

Summary of Arthroplasty Registry Reports of Revision Risk for Hips (SAR⁴-Hips)

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Last revised 3 July 2017



Introduction

This document summarizes revision risk from national and regional registry reports for conventional total hip arthroplasty implants. The purpose of this document is to provide revision risk data for surgeons and patients to use when selecting hip replacement implants. It is not intended to be an endorsement of any specific manufacturer or implant. The registry reports included in this survey are:

1. Australian Orthopaedics Association National Joint Replacement Registry Annual Report 2015.
2. National Joint Registry for England, Wales, Northern Ireland, and the Isle of Man 12th Annual Report 2015 (NJR).
3. Report of R.I.P.O. Regional Register of Orthopaedic Prosthetic Implantology 2015 Report (Italy).
4. Finnish Arthroplasty Register (accessed online 10/20/16).
5. Danish Hip Arthroplasty Registry Annual Report 2006.

It is divided into cemented (Table 1), uncemented (Table 2), hybrid (Table 3), and reverse hybrid (Table 4) fixation categories. *Each table is sorted by increasing revision risk at 10 years.* Ten years was chosen as a benchmark to report because that is what is used by the National Institute for Health Care and Excellence in the United Kingdom. Multiple reports of the same devices and reports of device variations are grouped together. Stem/cup combinations that have been moved up in the table are indicated using *italic* stem and cup names.

The number of cases and the cumulative percent revision (CPR) are provided for each stem/cup combination. In each cell presenting CPR data, the upper number is the point estimate. For example, the 10-year cell in the first row of Table 1 indicates that 1.03% of the 2,669 cases having this stem/cup combination were revised according to the UK registry. This is the *point estimate* of the CPR at 10 years. The numbers in parentheses give the 95% confidence interval. Thus, (0.51,2.07) would mean the lower and upper limits on the confidence interval are 0.51 and 2.07, respectively. Some registry reports present the Kaplan-Meier survivorship function expressed as a percentage, $S(t)$. For these reports we converted $S(t)$ to CPR by computing $100 - S(t)$. For explanations of CPR and confidence intervals, see the statistics tutorials in the December and Summer 2014 issues of *MARCQI News*.

This report only contains data up to 10 years. However, some registry reports provide data beyond this. The Australian report gives CPR data to 14 years and the Finnish report provides 15, 20, and 25 year data. Moreover, the New Zealand registry report gives revision risk expressed in revisions per observed component years. The data presented in this report is augmented with the longer-term revision risks and New Zealand data in Excel spreadsheet form on the MARCQI website (www.marcqi.org). It is located in the password protected section under /Participants/Committees/Device.

Table 1 (page 1 of 3). Revision risk (%) for cemented implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
MS-30	Low Profile Muller	NJR	2669	0.23 (0.1,0.52)	0.48 (0.26,0.86)	0.72 (0.42,1.25)	0.72 (0.42,1.25)	1.03 (0.51,2.07)
Exeter V40	Elite Plus Cemented	NJR	7513	0.44 (0.31,0.63)	0.88 (0.68,1.14)	1.09 (0.85,1.4)	1.31 (1.02,1.69)	1.66 (1.19,2.3)
Exeter V40	Opera	NJR	2801	0.36 (0.2,0.67)	0.79 (0.51,1.22)	1.15 (0.78,1.69)	1.6 (1.1,2.32)	1.78 (1.2,2.64)
Stanmore Modular	Stanmore-Arcom	NJR	4769	0.37 (0.23,0.59)	0.98 (0.72,1.33)	1.36 (1.03,1.79)	1.62 (1.23,2.12)	1.93 (1.43,2.59)
C-Stem Cemented	Elite Plus Ogee	NJR	4404	0.4 (0.25,0.64)	0.89 (0.64,1.24)	1.18 (0.87,1.59)	1.56 (1.17,2.07)	2.02 (1.51,2.69)
Charnley Flanged	Charnley Standard	Denmark	134		0.0	0.8 (0.0,2.4)		2.4 (0.0,6.5)
Exeter V40	Elite Plus Ogee	NJR	21010	0.35 (0.28,0.44)	0.8 (0.64,0.94)	1.11 (0.96,1.29)	1.59 (1.38,1.82)	2.42 (2.0,2.89)
Exeter V40	Cenator Cemented	NJR	2501	0.49 (0.28,0.85)	1.35 (0.95,1.92)	2.07 (1.54,2.77)	2.32 (1.74,3.1)	2.71 (2.01,3.64)
Exeter V40	Contemporary	NJR	75093	0.48 (0.43,0.54)	1.0 (0.93,1.09)	1.46 (1.36,1.57)	1.94 (1.8,2.08)	2.92 (2.61,3.26)
Charnley Cemented	Charnley Cemented	NJR	10746	0.34 (0.25,0.47)	0.87 (0.71,1.08)	1.38 (1.16,1.64)	1.89 (1.62,2.2)	2.99 (2.58,3.26)
CPT	Elite Plus Ogee	NJR	2805	0.62 (0.39,1.0)	1.46 (1.05,2.02)	1.91 (1.41,2.59)	2.41 (1.79,3.26)	3.04 (2.03,4.56)
CPT	ZCA	NJR	10259	0.72 (0.57,0.91)	1.26 (1.05,1.52)	1.91 (1.62,2.25)	2.57 (2.19,3.02)	3.6 (2.91,4.46)
<i>CPT</i>	<i>ZCA</i>	Denmark	3061		1.7 (1.2,2.2)	2.0 (1.5,2.6)		5.3 (2.2,8.2)
Exeter	Exeter Duration	Denmark	1898		2.7 (1.9,3.5)	3.2 (2.2,4.1)		3.7 (2.3,5.0)
Exeter V40	Exeter Duration	NJR	15613	0.58 (0.47,0.71)	1.22 (1.05,1.42)	1.68 (1.47,1.91)	2.44 (2.16,2.76)	3.73 (3.24,4.29)
JVC	MULLER	Italy	326			1.6 (0.2,3.0)		3.9 (1.5,6.4)
Charnley Cemented	Charnley Ogee	NJR	9594	0.38 (0.28,0.53)	1.2 (1.0,1.45)	1.88 (1.61,2.19)	2.52 (2.19,2.91)	4.09 (3.55,4.71)
Lubinus SP II	Lubinus	Denmark	6990		1.9 (1.6,2.3)	2.5 (2.1,3.0)		5.1 (4.0,6.2)

