

Supplementary data

Table 5. Demographic and clinical data of all patients who received a THA in 2007–2016 in the Netherlands (n = 209,912)

	MoPE (n = 37,351) (17.8%)		MoHXLPE (n = 32,867) (15.7%)		CoPE (n = 40,109) (19.1%)		CoHXLPE (n = 70,175) (33.4%)		CoC (n = 17,625) (8.4%)		Ox(HXL)PE (n = 11,785) (5.6%)		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Age ^a														
< 60	3,375	9.1	4,503	13.7	4,718	11.8	14,166	20.2	4,984	28.3	2,458	20.9	34,204	16.3
60–74	15,380	41.3	16,973	51.7	20,272	50.6	38,575	55.0	9,547	54.3	6,035	51.2	106,782	50.9
≥ 75	18,520	49.7	11,352	34.6	15,039	37.6	17,361	24.8	3,064	17.4	3,285	27.9	68,621	32.7
Sex ^a														
Male	10,597	28.5	11,276	34.4	11,829	29.6	24,580	35.1	6,927	39.4	3,966	33.7	69,175	33.0
Female	26,638	71.5	21,497	65.6	28,176	70.4	45,459	64.9	10,649	60.6	7,806	66.3	140,225	
ASA score ^a														
I	6,263	17.7	6,290	19.6	8,635	22.9	17,008	24.7	5,413	32.4	2,598	22.5	46,207	22.9
II	22,424	63.5	19,942	62.1	23,912	63.5	44,628	64.9	9,653	57.8	7,266	63.0	127,825	63.2
III–IV	6,624	18.8	5,873	18.3	5,090	13.5	7,178	10.4	1,639	9.8	1,661	14.4	28,065	13.9
Diagnosis ^a														
Osteoarthritis	31,696	85.9	28,349	86.7	34,978	88.3	61,100	87.8	15,277	87.7	10,391	88.6	181,791	87.4
Non-osteoarthritis	5,222	14.1	4,358	13.3	4,630	11.7	8,526	12.2	2,147	12.3	1,343	11.4	26,226	12.6
Previous operation ^a														
Yes	2,337	6.5	1,586	5.0	1,814	4.8	3,268	4.8	729	4.4	658	5.7	10,392	5.2
No	33,253	92.4	29,873	93.9	35,783	94.5	63,495	94.0	15,741	94.4	10,830	94.2	188,975	93.8
Unknown	387	1.1	371	1.2	261	0.7	750	1.1	212	1.3	13	0.1	1,994	1.0
Fixation ^a														
Cemented	27,357	74.1	5,982	18.3	15,253	38.7	8,594	12.3	203	1.2	3,744	32.1	61,133	29.4
Cementless	5,288	14.3	23,449	71.7	18,984	48.1	58,054	83.0	15,484	88.6	6,441	55.3	127,700	61.3
Reversed hybrid	3,247	8.8	728	2.2	3,636	9.2	1,226	1.8	13	0.1	453	3.9	9,303	4.5
Hybrid	986	2.7	2,540	7.8	1,525	3.9	2,064	2.9	1,767	10.1	1,004	8.6	9,886	4.7
Unknown	61	0.2	27	0.1	64	0.2	44	0.1	12	0.1	13	0.1	221	0.1
Approach ^a														
Straight lateral	8,140	22.1	7,112	21.8	11,118	28.3	13,193	18.9	2,291	13.3	985	8.5	42,839	20.7
Posterolateral	22,932	62.3	20,467	62.7	23,672	60.2	41,476	59.5	9,243	53.6	9,692	83.2	127,482	61.5
Anterolateral	2,946	8.0	1,917	5.9	3,230	8.2	5,972	8.6	853	5.0	591	5.1	15,509	7.5
Direct anterior	2,597	7.1	2,934	9.0	1,159	2.9	8,711	12.5	4,721	27.4	198	1.7	20,320	9.8
Other	169	0.5	238	0.7	153	0.4	328	0.5	122	0.7	177	1.5	1,187	0.6
Head size ^a														
22–28 mm	27,423	73.4	7,236	22.0	22,165	55.3	14,188	20.2	1,406	8.0	696	5.9	73,114	34.8
32 mm	9,908	26.5	17,248	52.5	17,888	44.6	40,496	57.7	3,279	18.6	7,511	63.7	96,330	45.9
36 mm	13	0.0	8,124	24.7	56	0.1	15,490	22.1	11,756	66.7	3,578	30.4	39,017	18.6
≥ 38 mm	7	0.0	259	0.8	0	0.0	1	0.0	1,184	6.7	0	0.0	1,451	0.7
Period ^a														
2007–2010	16,474	44.1	7,135	21.7	16,832	42.0	9,612	13.7	4,481	25.4	2,885	24.5	57,419	27.4
2011–2013	11,579	31.0	10,448	31.8	13,191	32.9	23,531	33.5	7,801	44.3	3,638	30.9	70,188	33.4
2014–2016	9,298	24.9	15,284	46.5	10,086	25.1	37,032	52.8	5,343	30.3	5,262	44.6	82,305	39.2

^a p < 0.0001.

PE: polyethylene. Numbers do not add up to total due to unknown or missing values.

