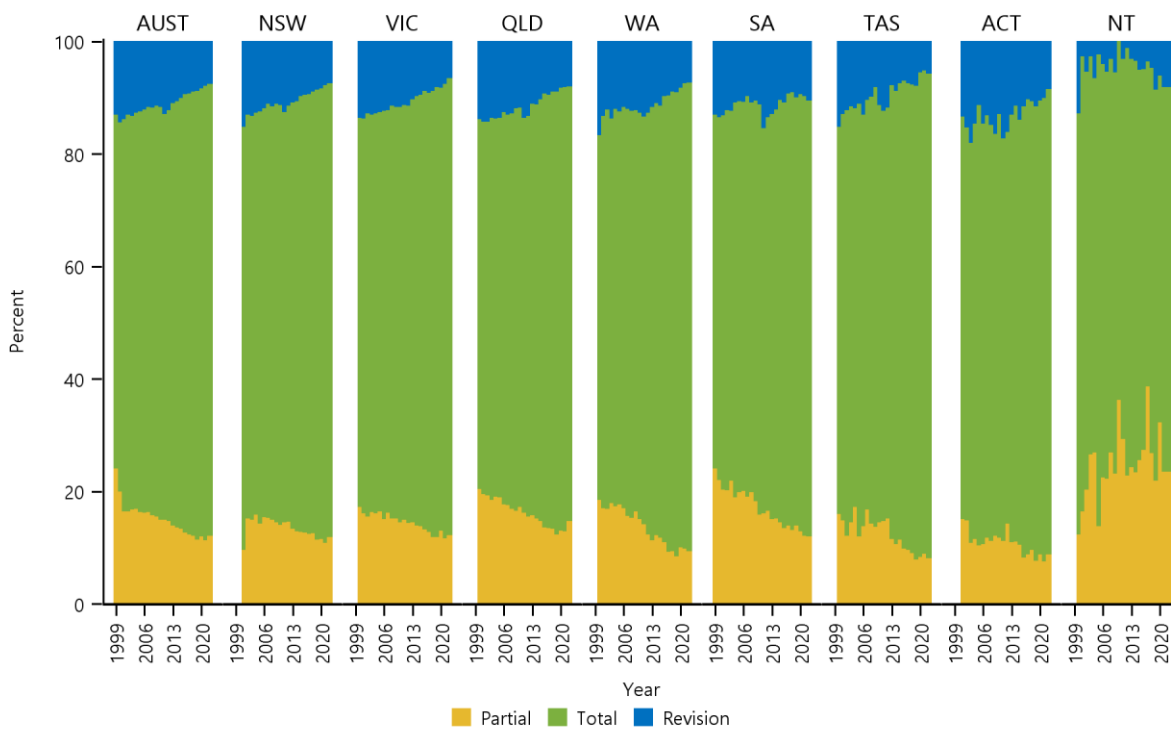


Table SD8 Time between Procedures for Bilateral Primary Hip Replacement

Bilateral Procedures	Same Day			1 day - 3 months			3 months - 6 months			≥6 months			TOTAL		
	N	Row%	Col%	N	Row%	Col%	N	Row%	Col%	N	Row%	Col%	N	Row%	Col%
Both Partial	51	1.0	0.7	761	14.2	10.6	507	9.4	4.2	4047	75.4	3.7	5366	100.0	4.0
Both Total	6890	5.5	99.2	6314	5.0	88.2	11503	9.2	94.8	100996	80.3	93.5	125703	100.0	93.6
Total/Partial	4	0.1	0.1	82	2.6	1.1	118	3.7	1.0	2974	93.6	2.8	3178	100.0	2.4
TOTAL	6945	5.2	100.0	7157	5.3	100.0	12128	9.0	100.0	108017	80.5	100.0	134247	100.0	100.0

Table SD9 Number of Hip Procedures by Patient

Hip Procedures	Not Revised		1 Revision		2 Revisions		3 or more Revisions		TOTAL	
	N	Row%	N	Row%	N	Row%	N	Row%	N	Row%
Unknown Primary/Primaries	.	.	16776	74.6	4047	18.0	1672	7.4	22495	100.0
Single Primary Procedure	466374	94.2	22642	4.6	4071	0.8	1829	0.4	494916	100.0
2 Primary Procedures	121163	90.3	9469	7.1	2421	1.8	1194	0.9	134247	100.0
TOTAL	587537	90.2	48887	7.5	10539	1.6	4695	0.7	651658	100.0

PRIMARY PARTIAL HIP REPLACEMENT

CLASSES OF PARTIAL HIP REPLACEMENT

The Registry identifies four classes of primary partial hip replacement. These are defined by the type of prostheses used.

Partial resurfacing involves the use of one or more button prosthesis to replace part of the natural articulating surface on one or both sides of the hip joint. The last recorded procedure was in 2014.

Unipolar monoblock involves the use of a femoral stem with a fixed large head that replaces the natural femoral head.

Unipolar modular involves the use of a femoral stem and exchangeable large head prosthesis that replaces the natural femoral head.

Bipolar involves the use of a femoral stem and standard head prosthesis that articulates with a non-fixed component that replaces the natural femoral head.

Further information on primary partial resurfacing hip replacement is available in the supplementary report 'Prosthesis Types with No and Minimal Use' on the AOANJRR website: <https://aoanjrr.sahmri.com/annual-reports-2023>

Table SD10 Primary Partial Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	84454	70.1%	9	108	84	83.3	8.6
Male	35994	29.9%	5	107	83	81.8	9.6
TOTAL	120448	100.0%	5	108	84	82.8	8.9

Figure SD20 Primary Partial Hip Replacement by Age and Gender

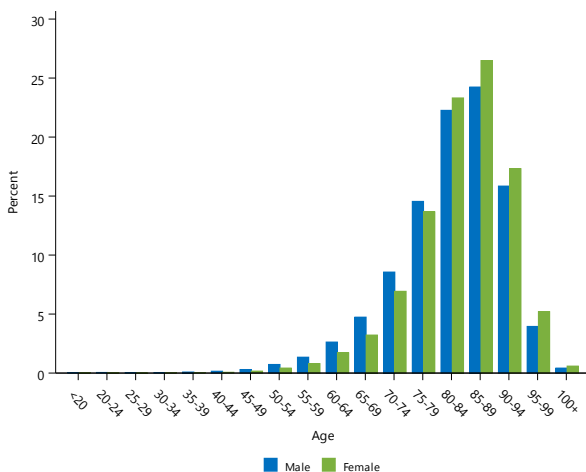
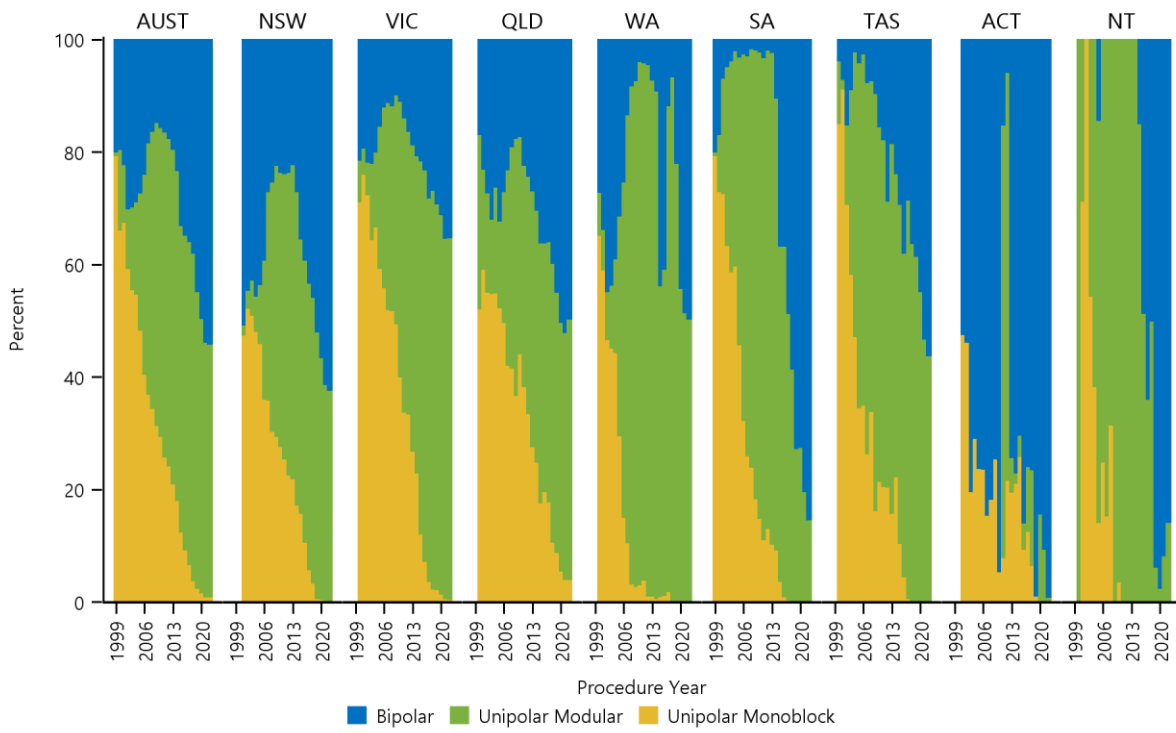


Table SD11 Primary Partial Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Fractured Neck Of Femur	115093	95.6
Osteoarthritis	3006	2.5
Tumour	1317	1.1
Failed Internal Fixation	642	0.5
Osteonecrosis	235	0.2
Rheumatoid Arthritis	59	0.0
Developmental Dysplasia	56	0.0
Osteochondritis Dissecans	1	0.0
Other	39	0.0
TOTAL	120448	100.0

Figure SD21 Trends in Usage of Primary Partial Hip Replacement by State/Territory and Year



PRIMARY PARTIAL RESURFACING HIP REPLACEMENT

Table SD12 Primary Partial Resurfacing Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	3	20.0%	17	53	23	31.0	19.3
Male	12	80.0%	18	39	27	26.6	6.6
TOTAL	15	100.0%	17	53	25	27.5	9.5

Figure SD22 Primary Partial Resurfacing Hip Replacement by Age and Gender

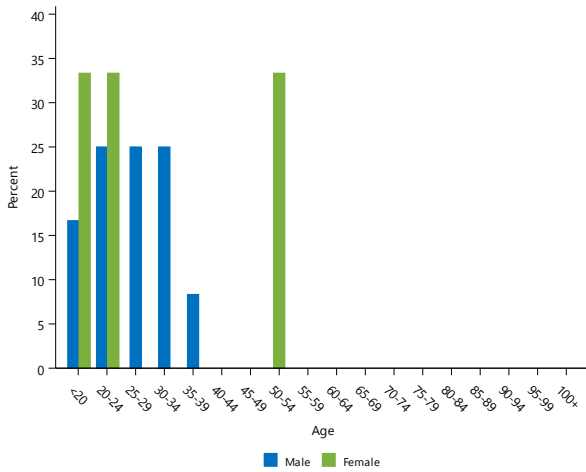


Table SD13 Primary Partial Resurfacing Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteonecrosis	7	46.7
Osteoarthritis	5	33.3
Osteochondritis Dissecans	1	6.7
Other	2	13.3
TOTAL	15	100.0

PRIMARY UNIPOLAR MONOBLOCK HIP REPLACEMENT

Table SD14 Primary Unipolar Monoblock Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	21255	72.6%	16	108	86	85.0	7.2
Male	8002	27.4%	32	107	84	83.5	7.8
TOTAL	29257	100.0%	16	108	85	84.5	7.4

Figure SD23 Primary Unipolar Monoblock Hip Replacement by Age and Gender

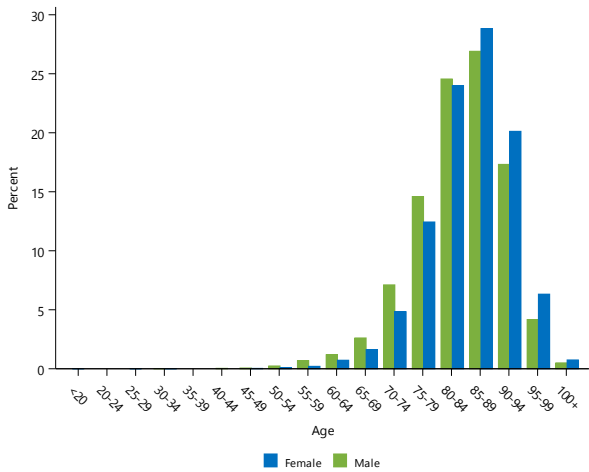
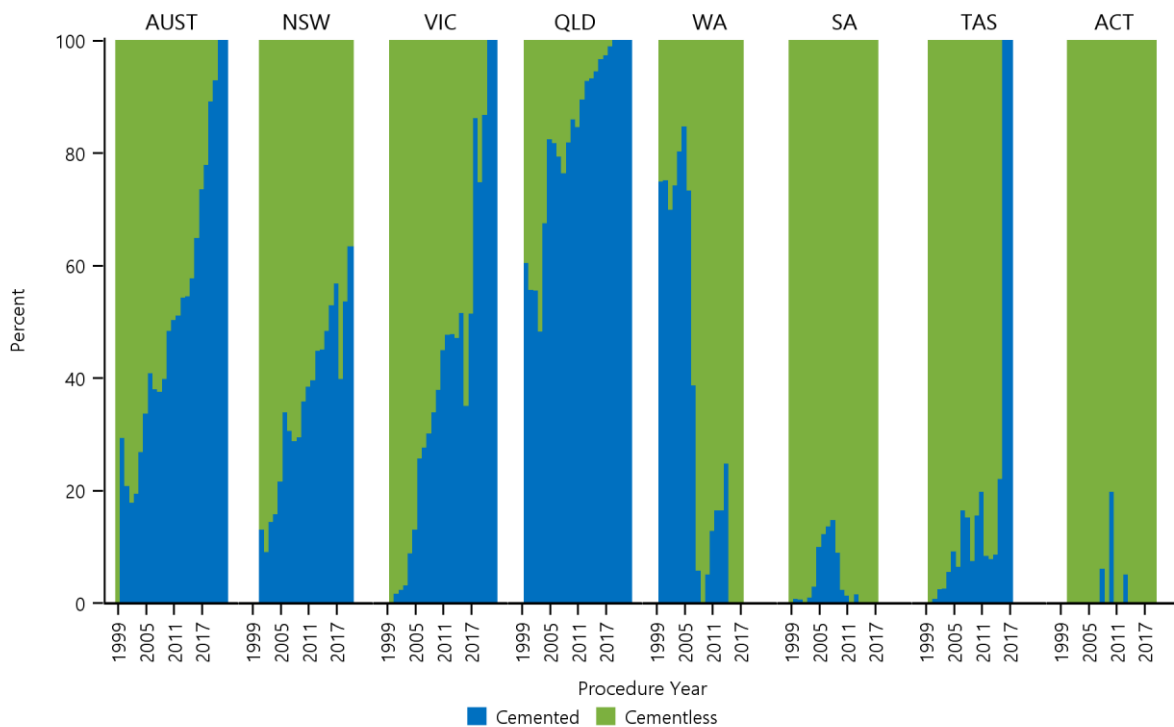


Table SD15 Primary Unipolar Monoblock Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Fractured Neck Of Femur	28571	97.7
Osteoarthritis	497	1.7
Tumour	64	0.2
Osteonecrosis	50	0.2
Failed Internal Fixation	43	0.1
Developmental Dysplasia	15	0.1
Rheumatoid Arthritis	14	0.0
Other	3	0.0
TOTAL	29257	100.0

Figure SD24 Trends in Fixation of Primary Unipolar Monoblock Hip Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

PRIMARY UNIPOLAR MODULAR HIP REPLACEMENT

Table SD16 Primary Unipolar Modular Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	38405	69.8%	18	108	84	83.3	8.5
Male	16623	30.2%	5	106	83	81.9	9.4
TOTAL	55028	100.0%	5	108	84	82.9	8.8

Figure SD25 Primary Unipolar Modular Hip Replacement by Age and Gender

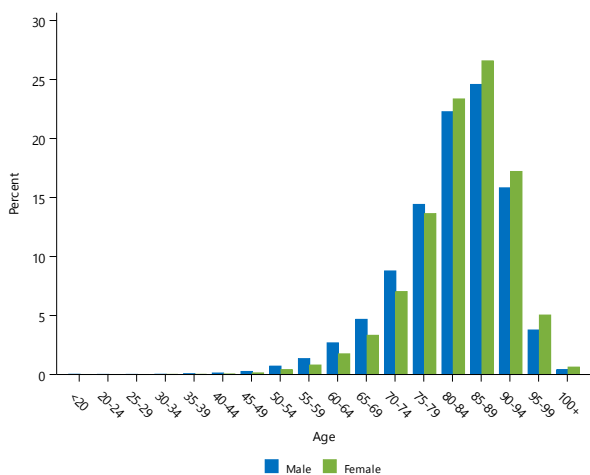
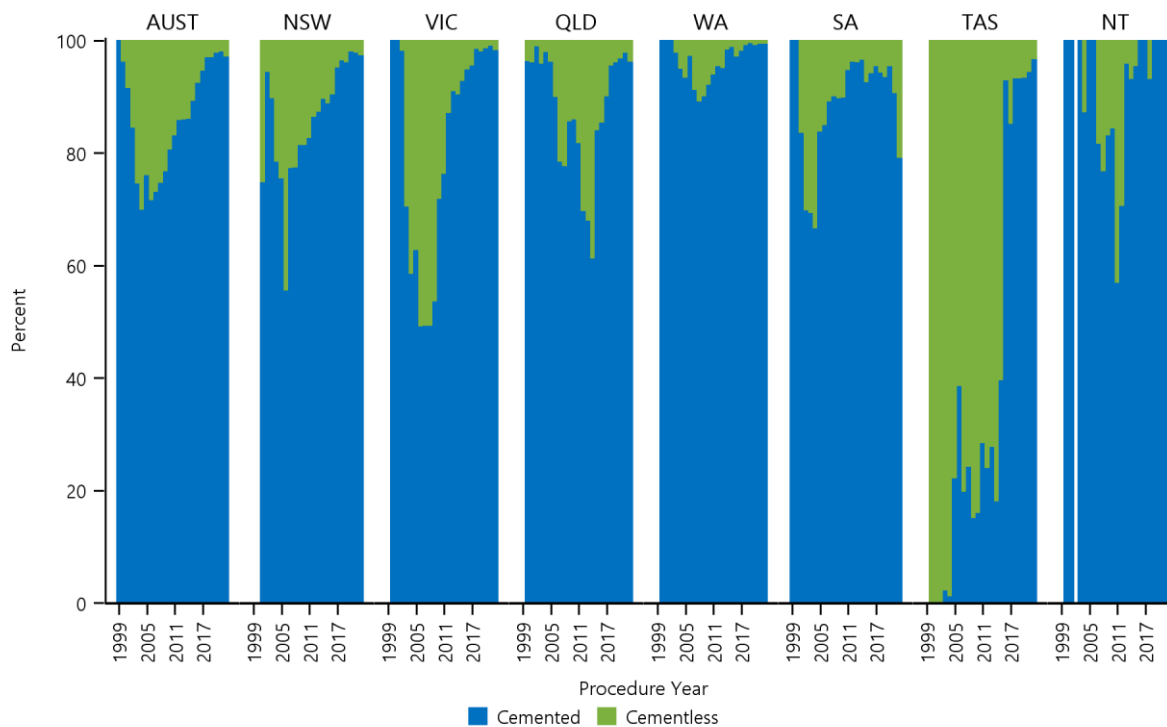


Table SD17 Primary Unipolar Modular Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Fractured Neck Of Femur	52816	96.0
Osteoarthritis	1388	2.5
Tumour	401	0.7
Failed Internal Fixation	291	0.5
Osteonecrosis	66	0.1
Developmental Dysplasia	25	0.0
Rheumatoid Arthritis	22	0.0
Other	19	0.0
TOTAL	55028	100.0

Figure SD26 Trends in Fixation of Primary Unipolar Modular Hip Replacement by State/Territory and Year



Note: There were no unipolar modular hip replacements in 2002 in NT
ACT is excluded from this graph due to low procedure numbers

PRIMARY BIPOLAR HIP REPLACEMENT

Table SD18 Primary Bipolar Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	24791	68.6%	9	107	83	81.9	9.5
Male	11357	31.4%	9	105	82	80.6	10.7
TOTAL	36148	100.0%	9	107	83	81.5	9.9

Figure SD27 Primary Bipolar Hip Replacement by Age and Gender

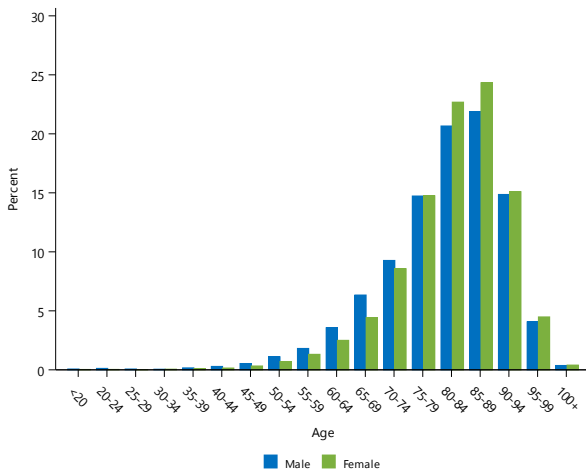
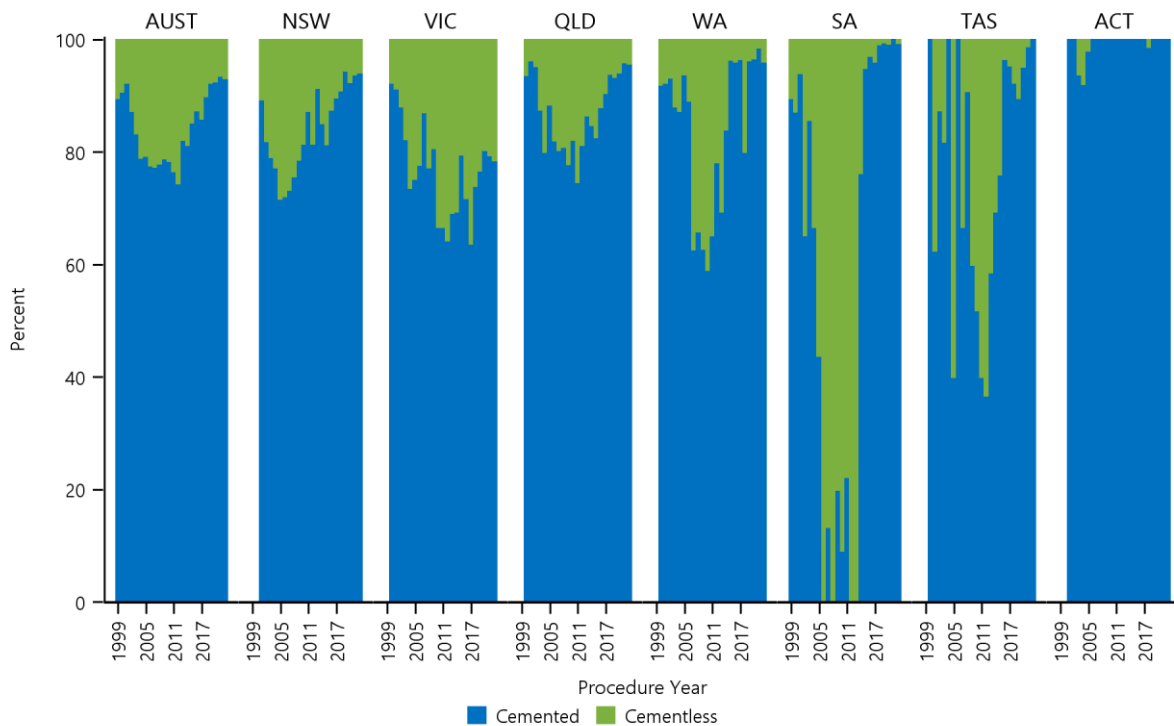


Table SD19 Primary Bipolar Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Fractured Neck Of Femur	33706	93.2
Osteoarthritis	1116	3.1
Tumour	852	2.4
Failed Internal Fixation	308	0.9
Osteonecrosis	112	0.3
Rheumatoid Arthritis	23	0.1
Developmental Dysplasia	16	0.0
Other	15	0.0
TOTAL	36148	100.0

Figure SD28 Trends in Fixation of Primary Bipolar Hip Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

PRIMARY TOTAL HIP REPLACEMENT

CLASSES OF TOTAL HIP REPLACEMENT

The Registry subcategorises primary total hip replacement into three classes. These are defined by the type of femoral prosthesis used. A total hip procedure replaces both the femoral and acetabular articular surfaces.

Total conventional includes acetabular replacement combined with resection of the femoral head and replacement with a stemmed femoral prosthesis and femoral head prosthesis.

Total resurfacing includes acetabular replacement and the use of a femoral prosthesis that replaces the femoral articular surface without resecting the head.

Thrust plate 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 last recorded procedure was in 2012.