Table 1 (page 2 of 3). Revision risk (%) for cemented implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
MRL	MULLER	Italy	305			3.5 (1.4,5.7)		5.2 (2.5,7.9)
Elite Plus	Charnley Standard	Denmark	346		2.4 (0.8,4.1)	3.0 (1.1,4.8)		5.8 (2.6,8.9)
Exeter	Mallory-Head	Denmark	142		2.9 (0.0,5.9)	5.8 (0.6,10.7)		5.8 (0.6,10.7)
EXETER	CONTEMPORARY	Italy	485			4.0 (2.1,5.9)		5.8 (3.2,8.4)
Taperloc	Muller Hi Wall	Denmark	191		2.9 (0.4,5.3)	4.6 (1.3,7.7)		6.1 (1.9,10.0)
Charnley Round-back	Charnley Ogee	Denmark	600		1.9 (0.8,3.0)	3.3 (1.7,4.9)		6.2 (2.8,9.5)
Charnley Round-back	Charnley Standard	Denmark	109		1.8 (0.0,4.4)	2.9 (0.0,6.0)		6.2 (0.0,12.1)
ITH	Richards Modular	Denmark	199		1.2 (0.0,2.6)	1.6 (0.0,3.3)		6.2 (2.2,10.0)
Exeter Universal	Exeter Contemporary	Finland	11928	1.6 (1.4,1.8)	2.8 (2.5,3.1)	3.6 (3.2,3.9)	4.7 (4.2,5.1)	6.7 (6.1,7.3)
Charnley Flanged	Charnley Ogee	Denmark	1059		1.8 (1.0,2.6)	2.6 (1.6,3.6)		6.8 (4.5,9.0)
Exeter Universal	Exeter All Poly	Finland	6263	1.4 (1.1,1.6)	2.5 (2.1,2.8)	4.0 (3.5,4.5)	5.0 (4.5,5.6)	7.4 (6.7,8.1)
Elite Plus	Charnley Ogee	Denmark	320		3.1 (1.2,5.0)	3.1 (1.2,5.0)		7.5 (3.9,10.9)
Bimetric (titanium)	Muller	Denmark	2487		2.7 (2.1,3.4)	4.6 (3.7,5.5)		7.6 (6.1,9.1)
Lubinus SP II	Link FC	Finland	1269	1.9 (1.1,2.7)	2.9 (2.0,3.8)	4.0 (2.9,5.1)	5.6 (4.2,6.9)	7.6 (0.0,9.3)
Elite Plus Flanged	Elite Ogee	Finland	506	0.6 (0.0,1.3)	2.3 (0.9,3.6)	4.5 (2.6,6.4)	6.7 (4.3,9.0)	7.8 (5.2,10.2)
Spectron EF	Reflection All Poly	Finland	5704	1.1 (0.9,1.4)	2.0 (1.6,2.3)	2.8 (2.4,3.2)	4.1 (3.5,4.6)	7.8 (6.9,8.8)
Muller Monoblock	Muller Std	Finland	2908	0.7 (0.4,1.0)	2.3 (1.8,2.9)	3.6 (2.9,4.3)	4.9 (4.0,5.7)	7.9 (6.8,9.0)
Lubinus SP II	Lubinus Eccentric	Finland	3680	1.1 (0.8,1.5)	2.8 (2.3,3.4)	4.3 (3.6,4.9)	5.6 (4.8,6.3)	8.0 (7.0,9.0)

