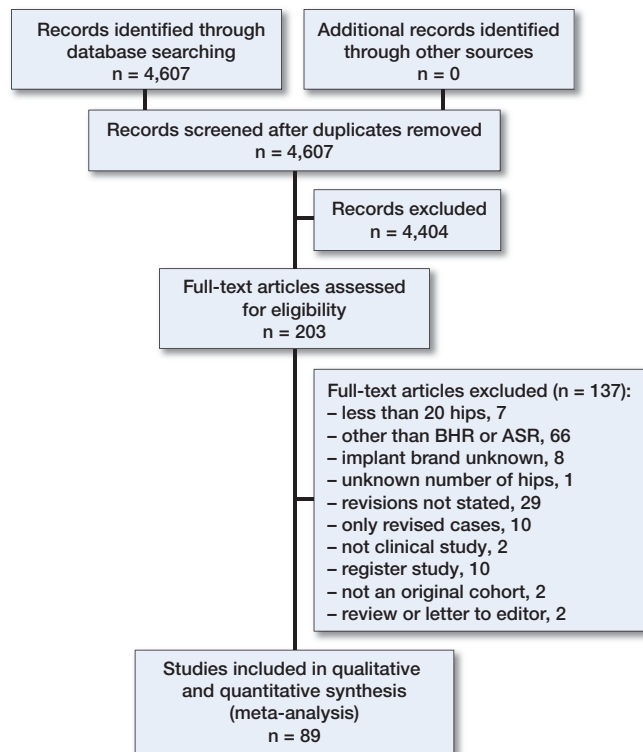


Supplementary data



S 1. PRISMA flow chart

S 2. PubMed search history

Search	Add to builder	Query	Items found
#4 Add	Search	(((((((asr AND hip) OR (bhr AND hip))) AND ("0001/01/01"[PDat] : "2013/12/31"[PDat]))) NOT (((metal-on-metal AND hip) OR ("hip resurfacing" OR "surface replacement" AND hip) OR "large-diameter total hip" NOT (metal-on-metal)) AND (outcome OR revis* OR surv* OR complication* OR imaging* OR failu*))) AND ("0001/01/01"[PDat] : "2013/12/31"[PDat]))) OR (((metal-on-metal AND hip) OR ("hip resurfacing" OR "surface replacement" AND hip) OR "large-diameter total hip" NOT (metal-on-metal)) AND (outcome OR revis* OR surv* OR complication* OR imaging* OR failu*)) AND ("0001/01/01"[PDat] : "2013/12/31"[PDat]))) Filters: Publication date to 2013/12/31	2,700
#3 Add	Search	(((((((asr AND hip) OR (bhr AND hip))) AND ("0001/01/01"[PDat] : "2013/12/31"[PDat]))) NOT (((metal-on-metal AND hip) OR ("hip resurfacing" OR "surface replacement" AND hip) OR "large-diameter total hip" NOT (metal-on-metal)) AND (outcome OR revis* OR surv* OR complication* OR imaging* OR failu*)) AND ("0001/01/01"[PDat] : "2013/12/31"[PDat]))) Filters: Publication date to 2013/12/31	39
#2 Add	Search	((asr AND hip) OR (bhr AND hip)) Filters: Publication date to 2013/12/31	126
#1 Add	Search	((metal-on-metal AND hip) OR ("hip resurfacing" OR "surface replacement" AND hip) OR "large-diameter total hip" NOT (metal-on-metal)) AND (outcome OR revis* OR surv* OR complication* OR imaging* OR failu*)) Filters: Publication date to 2013/12/31	2,661