Further information on thrust plate procedures is available in the supplementary report 'Prosthesis Types with No and Minimal Use' on the AOANJRR website: <https://aoanjrr.sahmri.com/annual-reports-2023>

Table SD20 Primary Total Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	345883	53.8%	11	103	70	68.8	11.4
Male	297079	46.2%	11	108	67	65.7	11.8
TOTAL	642962	100.0%	11	108	68	67.4	11.7

Figure SD29 Primary Total Hip Replacement by Age and Gender

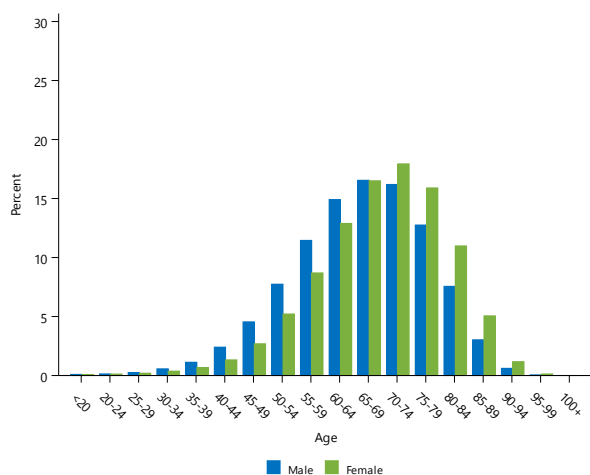
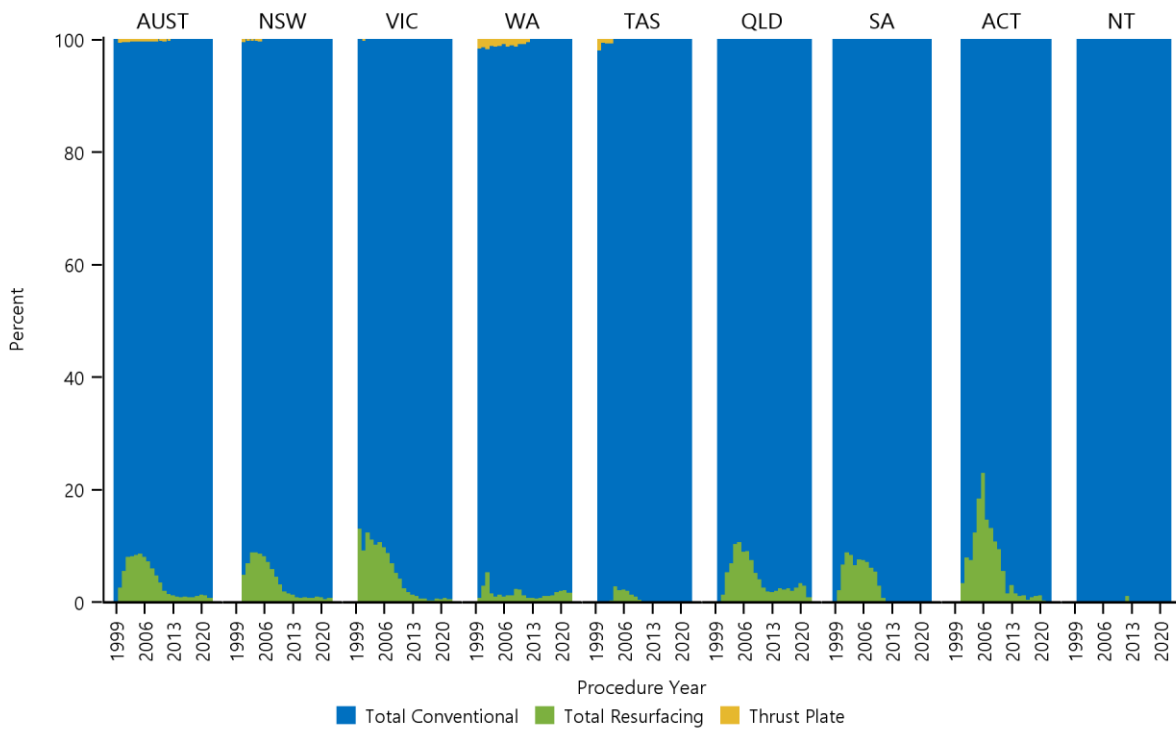


Table SD21 Primary Total Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	567182	88.2
Fractured Neck Of Femur	31549	4.9
Osteonecrosis	20447	3.2
Developmental Dysplasia	8703	1.4
Rheumatoid Arthritis	5309	0.8
Tumour	3388	0.5
Other Inflammatory Arthritis	2720	0.4
Failed Internal Fixation	2565	0.4
Fracture/Dislocation	817	0.1
Arthrodesis Takedown	154	0.0
Other	128	0.0
TOTAL	642962	100.0

Figure SD30 Trends in Usage of Primary Total Hip Replacement by State/Territory and Year



PRIMARY TOTAL CONVENTIONAL HIP REPLACEMENT

Table SD22 Primary Total Conventional Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	342122	54.9%	11	103	70	69.0	11.3
Male	280830	45.1%	11	108	67	66.4	11.5
TOTAL	622952	100.0%	11	108	69	67.8	11.5

Figure SD31 Primary Total Conventional Hip Replacement by Age and Gender

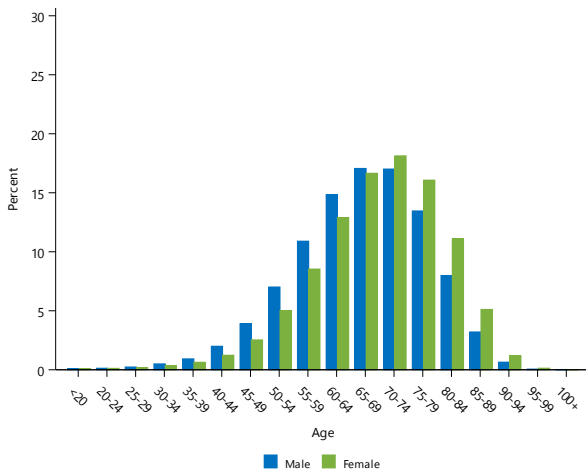
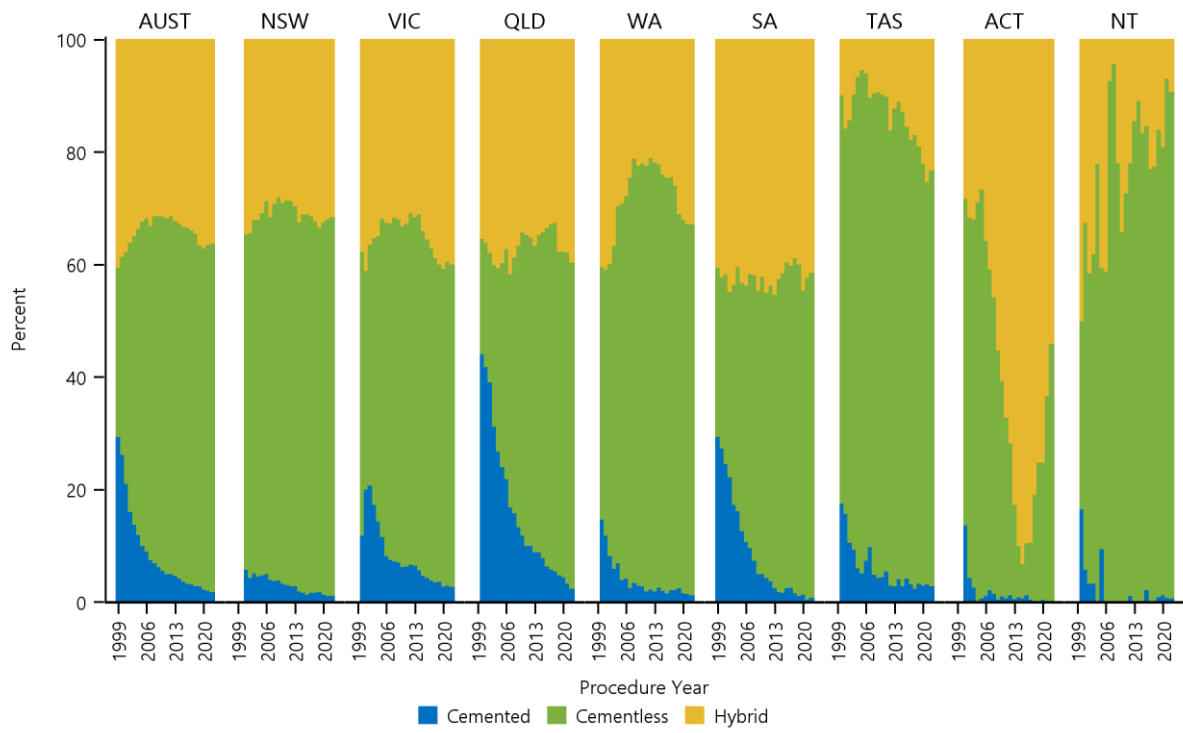


Table SD23 Primary Total Conventional Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	548061	88.0
Fractured Neck Of Femur	31549	5.1
Osteonecrosis	20140	3.2
Developmental Dysplasia	8270	1.3
Rheumatoid Arthritis	5245	0.8
Tumour	3386	0.5
Other Inflammatory Arthritis	2645	0.4
Failed Internal Fixation	2565	0.4
Fracture/Dislocation	813	0.1
Arthrodesis Takedown	153	0.0
Other	125	0.0
TOTAL	622952	100.0

Figure SD32 Trends in Fixation of Primary Total Conventional Hip Replacement by State/Territory and Year



PRIMARY TOTAL RESURFACING HIP REPLACEMENT

Table SD24 Primary Total Resurfacing Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	3687	18.7%	14	81	53	51.5	8.6
Male	16065	81.3%	13	84	54	53.3	9.1
TOTAL	19752	100.0%	13	84	54	53.0	9.1

Figure SD33 Primary Total Resurfacing Hip Replacement by Age and Gender

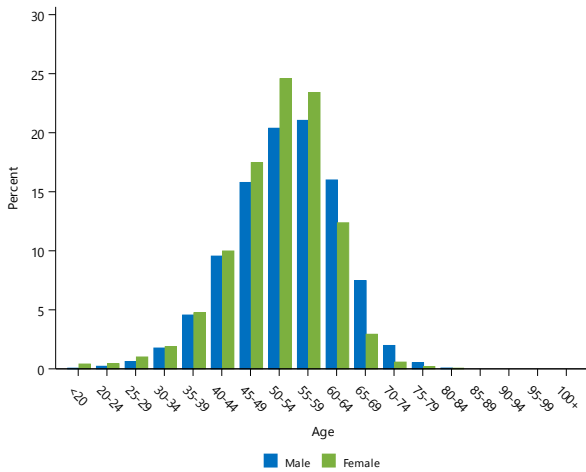
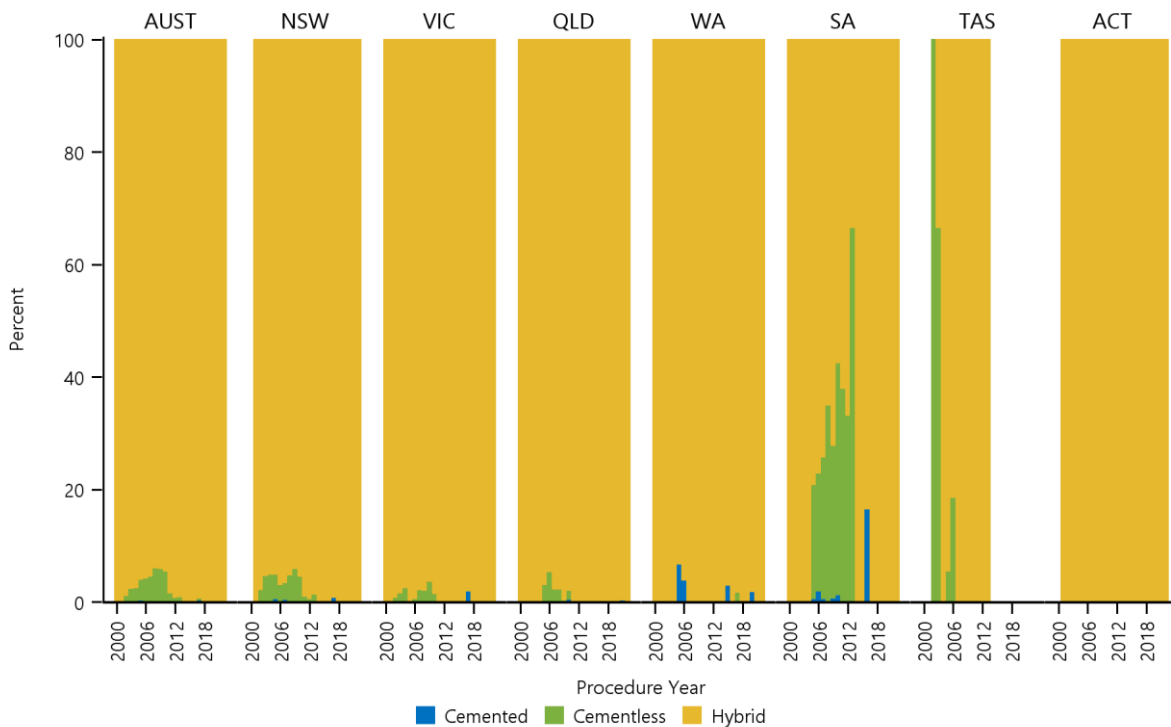


Table SD25 Primary Total Resurfacing Hip Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	18878	95.6
Developmental Dysplasia	430	2.2
Osteonecrosis	302	1.5
Other Inflammatory Arthritis	74	0.4
Rheumatoid Arthritis	58	0.3
Fracture/Dislocation	4	0.0
Tumour	2	0.0
Arthrodesis Takedown	1	0.0
Other	3	0.0
TOTAL	19752	100.0

Figure SD34 Trends in Fixation of Primary Total Resurfacing Hip Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

The last total resurfacing hip replacement undertaken in Tasmania was 2013

PRIMARY THRUST PLATE HIP REPLACEMENT

Table SD26 Primary Thrust Plate Hip Replacement by Age and Gender

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
TOTAL	258	100.0%	27	75	58	57.3	9.2

Figure SD35 Primary Thrust Plate Hip Replacement by Age and Gender

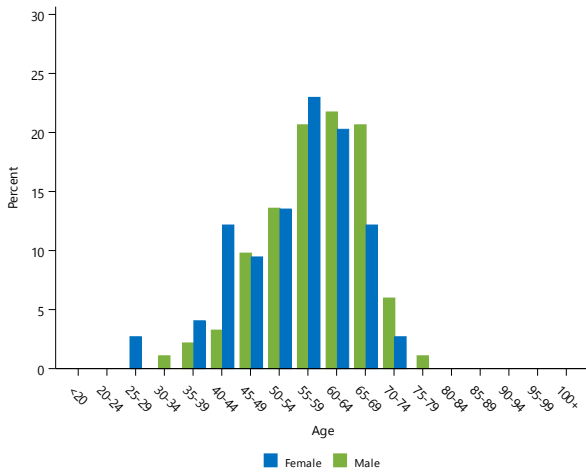


Table SD27 Primary Thrust Plate Hip Replacement by Primary Diagnosis

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
TOTAL	258	100.0

REVISION HIP REPLACEMENT

CLASSES OF REVISION PROCEDURES

The Registry defines revision of a hip replacement as any re-operation of a previous hip replacement procedure that involves the insertion, removal and/or replacement of a prosthesis or implant. Revisions are sub categorised into three classes: major total, major partial and minor.

Major total revision is the insertion, removal and/or replacement of all major components.

Major partial revision is the insertion, removal and/or replacement of one major component. Major components are prostheses that are fixed to bone. These are the femoral prosthesis and the acetabular shell or cup in hip replacement. Different types of major partial and minor revisions are identified based on the specific prostheses or implants used in the revision.

Minor revision is the insertion removal and/or replacement of any other prostheses or implant.

Table SD28 All Revision Hip Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Male	40724	46.7%	15	102	72	70.2	12.0
Female	46435	53.3%	11	104	73	71.7	12.2
TOTAL	87159	100.0%	11	104	72	71.0	12.1

Figure SD36 All Revision Hip Replacement by Age and Gender

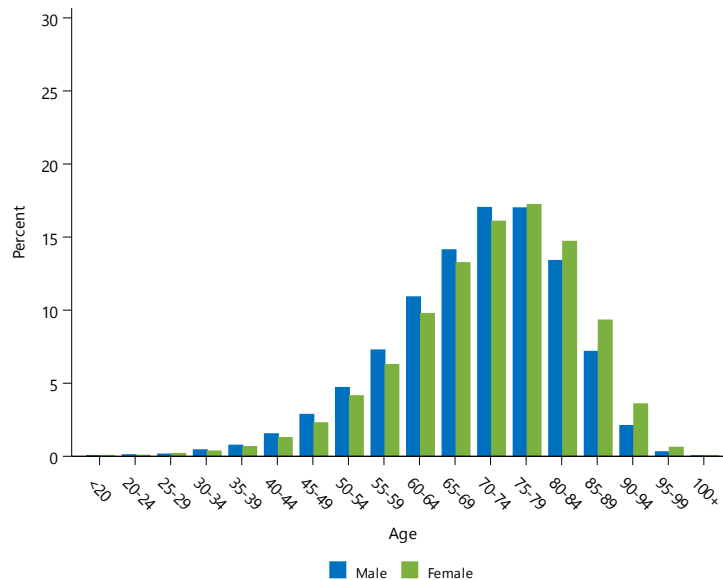


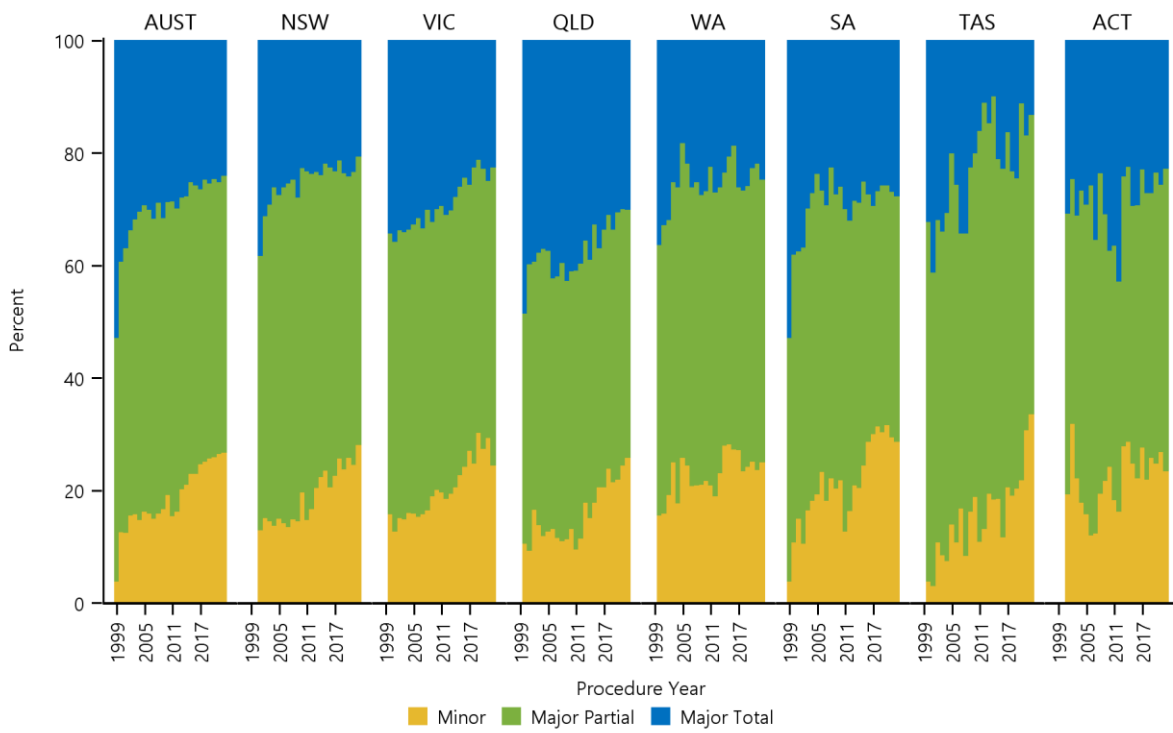
Table SD29 All Revision Hip Replacement by Type of Revision

Type for Revision	Number	Percent
Acetabular Component	25066	28.8
THR (Femoral/Acetabular)	23391	26.8
Femoral Component	17288	19.8
Head/Insert	11938	13.7
Cement Spacer	3266	3.7
Head Only	2325	2.7
Minor Components	1078	1.2
Removal of Prostheses	795	0.9
Insert Only	714	0.8
Bipolar Head and Femoral	661	0.8
Bipolar Only	309	0.4
Head/Neck/Insert	152	0.2
Head/Neck	90	0.1
Reinsertion of Components	64	0.1
Neck Only	9	0.0
Saddle	5	0.0
Cement Only	4	0.0
Thrust Plate	2	0.0
Neck/Insert	1	0.0
Incomplete	1	0.0
TOTAL	87159	100.0

Table SD30 All Revision Hip Replacement by Reason for Revision

Reason of Revision	Number	Percent
Loosening	29397	33.7
Infection	16233	18.6
Prosthesis Dislocation/Instability	13445	15.4
Fracture	11269	12.9
Lysis	4812	5.5
Metal Related Pathology	3338	3.8
Pain	1664	1.9
Wear Acetabular Insert	1329	1.5
Implant Breakage Stem	915	1.0
Implant Breakage Acetabular	697	0.8
Chondrolysis/Acetab. Erosion	576	0.7
Malposition	536	0.6
Leg Length Discrepancy	496	0.6
Implant Breakage Acetabular Insert	479	0.5
Wear Acetabulum	341	0.4
Incorrect Sizing	206	0.2
Tumour	164	0.2
Osteonecrosis	131	0.2
Implant Breakage Head	122	0.1
Wear Head	109	0.1
Heterotopic Bone	85	0.1
Progression Of Disease	34	0.0
Synovitis	16	0.0
Other	765	0.9
TOTAL	87159	100.0

Figure SD37 Trends in All Revision Hip Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

Knee Replacement

CATEGORIES OF KNEE REPLACEMENT

The Registry groups knee replacement into three broad categories, primary partial, primary total and revision knee replacement.

A primary replacement is the initial replacement procedure undertaken on a joint and involves replacing either part (partial) or all (total) of the articular surface.

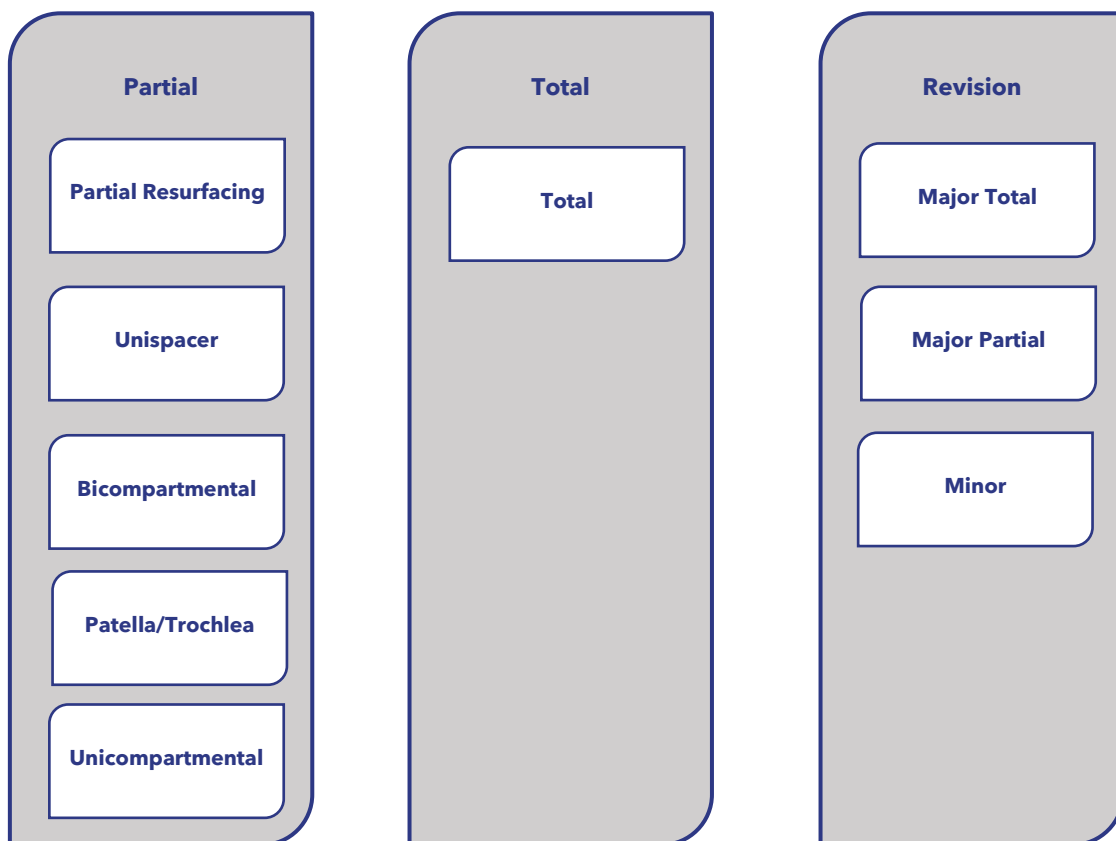
Primary partial knee replacements are subcategorised into five classes depending on the type of prostheses used. The classes of primary partial knee are partial resurfacing, unispacer, bicompartamental, patella/trochlea and unicompartmental.

unicompartmental. These are defined in the partial knee arthroplasty chapter in the Annual Report.

Revision knee replacements are re-operations of previous knee replacements where one or more of the prosthetic components are replaced, removed or another component is added. Revisions include re-operations of primary partial, primary total or previous revision procedures.

Knee revisions are subcategorised into three classes: major total, major partial or minor revisions. These are defined in the chapter on revision outcomes.

KNEE REPLACEMENT

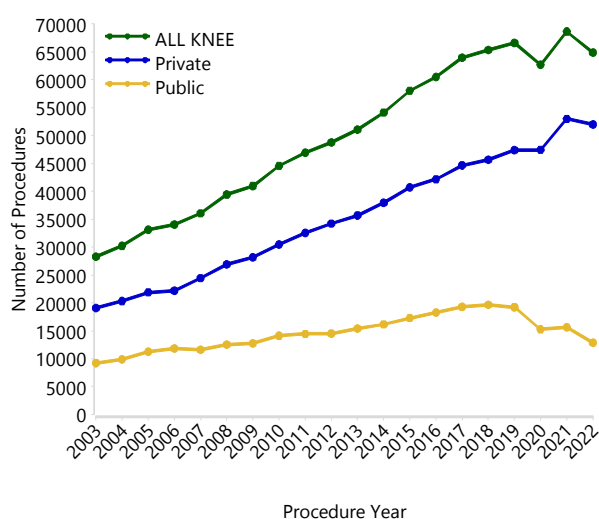


PUBLIC AND PRIVATE SECTOR

In 2022, 80.2% of all knee replacement procedures reported to the Registry were undertaken in private hospitals.

In the last year, there was a decrease in the number of knee replacements recorded in both the private and public sectors. The private sector recorded 51,978 procedures, a decrease of 1.9% and the public sector recorded 12,868 procedures, a decrease of 17.8% compared to 2021 (0).

Figure SD38 Knee Replacement by Hospital Sector



Since 2003, knee replacement has increased by 172.4% in the private sector compared to 39.3% in the public sector.

There were 3,336 primary partial knee replacements reported for the private sector in 2022, a decrease of 2.6% compared to 2021 and a decrease of 2.2% since 2003. In the public sector, there were 326 partial knee replacements, a decrease of 23.5% compared to 2021 and a decrease of 62.1% since 2003.

In 2022, 45,367 primary total knee replacements were reported in the private sector, a decrease of 1.2% compared to 2021. In the public sector in 2022, there were 11,136 primary total knee replacements, a decrease of 18.9% compared to 2021. Since 2003, primary total knee replacement has increased by 222.4% in the private sector compared to 45.4% in the public sector.

There were 3,275 private sector revision knee replacements reported in 2022. This is a decrease of 9.8% compared to 2021. In the public sector, there were 1,406 revision knee replacements, a decrease of 5.6% compared to 2021. Since 2003, revision knee replacement has increased by 105.1% in the private sector compared to 96.1% in the public sector.

Table SD31 All Knee Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Male	471729	45.1%	8	101	68	67.9	9.2
Female	574518	54.9%	8	103	69	68.5	9.6
TOTAL	1046247	100.0%	8	103	69	68.2	9.4

Table SD32 Number of Knee Replacements by Gender

Knee Replacement	Female		Male		TOTAL	
	N	%	N	%	N	%
Partial Resurfacing	121	49.2	125	50.8	246	0.3
Unispacer	19	47.5	21	52.5	40	0.1
Patella/Trochlear	3923	76.6	1196	23.4	5119	6.7
Unicompartmental	32151	45.3	38774	54.7	70925	92.7
Bicompartmental	100	60.6	65	39.4	165	0.2
All Primary Partial	36314	47.5	40181	52.5	76495	100.0
Total Knee	495840	55.9	390696	44.1	886536	100.0
All Primary Total	495840	55.9	390696	44.1	886536	100.0
Major Total	20582	52.4	18698	47.6	39280	47.2
Major Partial	6754	48.9	7050	51.1	13804	16.6
Minor	15028	49.9	15104	50.1	30132	36.2
All Revision	42364	50.9	40852	49.1	83216	100.0
ALL KNEES	574518	54.9	471729	45.1	1046247	100.0

Figure SD39 Percentage of Females by Type of Primary Knee Replacement and Procedure Year

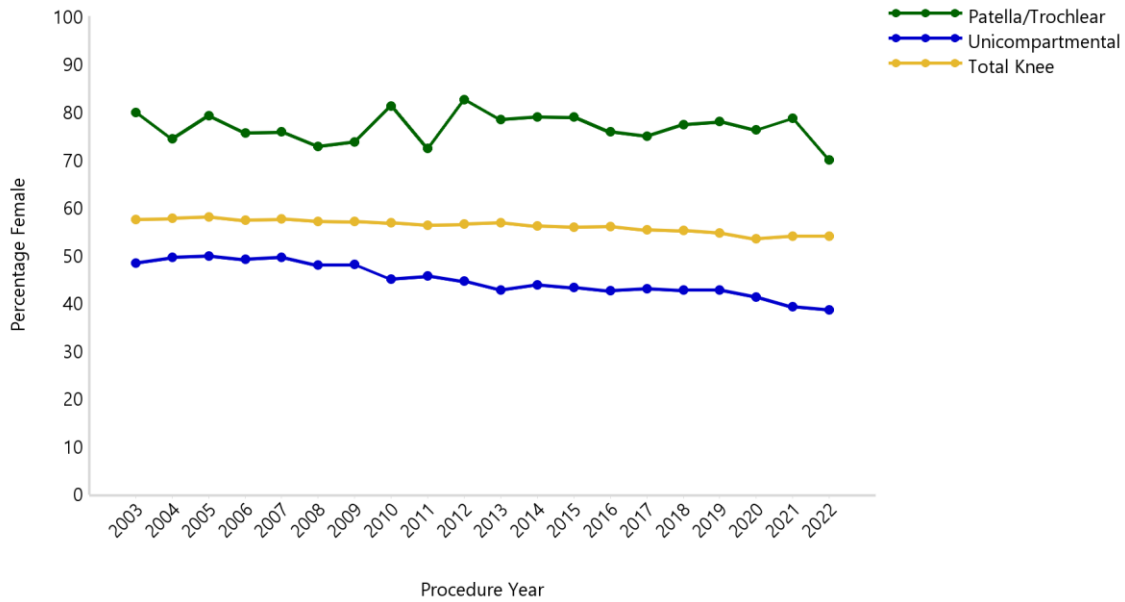


Figure SD40 Percentage of Females by Revision Knee Replacement and Procedure Year

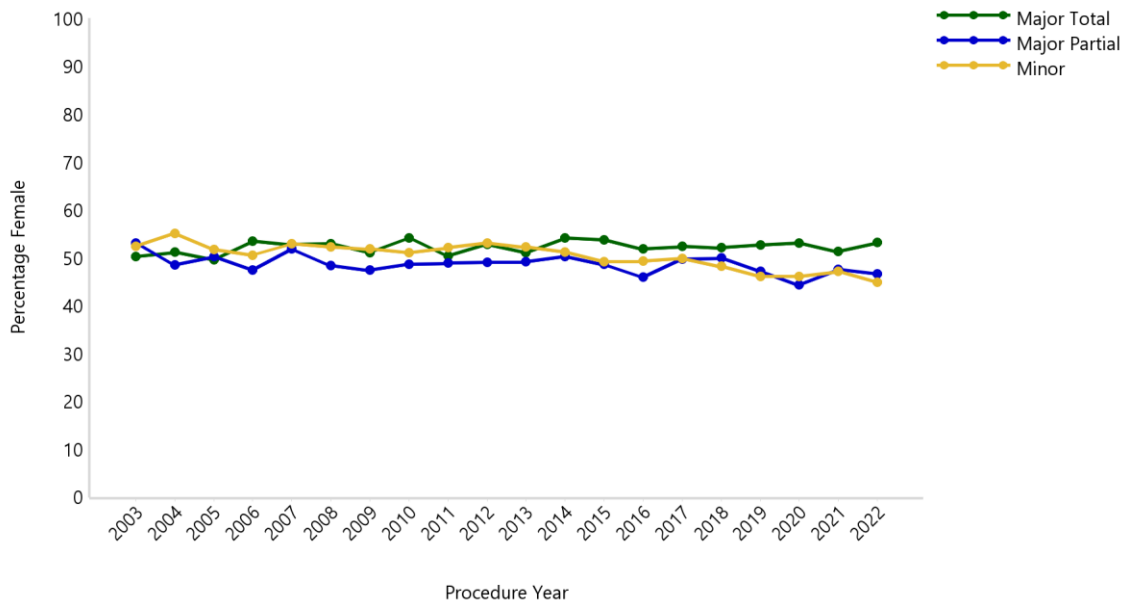


Figure SD41 Percentage of Patients Aged <65 Years by Type of Primary Knee Replacement and Procedure Year