Table 1 (page 3 of 3). Revision risk (%) for cemented implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
Lubinus SP II	Link IP	Finland	8957	1.3 (1.1,1.5)	2.8 (2.4,3.1)	4.3 (3.9,4.7)	5.9 (5.4,6.4)	8.4 (7.8,9.1)
Exeter	Exeter All Plast	Denmark	4542		2.6 (2.1,3.0)	3.6 (3.0,4.1)		8.6 (7.2,9.9)
McKee Arden	McKee Arden	Finland	615		1.1 (0.2,2.0)	2.3 (1.0,3.6)	4.4 (2.5,6.2)	9.9 (6.9,12.8)
Taperloc	Muller	Denmark	441		3.1 (1.5,4.8)	4.9 (2.7,7.0)		10.3 (5.7,14.7)
Biomet Interlock	Biomet All-Poly	Finland	315	1.0 (0.0,2.1)	4.6 (2.2,7.0)	6.4 (3.6,9.2)	8.8 (5.4,12.0)	11.0 (7.2,14.7)
ABG (S)	ABG (S)	Finland	491	1.9 (0.6,3.1)	3.4 (1.7,5.0)	6.7 (4.3,9.0)	8.8 (6.1,11.4)	12.0 (8.8,15.2)
Lubinus IP	Link IP	Finland	7628	0.4 (0.2,0.5)	1.8 (1.5,2.1)	3.8 (3.4,4.3)	6.8 (6.2,7.4)	12.3 (11.5,13.1)
Biomet Interlock	Biomet Muller-Type	Finland	688	0.2 (0.0,0.4)	3.2 (1.9,4.6)	6.1 (4.2,8.0)	10.1 (7.6,12.5)	12.6 (9.7,15.3)
Charnley	Charnley LPW	Finland	2158	0.6 (0.2,0.9)	2.1 (1.4,2.7)	4.5 (3.6,5.4)	6.9 (5.7,8.0)	13.1 (11.5,14.7)
Exeter	Exeter Metal Backed	Finland	1234	0.3 (0.0,0.7)	1.9 (1.1,2.6)	4.4 (3.2,5.6)	7.7 (6.1,9.3)	14.0 (11.8,16.2)
Muller SLS Titanium	Muller Std	Finland	347	1.2 (0.0,2.3)	4.3 (2.0,6.4)	7.9 (4.9,10.8)	12.6 (8.8,16.3)	14.2 (10.1,18.1)
Bimetric (titanium)	Charnley Ogee	Denmark	267		1.2 (0.0,2.5)	3.1 (0.8,5.4)		14.3 (3.1,24.2)
Lubinus SP I	Link IP	Finland	679	0.4 (0.0,1.0)	1.1 (0.3,1.8)	2.5 (1.3,3.7)	4.9 (3.2,6.6)	14.5 (11.5,17.4)
Elite Plus Flanged	Elite Plus LPW	Finland	1101	1.4 (0.7,2.1)	5.7 (4.3,7.1)	8.0 (6.4,9.6)	10.9 (8.9,12.8)	14.9 (12.6,17.2)
Brunswick	Brunswick	Finland	373	0.5 (0.0,1.3)	2.5 (0.9,4.0)	3.0 (1.3,4.8)	7.0 (4.2,9.6)	16.6 (12.4,20.6)
Christiansen	Christiansen	Finland	572	0.2 (0.0,0.5)	6.6 (4.4,8.6)	14.8 (11.6,17.8)	23.2 (19.4,26.8)	36.2 (31.7,40.5)

Table 2 (page 1 of 6). Revision risk (%) for *uncemented* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
Summit	Pinnacle	Australia	3695	1.0 (0.7,1.4)	1.5 (1.1,2.0)	1.8 (1.3,2.3)	2.6 (1.9,3.4)	2.6 (1.9,3.4)
<i>Summit</i>	<i>Pinnacle</i>	Finland	5767	2.1 (1.7,2.5)	2.8 (2.4,3.3)	4.2 (3.5,4.9)	7.3 (6.2,8.4)	13.0 (10.9,15.0)
Protasul Spotorno	Trilogy	Denmark	140		3.1 (0.0,6.2)	3.1 (0.0,6.2)		3.1 (0.0,6.2)
CLS	Standard cup	Italy	322			1.3 (0.0,2.5)		3.1 (1.1,5.1)
Modulus hip system	Delta PF	Italy	352			2.5 (0.8,4.2)		3.1 (1.0,5.3)
Corail	Trilogy	NJR	2721	0.64 (0.4,1.02)	1.21 (0.85,1.71)	1.7 (1.25,2.33)	2.38 (1.75,3.23)	3.27 (2.23,4.78)
Secur-Fit Plus	Trident (Shell)	Australia	5447	1.2 (0.9,1.5)	1.9 (1.5,2.3)	2.3 (1.9,2.8)	2.6 (2.2,3.1)	3.5 (3.0,4.1)
Furlong HAC Stem	CSF	NJR	16226	1.0 (0.85,1.16)	1.7 (1.51,1.92)	2.1 (1.88,2.34)	2.64 (2.38,2.93)	3.68 (3.28,4.12)
ABG II	ABG II	Italy	1759			2.0 (1.3,2.7)		3.9 (2.9,5.0)
<i>ABG II</i>	<i>ABG II</i>	Finland	2400	3.1 (2.4,3.8)	4.5 (3.6,5.3)	5.6 (4.6,6.5)	6.2 (5.2,7.1)	8.0 (6.9,9.2)
<i>ABG II</i>	<i>ABG II</i>	Australia	2944	1.8 (1.4,2.4)	3.1 (2.5,3.8)	4.1 (3.5,4.9)	5.3 (4.5,6.2)	6.7 (5.8,7.8)
<i>ABG II</i>	<i>ABG II (Shell/Insert)</i>	Australia	870	1.5 (0.9,2.6)	2.3 (1.5,3.6)	3.0 (2.0,4.4)	4.5 (3.2,6.2)	7.7 (5.8,10.1)
VERSYS FIBER	TRILOGY	Italy	496			3.3 (1.7,4.9)		4.0 (2.2,5.8)
Secur-Fit	Trident (Shell)	Australia	8237	1.6 (1.3,1.9)	2.5 (2.2,2.9)	3.1 (2.7,3.5)	3.8 (3.3,4.3)	4.1 (3.6,4.7)
Citation	Trident (Shell)	Australia	1147	1.7 (1.1,2.7)	2.5 (1.7,3.5)	3.2 (2.3,4.4)	3.5 (2.6,4.8)	4.2 (3.1,5.7)
Synergy	Reflection (Shell)	Australia	7731	1.6 (1.3,1.9)	2.4 (2.1,2.8)	2.7 (2.4,3.1)	3.1 (2.8,3.6)	4.2 (3.7,4.7)
<i>Synergy</i>	<i>Reflection</i>	Italy	418			2.6 (0.8,4.4)		6.3 (2.8,9.8)
CFP	CFP	Italy	406			2.3 (0.8,3.8)		4.3 (2.0,6.5)

