

## Supplementary article data

# More than 95% completeness of reported procedures in the population-based Dutch Arthroplasty Register

## External validation of 311,890 procedures

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Table 2. Surgical codes used to select procedures for comparison from the Vektis database and the hospital information system

	Codes used to select procedures from Vektis <sup>a</sup>	Codes used to select procedures from HIS <sup>b</sup>
Total hip arthroplasty	131999051, 131999052, 199299025, 199299026, 170901033, 170901046	38567
Hemiarthroplasty	199299009, 199299037, 199299038	28565
Revision hip arthroplasty	192001007, 192001024	38568, 38569, 38560 <sup>c</sup> 38570 <sup>c</sup> , 38565 <sup>c</sup>
Primary knee arthroplasty	131999103, 131999104	38663
Revision knee arthroplasty	192001008, 192001036	38664, 38665, 38666 <sup>c</sup>

<sup>a</sup> Codes based on a diagnosis treatment code generally used in the Dutch health care insurance system.

<sup>b</sup> Codes based on CTG codes generally used in the Dutch health care system.

<sup>c</sup> Codes sometimes used to register partial revisions.

Table 3. Number of participating hospitals in the LROI

Year	Hip arthroplasty		Knee arthroplasty	
	n	Proportion (%)	n	Proportion (%)
2007 <sup>a</sup>	59	64	63	68
2008 <sup>a</sup>	87	96	88	96
2009 <sup>a</sup>	90	98	91	98
2010	91	99	92	99
2011	93	99	95	99
2012	95	100	100	100
2013	95	100	100	100

<sup>a</sup> The period 2007–2009 was the run-in phase of the LROI and therefore not all hospitals were participating.

Table 4. Check on the completeness of the LROI; comparison with data from Vektis (health insurance database)

	Hip arthroplasty			Knee arthroplasty		
	LROI (n)	Vektis (n)	Completeness (%)	LROI (n)	Vektis (n)	Completeness (%)
2009	27,134	30,779	88	19,055	21,536	88
2010	28,766	31,144	92	20,876	22,378	93
2011	29,561	31,784	93	21,892	23,609	93
2012	28,053	28,658	98	24,089	25,006	96

Table 5. Check on the completeness of the LROI; comparison with data from the hospital information system of each hospital

Year	Primary hip arthroplasty			Revision hip arthroplasty			Primary knee arthroplasty			Revision knee arthroplasty		
	LROI (n)	HIS (n)	Completeness (%)	LROI (n)	HIS (n)	Completeness (%)	LROI (n)	HIS (n)	Completeness (%)	LROI (n)	HIS (n)	Completeness (%)
2012	24,316	25,412	96	3,214	3,768	85	21,429	22,556	95	1,608	1,835	88
2013	25,736	26,667	97	3,199	3,617	88	23,985	24,991	96	1,922	2,125	90

Table 6. Number of missing and incorrectly coded variables in the LROI database in the period 2007–2013

	2007–2009		2010–2011		2012–2013		Total 2007–2013 <sup>a</sup>	
	n	%	n	%	n	%	n	%
Patient characteristics								
Personal identity number	30,968	29.7	13,467	12.7	11,519	9.9	55,954	17.1
Sex	375	0.4	304	0.3	731	0.6	1,410	0.4
Date of birth	20	0.1	4	0.0	4	0.0	28	0.0
Hospital patient number	135	0.1	186	0.2	505	0.4	826	0.3
Hip prosthesis surgery characteristics								
Date of surgery							117	0.1
Type of surgery (primary/ revision)	0	0.0	16	0.0	8	0.01	24	0.0
Side of surgery	1	0.0	24	0.0	12	0.02	38	0.0
Diagnosis primary hip prosthesis	3,977	6.6	1,763	2.9	959	1.5	6,699	3.6
Any reason hip revision	479	0.8	300	0.5	360	0.6	1,139	0.6
ASA score	13,208	21.9	3,184	5.2	2,569	3.9	18,961	9.8
Type of prosthesis or revision	4,736	7.9	2,930	4.8	2,233	3.4	9,899	5.2
Conversion to total hip prosthesis	1,698	2.8	1,660	2.7	1,903	2.9	5,261	2.8
Fixation	3,986	6.6	1,120	1.8	1,158	1.8	6,264	3.3
Product number								
Cement	8,801	14.6	2,240	3.7	1,302	2.0	12,343	6.6
Acetabulum	1,155	1.9	762	1.3	397	1.1	2,614	1.4
Inlay	235	0.4	447	0.7	550	0.8	1,232	0.7
Femur	1,107	1.8	636	1.1	447	0.7	2,190	1.2
Femur head	2,166	3.6	1,065	1.8	745	1.1	3,976	2.1
Knee prosthesis surgery characteristics								
Date of operation							100	0.1
Type of operation	0	0.0	18	0.0	15	0.0	33	0.0
Side of operation	0	0.0	0	0.0	3	0.0	3	0.0
Diagnosis primary prosthesis	2,655	6.1	745	1.6	867	1.7	4,267	3.0
Any reason knee revision	241	0.6	149	0.3	202	0.4	592	0.4
ASA score	9,945	22.9	1,833	4.0	1,695	3.3	13,473	9.2
Type of prosthesis or revision	3,811	8.8	1,732	3.8	1,616	3.1	7,058	4.9
Conversion to total knee prosthesis	884	2.0	773	1.7	1,019	2.0	2,676	1.9
Fixation	3,278	7.6	693	1.5	852	1.7	4,823	3.4
Product number								
Cement	13,108	30.2	3,923	8.7	2,304	4.5	19,335	13.8
Femur	606	1.4	340	0.8	268	0.5	1,214	0.9
Inlay	34	0.1	26	0.1	42	0.1	102	0.1
Tibia	620	1.4	377	0.8	258	0.5	199	0.1
Patella	81	0.2	101	0.2	76	0.2	258	0.2

<sup>a</sup> The total number of missing and incorrect values is not exactly the sum of the numbers per period for patient characteristics, since one patient can have undergone several surgeries, resulting in less missing or incorrect values for the patient characteristics.