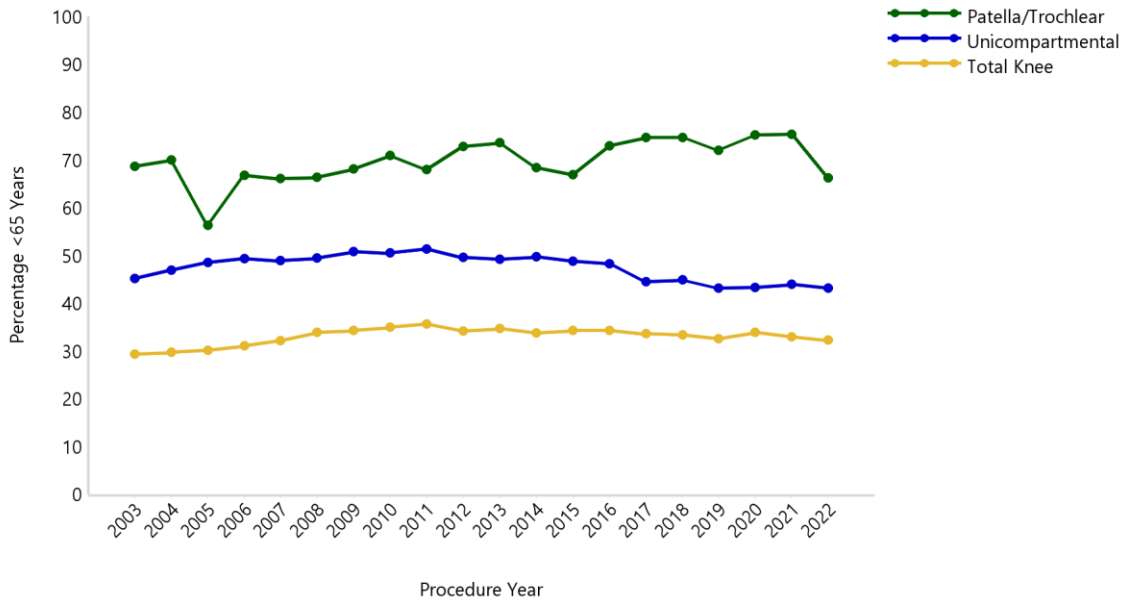


Figure SD42 Percentage of Patients Aged <65 Years by Revision Knee Replacement and Procedure Year

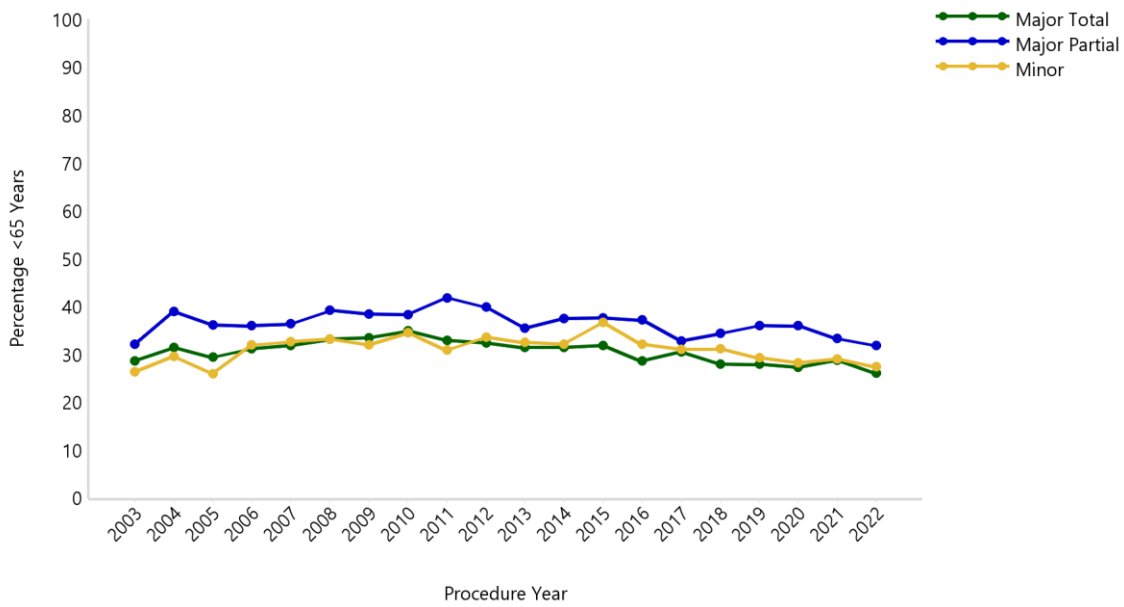


Figure SD43 Trends in Usage of Knee Replacement by Procedure Year

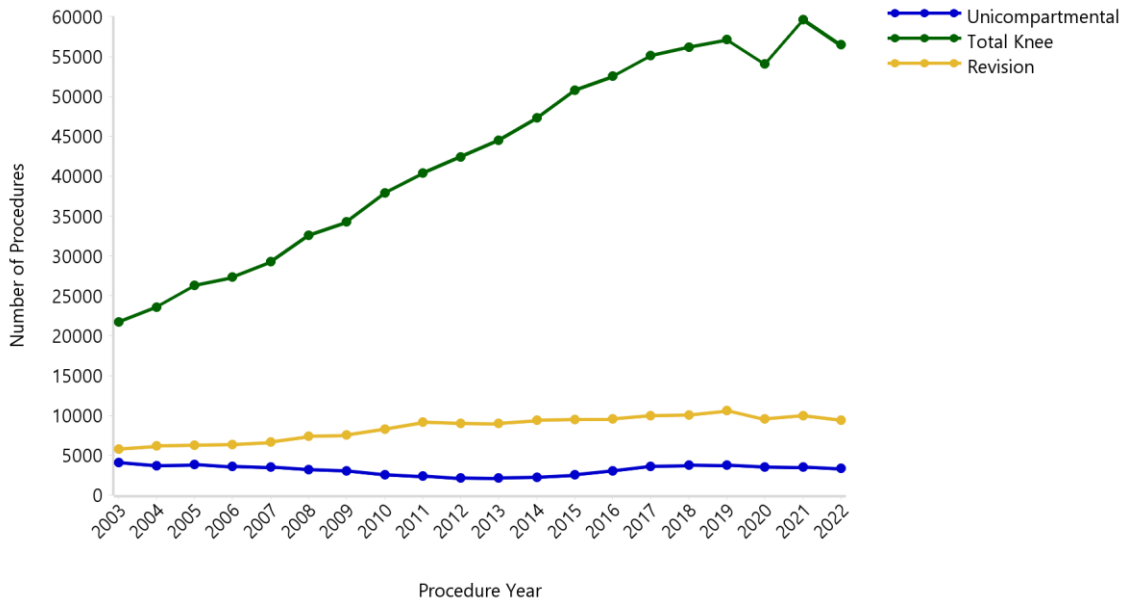


Figure SD44 Trends in Usage of Revision Knee Replacement by Procedure Year

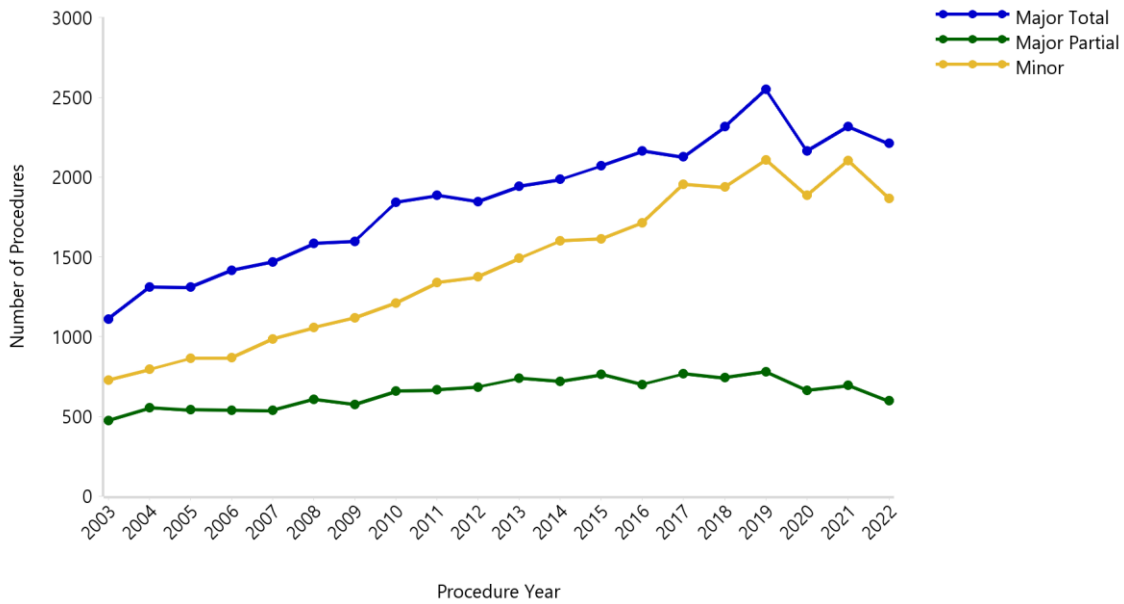


Table SD33 Incidence of Knee Replacement per 100,000 from 2003 to 2022

Knee Replacement	2003 N	2004 N	2005 N	2006 N	2007 N	2008 N	2009 N	2010 N	2011 N	2012 N	2013 N
Partial Resurfacing	.0	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.1
Unispacer	0.1	0.1	0.0	.	.	.	.	.	.	.	.
Patella/Trochlear	0.8	0.9	0.9	0.9	0.9	1.1	1.1	1.2	1.1	1.0	1.1
Unicompartmental	20.8	18.7	19.2	17.7	16.8	15.2	14.2	11.9	10.8	9.4	9.2
Bicompartmental	.	.	.	0.0	0.2	0.2	0.2	0.1	0.0	0.0	.
All Primary Partial	21.7	19.8	20.2	18.8	18.1	16.6	15.6	13.2	12.0	10.5	10.4
Total Knee	110.2	118.4	130.5	133.9	140.7	153.5	158.2	172.1	180.7	186.7	192.4
All Primary Total	110.2	118.4	130.5	133.9	140.7	153.5	158.2	172.1	180.7	186.7	192.4
All Revisions	11.7	13.4	13.5	13.8	14.4	15.3	15.2	16.9	17.4	17.2	18.1
ALL KNEES	143.6	151.5	164.2	166.5	173.1	185.5	188.9	202.2	210.1	214.4	220.9

Knee Replacement	2014 N	2015 N	2016 N	2017 N	2018 N	2019 N	2020 N	2021 N	2022 N	TOTAL N
Partial Resurfacing	0.1	0.0	0.0	0.0	0.0	.	.	.	0.0	0.1
Unispacer	.	.	.	.	.	.	.	.	.	0.0
Patella/Trochlear	1.0	1.0	1.3	1.2	1.3	1.2	1.2	1.2	1.1	1.1
Unicompartmental	9.7	10.7	12.6	14.9	15.2	14.8	13.9	13.8	13.0	14.0
Bicompartmental	.	.	.	.	.	.	.	.	.	0.0
All Primary Partial	10.8	11.8	13.9	16.1	16.6	16.0	15.1	15.0	14.1	15.2
Total Knee	201.4	213.2	217.1	224.1	224.8	225.2	210.5	231.7	217.3	185.5
All Primary Total	201.4	213.2	217.1	224.1	224.8	225.2	210.5	231.7	217.3	185.5
All Revisions	18.3	18.7	18.9	19.7	20.0	21.5	18.4	19.9	18.0	17.2
ALL KNEES	230.5	243.7	249.9	259.9	261.4	262.6	243.9	266.6	249.4	217.9

Figure SD45 Incidence of Knee Replacement per 100,000 from 2003 to 2022

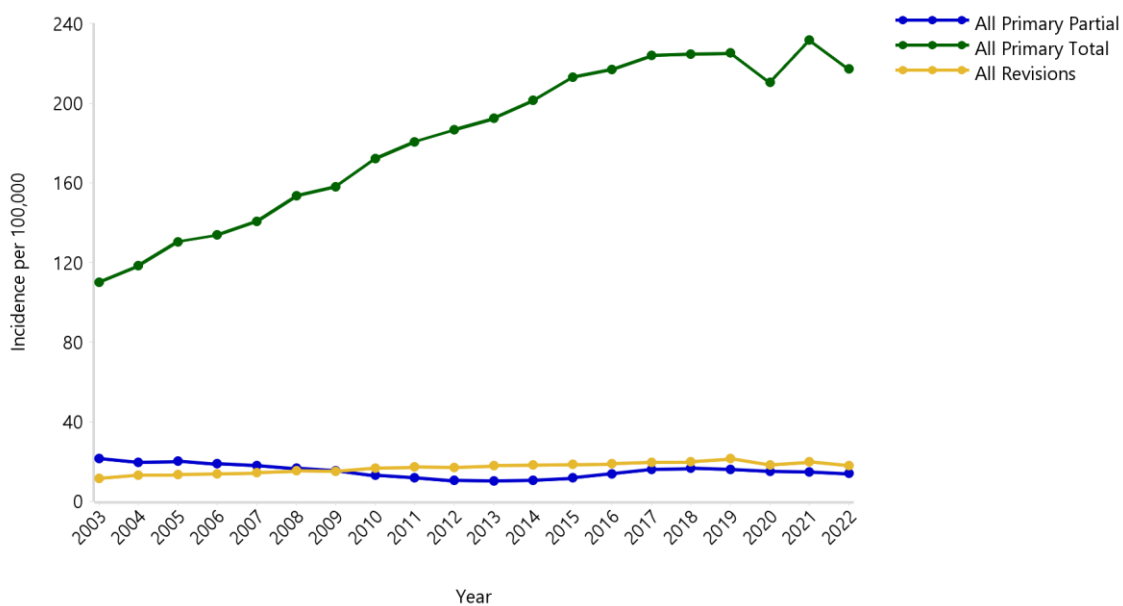


Table SD34 Incidence of Knee Replacement in Patients Aged <55 Years per 100,000 from 2003 to 2022

Knee Replacement	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	N	N	N	N	N	N	N	N	N	N	N
Partial Resurfacing	.	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.1
Unispacer	0.1	0.1	.	.	.	.	.	.	.	.	.
Patella/Trochlear	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.6
Unicompartmental	3.5	3.4	3.6	3.6	3.2	2.9	2.7	2.3	2.4	1.9	1.9
Bicompartmental	.	.	.	.	0.1	0.0	0.0	0.0	0.0	0.0	.
All Primary Partial	3.9	3.8	4.1	4.2	3.8	3.6	3.4	3.0	2.9	2.4	2.6
Total Knee	10.1	10.5	11.3	11.5	12.9	13.9	14.6	16.3	17.2	17.1	18.4
All Primary Total	10.1	10.5	11.3	11.5	12.9	13.9	14.6	16.3	17.2	17.1	18.4
All Revisions	1.4	1.8	1.5	1.6	1.7	2.0	1.7	2.1	2.0	1.9	2.0
ALL KNEES	15.4	16.1	16.9	17.3	18.4	19.5	19.7	21.4	22.1	21.5	23.0

Knee Replacement	2014	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
	N	N	N	N	N	N	N	N	N	N
Partial Resurfacing	0.1	0.0	0.0	0.0	0.0	.	.	.	0.0	0.1
Unispacer	.	.	.	.	.	.	.	.	.	0.0
Patella/Trochlear	0.6	0.6	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6
Unicompartmental	2.0	2.0	2.4	2.6	2.7	2.5	2.5	2.4	2.4	2.6
Bicompartmental	.	.	.	.	.	.	.	.	.	0.0
All Primary Partial	2.6	2.6	3.2	3.4	3.4	3.2	3.2	3.1	2.9	3.3
Total Knee	18.2	19.6	20.4	20.4	20.0	19.5	19.8	21.4	19.8	16.9
All Primary Total	18.2	19.6	20.4	20.4	20.0	19.5	19.8	21.4	19.8	16.9
All Revisions	2.0	2.2	2.1	2.0	2.1	2.1	1.8	1.9	1.5	1.9
ALL KNEES	22.8	24.4	25.8	25.8	25.4	24.8	24.9	26.4	24.2	22.0

Figure SD46 Incidence of Knee Replacement in Patients Aged <55 Years per 100,000 from 2003 to 2022

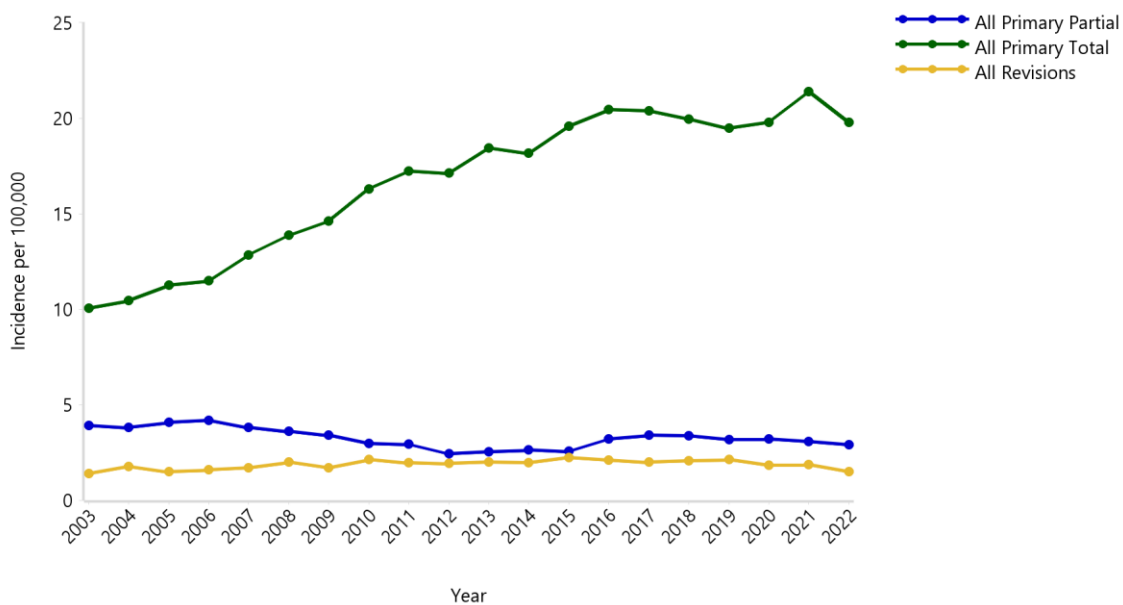


Table SD35 Incidence of Knee Replacement in Patients Aged 55-64 Years per 100,000 from 2003 to 2022

Knee Replacement	2003 N	2004 N	2005 N	2006 N	2007 N	2008 N	2009 N	2010 N	2011 N	2012 N	2013 N
Partial Resurfacing	.	.	0.0	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2
Unispacer	0.2	0.6	0.0	.	.	.	.	.	.	.	.
Patella/Trochlear	1.9	3.1	1.9	2.4	2.5	3.0	2.9	3.5	3.2	3.2	2.7
Unicompartmental	66.2	59.4	61.5	55.4	52.5	47.2	45.9	37.6	32.9	28.6	27.8
Bicompartmental	.	.	.	.	0.5	0.8	0.6	0.5	0.2	0.1	.
All Primary Partial	68.4	63.1	63.5	58.0	55.7	51.1	49.5	41.7	36.5	31.9	30.7
Total Knee	242.7	260.1	287.5	300.7	320.5	370.5	383.7	421.8	449.6	449.2	466.1
All Primary Total	242.7	260.1	287.5	300.7	320.5	370.5	383.7	421.8	449.6	449.2	466.1
All Revisions	22.5	28.4	26.6	29.7	31.0	33.3	34.3	38.5	38.6	39.0	38.6
ALL KNEES	333.6	351.6	377.5	388.4	407.3	455.0	467.6	502.0	524.6	520.2	535.4

Knee Replacement	2014 N	2015 N	2016 N	2017 N	2018 N	2019 N	2020 N	2021 N	2022 N	TOTAL N
Partial Resurfacing	0.1	0.0	0.1	.	.	.	.	.	.	0.1
Unispacer	.	.	.	.	.	.	.	.	.	0.0
Patella/Trochlear	2.2	2.5	3.0	3.0	4.4	3.3	2.9	3.2	2.7	2.9
Unicompartmental	29.5	33.1	37.7	40.8	42.3	39.3	36.4	37.5	33.8	41.3
Bicompartmental	.	.	.	.	.	.	.	.	.	0.1
All Primary Partial	31.8	35.6	40.9	43.9	46.7	42.6	39.3	40.7	36.6	44.4
Total Knee	479.2	512.0	518.7	523.6	523.6	513.1	490.7	526.1	482.5	436.8
All Primary Total	479.2	512.0	518.7	523.6	523.6	513.1	490.7	526.1	482.5	436.8
All Revisions	39.9	42.1	38.0	40.7	39.2	41.6	34.2	39.0	33.2	35.9
ALL KNEES	550.9	589.7	597.6	608.1	609.5	597.2	564.3	605.8	552.2	517.1

Figure SD47 Incidence of Knee Replacement in Patients Aged 55-64 Years per 100,000 from 2003 to 2022

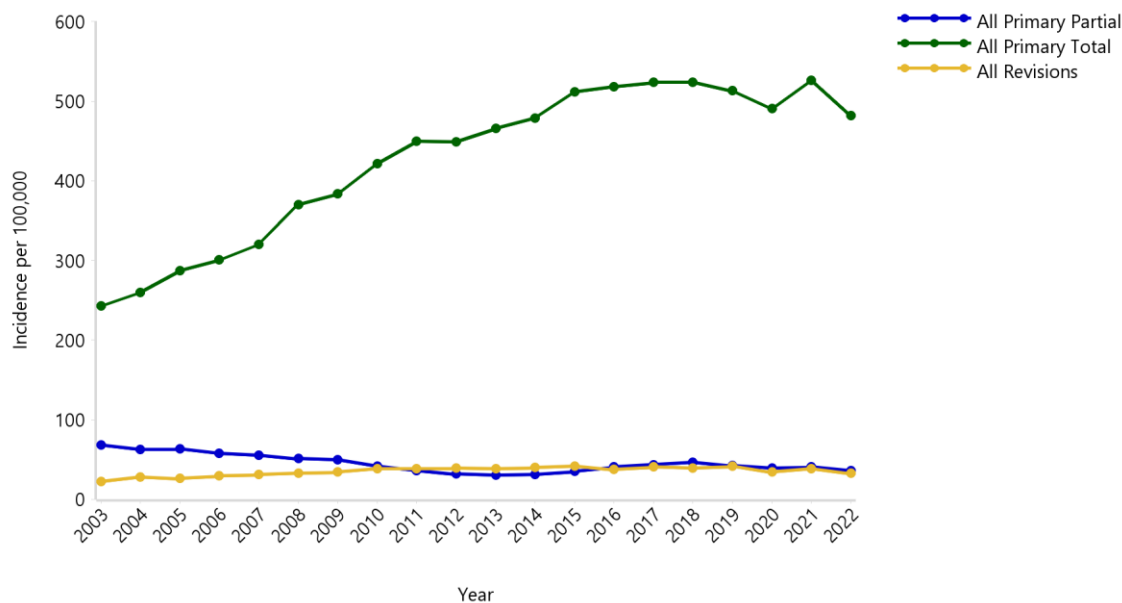


Table SD36 Incidence of Knee Replacement in Patients Aged 65-74 Years per 100,000 from 2003 to 2022

Knee Replacement	2003 N	2004 N	2005 N	2006 N	2007 N	2008 N	2009 N	2010 N	2011 N	2012 N	2013 N
Partial Resurfacing	.	.	.	0.4	0.3	0.3	0.1	.	.	0.1	0.3
Unispacer	.	0.2	.	.	.	.	.	.	.	.	.
Patella/Trochlear	2.2	1.8	3.0	2.6	2.8	2.6	2.5	2.9	2.8	2.1	2.1
Unicompartmental	101.7	84.2	87.5	81.2	73.9	65.7	62.5	52.5	44.5	39.5	37.8
Bicompartmental	.	.	.	0.2	0.6	0.7	0.6	0.2	0.1	.	.
All Primary Partial	104.0	86.2	90.5	84.3	77.7	69.2	65.8	55.7	47.4	41.7	40.2
Total Knee	616.4	659.7	705.4	726.2	750.5	810.5	835.2	886.6	910.0	944.6	945.2
All Primary Total	616.4	659.7	705.4	726.2	750.5	810.5	835.2	886.6	910.0	944.6	945.2
All Revisions	56.3	65.8	67.2	66.3	66.4	70.8	73.4	80.5	82.4	80.7	85.4
ALL KNEES	776.7	811.7	863.0	876.8	894.6	950.5	974.4	1022.8	1039.9	1066.9	1070.7

Knee Replacement	2014 N	2015 N	2016 N	2017 N	2018 N	2019 N	2020 N	2021 N	2022 N	TOTAL N
Partial Resurfacing	0.1	0.1	.	.	.	.	.	.	.	0.1
Unispacer	.	.	.	.	.	.	.	.	.	0.0
Patella/Trochlear	2.8	2.8	2.6	2.4	2.8	2.4	1.9	2.0	2.7	2.5
Unicompartmental	38.9	44.1	53.6	64.7	62.2	61.6	57.8	52.6	50.0	58.8
Bicompartmental	.	.	.	.	.	.	.	.	.	0.1
All Primary Partial	41.8	47.0	56.3	67.1	65.0	63.9	59.8	54.7	52.7	61.5
Total Knee	994.7	1024.0	1030.9	1065.7	1054.0	1046.5	949.3	1023.8	941.7	920.4
All Primary Total	994.7	1024.0	1030.9	1065.7	1054.0	1046.5	949.3	1023.8	941.7	920.4
All Revisions	86.3	83.8	84.6	88.5	91.0	93.5	81.4	79.8	75.2	79.4
ALL KNEES	1122.7	1154.8	1171.8	1221.2	1210.0	1204.0	1090.5	1158.3	1069.6	1061.4

Figure SD48 Incidence of Knee Replacement in Patients Aged 65-74 Years per 100,000 from 2003 to 2022

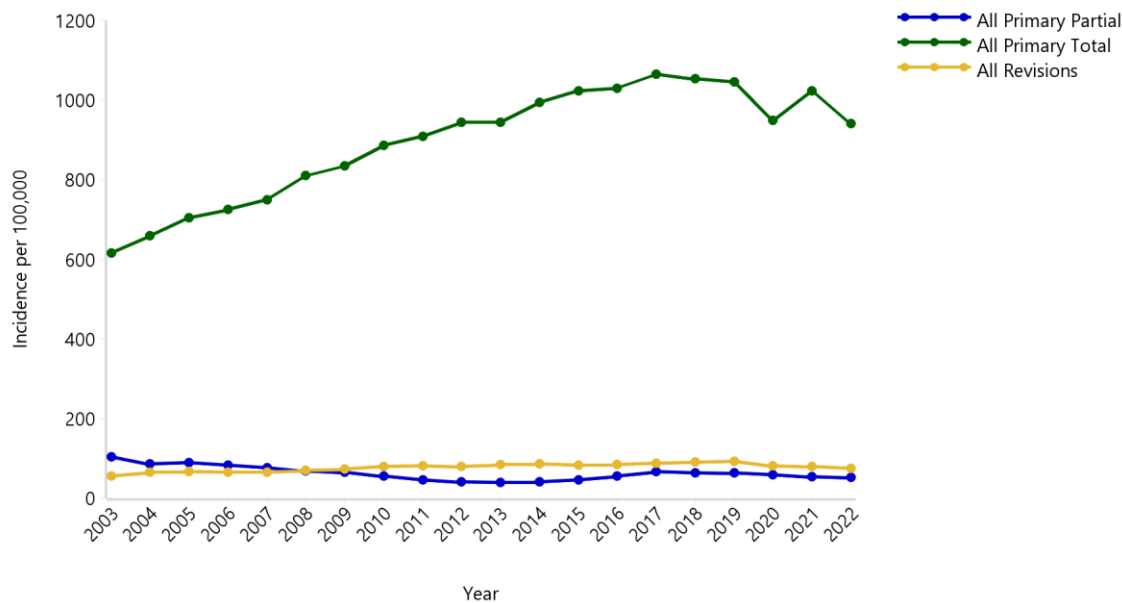


Table SD37 Incidence of Knee Replacement in Patients Aged ≥75 Years per 100,000 from 2003 to 2022