Table 2 (page 2 of 6). Revision risk (%) for *uncemented* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
CLS	Fitmore	Italy	766			2.8 (1.6,4.0)		4.3 (2.8,5.9)
<i>CLS</i>	<i>Fitmore</i>	Australia	674	1.8 (1.0,3.1)	3.8 (2.6,5.6)	4.4 (3.0,6.3)	4.8 (3.4,6.9)	5.6 (4.0,7.9)
Accolade	Trident	NJR	21637	0.94 (0.81,1.07)	2.0 (1.81,2.21)	2.84 (2.58,3.13)	3.41 (3.06,3.79)	4.35 (3.42,5.53)
<i>Accolade I</i>	<i>Trident (Shell)</i>	Australia	9017	1.6 (1.4,1.9)	2.9 (2.6,3.3)	3.8 (3.4,4.2)	4.6 (4.1,5.1)	5.5 (4.8,6.2)
Epoch	Trilogy	Australia	1020	2.5 (1.7,3.6)	3.4 (2.4,4.7)	3.6 (2.6,4.9)	4.1 (3.0,5.6)	4.4 (3.2,5.9)
Natural Hip	Fitmore	Australia	889	1.0 (0.5,1.9)	1.6 (0.9,2.7)	2.4 (1.6,3.7)	2.9 (1.9,4.2)	4.4 (3.1,6.2)
Bimetric (titanium)	Universal	Denmark	640		3.3 (1.7,4.9)	3.6 (1.9,5.4)		4.6 (2.3,6.9)
S-Rom	Duraloc Option	Australia	666	1.5 (0.8,2.8)	2.4 (1.5,3.9)	3.4 (2.2,5.0)	4.0 (2.7,5.8)	4.7 (3.3,6.6)
Taperloc	Mallory-Head	Australia	1415	1.7 (1.2,2.6)	2.4 (1.7,3.4)	2.9 (2.1,4.1)	4.2 (3.1,5.7)	4.8 (3.5,6.4)
VerSys	Trilogy	Australia	4303	2.4 (2.0,2.9)	3.2 (2.7,3.8)	3.7 (3.2,4.3)	4.2 (3.6,4.8)	4.8 (4.1,5.6)
S-Rom	Pinnacle	Australia	2777	2.3 (1.8,2.9)	3.5 (2.9,4.3)	3.9 (3.2,4.7)	4.3 (3.5,5.3)	5.0 (4.0,6.4)
PCA Meridian	PCA Vitalock	Finland	458	1.1 (0.1,2.0)	2.4 (1.0,3.8)	3.8 (2.0,5.6)	4.3 (2.4,6.2)	5.0 (3.0,7.1)
CONUS	FITMORE	Italy	1111			2.9 (1.8,3.9)		5.1 (3.4,6.8)
SL Plus	EP-Fit Plus	Italy	1911			3.3 (2.4,4.2)		5.1 (3.2,7.0)
<i>SL-Plus</i>	<i>EP-Fit Plus</i>	Australia	2257	1.7 (1.2,2.3)	2.7 (2.1,3.5)	3.5 (2.8,4.4)	4.3 (3.5,5.3)	5.8 (4.6,7.4)
<i>SL-Plus</i>	<i>EP-Fit Plus</i>	NJR	4750	1.25 (0.97,1.61)	2.71 (2.27,3.23)	3.97 (3.42,4.62)	4.7 (4.05,5.46)	6.56 (5.25,8.18)
Alloclassic	Allofit	Australia	5457	1.4 (1.1,1.8)	2.3 (1.9,2.7)	3.0 (2.5,3.5)	3.6 (3.1,4.2)	5.2 (4.4,6.0)
SL PLUS	CLS	Italy	311			3.0 (1.1,5.0)		5.2 (1.7,8.7)