Table 6. Crude cumulative incidence of revision for different bearing types for THA for patients under 60 years (non-case-mix corrected) (n = 34,204)

Revision for any reason	MoPE (n = 3,375) % (CI)	MoHXLPE (n = 4,503) % (CI)	CoPE (n = 4,718) % (CI)	CoHXLPE (n = 14,166) % (CI)	CoC (n = 4,984) % (CI)	Ox(HXL)PE (n = 2,458) % (CI)
5 year	5.0 (4.3–5.9)	4.5 (3.9–5.4)	4.4 (3.8–5.1)	3.6 (3.2–4.0)	3.3 (2.8–3.9)	3.5 (2.7–4.6)
9 year	7.6 (6.1–9.4)	6.3 (5.0–8.0)	5.6 (4.8–6.5)	5.1 (4.1–6.3)	5.3 (4.0–7.0)	6.7 (4.4–10.4)

For abbreviations, see Table 1.

Table 7A. Crude cumulative incidence of revision for different bearing types for THA for patients with femoral head size 22–28 mm (non-case-mix corrected) (n = 73,114)

Revision for any reason	MoPE (n = 27,423) % (CI)	MoHXLPE (n = 22,165) % (CI)	CoPE (n = 14,188) % (CI)	CoHXLPE (n = 14,166) % (CI)	CoC (n = 1,406) % (CI)	Ox(HXL)PE (n = 696) % (CI)
5 year	2.9 (2.7–3.1)	3.9 (3.4–4.5)	2.8 (2.6–3.1)	3.1 (2.8–3.5)	3.0 (2.2–4.1)	2.2 (1.3–3.8)
9 year	4.1 (3.8–4.5)	5.2 (4.4–6.2)	3.7 (3.3–4.0)	4.4 (3.5–5.7)	4.0 (2.8–5.6)	3.3 (2.0–5.6)

For abbreviations, see Table 1.

Table 7B. Crude cumulative incidence of revision for different bearing types for THA for patients with femoral head size 32 mm (non-case-mix corrected) (n = 96,330)

Revision for any reason	MoPE (n = 9,908) % (CI)	MoHXLPE (n = 17,248) % (CI)	CoPE (n = 17,888) % (CI)	CoHXLPE (n = 40,496) % (CI)	CoC (n = 3,279) % (CI)	Ox(HXL)PE (n = 7,511) % (CI)
5 year	2.1 (1.8–2.5)	2.8 (2.5–3.1)	3.3 (3.0–3.6)	2.6 (2.4–2.8)	3.1 (2.5–3.8)	2.3 (1.9–2.7)
9 year	2.7 (2.1–3.6)	3.2 (2.8–3.7)	4.6 (4.1–5.3)	3.7 (3.2–4.1)	5.1 (3.6–7.1)	3.2 (2.7–4.0)

For abbreviations, see Table 1.

Table 7C. Crude cumulative incidence of revision for different bearing types for THA for patients with femoral head size 36 mm (non-case-mix corrected) (n = 39,017)

Revision for any reason	MoPE (n = 13) % (CI)	MoHXLPE (n = 8,124) % (CI)	CoPE (n = 56) % (CI)	CoHXLPE (n = 15,490) % (CI)	CoC (n = 11,756) % (CI)	Ox(HXL)PE (n = 3,578) % (CI)
5 year	n.a. (n.a.)	3.6 (3.1–4.1)	0.0 (n.a.)	3.4 (3.0–3.7)	2.7 (2.4–3.0)	3.1 (2.5–4.0)
9 year	n.a. (n.a.)	4.6 (3.9–5.3)	2.9 (0.4–19.7)	4.0 (3.5–4.6)	3.8 (2.8–5.2)	4.0 (3.0–5.3)

For abbreviations, see Table 1.

Table 8. Multivariable survival analysis according to the type of polyethylene

Articulation ^a	n (revisions)	Crude hazard ratio for revision (95% CI)	Adjusted hazard ratio for revision ^b (95% CI)
PE	81,389 (2,270)	1.0	1.0
HXLPE	110,898 (2,740)	1.09 (1.03–1.15) ^c	0.95 (0.89–1.02)
CoC	17,625 (454)	0.99 (0.90–1.10)	0.88 (0.78–1.00)

^a For abbreviations, see Table 1.^b Adjusted for age at surgery, sex, ASA score, diagnosis, previous operation, fixation, head diameter, surgical approach, and period.^c p < 0.05.

Table 9. Reasons for revision or reoperation in revised THAs performed in the period 2007–2016 in the Netherlands, according to type of polyethylene (n = 5,464)

Revision within follow-up period	PE (n = 2,270)		HXLPE (n = 2,740)		Non-PE/other (n = 454)		Total ^c (n = 5,464)	
	n	%	n	%	n	%	n	%
Dislocation	798	35	792	29	91	20	1681	31 ^b
Loosening of femur	422	19	590	22	112	25	1124	21 ^a
Loosening of acetabulum	383	17	276	10	46	10	705	13 ^b
Infection	356	16	517	19	51	11	924	17 ^b
Periprosthetic fracture	231	10	501	18	42	9.3	774	14 ^b
Girdlestone	83	3.7	89	3.2	14	3.1	186	3.4
Cup/liner wear	62	2.7	50	1.8	15	3.3	127	2.3 ^a
Periarticular ossification	48	2.1	44	1.6	8	1.8	100	1.8
Other	342	15	419	15	133	29	894	16 ^b

^a p < 0.05 between different bearing types; ^b p < 0.001.

^c A patient may have more than one reason for revision of re-surgery. As such, the total is over 100%.