Knee Replacement	2003 N	2004 N	2005 N	2006 N	2007 N	2008 N	2009 N	2010 N	2011 N	2012 N	2013 N
Partial Resurfacing	.	.	.	.	0.1	0.1	.	.	.	0.1	0.4
Unispacer	.	0.1	.	.	.	.	.	.	.	.	.
Patella/Trochlear	1.4	2.5	2.8	1.9	2.0	3.0	2.5	2.3	2.3	1.6	1.8
Unicompartmental	76.0	69.8	64.2	55.3	55.8	49.5	41.1	32.5	30.1	26.5	25.9
Bicompartmental	.	.	.	0.1	0.7	1.1	0.4	0.3	.	.	.
All Primary Partial	77.5	72.3	67.0	57.3	58.6	53.7	44.0	35.1	32.4	28.2	28.1
Total Knee	604.2	635.4	702.6	688.3	698.5	720.8	715.6	754.8	759.1	774.4	781.5
All Primary Total	604.2	635.4	702.6	688.3	698.5	720.8	715.6	754.8	759.1	774.4	781.5
All Revisions	76.4	75.2	79.9	77.8	80.9	81.9	77.4	80.0	84.7	79.2	83.4
ALL KNEES	758.0	782.9	849.5	823.3	838.0	856.4	837.0	869.9	876.2	881.8	893.0

Knee Replacement	2014 N	2015 N	2016 N	2017 N	2018 N	2019 N	2020 N	2021 N	2022 N	TOTAL N
Partial Resurfacing	.	0.1	.	.	.	.	.	.	.	0.0
Unispacer	.	.	.	.	.	.	.	.	.	0.0
Patella/Trochlear	1.3	1.7	1.8	1.5	1.4	1.7	1.5	1.3	1.5	1.8
Unicompartmental	25.8	27.3	29.1	38.8	42.4	41.5	35.9	37.4	34.8	40.7
Bicompartmental	.	.	.	.	.	.	.	.	.	0.1
All Primary Partial	27.2	29.1	30.8	40.3	43.7	43.2	37.4	38.7	36.3	42.7
Total Knee	799.3	828.2	817.3	834.2	827.5	830.1	726.2	794.3	764.2	759.5
All Primary Total	799.3	828.2	817.3	834.2	827.5	830.1	726.2	794.3	764.2	759.5
All Revisions	81.3	79.2	87.1	87.6	86.5	96.3	77.8	87.6	78.3	82.3
ALL KNEES	907.7	936.4	935.3	962.1	957.7	969.6	841.3	920.6	878.8	884.5

Figure SD49 Incidence of Knee Replacement in Patients Aged ≥75 Years per 100,000 from 2003 to 2022

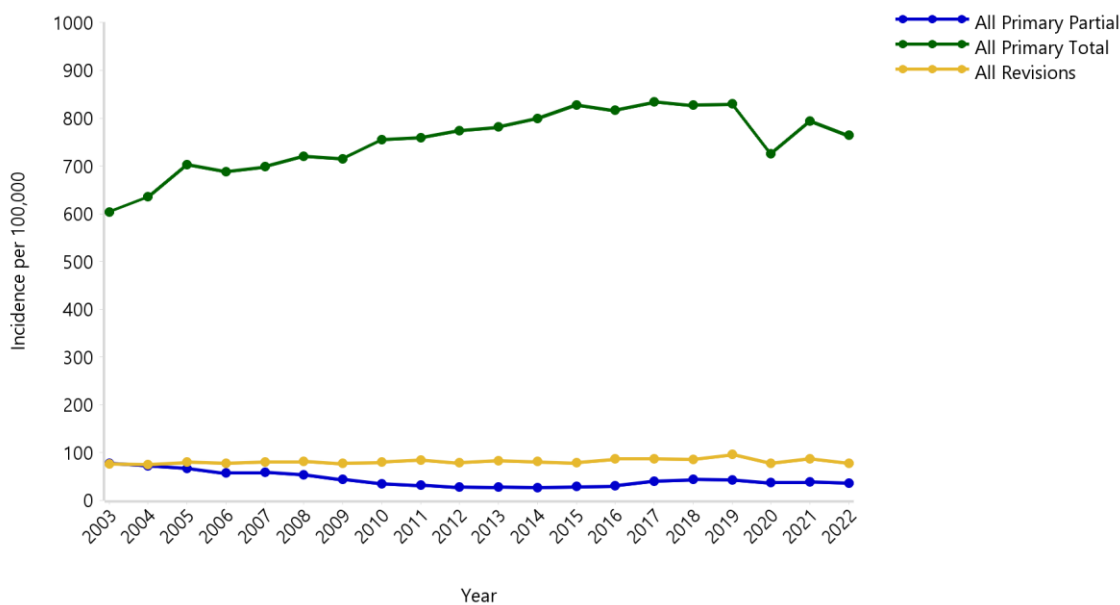


Figure SD50 Trends in Usage of Knee Replacement by State/Territory and Year

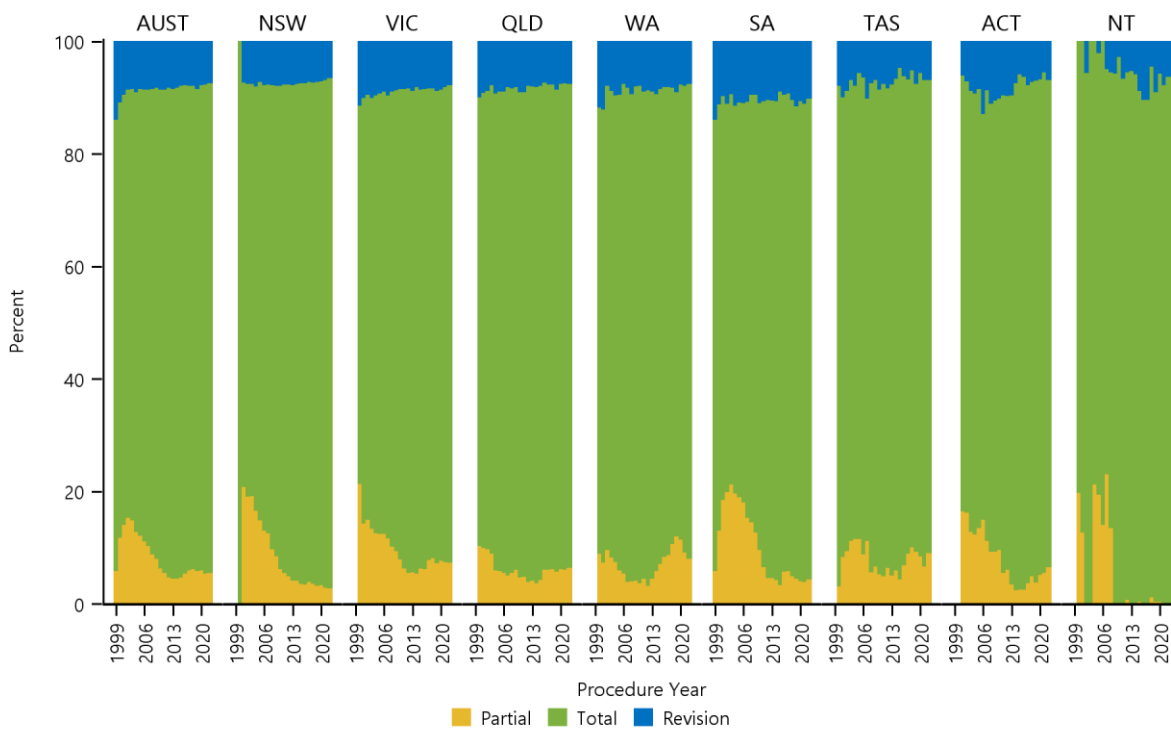


Table SD38 Time between Procedures for Bilateral Primary Knee Replacement

Bilateral Procedures	Same Day			1 day - 3 months			3 - 6 months			≥6 months			TOTAL		
	N	Row%	Col%	N	Row%	Col%	N	Row%	Col%	N	Row%	Col%	N	Row%	Col%
Both Partial	5331	39.4	9.7	708	5.2	8.3	970	7.2	5.3	6535	48.3	3.8	13544	100.0	5.3
Both Total	49032	21.4	89.4	7774	3.4	90.6	17144	7.5	93.5	155406	67.8	89.9	229356	100.0	90.0
Total/Partial	480	4.1	0.9	97	0.8	1.1	228	1.9	1.2	11016	93.2	6.4	11821	100.0	4.6
TOTAL	54843	21.5	100.0	8579	3.4	100.0	18342	7.2	100.0	172957	67.9	100.0	254721	100.0	100.0

Table SD39 Number of Knee Procedures by Patient

Knee Procedures	Not Revised		1 Revision		2 Revisions		3 or more Revisions		TOTAL	
	N	Row%	N	Row%	N	Row%	N	Row%	N	Row%
Unknown Primary/Primaries	.	.	8220	75.3	1975	18.1	716	6.6	10911	100.0
Single Primary Procedure	427205	94.2	20469	4.5	4002	0.9	1913	0.4	453589	100.0
2 Primary Procedures	232171	91.1	16036	6.3	4422	1.7	2092	0.8	254721	100.0
TOTAL	659376	91.7	44725	6.2	10399	1.4	4721	0.7	719221	100.0

PRIMARY PARTIAL KNEE REPLACEMENT

CLASSES OF PARTIAL KNEE REPLACEMENT

The Registry subcategorises partial knee replacement into five classes. These are defined by the type of prostheses used.

Partial resurfacing involves the use of one or more button prostheses to replace part of the natural articulating surface on one or more sides of the joint in one or more articular compartments of the knee. The last recorded procedure was in 2022.

Unispacer involves the use of a medial or lateral femorotibial compartment articular spacer. The last recorded procedure was in 2005.

Bicompartmental involves the replacement of the medial femoral and trochlea 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 last recorded procedure was in 2012.

Patella/trochlea involves the use of a trochlea prosthesis to replace the femoral trochlea articular surface and on most occasions a patella prosthesis.

Unicompartmental involves the replacement of the femoral and tibial articular surface of either the medial or lateral femorotibial compartment using unicompartmental femoral and tibial prostheses.

Detailed information on partial resurfacing, Unispacer and bicompartmental knee replacement is available in the supplementary report 'Prosthesis Types with No or Minimal Use' on the AOANJRR website: <https://aoanjrr.sahmri.com/annual-reports-2023>

Table SD40 Primary Partial Knee Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	36314	47.5%	13	98	64	64.1	10.6
Male	40181	52.5%	17	98	66	65.6	9.8
TOTAL	76495	100.0%	13	98	65	64.9	10.2

Figure SD51 Primary Partial Knee Replacement by Age and Gender

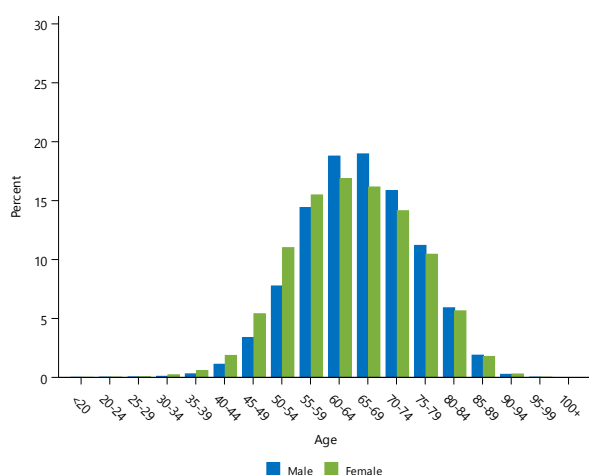
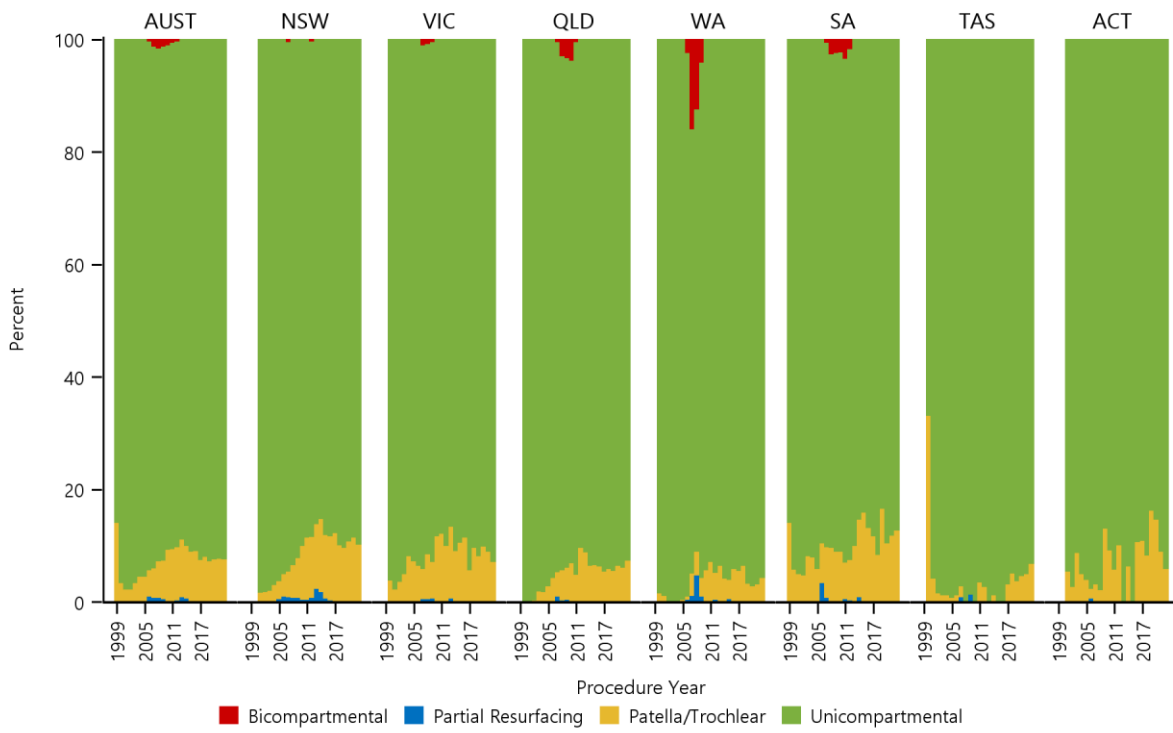


Table SD41 Primary Partial Knee Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	75771	99.1
Osteonecrosis	443	0.6
Rheumatoid Arthritis	164	0.2
Other Inflammatory Arthritis	77	0.1
Osteochondritis Dissecans	9	0.0
Fracture	6	0.0
Tumour	2	0.0
Chondrocalcinosis	1	0.0
Other	22	0.0
TOTAL	76495	100.0

Figure SD52 Trends in Usage of Primary Partial Knee Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

PRIMARY PARTIAL RESURFACING KNEE REPLACEMENT

Table SD42 Primary Partial Resurfacing Knee Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	121	49.2%	30	88	51	51.3	11.7
Male	125	50.8%	17	85	49	48.9	14.4
TOTAL	246	100.0%	17	88	50	50.1	13.2

Figure SD53 Primary Partial Resurfacing Knee Replacement by Age and Gender

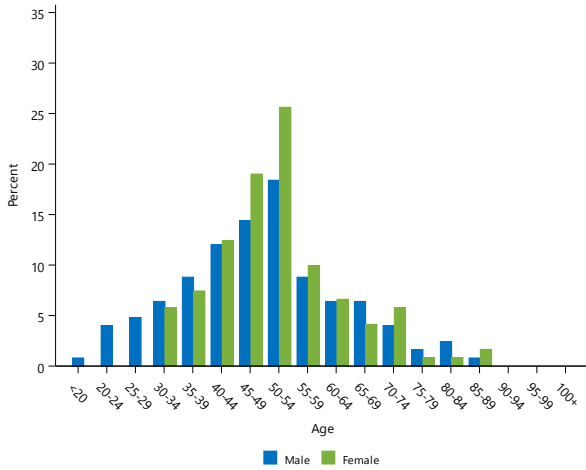


Table SD43 Primary Partial Resurfacing Knee Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	225	91.5
Osteonecrosis	11	4.5
Osteochondritis Dissecans	4	1.6
Other Inflammatory Arthritis	2	0.8
Chondrocalcinosis	1	0.4
Other	3	1.2
TOTAL	246	100.0

PRIMARY UNISPACER KNEE REPLACEMENT

Table SD44 Primary Unispacer Knee Replacement by Age and Gender

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
TOTAL	40	100.0%	40	75	55	54.7	8.7

Figure SD54 Primary Unispacer Knee Replacement by Age and Gender

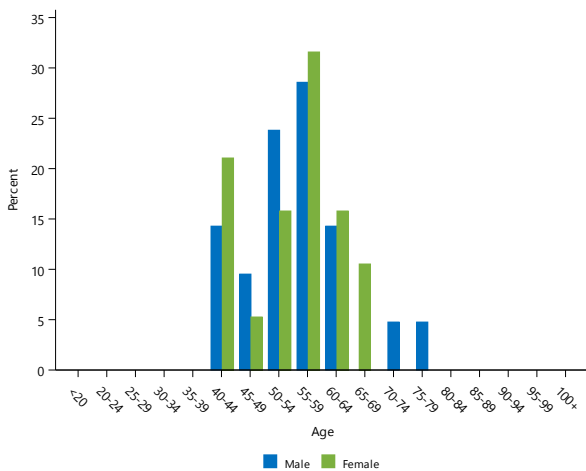


Table SD45 Primary Unispacer Knee Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	40	100.0
TOTAL	40	100.0

PRIMARY BICOMPARTMENTAL KNEE REPLACEMENT

Table SD46 Primary Bicompartamental Knee Replacement by Age and Gender

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
TOTAL	165	100.0%	45	86	62	64.3	10.3

Figure SD55 Primary Bicompartamental Knee Replacement by Age and Gender

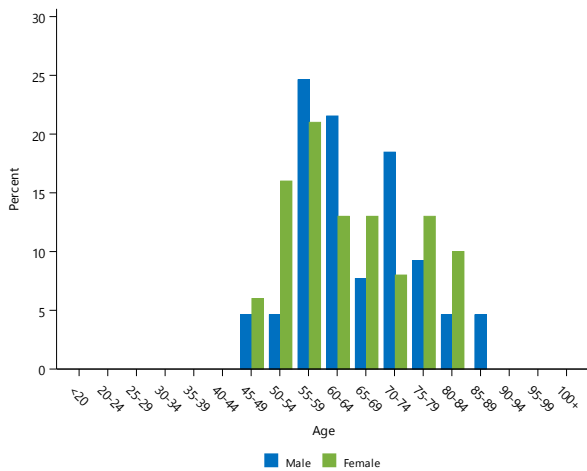


Table SD47 Primary Bicompartamental Knee Replacement by Primary Diagnosis

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

PRIMARY PATELLA/TROCHLEA KNEE REPLACEMENT

Table SD48 Primary Patella/Trochlea Knee Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	3923	76.6%	22	95	57	57.7	11.8
Male	1196	23.4%	24	95	60	60.9	12.9
TOTAL	5119	100.0%	22	95	58	58.5	12.1

Figure SD56 Primary Patella/Trochlea Knee Replacement by Age and Gender

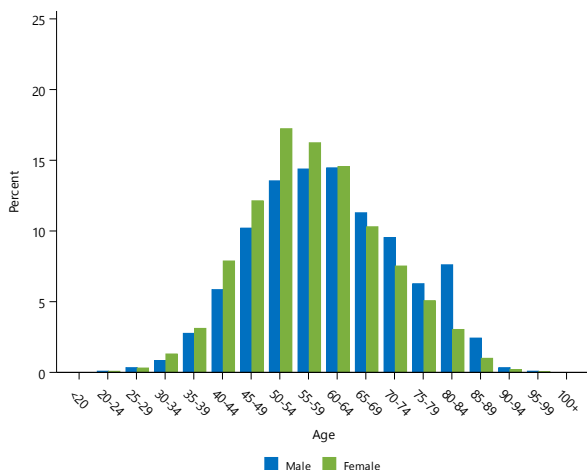


Table SD49 Primary Patella/Trochlea Knee Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	5062	98.9
Other Inflammatory Arthritis	22	0.4
Rheumatoid Arthritis	9	0.2
Fracture	4	0.1
Osteonecrosis	4	0.1
Tumour	1	0.0
Other	17	0.3
TOTAL	5119	100.0

PRIMARY UNICOMPARTMENTAL KNEE REPLACEMENT

Table SD50 Primary Unicompartmental Knee Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	32151	45.3%	13	98	65	65.0	10.2
Male	38774	54.7%	24	98	66	65.8	9.6
TOTAL	70925	100.0%	13	98	65	65.4	9.9

Figure SD57 Primary Unicompartmental Knee Replacement by Age and Gender

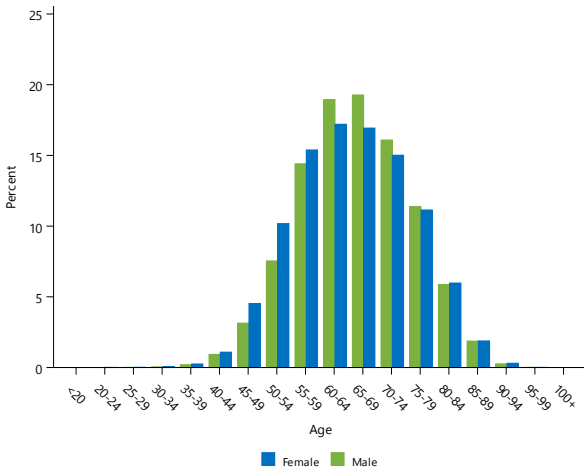
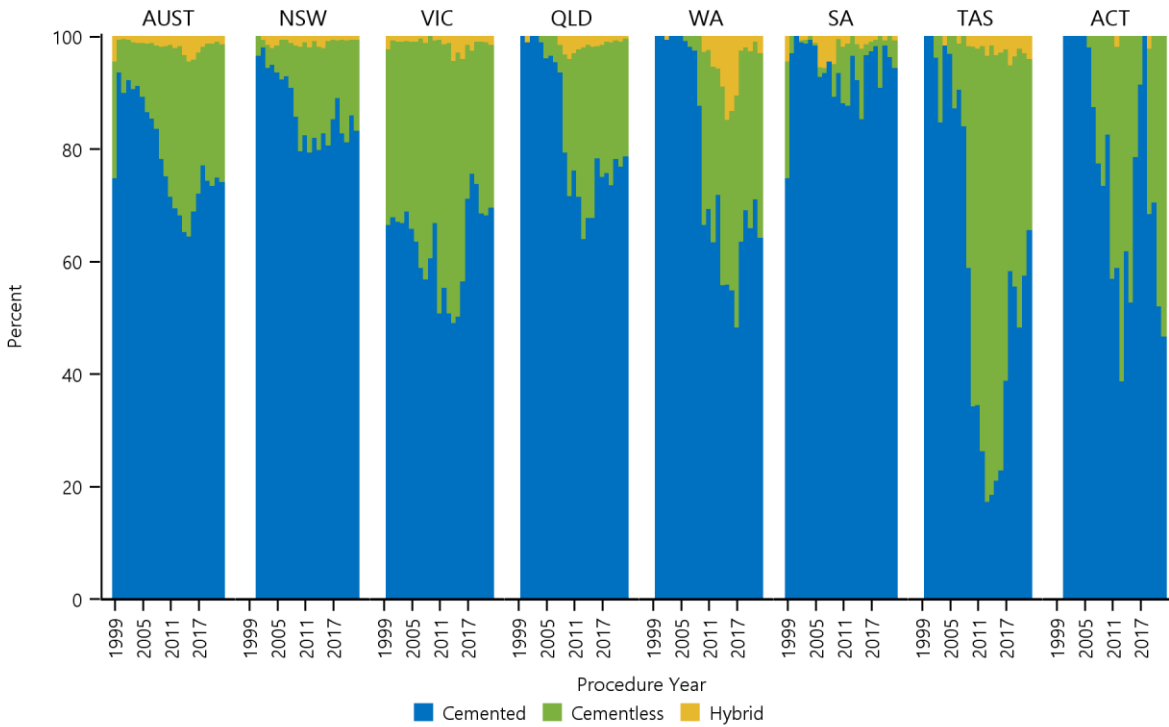


Table SD51 Primary Unicompartmental Knee Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	70284	99.1
Osteonecrosis	425	0.6
Rheumatoid Arthritis	154	0.2
Other Inflammatory Arthritis	52	0.1
Osteochondritis Dissecans	5	0.0
Fracture	2	0.0
Tumour	1	0.0
Other	2	0.0
TOTAL	70925	100.0

Figure SD58 Trends in Fixation of Primary Unicompartmental Knee Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

PRIMARY TOTAL KNEE REPLACEMENT

The Registry defines a total knee replacement as a replacement of the entire femorotibial articulation using a single femoral and a single tibial prosthesis. This may or may not be combined with a patella replacement.

Table SD52 Primary Total Knee Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	495840	55.9%	8	103	69	68.8	9.3
Male	390696	44.1%	8	101	68	68.1	9.0
TOTAL	886536	100.0%	8	103	69	68.5	9.2

Figure SD59 Primary Total Knee Replacement by Age and Gender

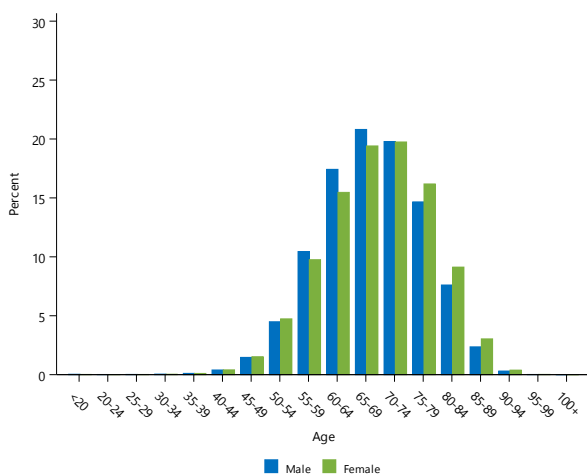
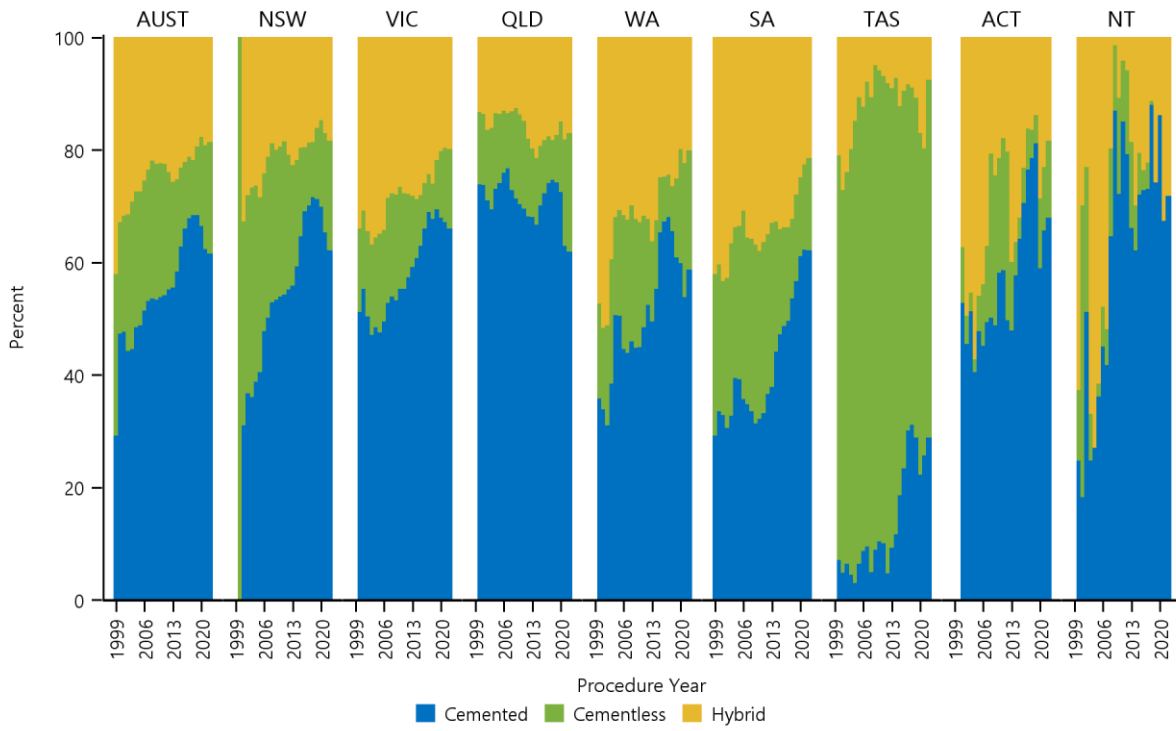


Table SD53 Primary Total Knee Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	867113	97.8
Rheumatoid Arthritis	10223	1.2
Other Inflammatory Arthritis	4464	0.5
Osteonecrosis	2658	0.3
Tumour	1054	0.1
Fracture	758	0.1
Chondrocalcinosis	15	0.0
Other	251	0.0
TOTAL	886536	100.0

Figure SD60 Trends in Fixation of Primary Total Knee Replacement by State/Territory and Year



ALL REVISION KNEE REPLACEMENT

CLASSES OF REVISION PROCEDURES

The Registry defines revision of a joint replacement as any re-operation of a previous joint replacement procedure that involves the insertion, removal and/or replacement of a prosthesis or implant. Revisions are sub categorised into three classes: major total, major partial and minor.