Table 2 (page 3 of 6). Revision risk (%) for *uncemented* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
Mallory-Head	Mallory-Head	Australia	2856	1.8 (1.4,2.4)	2.3 (1.8,2.9)	3.1 (2.5,3.8)	3.9 (3.2,4.7)	5.3 (4.4,6.4)
Omnifit	Trident (Shell)	Australia	1271	1.9 (1.3,2.8)	3.2 (2.3,4.3)	4.1 (3.1,5.4)	4.7 (3.6,6.1)	5.4 (4.2,6.9)
Corail	Pinnacle	Australia	26938	1.7 (1.5,1.8)	2.5 (2.3,2.7)	3.1 (2.9,3.4)	3.7 (3.3,4.0)	5.4 (4.5,6.5)
<i>Corail</i>	<i>Pinnacle</i>	NJR	95702	0.81 (0.76,0.87)	1.74 (1.65,1.83)	2.89 (2.75,3.03)	4.75 (4.51,5.0)	7.94 (7.1,8.88)
Bimetric (titanium)	Harris-Galante II	Denmark	188		1.8 (0.0,3.6)	2.8 (0.3,5.1)		5.4 (1.7,9.0)
<i>Bimetric Collarless</i>	<i>HGPII</i>	Finland	364	1.1 (0.0,2.2)	2.2 (0.7,3.7)	4.0 (1.9,6.0)	5.8 (3.3,8.2)	11.7 (8.2,15.1)
Corail	Duraloc	NJR	4036	0.75 (0.52,1.07)	1.69 (1.33,2.14)	2.49 (2.04,3.03)	3.4 (2.84,4.07)	5.57 (4.65,6.68)
<i>Corail</i>	<i>Duraloc</i>	Australia	1433	1.4 (0.9,2.2)	2.2 (1.5,3.1)	2.8 (2.1,3.9)	4.0 (3.0,5.2)	5.7 (4.4,7.6)
CLS	CLS	Italy	1517			2.4 (1.6,3.2)		5.6 (4.3,6.9)
RECTA	FIXA	Italy	2725			3.8 (3.0,4.5)		5.8 (4.7,6.9)
APTA	FIXA	Italy	1704			3.3 (2.4,4.2)		6.0 (4.3,7.7)
CONUS	CLS	Italy	592			3.0 (1.6,4.4)		6.1 (4.0,8.2)
ABG I	ABG II	Finland	2361	1.8 (1.3,2.4)	2.7 (2.0,3.3)	3.2 (2.5,3.9)	4.2 (3.3,5.0)	6.1 (5.1,7.1)
CLS	Allofit	Australia	818	1.5 (0.9,2.6)	3.4 (2.3,5.0)	3.7 (2.6,5.4)	5.2 (3.8,7.2)	6.3 (4.6,8.6)
Citation	Vitalock	Australia	555	0.5 (0.2,1.7)	2.2 (1.2,3.8)	2.8 (1.7,4.5)	4.0 (2.6,6.0)	6.6 (4.7,9.2)
AnCA Fit	AnCA Fit	Italy	2873			4.1 (3.3,4.8)		6.6 (5.7,7.6)
CBC	EXPANSION	Italy	1171			5.5 (4.1,7.0)		6.8 (5.0,8.5)
Alloclassic	Fitmore	Australia	1765	2.8 (2.1,3.7)	4.1 (3.3,5.2)	5.1 (4.2,6.3)	5.7 (4.7,7.0)	6.9 (5.7,8.4)

Table 2 (page 4 of 6). Revision risk (%) for *uncemented* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
Bi-Metric Collared	Vision	Finland	365	1.1 (0.0,2.2)	1.7 (0.3,3.0)	3.1 (1.3,4.9)	4.0 (1.9,6.1)	6.9 (4.1,9.5)
SL PLUS	BICON PLUS	Italy	915			4.2 (2.9,5.5)		7.2 (5.1,9.4)
Bimetric (titanium)	Ranawat-Burstein	Denmark	840		2.7 (1.5,3.9)	3.1 (1.7,4.5)		7.3 (3.5,11.0)
Summit	Pinnacle (MoM)	Australia	784	1.5 (0.9,2.7)	2.2 (1.4,3.5)	3.3 (2.2,4.8)	4.9 (3.5,6.8)	7.4 (5.5,10.0)
CORAIL	PINNACLE SECTOR II	Italy	604			4.2 (2.4,5.9)		7.4 (3.8,11.0)
F2L	SPH-Blind	Australia	614	3.1 (2.0,4.8)	4.9 (3.5,7.0)	6.1 (4.5,8.4)	6.8 (5.1,9.2)	7.6 (5.7,10.0)
PROFEMUR Z	AnCA Fit	Italy	420			5.8 (3.5,8.0)		8.2 (5.5,10.8)
Bi-Metric Collared	Trilogy	Finland	267	2.3 (0.5,4.1)	3.1 (1.0,5.2)	4.3 (1.8,6.8)	6.0 (3.0,8.9)	8.3 (4.7,11.7)
<i>Bimetric (titanium)</i>	<i>Trilogy (high)</i>	Denmark	4891		3.3 (2.7,3.9)	4.1 (3.4,4.8)		8.6 (4.6,12.4)
ABG II	Trident (Shell)	Australia	2409	2.6 (2.1,3.4)	4.2 (3.5,5.1)	5.2 (4.3,6.2)	6.2 (5.2,7.3)	8.4 (7.0,10.0)
<i>ABG II</i>	<i>TRIDENT</i>	Italy	389			5.4 (3.1,7.7)		8.5 (5.4,11.6)
<i>ABG II</i>	<i>Trident PSL</i>	Finland	500	4.0 (2.3,5.7)	5.6 (3.6,7.7)	7.1 (4.8,9.4)	8.7 (6.1,11.1)	10.1 (7.3,12.9)
AML	Duraloc 300	Denmark	274		2.5 (0.6,4.3)	3.2 (1.1,5.3)		8.4 (2.2,14.1)
Bimetric Collarless	Vision	Finland	4446	2.7 (2.2,3.2)	4.3 (3.7,4.9)	5.4 (4.7,6.0)	6.5 (5.8,7.3)	8.9 (8.0,9.9)
Bimetric Collarless	Exceed Hap	Finland	1460	2.7 (1.9,3.6)	3.9 (2.9,4.9)	4.9 (3.7,6.1)	7.0 (5.0,8.9)	10.3 (7.4,13.1)
Omnifit	Secur-Fit	Australia	508	3.2 (1.9,5.1)	5.0 (3.4,7.3)	6.6 (4.7,9.2)	8.2 (6.1,11.0)	10.9 (8.4,14.1)
Bimetric Collarless	Biomex	Finland	333	2.1 (0.6,3.6)	3.0 (1.2,4.8)	3.6 (1.6,5.6)	5.9 (3.3,8.4)	11.2 (7.6,14.6)
Bimetric Collarless	M2a 38 One-Piece	Finland	631	1.4 (0.5,2.3)	2.5 (1.3,3.8)	3.8 (2.3,5.3)	5.5 (3.7,7.3)	11.8 (7.5,14.3)