Major total revision is the insertion, removal and/or replacement of all major components.

Major partial revision is the insertion, removal and/or replacement of one major component.

Minor revision is the insertion removal and/or replacement of any other prostheses or implant including patellar prostheses in knee replacement.

Major components are prostheses that are fixed to bone. These are the femoral and tibial prostheses in either partial or total knee replacement. Although a patella prosthesis is fixed to bone it is not considered a major component.

Different types of major partial and minor revisions are identified based on the specific prostheses or implants used in the revision.

Table SD54 All Revision Knee Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Male	40852	49.1%	13	101	70	68.9	10.2
Female	42364	50.9%	10	99	70	69.2	10.4
TOTAL	83216	100.0%	10	101	70	69.1	10.3

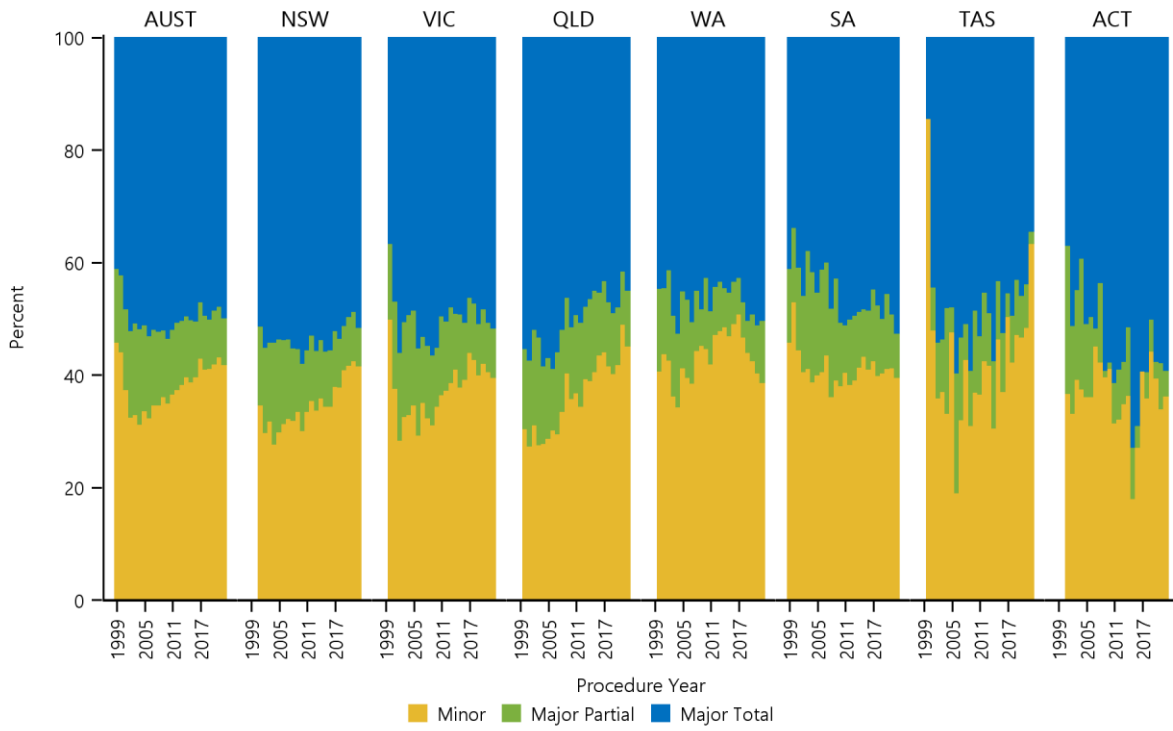
Table SD55 Reason for Revision of All Knee Replacement

Reason for Revision	Number	Percent
Loosening	23469	28.2
Infection	21255	25.5
Progression Of Disease	5418	6.5
Pain	5035	6.1
Instability	4929	5.9
Patellofemoral Pain	3706	4.5
Wear Tibial Insert	2662	3.2
Patella Erosion	2647	3.2
Lysis	2550	3.1
Fracture	2299	2.8
Arthrofibrosis	1766	2.1
Malalignment	1234	1.5
Implant Breakage Tibial Insert	753	0.9
Metal Related Pathology	676	0.8
Bearing Dislocation	617	0.7
Incorrect Sizing	501	0.6
Wear Tibial	491	0.6
Implant Breakage Tibial	474	0.6
Implant Breakage Patella	450	0.5
Patella Maltracking	409	0.5
Prosthesis Dislocation	285	0.3
Wear Patella	276	0.3
Implant Breakage Femoral	250	0.3
Synovitis	201	0.2
Osteonecrosis	133	0.2
Tumour	75	0.1
Heterotopic Bone	43	0.1
Wear Femoral	21	0.0
Patella Dislocation	6	0.0
Incorrect Side	3	0.0
Other	582	0.7
TOTAL	83216	100.0

Table SD56 Type of Revision of All Knee Replacement

Type of Revision	Number	Percent
TKR (Tibial/Femoral)	39280	47.2
Insert Only	14393	17.3
Patella Only	8615	10.4
Insert/Patella	5921	7.1
Tibial Component	4816	5.8
Cement Spacer	4379	5.3
Femoral Component	3441	4.1
Uni Insert Only	762	0.9
Removal of Prostheses	440	0.5
Minor Components	368	0.4
Uni Tibial Component	283	0.3
UKR (Uni Tibial/Uni Femoral)	200	0.2
Uni Femoral Component	112	0.1
Patella/Trochlear Resurfacing	94	0.1
Cement Only	53	0.1
Reinsertion of Components	39	0.0
Removal of Patella	8	0.0
Partial Resurfacing	7	0.0
Unispacer	4	0.0
Uni Insert/Patella	1	0.0
TOTAL	83216	100.0

Figure SD61 Trends in Usage of All Revision Knee Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

Shoulder Replacement

CATEGORIES OF SHOULDER REPLACEMENT

The Registry groups shoulder replacement into three broad categories: primary partial, primary total and revision shoulder replacement.

A primary replacement is the initial joint replacement procedure and involves replacing either part (partial) or all (total) of the articular surface.

Primary partial and primary total shoulder replacements are further categorised into subclasses depending on the type of prosthesis used. Partial shoulder subclasses include partial resurfacing anatomic, hemi resurfacing anatomic, hemi stemless anatomic and hemi stemmed anatomic.

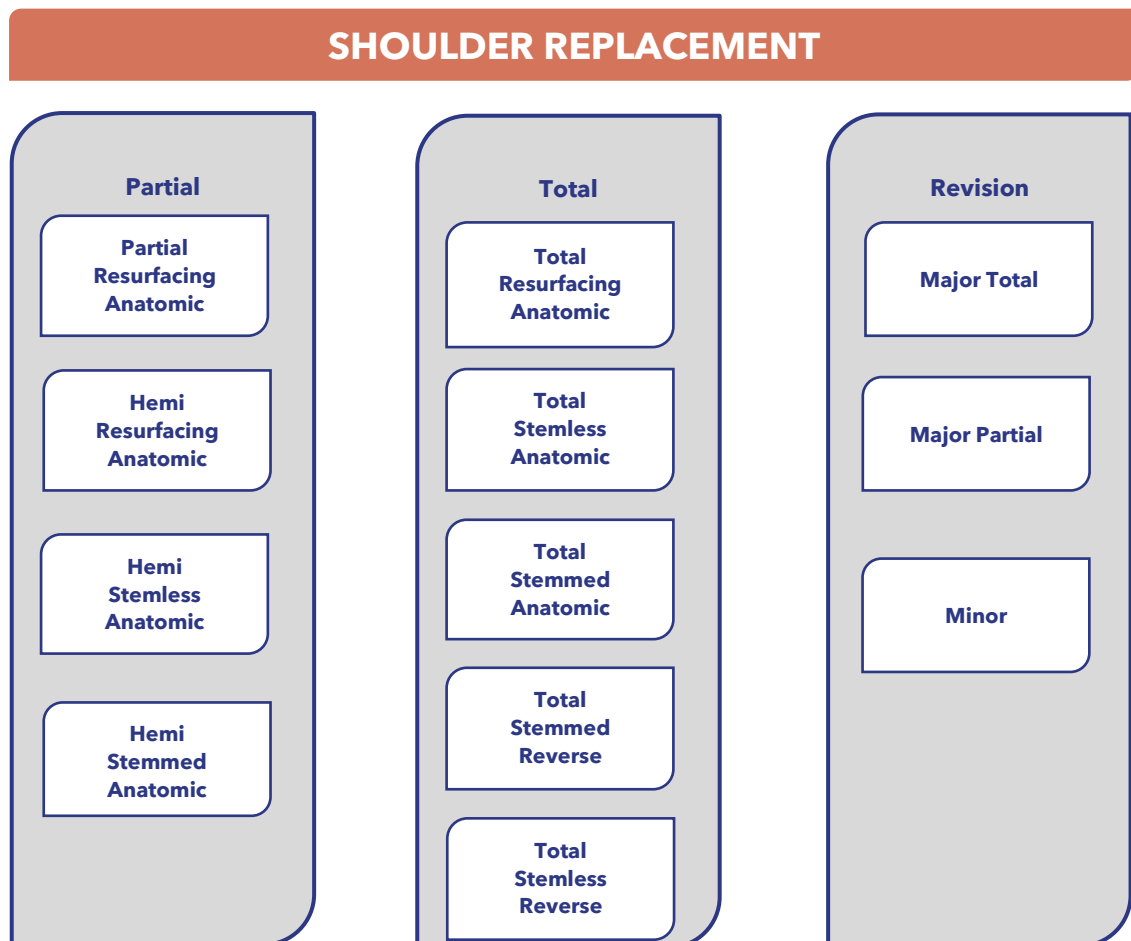
Primary total shoulder replacement is subcategorised into five classes. These are defined by the type of prosthesis used. The use of stemless anatomic shoulder replacement has been growing considerably. As such mid head

humeral prostheses are now classified as stemless anatomic and stemless reverse to reflect their differing polarity.

Total shoulder subclasses include total resurfacing anatomic, total stemless anatomic, total stemmed anatomic, total stemmed reverse and total stemless reverse. Definitions for each of these classes are detailed in the subsequent sections.

Revision procedures are re-operations of previous shoulder replacements where one or more of the prosthetic components are replaced, removed, or another component is added. Revision procedures include re-operations of primary partial, primary total, or previous revision procedures.

Shoulder revision procedures are sub-categorised into three classes: minor, major partial and major total.

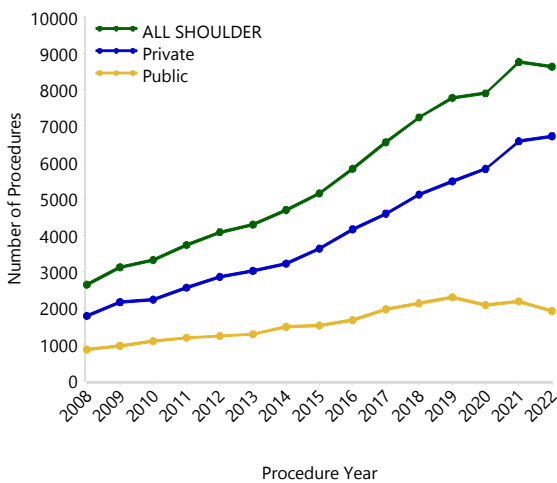


PUBLIC AND PRIVATE SECTOR

In 2022, 77.9% of all shoulder replacement procedures reported to the Registry were undertaken in private hospitals.

In the last year, there was an increase in the number of shoulder replacements recorded in the private sector and a decrease in the public sector. There were 6,725 private sector procedures (an increase of 2.2% compared to number of private sector procedures in 2021) and 1,911 public sector procedures (a decrease of 12.3% in the number of public sector procedures since 2021)(Figure SD62).

Figure SD62 Shoulder Replacement by Hospital Sector



Since 2008, shoulder replacement has increased by 278.4% in the private sector compared to 122.5% in the public sector.

There were 187 primary partial shoulder replacements reported for the private sector in 2022; an increase of 8.1% compared to 2021 and a decrease of 57.2% since 2008. In the public sector, there were 50 partial shoulder replacements; a decrease of 50.5% compared to 2021 and a decrease of 88.2% since 2008.

In 2022, 6,094 primary total shoulder replacements were reported in the private sector, an increase of 1.9% compared to 2021. In the public sector in 2022, there were 1,624 primary total shoulder replacements, a decrease of 12.6% compared to 2021. Since 2008, primary total shoulder replacement has increased by 426.3% in the private sector compared to 351.1% in the public sector.

There were 444 private sector revision shoulder replacements reported in 2022. This is an increase of 4.5% compared to 2021. In the public sector, there were 237 revision shoulder replacements, an increase of 7.2% compared to 2021. Since 2008, revision shoulder replacement has increased by 144.0% in the private sector compared to 207.8% in the public sector.

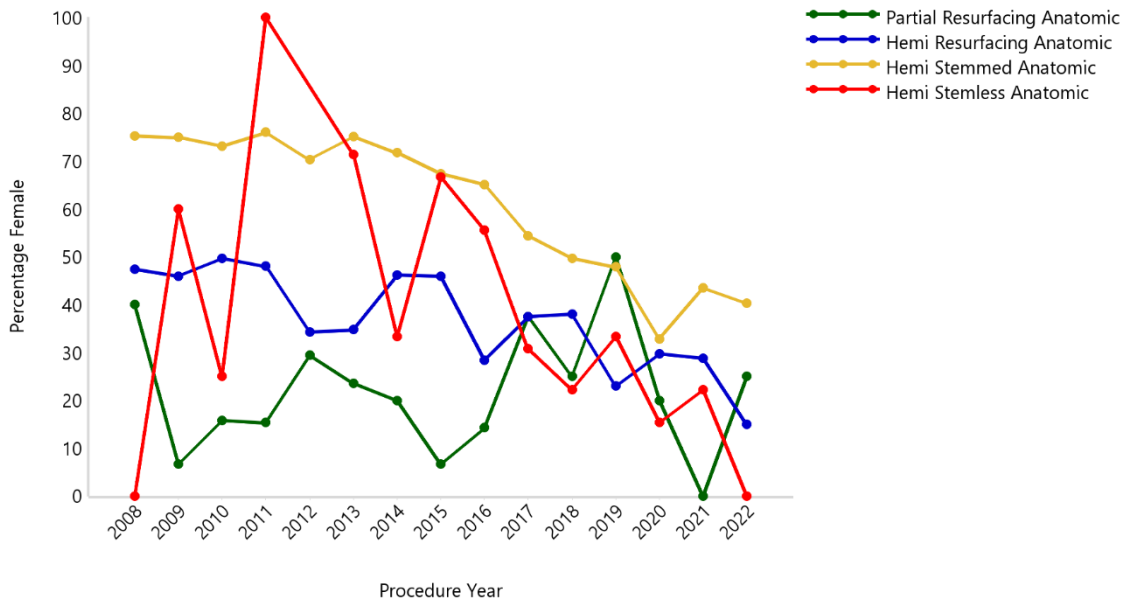
Table SD57 All Shoulder Replacements by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Male	34548	40.5%	14	96	70	69.0	10.2
Female	50802	59.5%	13	102	74	73.0	8.9
TOTAL	85350	100.0%	13	102	72	71.4	9.7

Table SD58 Number of Shoulder Replacements by Gender

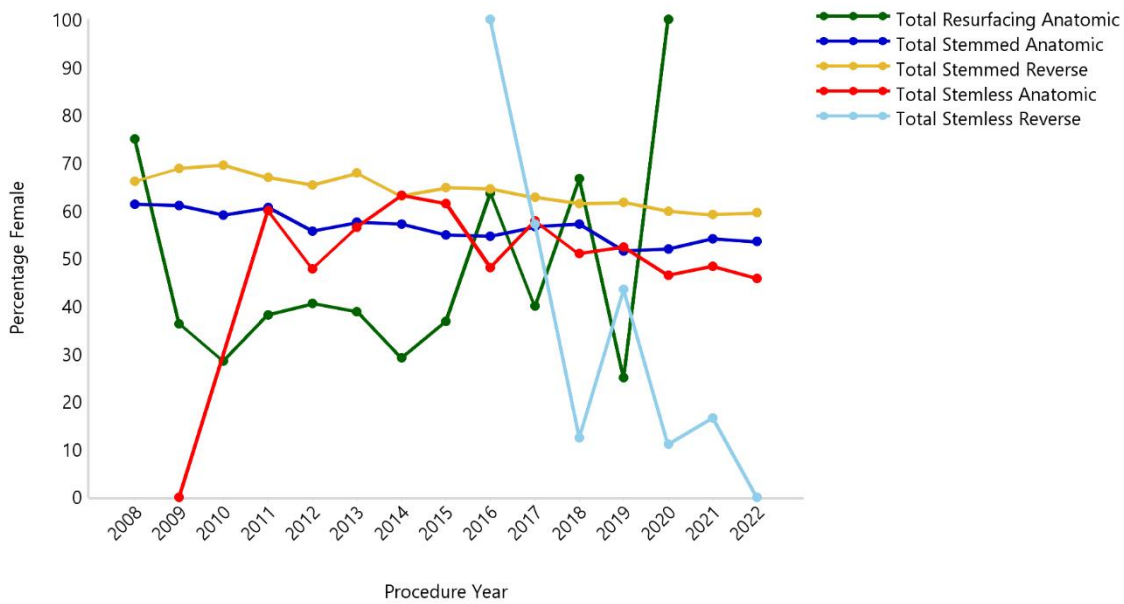
Shoulder Replacement	Female		Male		TOTAL	
	N	%	N	%	N	%
Partial Resurfacing Anatomic	48	23.0	161	77.0	209	2.7
Hemi Resurfacing Anatomic	741	40.0	1110	60.0	1851	23.5
Hemi Stemmed Anatomic	3872	67.7	1848	32.3	5720	72.6
Hemi Stemless Anatomic	32	33.3	64	66.7	96	1.2
All Primary Partial	4693	59.6	3183	40.4	7876	100.0
Total Resurfacing Anatomic	95	40.4	140	59.6	235	0.3
Total Stemmed Anatomic	9142	57.1	6882	42.9	16024	23.0
Total Stemmed Reverse	30641	62.2	18589	37.8	49230	70.7
Total Stemless Anatomic	2064	50.5	2023	49.5	4087	5.9
Total Stemless Reverse	19	29.7	45	70.3	64	0.1
All Primary Total	41961	60.3	27679	39.7	69640	100.0
Major Total	1602	56.5	1232	43.5	2834	36.2
Major Partial	1701	52.0	1570	48.0	3271	41.8
Minor	845	48.9	884	51.1	1729	22.1
All Revision	4148	52.9	3686	47.1	7834	100.0
ALL SHOULDERS	50802	59.5	34548	40.5	85350	100.0

Figure SD63 Percentage of Females by Type of Partial Shoulder Replacement and Procedure Year



Note: There were no hemi stemless anatomic procedures recorded in 2012

Figure SD64 Percentage of Females by Type of Total Shoulder Replacement and Procedure Year



Note: There were no total stemless anatomic procedures recorded in 2008 and 2010
 There were no total resurfacing anatomic procedures recorded in 2021 and 2022

Figure SD65 Percentage of Females by Revision Shoulder Replacement and Procedure Year

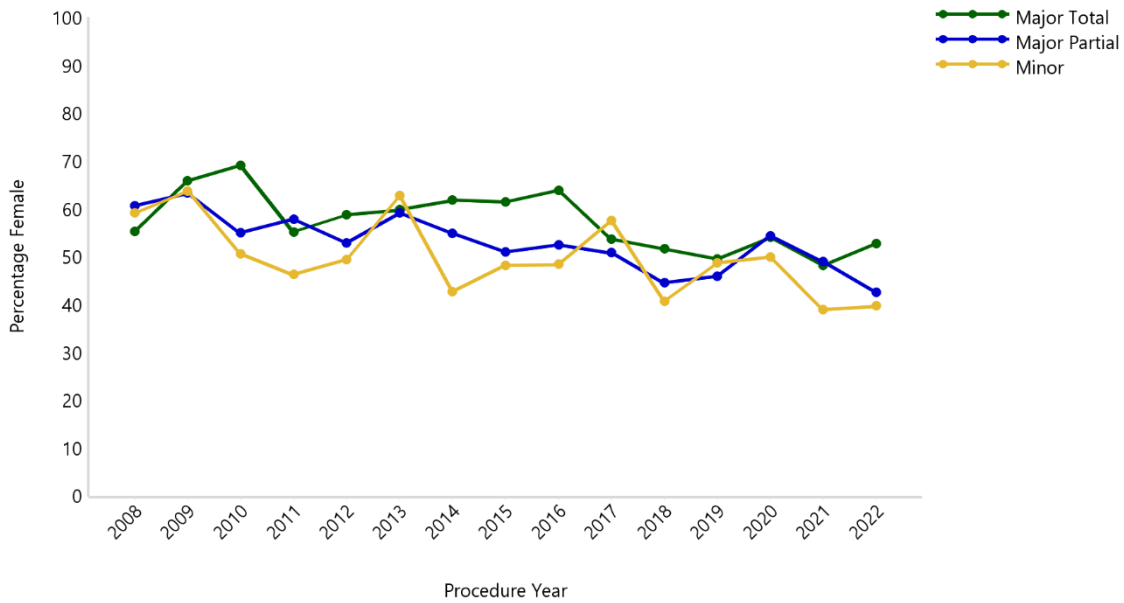
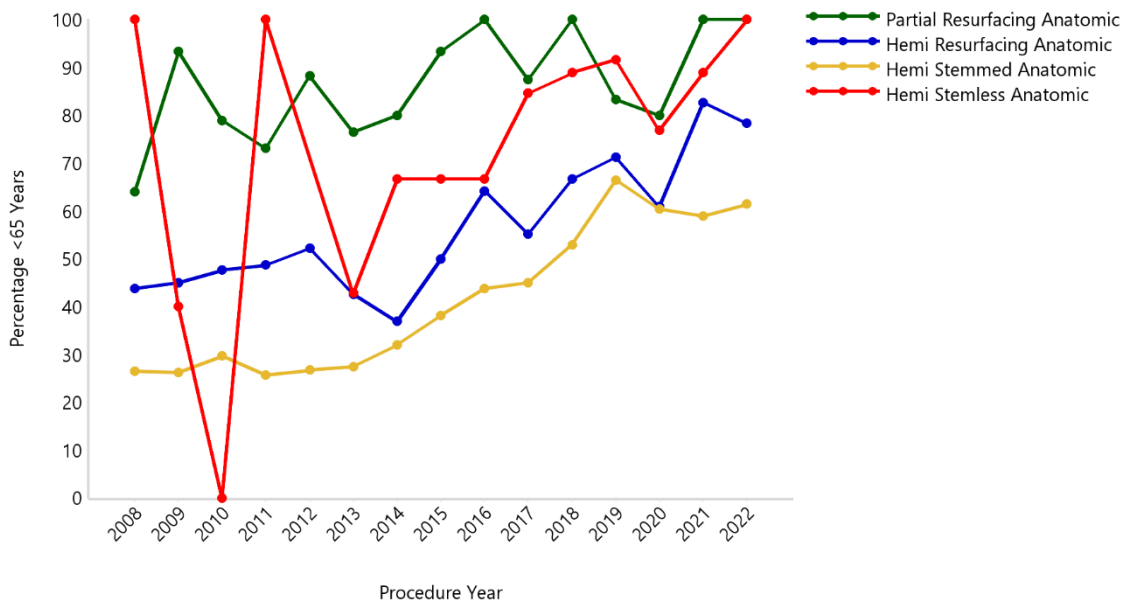
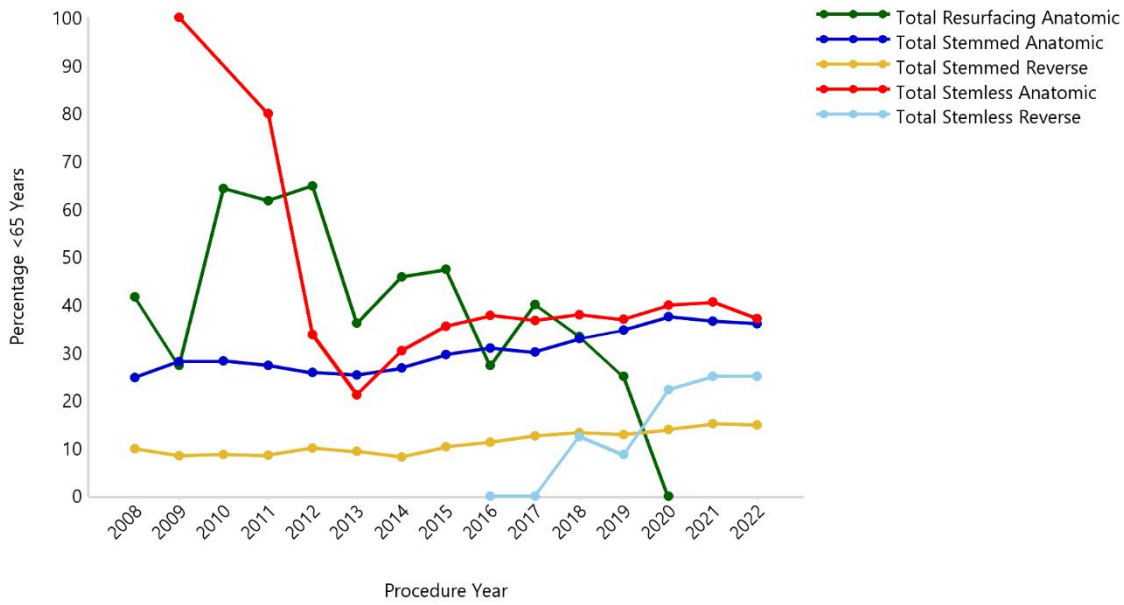


Figure SD66 Percentage of Patients Aged <65 Years by Type of Partial Shoulder Replacement and Procedure Year



Note: There were no hemi stemless anatomic procedures recorded in 2012

Figure SD67 Percentage of Patients Aged <65 Years by Type of Total Shoulder Replacement and Procedure Year



Note: There were no total stemless anatomic procedures recorded in 2008
 There were no total resurfacing anatomic procedures recorded in 2021 and 2022

Figure SD68 Percentage of Patients Aged <65 Years by Revision Shoulder Replacement and Procedure Year