Table 2 (page 5 of 6). Revision risk (%) for *uncemented* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
Anatomic Mesh	HGPII	Finland	984	0.9 (0.3,1.5)	2.2 (1.2,3.1)	4.6 (3.3,5.9)	7.2 (5.5,8.9)	12.5 (10.3,14.6)
Taperloc	M2a (MoM)	Australia	512	1.8 (0.9,3.4)	4.4 (2.9,6.5)	7.4 (5.4,10.1)	9.0 (6.7,11.9)	12.6 (9.6,16.3)
PCA E-Series	PCA Cluster	Finland	607	1.0 (0.2,1.8)	2.8 (1.5,4.2)	3.9 (2.3,5.4)	6.8 (4.7,8.8)	12.6 (9.7,15.3)
Bi-Metric Collarless	PFU	Finland	4447	1.4 (1.0,1.7)	2.9 (2.4,3.4)	4.7 (4.1,5.3)	7.1 (6.3,7.9)	12.8 (11.7,13.8)
Bimetric Collarless	Mallory	Finland	838	2.2 (1.2,3.1)	3.0 (1.8,4.2)	4.4 (3.0,5.8)	6.2 (4.5,7.8)	13.2 (10.7,15.6)
Corail	Pinnacle (MoM)	Australia	966	2.2 (1.4,3.3)	3.7 (2.6,5.1)	5.9 (4.6,7.7)	9.6 (7.7,12.1)	13.4 (10.2,17.6)
Bi-Metric Collared	PFU	Finland	653	1.2 (0.4,2.1)	2.9 (1.6,4.2)	5.5 (3.7,7.2)	8.4 (6.2,10.5)	13.9 (11.2,16.6)
Bimetric (titanium)	Mallory-Head	Denmark	1856		2.5 (1.6,3.4)	3.5 (2.3,4.8)		14.7 (2.7,25.2)
Mathys Isoelastic	RM	Finland	1355	1.6 (0.9,2.2)	3.4 (2.4,4.4)	5.5 (4.3,6.8)	8.1 (6.6,9.6)	14.8 (12.8,16.9)
Bimetric Collarless	M2a 38 Flared	Finland	1944	1.9 (1.3,2.5)	3.7 (2.9,4.6)	5.2 (4.2,6.2)	9.0 (7.7,10.3)	15.1 (13.1,17.0)
Biomet Head-Neck	PFU	Finland	195	2.1 (0.0,4.0)	2.1 (0.0,4.0)	5.3 (2.0,8.5)	9.7 (5.3,13.9)	15.4 (10.0,20.5)
Bimetric Collarless	M2a 38 Hemispherical	Finland	510	1.4 (0.4,2.4)	3.2 (1.6,4.7)	4.7 (2.8,6.6)	8.0 (5.3,10.6)	16.2 (10.8,21.2)
Synergy	BHR	Finland	551	2.0 (0.8,3.2)	3.1 (1.6,4.5)	5.6 (3.6,7.5)	10.3 (7.5,12.9)	18.2 (13.3,23.0)
PCA Standard	PCA Pegged	Finland	762	0.7 (0.1,1.2)	2.4 (1.3,3.5)	5.0 (3.4,6.5)	8.7 (6.6,10.7)	18.9 (15.9,21.8)
Biomet Dysplastic Stem	PFU	Finland	275	3.6 (1.4,5.8)	6.6 (3.6,9.5)	11.8 (7.9,15.6)	14.9 (10.5,19.1)	19.5 (14.6,24.2)
ABG I	ABG I	Finland	794	1.0 (0.3,1.7)	1.3 (0.5,2.1)	3.5 (2.1,4.7)	9.5 (7.4,11.7)	20.0 (17.0,22.9)
Lord Madreporique	Lord	Finland	1881	0.7 (0.4,1.1)	2.4 (1.7,3.1)	5.6 (4.5,6.7)	11.2 (9.7,12.7)	24.0 (21.9,26.0)
Link RS	Link Lubinus K-Cup	Finland	653	1.2 (0.4,2.1)	4.9 (3.2,6.5)	9.2 (6.9,11.4)	16.0 (13.0,18.8)	24.9 (21.3,28.4)