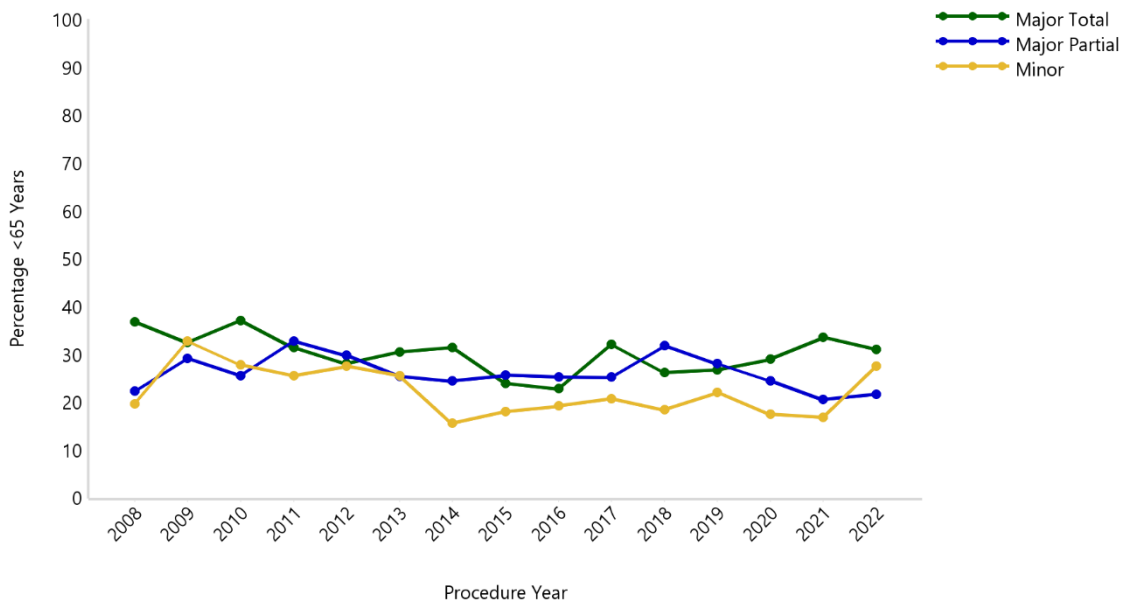


Figure SD69 Trends in Usage of Partial Shoulder Replacement by Procedure Year

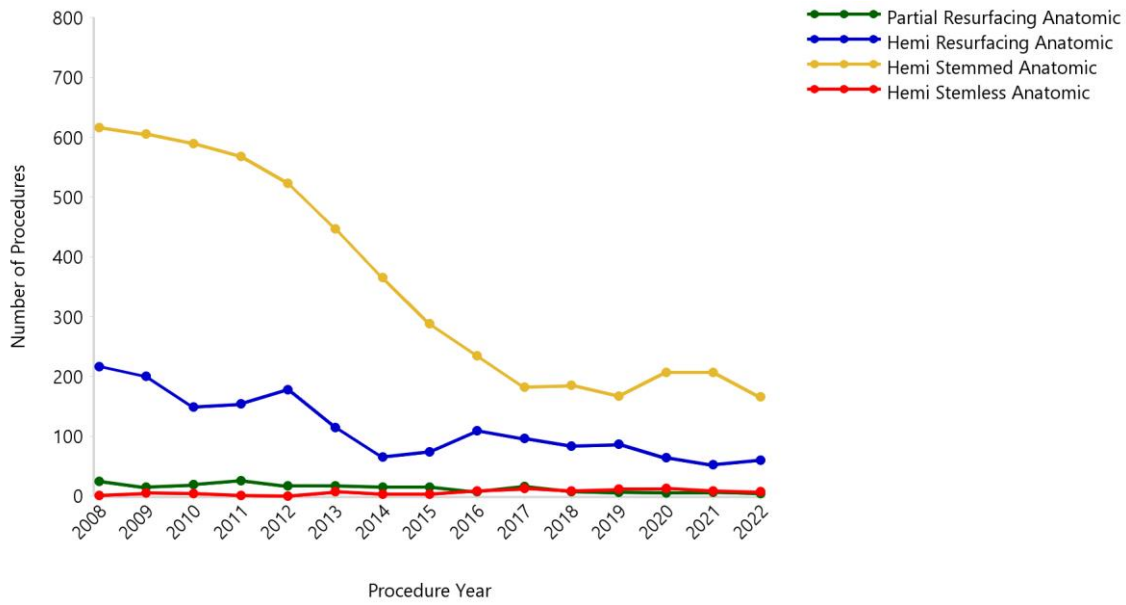


Figure SD70 Trends in Usage of Total Shoulder Replacement by Procedure Year

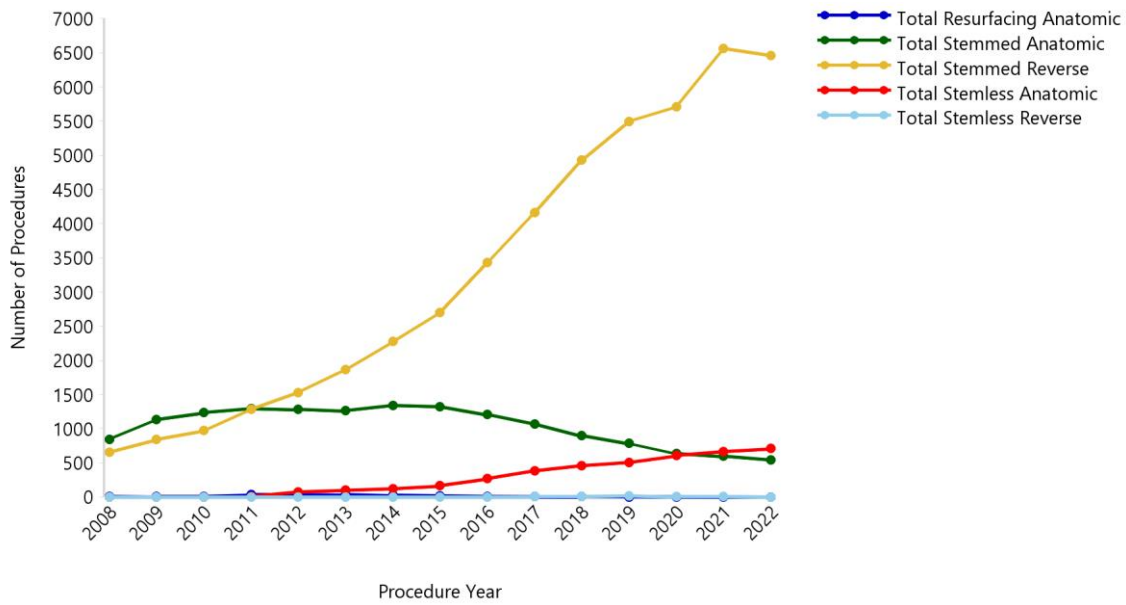


Figure SD71 Trends in Usage of Revision Shoulder Replacement by Procedure Year

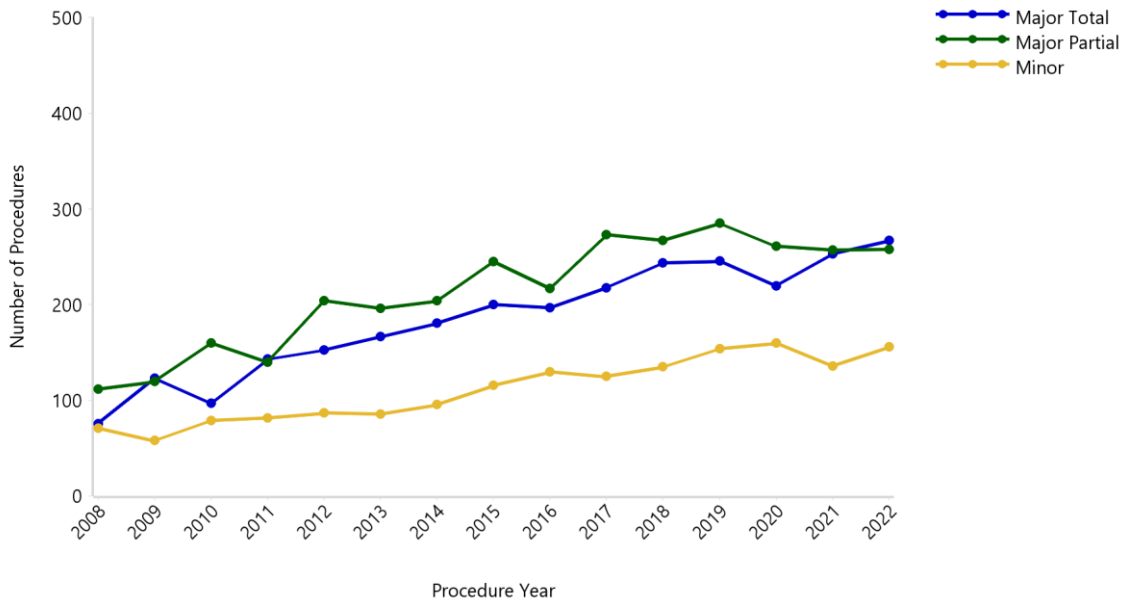


Table SD59 Incidence of Shoulder Replacement per 100,000 from 2008 to 2022

Shoulder Replacement	2008	2009	2010	2011	2012	2013	2014	2015
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Hemi Resurfacing Anatomic	1.0	0.9	0.7	0.7	0.8	0.5	0.3	0.3
Hemi Stemmed Anatomic	2.9	2.8	2.7	2.5	2.3	1.9	1.6	1.2
Hemi Stemless Anatomic	0.0	0.0	0.0	0.0	.	0.0	0.0	0.0
All Primary Partial	4.0	3.8	3.5	3.4	3.2	2.5	1.9	1.6
Total Resurfacing Anatomic	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1
Total Stemmed Anatomic	4.0	5.2	5.6	5.8	5.6	5.5	5.7	5.6
Total Stemmed Reverse	3.1	3.9	4.4	5.8	6.7	8.1	9.7	11.3
Total Stemless Anatomic	.	0.0	.	0.0	0.3	0.4	0.5	0.7
Total Stemless Reverse	.	.	.	.	.	.	.	.
All Primary Total	7.1	9.2	10.1	11.7	12.9	14.1	16.0	17.7
All Revisions	1.2	1.4	1.5	1.6	2.0	1.9	2.0	2.4
ALL SHOULDERS	12.4	14.4	15.1	16.7	18.0	18.6	20.0	21.6

Shoulder Replacement	2016	2017	2018	2019	2020	2021	2022	TOTAL
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Hemi Resurfacing Anatomic	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.4
Hemi Stemmed Anatomic	1.0	0.7	0.7	0.7	0.8	0.8	0.6	1.2
Hemi Stemless Anatomic	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
All Primary Partial	1.5	1.2	1.1	1.1	1.1	1.1	0.9	1.6
Total Resurfacing Anatomic	0.0	0.0	0.0	0.0	0.0	.	.	0.0
Total Stemmed Anatomic	5.0	4.3	3.6	3.1	2.5	2.3	2.1	3.4
Total Stemmed Reverse	14.2	16.9	19.7	21.7	22.2	25.5	24.8	10.7
Total Stemless Anatomic	1.1	1.6	1.8	2.0	2.4	2.6	2.7	0.9
Total Stemless Reverse	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
All Primary Total	20.3	22.9	25.2	26.9	27.1	30.5	29.7	15.0
All Revisions	2.2	2.5	2.6	2.7	2.5	2.5	2.6	1.7
ALL SHOULDERS	24.1	26.6	29.0	30.7	30.7	34.0	33.2	18.3

Figure SD72 Incidence of Shoulder Replacement per 100,000 from 2008 to 2022

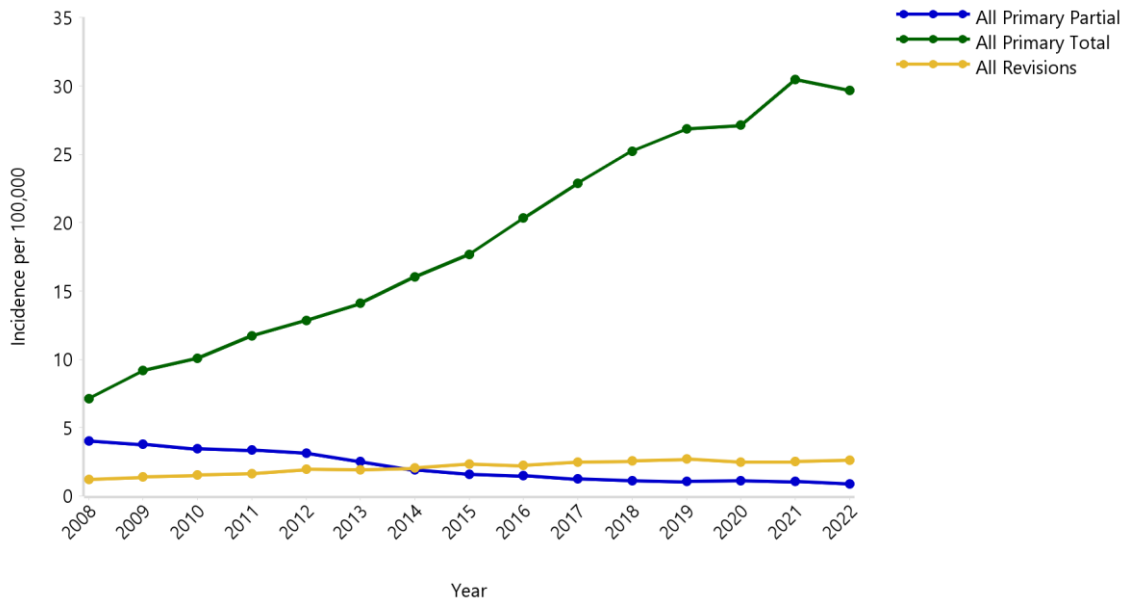


Table SD60 Incidence of Shoulder Replacement in Patients Aged <55 Years per 100,000 from 2008 to 2022

Shoulder Replacement	2008	2009	2010	2011	2012	2013	2014	2015
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Hemi Resurfacing Anatomic	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1
Hemi Stemmed Anatomic	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Hemi Stemless Anatomic	0.0	.	.	.	.	0.0	0.0	0.0
All Primary Partial	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.4
Total Resurfacing Anatomic	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Stemmed Anatomic	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.4
Total Stemmed Reverse	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3
Total Stemless Anatomic	.	0.0	.	.	0.0	0.0	0.0	0.1
Total Stemless Reverse	.	.	.	.	.	.	.	.
All Primary Total	0.3	0.4	0.5	0.6	0.6	0.5	0.5	0.8
All Revisions	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
ALL SHOULDERS	1.0	1.2	1.2	1.4	1.4	1.1	1.1	1.4

Shoulder Replacement	2016	2017	2018	2019	2020	2021	2022	TOTAL
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Hemi Resurfacing Anatomic	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Hemi Stemmed Anatomic	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.2
Hemi Stemless Anatomic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Primary Partial	0.5	0.5	0.5	0.6	0.6	0.5	0.4	0.4
Total Resurfacing Anatomic	0.0	.	0.0	.	.	.	.	0.0
Total Stemmed Anatomic	0.5	0.3	0.4	0.3	0.3	0.3	0.2	0.3
Total Stemmed Reverse	0.2	0.4	0.4	0.5	0.6	0.7	0.7	0.2
Total Stemless Anatomic	0.1	0.2	0.2	0.2	0.4	0.4	0.5	0.1
Total Stemless Reverse	.	.	.	.	.	.	.	.
All Primary Total	0.8	0.9	1.0	1.1	1.3	1.4	1.4	0.6
All Revisions	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.2
ALL SHOULDERS	1.5	1.7	1.8	1.9	2.0	2.1	2.1	1.2

Figure SD73 Incidence of Shoulder Replacement in Patients Aged <55 Years per 100,000 from 2008 to 2022

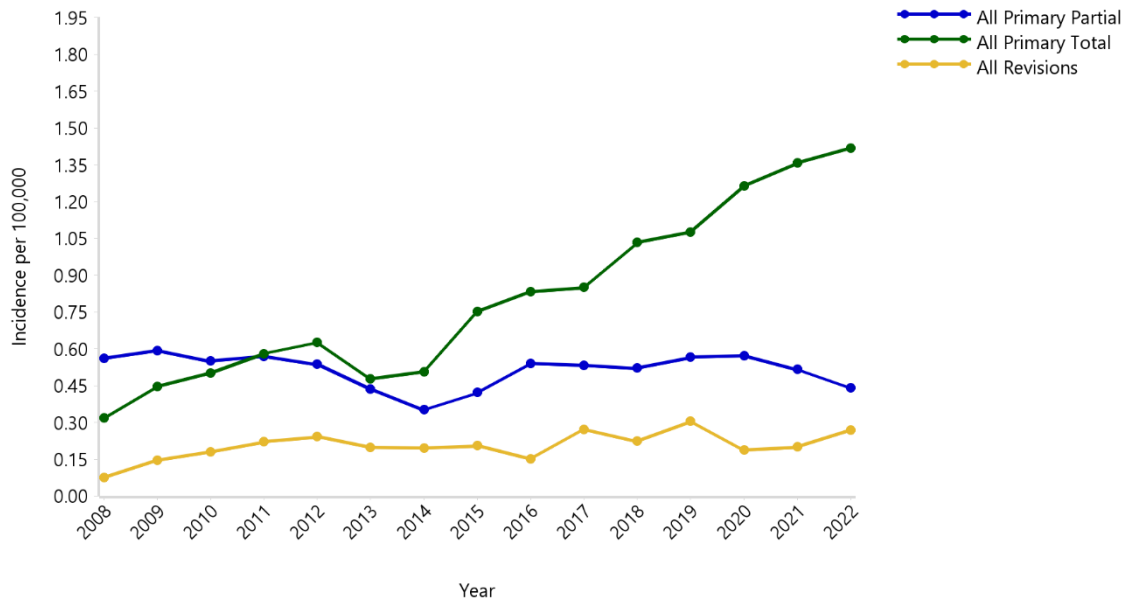


Table SD61 Incidence of Shoulder Replacement in Patients Aged 55-64 Years per 100,000 from 2008 to 2022

Shoulder Replacement	2008	2009	2010	2011	2012	2013	2014	2015
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0
Hemi Resurfacing Anatomic	2.4	2.3	1.7	1.6	2.3	1.1	0.6	0.7
Hemi Stemmed Anatomic	5.2	4.4	5.0	4.0	3.7	3.2	2.8	2.5
Hemi Stemless Anatomic	.	0.1	.	0.0	.	.	0.0	0.0
All Primary Partial	7.8	6.9	6.8	5.7	6.1	4.3	3.5	3.3
Total Resurfacing Anatomic	0.2	.	0.2	0.5	0.8	0.4	0.3	0.3
Total Stemmed Anatomic	7.1	10.6	11.2	11.1	10.1	10.4	11.2	11.9
Total Stemmed Reverse	2.3	2.5	3.0	3.6	4.9	5.6	6.1	8.5
Total Stemless Anatomic	.	.	.	0.2	0.7	0.6	1.3	1.5
Total Stemless Reverse	.	.	.	.	.	.	.	.
All Primary Total	9.6	13.2	14.3	15.3	16.5	16.9	18.9	22.2
All Revisions	2.3	2.9	2.8	2.9	3.4	3.4	3.3	3.5
ALL SHOULDERS	19.7	22.9	23.9	23.9	25.9	24.6	25.7	29.0

Shoulder Replacement	2016	2017	2018	2019	2020	2021	2022	TOTAL
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	.	.	.	.	.	0.0	0.0	0.0
Hemi Resurfacing Anatomic	1.1	0.8	0.7	0.8	0.5	0.8	0.7	0.9
Hemi Stemmed Anatomic	2.0	1.3	1.8	2.0	1.9	1.9	1.8	2.2
Hemi Stemless Anatomic	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0
All Primary Partial	3.2	2.3	2.6	2.9	2.4	2.8	2.6	3.2
Total Resurfacing Anatomic	0.1	0.1	0.0	0.0	.	.	.	0.1
Total Stemmed Anatomic	10.5	9.4	7.9	7.2	6.1	5.6	5.2	7.1
Total Stemmed Reverse	12.3	16.2	19.9	21.0	22.9	29.0	27.5	10.3
Total Stemless Anatomic	2.8	3.7	4.7	4.9	5.8	6.5	5.6	2.2
Total Stemless Reverse	.	.	0.0	0.1	0.1	0.1	0.0	0.0
All Primary Total	25.7	29.5	32.6	33.2	35.0	41.2	38.3	19.7
All Revisions	3.5	4.1	4.6	4.2	4.0	4.1	4.4	2.9
ALL SHOULDERS	32.5	35.9	39.8	40.3	41.4	48.1	45.3	25.8

Figure SD74 Incidence of Shoulder Replacement in Patients Aged 55-64 Years per 100,000 from 2008 to 2022

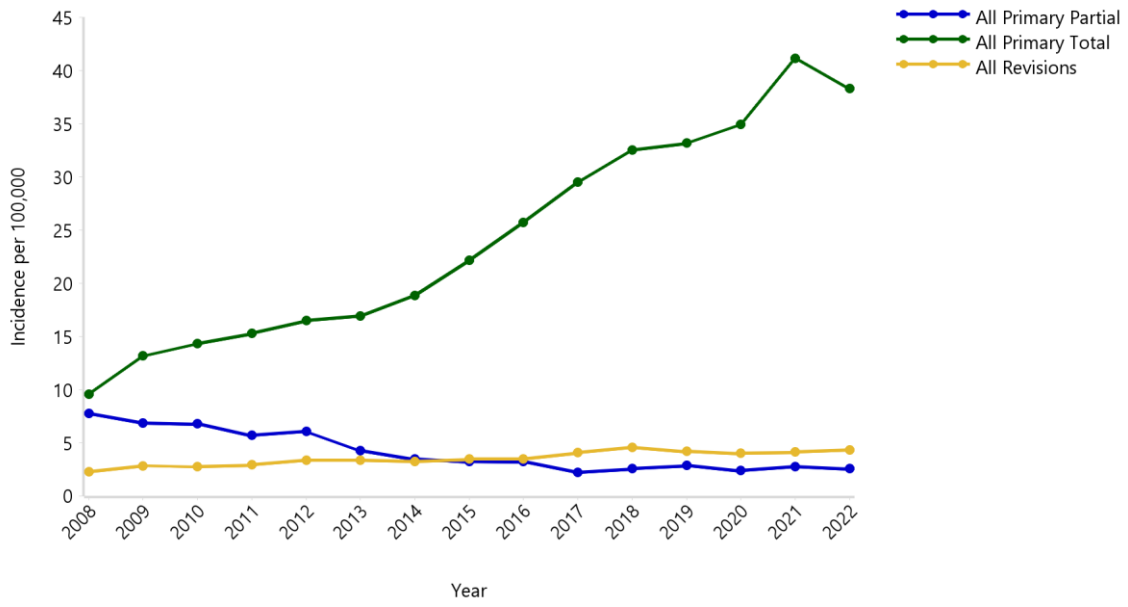


Table SD62 Incidence of Shoulder Replacement in Patients Aged 65-74 Years per 100,000 from 2008 to 2022

Shoulder Replacement	2008	2009	2010	2011	2012	2013	2014	2015
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	0.3	.	0.2	0.2	0.1	0.2	0.2	0.0
Hemi Resurfacing Anatomic	3.6	3.9	2.9	3.2	3.0	2.4	1.2	1.0
Hemi Stemmed Anatomic	11.6	11.3	9.8	10.5	9.5	8.1	6.3	4.6
Hemi Stemless Anatomic	.	0.1	0.1	.	.	0.2	0.1	.
All Primary Partial	15.5	15.3	13.0	13.9	12.6	10.9	7.7	5.7
Total Resurfacing Anatomic	0.4	0.4	0.3	0.6	0.7	1.0	0.6	0.5
Total Stemmed Anatomic	24.4	29.9	30.9	32.1	31.3	33.1	32.3	29.6
Total Stemmed Reverse	13.7	17.3	18.0	25.4	30.7	34.9	43.5	50.8
Total Stemless Anatomic	.	.	.	0.1	2.0	2.4	2.8	4.0
Total Stemless Reverse	.	.	.	.	.	.	.	.
All Primary Total	38.5	47.6	49.3	58.2	64.6	71.4	79.2	84.9
All Revisions	6.1	6.3	7.0	8.4	9.4	8.7	9.4	10.9
ALL SHOULDERS	60.1	69.3	69.2	80.4	86.6	91.0	96.3	101.5

Shoulder Replacement	2016	2017	2018	2019	2020	2021	2022	TOTAL
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	.	0.1	.	0.0	0.0	.	.	0.1
Hemi Resurfacing Anatomic	1.4	1.3	0.9	0.9	0.9	0.4	0.5	1.4
Hemi Stemmed Anatomic	3.0	2.2	1.7	0.9	2.2	2.1	1.4	4.1
Hemi Stemless Anatomic	0.1	0.1	0.0	0.0	0.1	.	.	0.0
All Primary Partial	4.6	3.8	2.6	1.8	3.3	2.5	1.9	5.6
Total Resurfacing Anatomic	0.4	0.3	0.2	0.1	0.0	.	.	0.3
Total Stemmed Anatomic	26.7	23.9	18.8	16.0	11.8	10.9	9.0	18.7
Total Stemmed Reverse	68.7	78.4	87.1	96.1	100.7	110.9	107.2	52.1
Total Stemless Anatomic	5.5	7.9	9.0	9.8	11.6	11.1	13.2	4.9
Total Stemless Reverse	0.0	0.1	0.2	0.8	0.3	0.3	0.1	0.1
All Primary Total	101.3	110.6	115.4	122.7	124.5	133.3	129.5	76.1
All Revisions	11.4	11.4	12.2	12.2	10.5	10.1	10.9	8.1
ALL SHOULDERS	117.4	125.8	130.2	136.7	138.4	145.9	142.3	89.8

Figure SD75 Incidence of Shoulder Replacement in Patients Aged 65-74 Years per 100,000 from 2008 to 2022

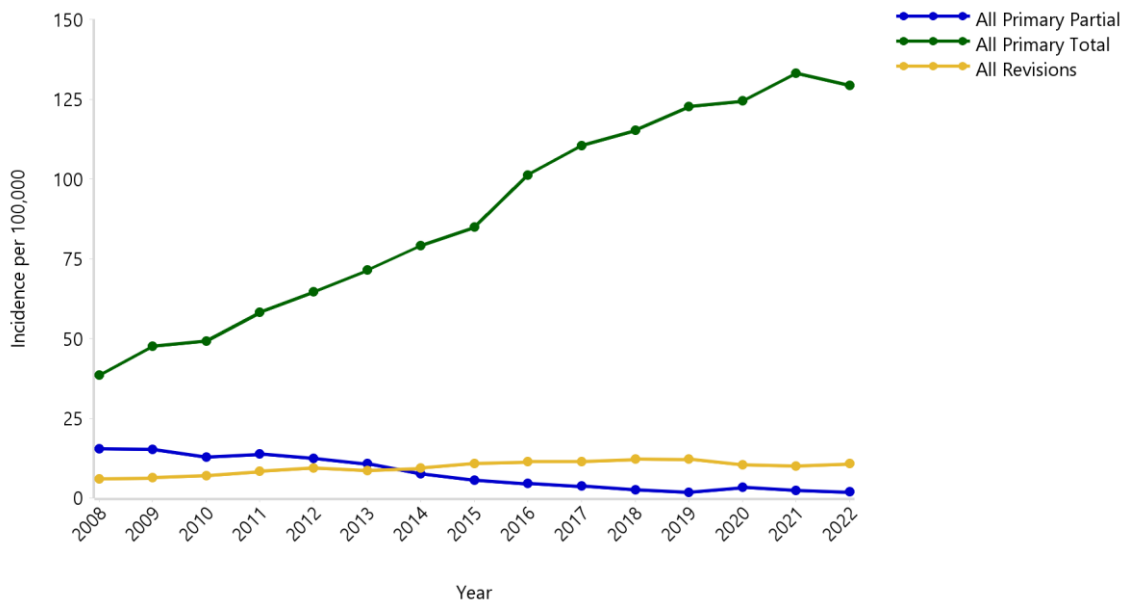


Table SD63 Incidence of Shoulder Replacement in Patients Aged ≥75 Years per 100,000 from 2008 to 2022

Shoulder Replacement	2008	2009	2010	2011	2012	2013	2014	2015
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	0.4	0.1	0.1	0.3	0.1	0.1	.	.
Hemi Resurfacing Anatomic	5.2	3.6	2.3	1.8	2.2	1.4	1.2	1.0
Hemi Stemmed Anatomic	21.2	20.2	18.6	17.5	15.0	11.8	8.4	5.6
Hemi Stemless Anatomic	.	0.1	0.1	.	.	0.1	.	0.1
All Primary Partial	26.8	24.0	21.2	19.6	17.2	13.3	9.6	6.7
Total Resurfacing Anatomic	0.1	0.1	.	0.2	0.1	0.3	0.1	.
Total Stemmed Anatomic	20.8	26.5	28.2	28.6	27.5	22.2	23.7	21.8
Total Stemmed Reverse	29.5	37.3	43.3	53.1	58.0	70.8	82.7	90.8
Total Stemless Anatomic	.	.	.	.	0.8	2.2	2.2	1.9
Total Stemless Reverse	.	.	.	.	.	.	.	.
All Primary Total	50.4	63.9	71.5	81.9	86.3	95.5	108.7	114.5
All Revisions	7.7	8.1	9.0	8.0	10.4	11.2	11.7	13.6
ALL SHOULDERS	84.9	96.0	101.7	109.5	113.9	120.0	130.0	134.7

Shoulder Replacement	2016	2017	2018	2019	2020	2021	2022	TOTAL
	N	N	N	N	N	N	N	N
Partial Resurfacing Anatomic	.	.	.	.	.	.	.	0.0
Hemi Resurfacing Anatomic	0.6	0.9	0.5	0.3	0.2	.	0.1	1.0
Hemi Stemmed Anatomic	4.3	3.2	2.9	2.1	1.6	1.8	1.5	6.5
Hemi Stemless Anatomic	.	.	.	.	.	0.1	.	0.0
All Primary Partial	4.9	4.0	3.4	2.3	1.7	1.8	1.5	7.6
Total Resurfacing Anatomic	.	.	0.1	0.1	.	.	.	0.1
Total Stemmed Anatomic	17.6	14.3	10.9	8.3	6.6	6.1	6.3	13.5
Total Stemmed Reverse	101.4	119.0	138.4	148.0	138.4	151.1	144.6	78.5
Total Stemless Anatomic	3.4	4.5	5.1	5.5	5.0	6.7	6.3	2.5
Total Stemless Reverse	.	0.2	0.1	0.2	.	0.1	.	0.0
All Primary Total	122.4	138.0	154.6	162.0	150.1	164.0	157.2	94.7
All Revisions	11.4	12.5	11.8	12.9	12.9	12.5	11.7	8.9
ALL SHOULDERS	138.7	154.5	169.9	177.3	164.7	178.4	170.5	111.1

Figure SD76 Incidence of Shoulder Replacement in Patients Aged ≥75 Years per 100,000 from 2008 to 2022