Table 2 (page 6 of 6). Revision risk (%) for *uncemented* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
Bimetric Collarless	Romanus	Finland	483	1.7 (0.5,2.8)	2.9 (1.4,4.4)	7.4 (5.0,9.7)	13.3 (10.2,16.3)	26.2 (22.0,30.1)
Summit	ASR	Finland	620	3.1 (1.7,4.4)	8.0 (5.8,10.1)	24.2 (20.6,27.5)	39.8 (35.5,43.7)	49.6 (42.4,55.9)
Bimetric Collarless	TTAP	Finland	696	0.4 (0.0,0.9)	6.6 (4.7,8.4)	23.5 (20.3,26.7)	39.5 (35.7,43.1)	66.5 (62.6,70.0)

Table 3 (page 1 of 3). Revision risk (%) for *hybrid* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
EXETER	TRIDENT	Italy	342			0.6 (0.0,1.5)		0.6 (0.0,1.5)
Exeter V40	Trident	NJR	42263	0.57 (0.5,0.65)	1.05 (0.95,1.16)	1.46 (1.32,1.61)	1.98 (1.78,2.2)	2.3 (2.04,2.6)
<i>Exeter V40</i>	<i>Trident (Shell)</i>	Australia	41949	1.2 (1.1,1.3)	1.8 (1.7,2.0)	2.4 (2.2,2.6)	3.0 (2.8,3.2)	4.2 (3.9,4.6)
Exeter V40	Trilogy	NJR	11740	0.57 (0.45,0.72)	0.95 (0.79,1.15)	1.35 (1.14,1.6)	1.77 (1.5,2.09)	2.38 (1.98,2.87)
<i>Exeter V40</i>	<i>Trilogy</i>	Australia	605	1.7 (0.9,3.1)	2.4 (1.4,4.0)	2.6 (1.6,4.3)	2.9 (1.8,4.7)	4.8 (2.8,8.2)
MS 30	Fitmore	Australia	531	0.2 (0.0,1.3)	0.8 (0.3,2.2)	1.4 (0.6,3.0)	2.0 (1.0,4.0)	2.4 (1.2,4.5)
Exeter V40	Mallory-Head	Australia	1296	0.5 (0.2,1.1)	0.8 (0.4,1.5)	0.9 (0.5,1.7)	1.7 (1.1,2.8)	3.0 (2.0,4.6)
CPT	Harris Galante II	Denmark	125		0.6 (0.0,1.9)	0.6 (0.0,1.9)		3.1 (0.0,6.8)
Exeter V40	Vitalock	Australia	1959	0.9 (0.6,1.5)	1.7 (1.2,2.3)	2.3 (1.7,3.1)	2.8 (2.2,3.7)	3.3 (2.6,4.3)
APTA	FIXA	Italy	572			2.9 (1.5,4.3)		3.4 (1.8,4.9)
P507	DUOFIT PSF	Italy	492			1.9 (0.7,3.2)		3.5 (1.7,5.3)
Exeter V40	ABG II	Australia	1071	1.1 (0.6,2.0)	1.4 (0.9,2.4)	2.1 (1.3,3.1)	3.1 (2.2,4.5)	3.6 (2.5,5.0)
Omnifit	Trident (Shell)	Australia	2503	1.7 (1.3,2.3)	2.7 (2.1,3.5)	3.0 (2.4,3.8)	3.3 (2.6,4.1)	3.6 (2.8,4.6)
CPT	Trilogy	NJR	13344	0.84 (0.69,1.01)	1.33 (1.14,1.57)	2.24 (1.93,2.6)	2.71 (2.34,3.14)	3.61 (2.92,4.46)
<i>CPT</i>	<i>Trilogy</i>	Australia	6818	1.6 (1.3,1.9)	2.5 (2.1,2.9)	3.2 (2.8,3.7)	3.8 (3.3,4.4)	5.0 (4.3,5.8)
<i>CPT</i>	<i>Trilogy</i>	Finland	342	2.1 (0.5,3.5)	2.7 (0.9,4.4)	3.0 (1.1,4.8)	4.3 (2.1,6.5)	5.4 (2.7,7.9)
Exeter	Duraloc 300	Denmark	955		2.6 (1.5,3.6)	3.5 (2.1,4.8)		3.7 (2.3,5.1)
MS 30	Allofit	Australia	1454	1.3 (0.8,2.0)	1.8 (1.2,2.7)	2.3 (1.6,3.3)	3.2 (2.3,4.4)	3.9 (2.9,5.4)