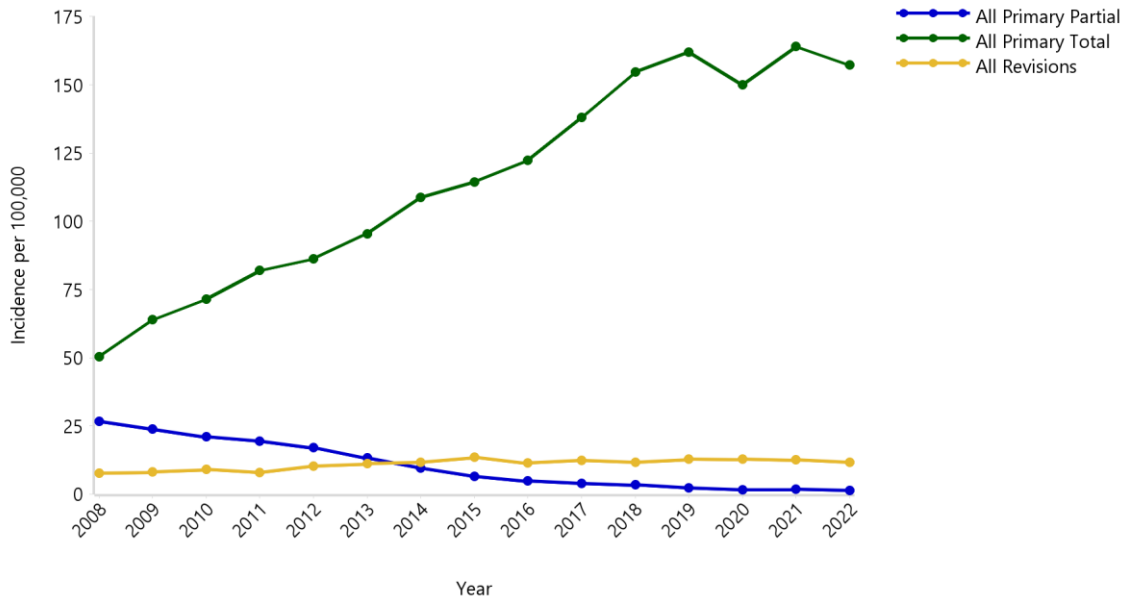
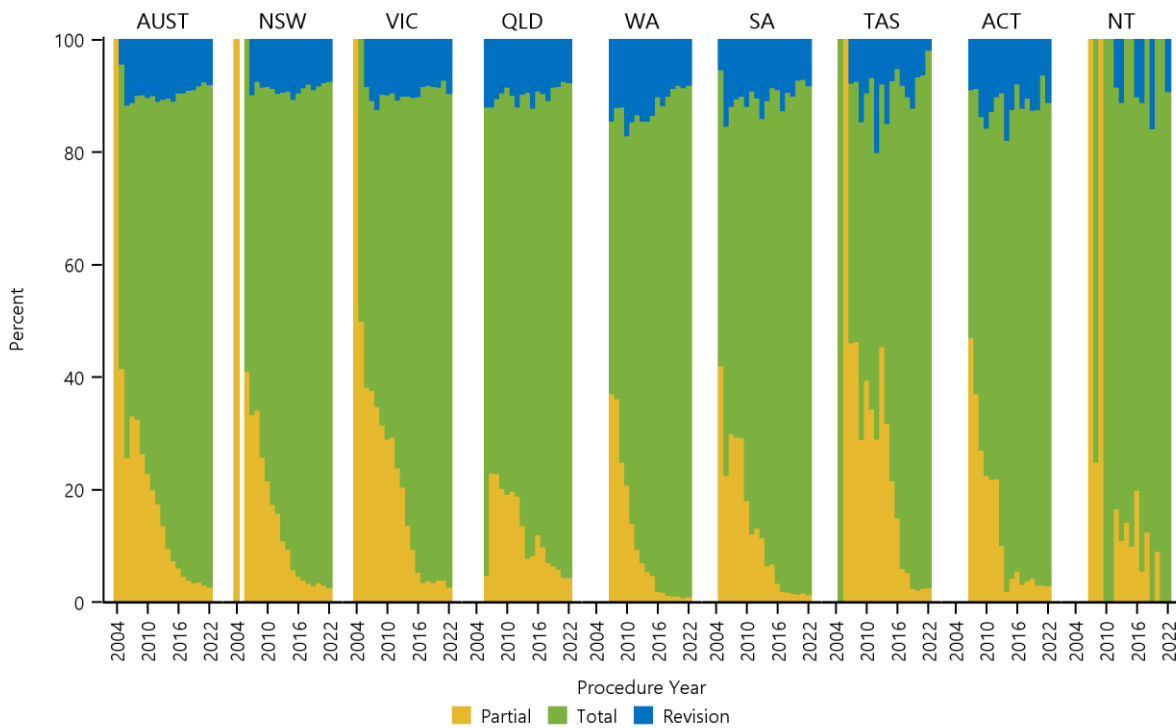


Figure SD77 Trends in Usage of Shoulder Replacement by State/Territory and Year



Note: There were no shoulder replacements undertaken in 2005 in NSW

Table SD64 Time between Procedures for Bilateral Primary Shoulder Replacement

Bilateral Procedures	Same Day			1 day - 3 months			3 - 6 months			≥6 months			TOTAL		
	N	Row%	Col%	N	Row%	Col%	N	Row%	Col%	N	Row%	Col%	N	Row%	Col%
Both Partial	17	5.4	56.7	20	6.3	9.3	37	11.7	4.7	243	76.7	2.9	317	100.0	3.3
Both Total	13	0.2	43.3	189	2.2	88.3	738	8.5	92.9	7713	89.1	91.5	8653	100.0	91.4
Total/Partial	.	.	.	5	1.0	2.3	19	3.8	2.4	474	95.2	5.6	498	100.0	5.3
TOTAL	30	0.3	100.0	214	2.3	100.0	794	8.4	100.0	8430	89.0	100.0	9468	100.0	100.0

Table SD65 Number of Shoulder Procedures by Patient

Shoulder Procedures	Not Revised		1 Revision		2 Revisions		3 or more Revisions		TOTAL	
	N	Row%	N	Row%	N	Row%	N	Row%	N	Row%
Unknown Primary/Primaries	.	.	933	77.1	187	15.5	90	7.4	1210	100.0
Single Primary Procedure	55071	94.0	2700	4.6	564	1.0	247	0.4	58582	100.0
2 Primary Procedures	8392	88.6	787	8.3	217	2.3	72	0.8	9468	100.0
TOTAL	63463	91.6	4420	6.4	968	1.4	409	0.6	69260	100.0

PRIMARY PARTIAL SHOULDER REPLACEMENT

CLASSES OF PARTIAL SHOULDER REPLACEMENT

The Registry subcategorises primary partial shoulder replacement into four main classes. These are defined as:

Partial resurfacing anatomic involves the use of one or more button prostheses to replace part of the natural articulating surface, on one or both sides of the shoulder joint.

Hemi resurfacing anatomic involves the use of a humeral prosthesis that replaces the humeral articular surface only, without resecting the humeral head.

Hemi stemless anatomic involves resection of part of the humeral head and replacement with a humeral head and an epiphyseal fixation prosthesis.

Hemi stemmed anatomic involves the resection of the humeral head and replacement with a humeral head and a humeral stem prosthesis. A humeral stem prosthesis may have either metaphyseal or diaphyseal fixation.

Table SD66 Primary Partial Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	4693	59.6%	13	101	72	70.9	11.8
Male	3183	40.4%	14	94	61	60.2	14.3
TOTAL	7876	100.0%	13	101	68	66.5	13.9

Figure SD78 Primary Partial Shoulder Replacement by Age and Gender

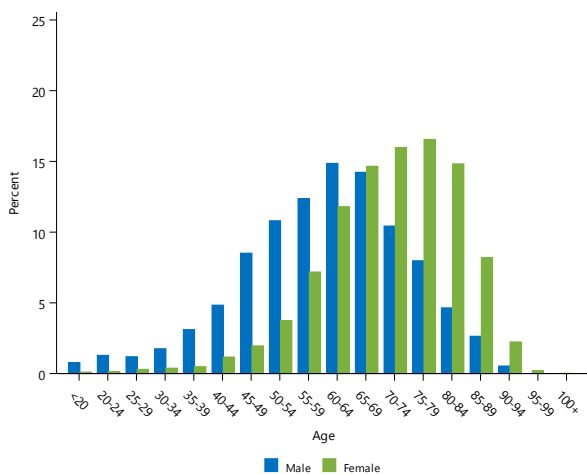
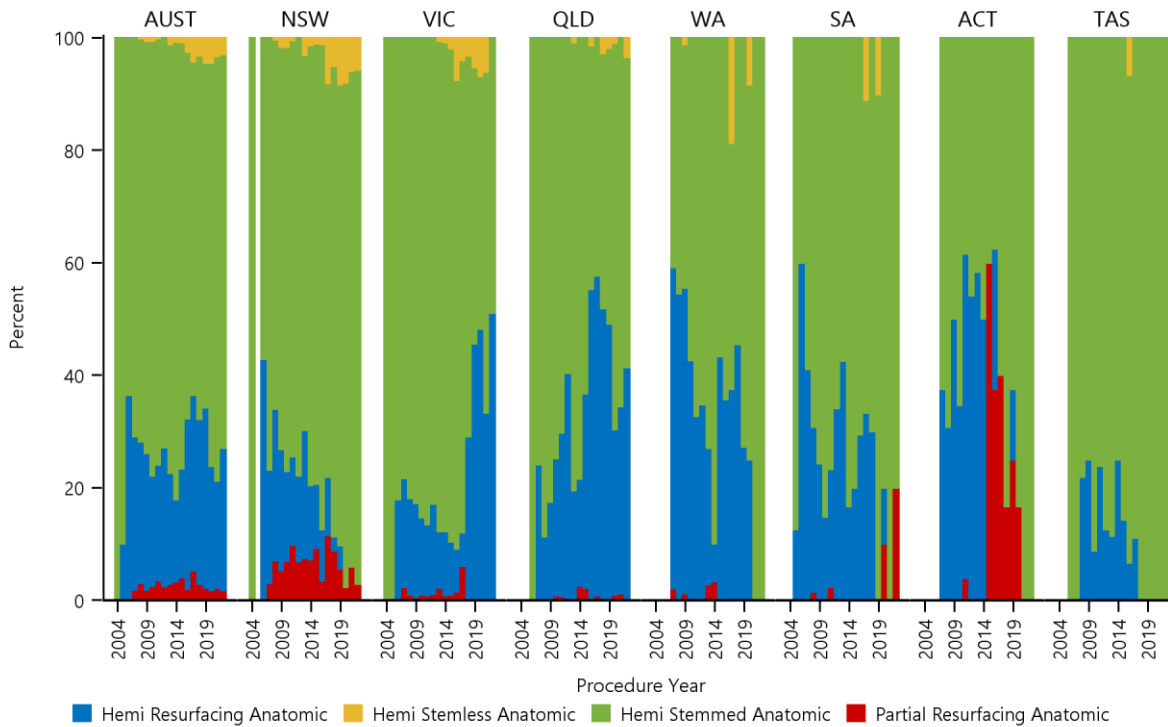


Table SD67 Primary Partial Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	3476	44.1
Fracture	3176	40.3
Rotator Cuff Arthropathy	353	4.5
Osteonecrosis	278	3.5
Instability	228	2.9
Tumour	191	2.4
Rheumatoid Arthritis	129	1.6
Other Inflammatory Arthritis	40	0.5
Osteochondritis Dissecans	2	0.0
Other	3	0.0
TOTAL	7876	100.0

Figure SD79 Trends in Usage of Partial Shoulder Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

PRIMARY PARTIAL RESURFACING ANATOMIC SHOULDER REPLACEMENT

Table SD68 Primary Partial Resurfacing Anatomic Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	48	23.0%	16	88	55	55.1	19.4
Male	161	77.0%	14	87	35	38.7	17.4
TOTAL	209	100.0%	14	88	40	42.5	19.1

Figure SD80 Primary Partial Resurfacing Anatomic Shoulder Replacement by Age and Gender

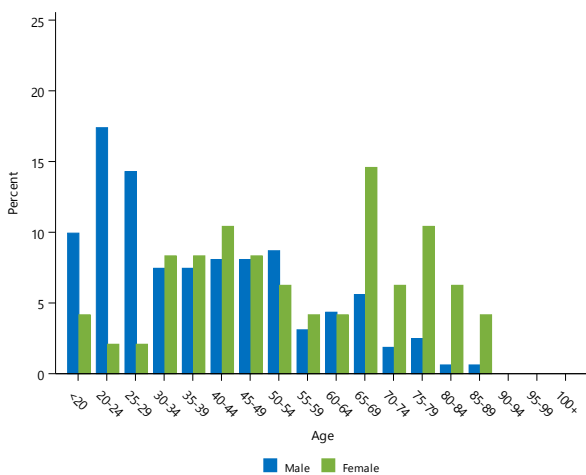


Table SD69 Primary Partial Resurfacing Anatomic Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Instability	111	53.1
Osteoarthritis	72	34.4
Fracture	16	7.7
Osteonecrosis	5	2.4
Osteochondritis Dissecans	2	1.0
Rotator Cuff Arthropathy	2	1.0
Rheumatoid Arthritis	1	0.5
TOTAL	209	100.0

PRIMARY HEMI RESURFACING ANATOMIC SHOULDER REPLACEMENT

Table SD70 Primary Hemi Resurfacing Anatomic Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	741	40.0%	27	93	68	67.6	11.4
Male	1110	60.0%	19	90	61	59.7	12.0
TOTAL	1851	100.0%	19	93	64	62.9	12.4

Figure SSP1 Primary Hemi Resurfacing Anatomic Shoulder Replacement by Age and Gender

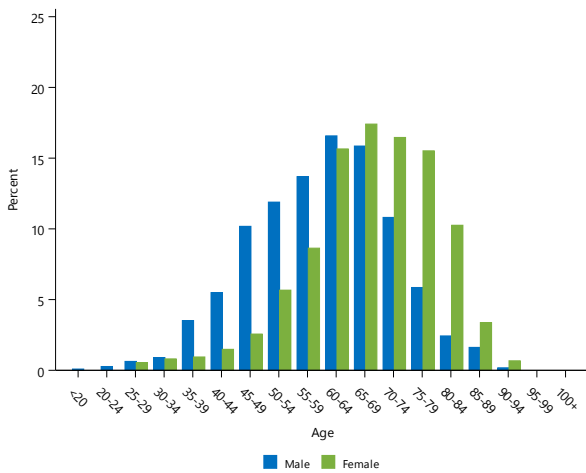


Table SD71 Primary Hemi Resurfacing Anatomic Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	1636	88.4
Rotator Cuff Arthropathy	86	4.6
Instability	38	2.1
Osteonecrosis	37	2.0
Rheumatoid Arthritis	28	1.5
Fracture	14	0.8
Other Inflammatory Arthritis	12	0.6
TOTAL	1851	100.0

PRIMARY HEMI STEMMED ANATOMIC SHOULDER REPLACEMENT

Table SD72 Primary Hemi Stemmed Anatomic Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	3872	67.7%	13	101	73	71.7	11.5
Male	1848	32.3%	14	94	63	62.7	13.6
TOTAL	5720	100.0%	13	101	70	68.8	13.0

Figure SD81 Primary Hemi Stemmed Anatomic Shoulder Replacement by Age and Gender

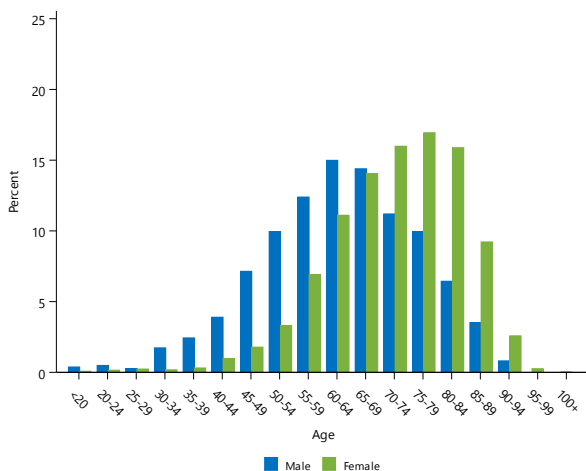


Table SD73 Primary Hemi Stemmed Anatomic Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Fracture	3140	54.9
Osteoarthritis	1710	29.9
Rotator Cuff Arthropathy	262	4.6
Osteonecrosis	212	3.7
Tumour	191	3.3
Rheumatoid Arthritis	99	1.7
Instability	77	1.3
Other Inflammatory Arthritis	27	0.5
Other	2	0.0
TOTAL	5720	100.0

PRIMARY HEMI STEMLESS ANATOMIC SHOULDER REPLACEMENT

Table SD74 Primary Hemi Stemless Anatomic Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	32	33.3%	30	85	66	64.6	11.4
Male	64	66.7%	18	83	50	49.6	12.1
TOTAL	96	100.0%	18	85	53	54.6	13.8

Figure SSP2 Primary Hemi Stemless Anatomic Shoulder Replacement by Age and Gender

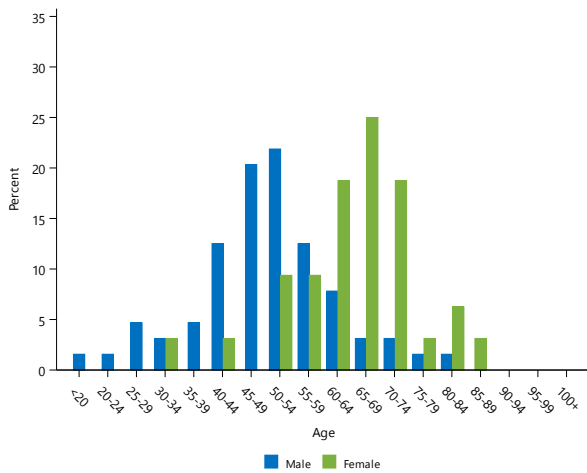


Table SD75 Primary Hemi Stemless Anatomic Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	58	60.4
Osteonecrosis	24	25.0
Fracture	6	6.3
Rotator Cuff Arthropathy	3	3.1
Instability	2	2.1
Rheumatoid Arthritis	1	1.0
Other Inflammatory Arthritis	1	1.0
Other	1	1.0
TOTAL	96	100.0

PRIMARY TOTAL SHOULDER REPLACEMENT

CLASSES OF TOTAL SHOULDER REPLACEMENT

The Registry subcategorises primary total shoulder replacement into five classes. These are defined by the type of prostheses used.

Total resurfacing anatomic involves glenoid replacement and the use of a humeral prosthesis that replaces the humeral articular surface without resecting the humeral head.

Total stemless anatomic involves glenoid replacement combined with resection of the humeral head and replacement with a humeral head and an epiphyseal fixation prosthesis.

Total stemmed anatomic involves glenoid replacement combined with resection of the humeral head and replacement with humeral head and humeral stem prostheses. A humeral stem prosthesis may have metaphyseal or diaphyseal fixation.

Total stemmed reverse involves glenoid replacement with a glenosphere prosthesis combined with resection of the humeral head and replacement with humeral cup and humeral stem prosthesis. A humeral stem prosthesis may have metaphyseal or diaphyseal fixation.

Total stemless reverse involves glenoid replacement with a glenosphere prosthesis combined with resection of the humeral head and replacement with a humeral cup and an epiphyseal fixation humeral prosthesis.

Table SD76 Primary Total Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	41961	60.3%	13	102	74	73.4	8.4
Male	27679	39.7%	14	96	71	70.1	9.0
TOTAL	69640	100.0%	13	102	73	72.1	8.8

Figure SST1 Primary Total Shoulder Replacement by Age and Gender

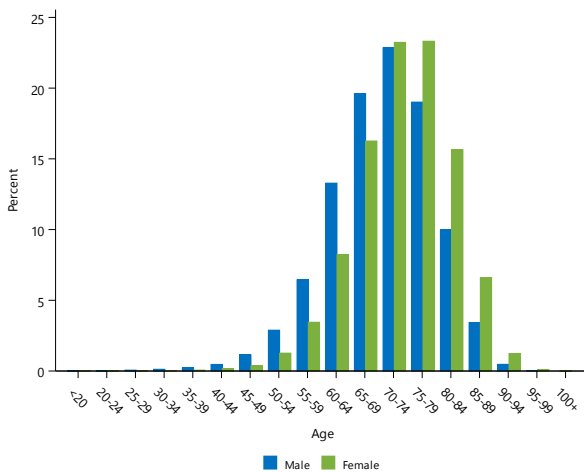
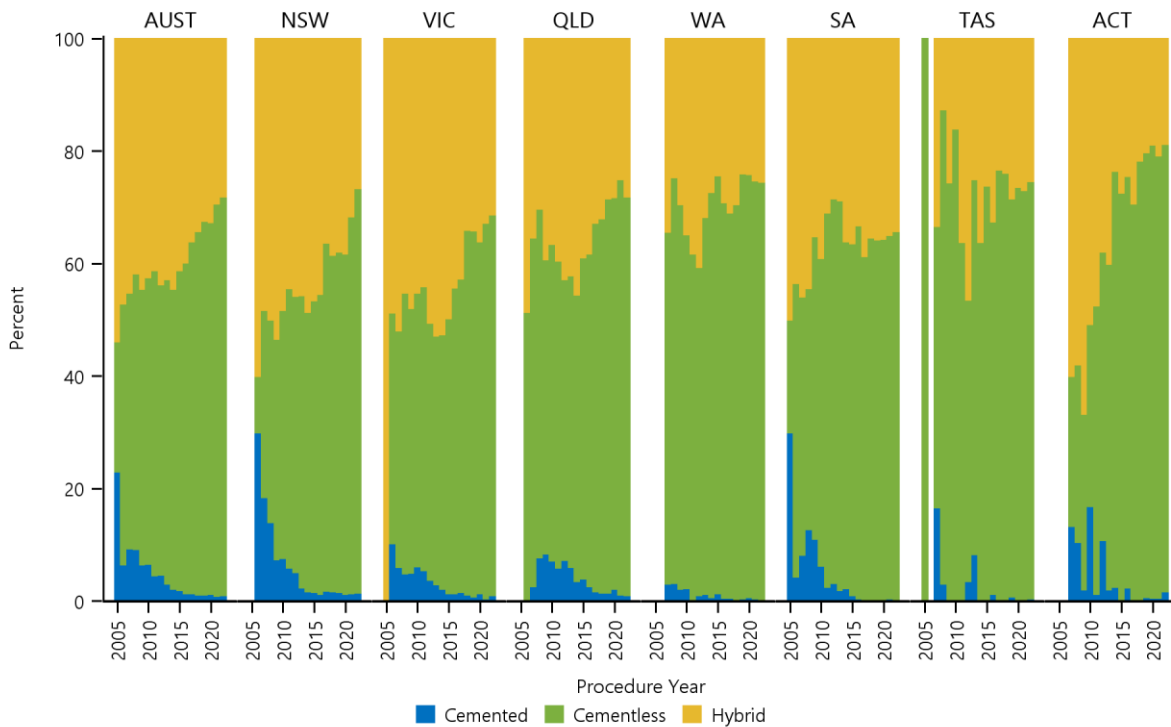


Table SD77 Primary Total Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	40630	58.3
Rotator Cuff Arthropathy	18125	26.0
Fracture	7650	11.0
Rheumatoid Arthritis	1149	1.6
Osteonecrosis	886	1.3
Instability	570	0.8
Other Inflammatory Arthritis	353	0.5
Tumour	259	0.4
Other	18	0.0
TOTAL	69640	100.0

Figure SST2 Trends in Fixation of Primary Total Shoulder Replacement by State/Territory and Year



Note: There were no primary total shoulder replacements undertaken in 2006 in TAS
 NT is excluded from this graph due to low procedure numbers

PRIMARY TOTAL RESURFACING ANATOMIC SHOULDER REPLACEMENT

Table SD78 Primary Total Resurfacing Anatomic Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	95	40.4%	46	86	67	67.0	6.7
Male	140	59.6%	35	83	63	62.2	9.8
TOTAL	235	100.0%	35	86	65	64.1	9.0

Figure SST3 Primary Total Resurfacing Anatomic Shoulder Replacement by Age and Gender

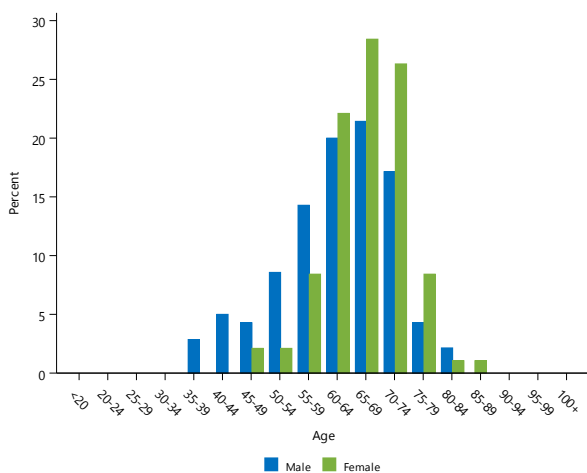


Table SD79 Primary Total Resurfacing Anatomic Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	226	96.2
Rheumatoid Arthritis	3	1.3
Fracture	2	0.9
Other Inflammatory Arthritis	1	0.4
Instability	1	0.4
Rotator Cuff Arthropathy	1	0.4
Osteonecrosis	1	0.4
TOTAL	235	100.0

PRIMARY TOTAL STEMMED ANATOMIC SHOULDER REPLACEMENT

Table SD80 Primary Total Stemmed Anatomic Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	9142	57.1%	19	96	71	70.3	8.5
Male	6882	42.9%	21	93	67	66.7	9.0
TOTAL	16024	100.0%	19	96	69	68.7	8.9

Figure SST4 Primary Total Stemmed Anatomic Shoulder Replacement by Age and Gender

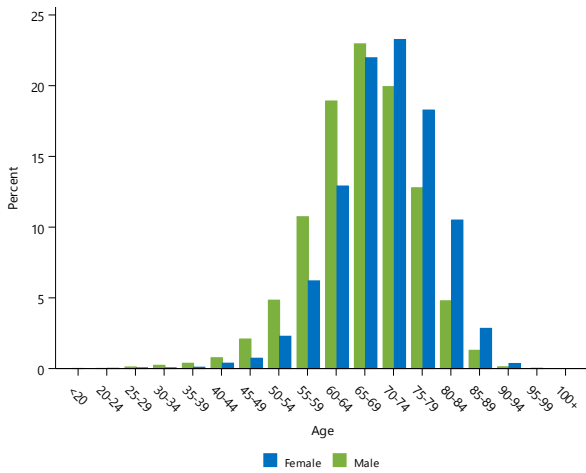
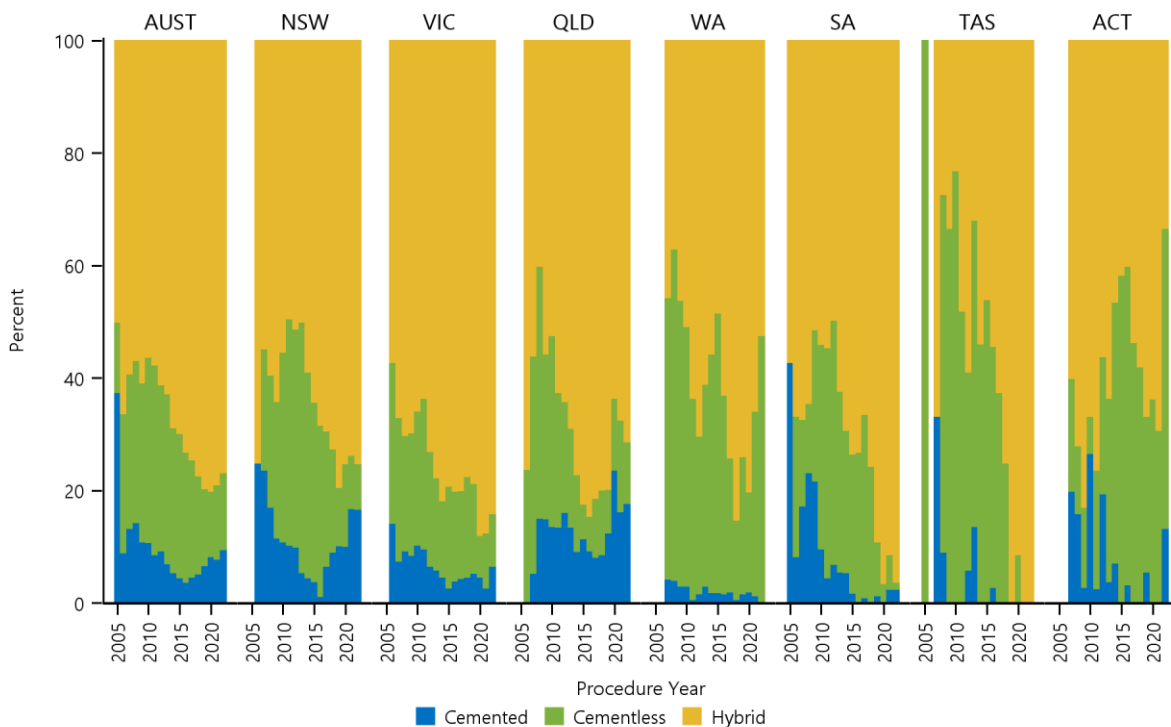


Table SD81 Primary Total Stemmed Anatomic Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	15111	94.3
Rheumatoid Arthritis	271	1.7
Osteonecrosis	269	1.7
Fracture	132	0.8
Other Inflammatory Arthritis	92	0.6
Rotator Cuff Arthropathy	85	0.5
Instability	46	0.3
Tumour	12	0.1
Other	6	0.0
TOTAL	16024	100.0