Table 3 (page 2 of 3). Revision risk (%) for *hybrid* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
Spectron EF	Reflection Interfit	Finland	335	2.4 (0.7,4.1)	3.0 (1.2,4.9)	3.7 (1.6,5.7)	4.1 (1.9,6.2)	4.1 (0.0,6.2)
CPCS	Reflection (Shell)	Australia	2813	0.9 (0.6,1.4)	1.3 (0.9,1.8)	1.7 (1.3,2.3)	2.6 (2.0,3.4)	4.6 (3.4,6.2)
Exeter	Vitalock	Australia	1218	1.6 (1.0,2.5)	2.3 (1.6,3.4)	2.5 (1.8,3.6)	3.3 (2.4,4.5)	4.8 (3.6,6.2)
Bimetric (titanium)	Harris Galante II	Denmark	206		4.8 (1.6,7.8)	4.8 (1.6,7.8)		4.8 (1.6,7.8)
C-Stem	Pinnacle	Australia	754	1.9 (1.1,3.2)	2.6 (1.6,4.1)	2.8 (1.8,4.4)	4.9 (3.1,7.6)	4.9 (3.1,7.6)
Exeter	Mallory-Head	Denmark	1477		2.0 (1.2,2.8)	2.3 (1.5,3.2)		5.3 (2.2,8.3)
Exeter Universal	Trident PSL	Finland	1299	1.6 (0.9,2.2)	2.5 (1.6,3.3)	3.3 (2.3,4.3)	3.9 (2.7,5.1)	5.3 (3.5,7.1)
Spectron EF	Reflection (Shell)	Australia	5075	1.1 (0.8,1.4)	1.9 (1.6,2.4)	2.7 (2.3,3.2)	3.6 (3.1,4.2)	5.7 (4.9,6.6)
Bimetric (titanium)	Harris Galante	Denmark	205		2.4 (0.3,4.4)	2.4 (0.3,4.4)		5.9 (1.5,10.2)
Exeter Universal	Biomex	Finland	374	0.8 (0.0,1.7)	1.6 (0.3,2.9)	1.9 (0.5,3.4)	2.9 (1.1,4.6)	6.4 (3.6,9.0)
Exeter Universal	ABG II	Finland	919	1.2 (0.5,1.9)	3.1 (2.0,4.2)	3.6 (2.3,4.8)	5.1 (3.6,6.5)	6.4 (4.8,8.1)
Exeter Universal	Trilogy	Finland	403	1.8 (0.5,3.0)	4.0 (2.1,6.0)	5.1 (2.9,7.3)	5.7 (3.3,7.9)	6.9 (4.3,9.5)
Muller Monoblock	RM with HA	Finland	636	0.2 (0.0,0.5)	0.5 (0.0,1.0)	2.1 (0.9,3.2)	4.2 (2.5,5.8)	7.2 (4.9,9.4)
C-Stem	Duraloc	Australia	981	2.4 (1.6,3.5)	3.1 (2.2,4.4)	4.0 (2.9,5.5)	5.2 (3.9,6.8)	7.7 (6.0,9.9)
BASIS	REFLECTION	Italy	677			3.4 (1.9,4.9)		8.1 (5.3,10.9)
Exeter Universal	Vision	Finland	261	3.5 (1.2,5.7)	3.9 (1.5,6.2)	5.8 (2.8,8.7)	7.3 (3.9,10.7)	9.2 (5.2,13.1)
Exeter Universal	Profile Duraloc	Finland	437	1.1 (0.1,2.1)	3.3 (1.6,4.9)	5.2 (3.1,7.3)	5.7 (3.5,8.0)	9.3 (6.4,12.1)
Elite Plus	Duraloc	Australia	1078	2.0 (1.3,3.0)	3.6 (2.7,5.0)	5.4 (4.2,7.0)	7.3 (5.8,9.1)	9.7 (8.0,11.9)

Table 3 (page 3 of 3). Revision risk (%) for *hybrid* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
Bimetric (titanium)	Ranawat-Burstein	Denmark	657		5.7 (3.7,7.6)	7.9 (5.4,10.3)		11.8 (7.8,15.6)
Bimetric (titanium)	Trilogy (high)	Denmark	3799		3.4 (2.7,4.0)	5.1 (4.2,6.0)		12.5 (5.3,19.2)
Exeter Universal	HGP II	Finland	554	2.9 (1.5,4.3)	5.1 (3.3,7.0)	6.3 (4.2,8.4)	9.0 (6.5,11.5)	13.9 (10.7,17.1)
Elite Plus Flanged	Profile Duraloc	Finland	412	1.0 (0.0,1.9)	3.0 (1.3,4.6)	6.1 (3.7,8.5)	10.0 (6.9,13.0)	14.6 (10.8,18.1)
Bimetric (titanium)	Universal	Denmark	2346		3.2 (2.5,4.0)	5.9 (4.8,6.9)		15.1 (11.3,18.7)
Taperloc	Trilogy (high)	Denmark	926		5.3 (3.8,6.7)	8.1 (6.2,10.0)		16.0 (11.7,20.1)

Table 4 (page 1 of 1). Revision risk (%) for *reverse hybrid* implants with at least one registry reporting 10 year data

Stem	Cup	Registry	N	1 year	3 years	5 years	7 years	10 years
Bimetric Collarless	Stanmore	Finland	394	1.0 (0.0,2.0)	2.8 (1.2,4.4)	3.9 (1.9,5.8)	6.5 (4.0,9.0)	8.1 (5.4,10.9)