Figure SST5 Trends in Fixation of Primary Total Stemmed Anatomic Shoulder Replacement by State/Territory and Year



Note: There were no primary total stemmed anatomic shoulder replacements undertaken in 2006 in TAS
NT is excluded from this graph due to low procedure numbers

PRIMARY TOTAL STEMMED REVERSE SHOULDER REPLACEMENT

Table SD82 Primary Total Stemmed Reverse Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	30641	62.2%	13	102	75	74.6	8.0
Male	18589	37.8%	14	96	73	72.1	8.3
TOTAL	49230	100.0%	13	102	74	73.7	8.2

Figure SST6 Primary Total Stemmed Reverse Shoulder Replacement by Age and Gender

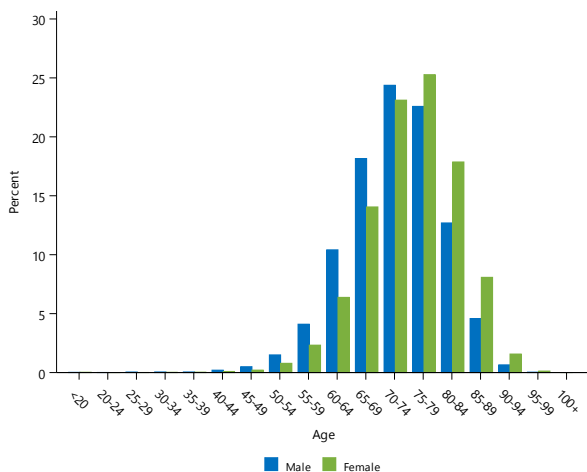
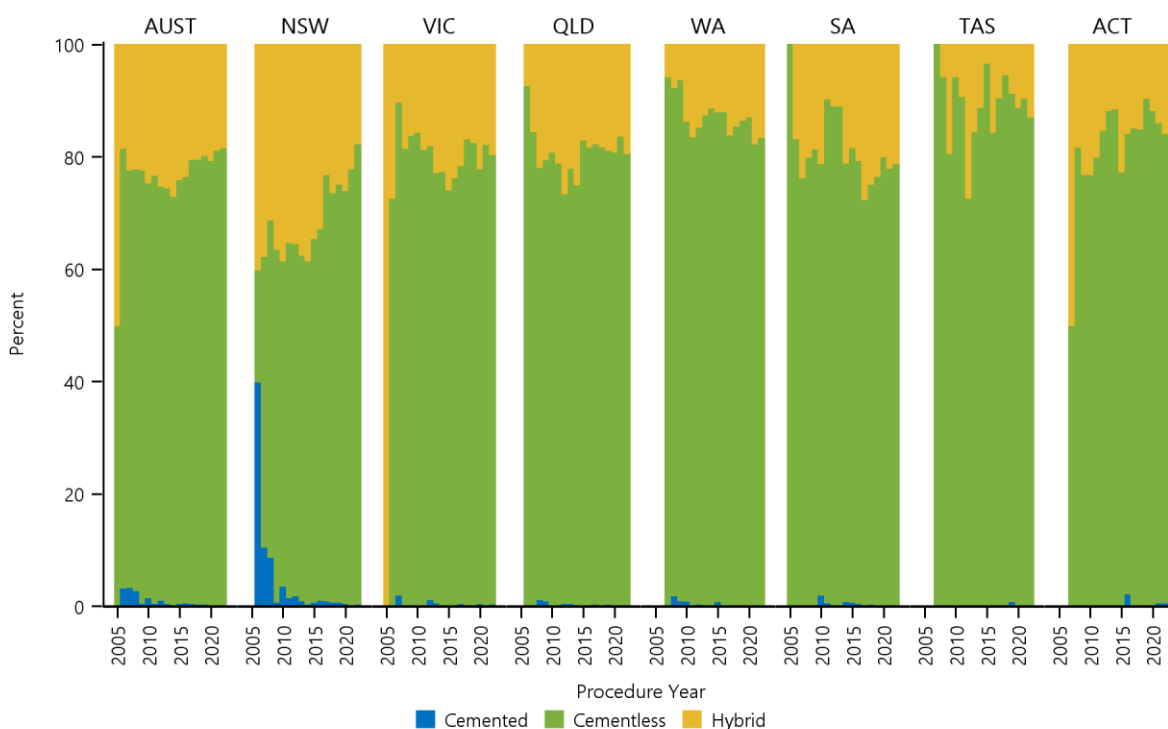


Table SD83 Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	21339	43.3
Rotator Cuff Arthropathy	17996	36.6
Fracture	7509	15.3
Rheumatoid Arthritis	845	1.7
Osteonecrosis	546	1.1
Instability	497	1.0
Tumour	247	0.5
Other Inflammatory Arthritis	239	0.5
Other	12	0.0
TOTAL	49230	100.0

Figure SST7 Trends in Fixation of Primary Total Stemmed Reverse Shoulder Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

PRIMARY TOTAL STEMLESS ANATOMICAL SHOULDER REPLACEMENT

Table SD84 Primary Total Stemless Anatomic Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	2064	50.5%	32	94	69	68.8	8.3
Male	2023	49.5%	31	95	65	64.3	9.5
TOTAL	4087	100.0%	31	95	67	66.6	9.2

Figure SST8 Primary Total Stemless Anatomic Shoulder Replacement by Age and Gender

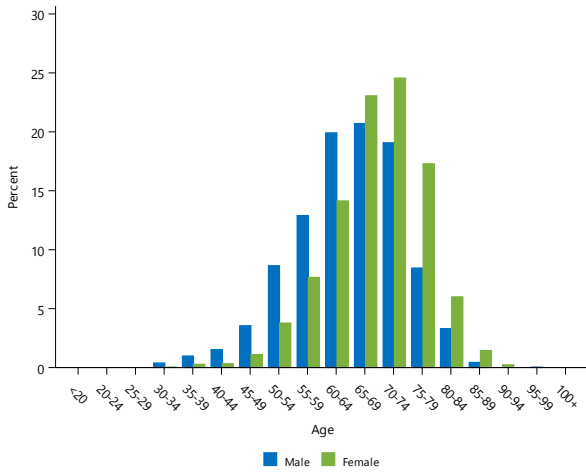


Table SD85 Primary Total Stemless Anatomic Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	3921	95.9
Osteonecrosis	70	1.7
Rheumatoid Arthritis	29	0.7
Instability	26	0.6
Other Inflammatory Arthritis	21	0.5
Rotator Cuff Arthropathy	14	0.3
Fracture	6	0.1
TOTAL	4087	100.0

PRIMARY TOTAL STEMLESS REVERSE SHOULDER REPLACEMENT

Table SD86 Primary Total Stemless Reverse Shoulder Replacement by Age and Gender

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Female	19	29.7%	62	82	70	70.6	4.8
Male	45	70.3%	60	79	69	68.8	4.9
TOTAL	64	100.0%	60	82	69	69.3	4.9

Figure SST9 Primary Total Stemless Reverse Shoulder Replacement by Age and Gender

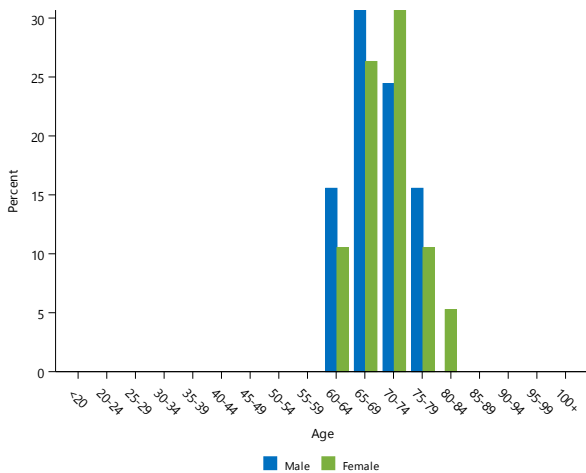


Table SD87 Primary Total Stemless Reverse Shoulder Replacement by Primary Diagnosis

Primary Diagnosis	Number	Percent
Osteoarthritis	33	51.6
Rotator Cuff Arthropathy	29	45.3
Fracture	1	1.6
Rheumatoid Arthritis	1	1.6
TOTAL	64	100.0

ALL REVISION SHOULDER REPLACEMENT

Table SD88 Age and Gender of All Revision Shoulder Replacement

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Male	3664	47.1%	19	96	70	68.4	10.2
Female	4122	52.9%	15	98	72	71.4	10.1
TOTAL	7786	100.0%	15	98	71	70.0	10.3

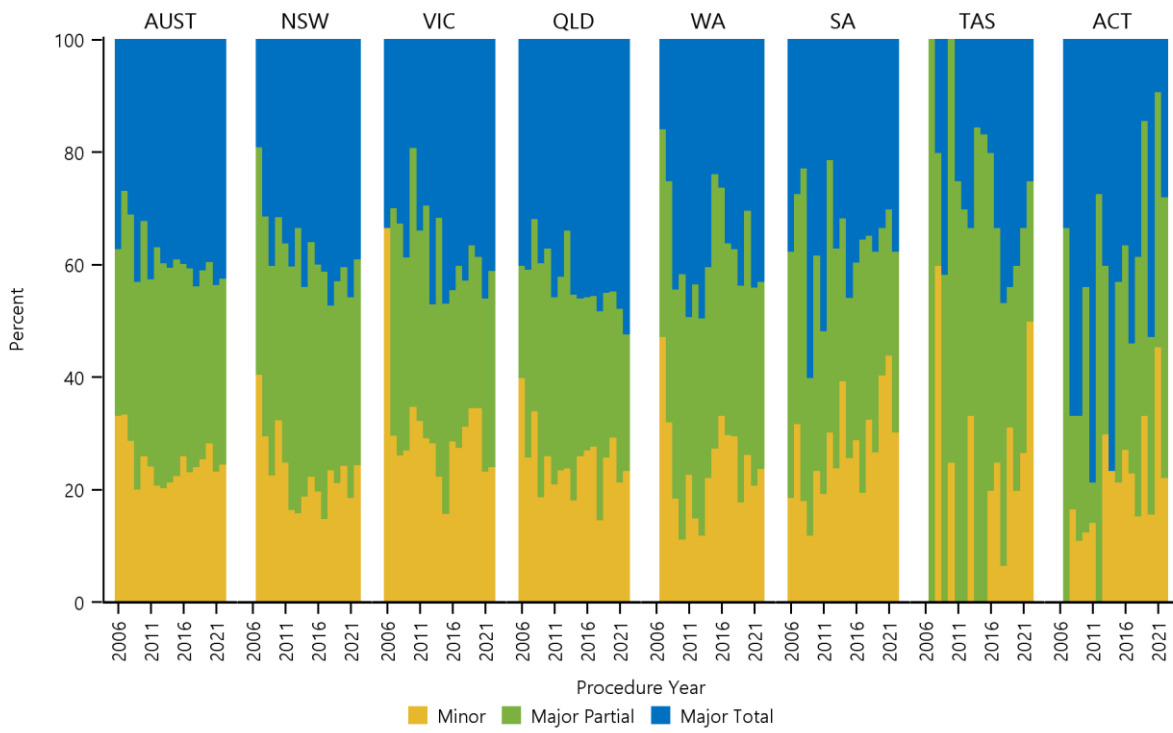
Table SD89 Reason for Revision of All Shoulder Replacement

Reason for Revision	Number	Percent
Instability/Dislocation	1829	23.5
Infection	1593	20.5
Loosening	1407	18.1
Rotator Cuff Insufficiency	818	10.5
Fracture	543	7.0
Pain	317	4.1
Glenoid Erosion	268	3.4
Dissociation	188	2.4
Lysis	128	1.6
Implant Breakage Glenoid Insert	125	1.6
Implant Breakage Glenoid	72	0.9
Arthrofibrosis	63	0.8
Malposition	59	0.8
Metal Related Pathology	59	0.8
Incorrect Sizing	49	0.6
Wear Glenoid Insert	45	0.6
Wear Glenoid	31	0.4
Progression Of Disease	23	0.3
Implant Breakage Head	20	0.3
Implant Breakage Humeral	18	0.2
Wear Humeral Cup	17	0.2
Tumour	14	0.2
Osteonecrosis	12	0.2
Heterotopic Bone	9	0.1
Synovitis	2	0.0
Other	77	1.0
TOTAL	7786	100.0

Table SD90 Type of Revision of All Shoulder Replacement

Type of Revision	Number	Percent
Humeral/Glenoid	2834	36.4
Humeral Component	2014	25.9
Head Only	576	7.4
Glenoid Component	541	6.9
Cup/Head	527	6.8
Cement Spacer	511	6.6
Cup Only	477	6.1
Removal of Prostheses	145	1.9
Head/Insert	62	0.8
Minor Components	42	0.5
Cement Only	35	0.4
Reinsertion of Components	13	0.2
Insert Only	6	0.1
Partial Resurfacing	3	0.0
TOTAL	7786	100.0

Figure SD82 Trends in Usage of All Revision Shoulder Replacement by State/Territory and Year



Note: NT is excluded from this graph due to low procedure numbers

List of Tables

Table SD1	All Hip Replacement by Age and Gender.....	4
Table SD2	Number of Hip Replacements by Gender.....	4
Table SD3	Incidence of Hip Replacement per 100,000 from 2003 to 2022.....	11
Table SD4	Incidence of Hip Replacement in Patients Aged <55 Years per 100,000 from 2003 to 2022.....	12
Table SD5	Incidence of Hip Replacement in Patients Aged 55-64 Years per 100,000 from 2003 to 2022.....	13
Table SD6	Incidence of Hip Replacement in Patients Aged 65-74 Years per 100,000 from 2003 to 2022.....	14
Table SD7	Incidence of Hip Replacement in Patients Aged ≥75 Years per 100,000 from 2003 to 2022.....	15
Table SD8	Time between Procedures for Bilateral Primary Hip Replacement.....	16
Table SD9	Number of Hip Procedures by Patient.....	16
Table SD10	Primary Partial Hip Replacement by Age and Gender.....	17
Table SD11	Primary Partial Hip Replacement by Primary Diagnosis.....	17
Table SD12	Primary Partial Resurfacing Hip Replacement by Age and Gender.....	19
Table SD13	Primary Partial Resurfacing Hip Replacement by Primary Diagnosis.....	19
Table SD14	Primary Unipolar Monoblock Hip Replacement by Age and Gender.....	20
Table SD15	Primary Unipolar Monoblock Hip Replacement by Primary Diagnosis.....	20
Table SD16	Primary Unipolar Modular Hip Replacement by Age and Gender.....	21
Table SD17	Primary Unipolar Modular Hip Replacement by Primary Diagnosis.....	21
Table SD18	Primary Bipolar Hip Replacement by Age and Gender.....	22
Table SD19	Primary Bipolar Hip Replacement by Primary Diagnosis.....	22
Table SD20	Primary Total Hip Replacement by Age and Gender.....	23
Table SD21	Primary Total Hip Replacement by Primary Diagnosis.....	23
Table SD22	Primary Total Conventional Hip Replacement by Age and Gender.....	25
Table SD23	Primary Total Conventional Hip Replacement by Primary Diagnosis.....	25
Table SD24	Primary Total Resurfacing Hip Replacement by Age and Gender.....	27
Table SD25	Primary Total Resurfacing Hip Replacement by Primary Diagnosis.....	27
Table SD26	Primary Thrust Plate Hip Replacement by Age and Gender.....	28
Table SD27	Primary Thrust Plate Hip Replacement by Primary Diagnosis.....	28
Table SD28	All Revision Hip Replacement by Age and Gender.....	29
Table SD29	All Revision Hip Replacement by Type of Revision.....	30
Table SD30	All Revision Hip Replacement by Reason for Revision.....	30
Table SD31	All Knee Replacement by Age and Gender.....	33
Table SD32	Number of Knee Replacements by Gender.....	34
Table SD33	Incidence of Knee Replacement per 100,000 from 2003 to 2022.....	38
Table SD34	Incidence of Knee Replacement in Patients Aged <55 Years per 100,000 from 2003 to 2022.....	39
Table SD35	Incidence of Knee Replacement in Patients Aged 55-64 Years per 100,000 from 2003 to 2022.....	40
Table SD36	Incidence of Knee Replacement in Patients Aged 65-74 Years per 100,000 from 2003 to 2022.....	41
Table SD37	Incidence of Knee Replacement in Patients Aged ≥75 Years per 100,000 from 2003 to 2022.....	42
Table SD38	Time between Procedures for Bilateral Primary Knee Replacement.....	43
Table SD39	Number of Knee Procedures by Patient.....	43
Table SD40	Primary Partial Knee Replacement by Age and Gender.....	44
Table SD41	Primary Partial Knee Replacement by Primary Diagnosis.....	44
Table SD42	Primary Partial Resurfacing Knee Replacement by Age and Gender.....	46
Table SD43	Primary Partial Resurfacing Knee Replacement by Primary Diagnosis.....	46
Table SD44	Primary Unispace Knee Replacement by Age and Gender.....	46
Table SD45	Primary Unispace Knee Replacement by Primary Diagnosis.....	46
Table SD46	Primary Bicompartamental Knee Replacement by Age and Gender.....	47
Table SD47	Primary Bicompartamental Knee Replacement by Primary Diagnosis.....	47
Table SD48	Primary Patella/Trochlea Knee Replacement by Age and Gender.....	47
Table SD49	Primary Patella/Trochlea Knee Replacement by Primary Diagnosis.....	47
Table SD50	Primary Unicompartmental Knee Replacement by Age and Gender.....	48
Table SD51	Primary Unicompartmental Knee Replacement by Primary Diagnosis.....	48
Table SD52	Primary Total Knee Replacement by Age and Gender.....	49
Table SD53	Primary Total Knee Replacement by Primary Diagnosis.....	49
Table SD54	All Revision Knee Replacement by Age and Gender.....	51
Table SD55	Reason for Revision of All Knee Replacement.....	52
Table SD56	Type of Revision of All Knee Replacement.....	52
Table SD57	All Shoulder Replacements by Age and Gender.....	56
Table SD58	Number of Shoulder Replacements by Gender.....	56
Table SD59	Incidence of Shoulder Replacement per 100,000 from 2008 to 2022.....	62
Table SD60	Incidence of Shoulder Replacement in Patients Aged <55 Years per 100,000 from 2008 to 2022.....	64
Table SD61	Incidence of Shoulder Replacement in Patients Aged 55-64 Years per 100,000 from 2008 to 2022.....	66
Table SD62	Incidence of Shoulder Replacement in Patients Aged 65-74 Years per 100,000 from 2008 to 2022.....	68
Table SD63	Incidence of Shoulder Replacement in Patients Aged ≥75 Years per 100,000 from 2008 to 2022.....	69
Table SD64	Time between Procedures for Bilateral Primary Shoulder Replacement.....	71
Table SD65	Number of Shoulder Procedures by Patient.....	71
Table SD66	Primary Partial Shoulder Replacement by Age and Gender.....	72
Table SD67	Primary Partial Shoulder Replacement by Primary Diagnosis.....	72
Table SD68	Primary Partial Resurfacing Anatomic Shoulder Replacement by Age and Gender.....	73
Table SD69	Primary Partial Resurfacing Anatomic Shoulder Replacement by Primary Diagnosis.....	73

Table SD70	Primary Hemi Resurfacing Anatomic Shoulder Replacement by Age and Gender	74
Table SD71	Primary Hemi Resurfacing Anatomic Shoulder Replacement by Primary Diagnosis	74
Table SD72	Primary Hemi Stemmed Anatomic Shoulder Replacement by Age and Gender.....	74
Table SD73	Primary Hemi Stemmed Anatomic Shoulder Replacement by Primary Diagnosis.....	74
Table SD74	Primary Hemi Stemless Anatomic Shoulder Replacement by Age and Gender	75
Table SD75	Primary Hemi Stemless Anatomic Shoulder Replacement by Primary Diagnosis	75
Table SD76	Primary Total Shoulder Replacement by Age and Gender.....	76
Table SD77	Primary Total Shoulder Replacement by Primary Diagnosis.....	76
Table SD78	Primary Total Resurfacing Anatomic Shoulder Replacement by Age and Gender.....	77
Table SD79	Primary Total Resurfacing Anatomic Shoulder Replacement by Primary Diagnosis.....	77
Table SD80	Primary Total Stemmed Anatomic Shoulder Replacement by Age and Gender	78
Table SD81	Primary Total Stemmed Anatomic Shoulder Replacement by Primary Diagnosis	78
Table SD82	Primary Total Stemmed Reverse Shoulder Replacement by Age and Gender	79
Table SD83	Primary Total Stemmed Reverse Shoulder Replacement by Primary Diagnosis	79
Table SD84	Primary Total Stemless Anatomic Shoulder Replacement by Age and Gender.....	80
Table SD85	Primary Total Stemless Anatomic Shoulder Replacement by Primary Diagnosis.....	80
Table SD86	Primary Total Stemless Reverse Shoulder Replacement by Age and Gender.....	80
Table SD87	Primary Total Stemless Reverse Shoulder Replacement by Primary Diagnosis.....	80
Table SD88	Age and Gender of All Revision Shoulder Replacement.....	81
Table SD89	Reason for Revision of All Shoulder Replacement.....	81
Table SD90	Type of Revision of All Shoulder Replacement	81

List of Figures

Figure SD1	Hip Replacement by Hospital Sector	3
Figure SD2	Percentage of Females by Type of Hip Replacement and Procedure Year	5
Figure SD3	Percentage of Females by Partial Hip Replacement and Procedure Year (Excluding Partial Resurfacing).....	5
Figure SD4	Percentage of Females by Total Hip Replacement and Procedure Year (Excluding Thrust Plate).....	6
Figure SD5	Percentage of Females by Revision Hip Replacement and Procedure Year.....	6
Figure SD6	Percentage of Patients Aged <65 Years by Type of Hip Replacement and Procedure Year	7
Figure SD7	Percentage of Patients Aged <65 Years by Partial Hip Replacement and Procedure Year (Excl. Partial Resurfacing).....	7
Figure SD8	Percentage of Patients Aged <65 Years by Total Hip Replacement and Procedure Year (Excluding Thrust Plate).....	8
Figure SD9	Percentage of Patients Aged <65 Years by Revision Hip Replacement and Procedure Year.....	8
Figure SD10	Trends in Usage of Hip Replacement by Procedure Year	9
Figure SD11	Trends in Usage of Partial Hip Replacement by Procedure Year (Excluding Partial Resurfacing).....	9
Figure SD12	Trends in Usage of Total Hip Replacement by Procedure Year (Excluding Thrust Plate).....	10
Figure SD13	Trends in Usage of Revision Hip Replacement by Procedure Year	10
Figure SD14	Incidence of Hip Replacement per 100,000 from 2003 to 2022.....	11
Figure SD15	Incidence of Hip Replacement in Patients Aged <55 Years per 100,000 from 2003 to 2022.....	12
Figure SD16	Incidence of Hip Replacement in Patients Aged 55-64 Years per 100,000 from 2003 to 2022	13
Figure SD17	Incidence of Hip Replacement in Patients Aged 65-74 Years per 100,000 from 2003 to 2022	14
Figure SD18	Incidence of Hip Replacement in Patients Aged ≥75 Years per 100,000 from 2003 to 2022.....	15
Figure SD19	Trends in Usage of Hip Replacement by State/Territory and Year	16
Figure SD20	Primary Partial Hip Replacement by Age and Gender.....	17
Figure SD21	Trends in Usage of Primary Partial Hip Replacement by State/Territory and Year.....	18
Figure SD22	Primary Partial Resurfacing Hip Replacement by Age and Gender.....	19
Figure SD23	Primary Unipolar Monoblock Hip Replacement by Age and Gender	20
Figure SD24	Trends in Fixation of Primary Unipolar Monoblock Hip Replacement by State/Territory and Year	20
Figure SD25	Primary Unipolar Modular Hip Replacement by Age and Gender	21
Figure SD26	Trends in Fixation of Primary Unipolar Modular Hip Replacement by State/Territory and Year	21
Figure SD27	Primary Bipolar Hip Replacement by Age and Gender.....	22
Figure SD28	Trends in Fixation of Primary Bipolar Hip Replacement by State/Territory and Year	22
Figure SD29	Primary Total Hip Replacement by Age and Gender.....	23
Figure SD30	Trends in Usage of Primary Total Hip Replacement by State/Territory and Year.....	24
Figure SD31	Primary Total Conventional Hip Replacement by Age and Gender.....	25
Figure SD32	Trends in Fixation of Primary Total Conventional Hip Replacement by State/Territory and Year	26
Figure SD33	Primary Total Resurfacing Hip Replacement by Age and Gender	27
Figure SD34	Trends in Fixation of Primary Total Resurfacing Hip Replacement by State/Territory and Year	27
Figure SD35	Primary Thrust Plate Hip Replacement by Age and Gender.....	28
Figure SD36	All Revision Hip Replacement by Age and Gender.....	29
Figure SD37	Trends in All Revision Hip Replacement by State/Territory and Year	31
Figure SD38	Knee Replacement by Hospital Sector	33
Figure SD39	Percentage of Females by Type of Primary Knee Replacement and Procedure Year.....	35
Figure SD40	Percentage of Females by Revision Knee Replacement and Procedure Year.....	35
Figure SD41	Percentage of Patients Aged <65 Years by Type of Primary Knee Replacement and Procedure Year.....	36
Figure SD42	Percentage of Patients Aged <65 Years by Revision Knee Replacement and Procedure Year.....	36
Figure SD43	Trends in Usage of Knee Replacement by Procedure Year	37

Figure SD44	Trends in Usage of Revision Knee Replacement by Procedure Year	37
Figure SD45	Incidence of Knee Replacement per 100,000 from 2003 to 2022	38
Figure SD46	Incidence of Knee Replacement in Patients Aged <55 Years per 100,000 from 2003 to 2022	39
Figure SD47	Incidence of Knee Replacement in Patients Aged 55-64 Years per 100,000 from 2003 to 2022	40
Figure SD48	Incidence of Knee Replacement in Patients Aged 65-74 Years per 100,000 from 2003 to 2022	41
Figure SD49	Incidence of Knee Replacement in Patients Aged ≥75 Years per 100,000 from 2003 to 2022	42
Figure SD50	Trends in Usage of Knee Replacement by State/Territory and Year	43
Figure SD51	Primary Partial Knee Replacement by Age and Gender	44
Figure SD52	Trends in Usage of Primary Partial Knee Replacement by State/Territory and Year	45
Figure SD53	Primary Partial Resurfacing Knee Replacement by Age and Gender	46
Figure SD54	Primary Unispace Knee Replacement by Age and Gender	46
Figure SD55	Primary Bicompartamental Knee Replacement by Age and Gender	47
Figure SD56	Primary Patella/Trochlea Knee Replacement by Age and Gender	47
Figure SD57	Primary Unicompartmental Knee Replacement by Age and Gender	48
Figure SD58	Trends in Fixation of Primary Unicompartmental Knee Replacement by State/Territory and Year	48
Figure SD59	Primary Total Knee Replacement by Age and Gender	49
Figure SD60	Trends in Fixation of Primary Total Knee Replacement by State/Territory and Year	50
Figure SD61	Trends in Usage of All Revision Knee Replacement by State/Territory and Year	53
Figure SD62	Shoulder Replacement by Hospital Sector	55
Figure SD63	Percentage of Females by Type of Partial Shoulder Replacement and Procedure Year	57
Figure SD64	Percentage of Females by Type of Total Shoulder Replacement and Procedure Year	57
Figure SD65	Percentage of Females by Revision Shoulder Replacement and Procedure Year	58
Figure SD66	Percentage of Patients Aged <65 Years by Type of Partial Shoulder Replacement and Procedure Year	58
Figure SD67	Percentage of Patients Aged <65 Years by Type of Total Shoulder Replacement and Procedure Year	59
Figure SD68	Percentage of Patients Aged <65 Years by Revision Shoulder Replacement and Procedure Year	59
Figure SD69	Trends in Usage of Partial Shoulder Replacement by Procedure Year	60
Figure SD70	Trends in Usage of Total Shoulder Replacement by Procedure Year	60
Figure SD71	Trends in Usage of Revision Shoulder Replacement by Procedure Year	61
Figure SD72	Incidence of Shoulder Replacement per 100,000 from 2008 to 2022	63
Figure SD73	Incidence of Shoulder Replacement in Patients Aged <55 Years per 100,000 from 2008 to 2022	65
Figure SD74	Incidence of Shoulder Replacement in Patients Aged 55-64 Years per 100,000 from 2008 to 2022	67
Figure SD75	Incidence of Shoulder Replacement in Patients Aged 65-74 Years per 100,000 from 2008 to 2022	69
Figure SD76	Incidence of Shoulder Replacement in Patients Aged ≥75 Years per 100,000 from 2008 to 2022	70
Figure SD77	Trends in Usage of Shoulder Replacement by State/Territory and Year	71
Figure SD78	Primary Partial Shoulder Replacement by Age and Gender	72
Figure SD79	Trends in Usage of Partial Shoulder Replacement by State/Territory and Year	73
Figure SD80	Primary Partial Resurfacing Anatomic Shoulder Replacement by Age and Gender	73
Figure SD81	Trends in Usage of All Revision Shoulder Replacement by State/Territory and Year	82



Australian
Orthopaedic
Association
National
Joint
Replacement
Registry

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

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