S 3. Scopus search history

Search	Items found
<ul style="list-style-type: none"> History Search Identifier 7 History Search Terms(((TITLE-ABS-KEY (metal-on-metal) AND TITLE-ABS-KEY (hip)) OR ((TITLE-ABS-KEY ("hip resurfacing") OR (TITLE-ABS-KEY ("surface replacement") AND TITLE-ABS-KEY (hip)) OR TITLE-ABS-KEY ("large-diameter total hip"))) AND NOT (TITLE-ABS-KEY (metal-on-metal)))) AND ((TITLE-ABS-KEY (outcome) OR TITLE-ABS-KEY (revis*) OR TITLE-ABS-KEY (surv*) OR TITLE-ABS-KEY (imaging*) OR TITLE-ABS-KEY (complication*) OR TITLE-ABS-KEY (failu*))) AND PUBYEAR < 2014) OR ((TITLE-ABS-KEY ((asr AND hip) OR (bhr AND hip)) AND PUBYEAR < 2014) AND NOT (((TITLE-ABS-KEY (metal-on-metal) AND TITLE-ABS-KEY (hip)) OR ((TITLE-ABS-KEY ("hip resurfacing") OR (TITLE-ABS-KEY ("surface replacement") AND TITLE-ABS-KEY (hip)) OR TITLE-ABS-KEY ("large-diameter total hip"))) AND NOT (TITLE-ABS-KEY (metal-on-metal)))) AND ((TITLE-ABS-KEY (outcome) OR TITLE-ABS-KEY (revis*) OR TITLE-ABS-KEY (surv*) OR TITLE-ABS-KEY (imaging*) OR TITLE-ABS-KEY (complication*) OR TITLE-ABS-KEY (failu*))) AND PUBYEAR < 2014)) 	1,907
<ul style="list-style-type: none"> History Search Identifier 6 History Search Terms(TITLE-ABS-KEY ((asr AND hip) OR (bhr AND hip)) AND PUBYEAR < 2014) AND NOT (((TITLE-ABS-KEY (metal-on-metal) AND TITLE-ABS-KEY (hip)) OR ((TITLE-ABS-KEY ("hip resurfacing") OR (TITLE-ABS-KEY ("surface replacement") AND TITLE-ABS-KEY (hip)) OR TITLE-ABS-KEY ("large-diameter total hip"))) AND NOT (TITLE-ABS-KEY (metal-on-metal)))) AND ((TITLE-ABS-KEY (outcome) OR TITLE-ABS-KEY (revis*) OR TITLE-ABS-KEY (surv*) OR TITLE-ABS-KEY (imaging*) OR TITLE-ABS-KEY (complication*) OR TITLE-ABS-KEY (failu*))) AND PUBYEAR < 2014) 	53
<ul style="list-style-type: none"> History Search Identifier 5 History Search TermsTITLE-ABS-KEY ((asr AND hip) OR (bhr AND hip)) AND PUBYEAR < 2014 	164
<ul style="list-style-type: none"> History Search Identifier 4 History Search Terms(((TITLE-ABS-KEY (metal-on-metal) AND TITLE-ABS-KEY (hip)) OR ((TITLE-ABS-KEY ("hip resurfacing") OR (TITLE-ABS-KEY ("surface replacement") AND TITLE-ABS-KEY (hip)) OR TITLE-ABS-KEY ("large-diameter total hip"))) AND NOT (TITLE-ABS-KEY (metal-on-metal)))) AND ((TITLE-ABS-KEY (outcome) OR TITLE-ABS-KEY (revis*) OR TITLE-ABS-KEY (surv*) OR TITLE-ABS-KEY (imaging*) OR TITLE-ABS-KEY (complication*) OR TITLE-ABS-KEY (failu*))) AND PUBYEAR < 2014 	1,854

S 4. Studies included

Author	Year	Ref.	Patients	Hips	Acetabular side	Femoral side	Author	Year	Ref.	Patients	Hips	Acetabular side	Femoral side
Siebel	2006	[1]	300	300	ASR	ASR	McAndrew	2007	[38]	155	180	BHR	BHR
Klein	2008	[2]		115	ASR	ASR	Giannini	2007	[39]		350	BHR	BHR
Bergeron	2009	[3]	209	228	ASR	ASR	Hing	2007	[40]		230	BHR	BHR
Isaac	2009	[4]		77	ASR	ASR	McBryde	2007	[41]		184	BHR	BHR
Langton	2010	[5]		418	ASR	ASR	Daniel	2007	[42]		26	BHR	BHR
Jameson	2010	[6]	192	214	ASR	ASR	Nishii	2007	[43]		50	BHR	BHR
Langton (Arm 1)	2011	[7]		59	ASR	ASR	Heilpern	2008	[44]	98	110	BHR	BHR
Langton (Arm 4)	2011	[7]		430	ASR	ASR	Marulanda	2008	[45]		230	BHR	BHR
Malholtra	2012	[8]	23	32	ASR	ASR	Witzleb	2008	[46]	263	300	BHR	BHR
Whitwell (Arm 1)	2012	[9]		21	ASR	ASR	Steffen	2008	[47]		610	BHR	BHR
Bow	2012	[10]		103	ASR	ASR	Pattyn	2008	[48]		250	BHR	BHR
Kadar	2013	[11]	125	139	ASR	ASR	McMinn	2008	[49]		110	BHR	BHR
Reito (Arm 1)	2013	[12]	142	168	ASR	ASR	McBryde	2008	[50]		909	BHR	BHR
Whitehouse	2013	[13]		76	ASR	ASR	McBryde	2008	[51]		96	BHR	BHR
Langton	2013	[14]		246	ASR	ASR	Jameson	2008	[52]		254	BHR	BHR
Fernandez (Arm 1)	2014	[15]		60	ASR	ASR	Della Valle	2009	[53]		537	BHR	BHR
Shemesh	2014	[16]		49	ASR	ASR	Khan	2009	[54]	653	679	BHR	BHR
Reito	2014	[17]		27	ASR	ASR	Naal	2009	[55]		22	BHR	BHR
Langton	2010	[18]		87	ASR XL		Ollivere	2009	[56]		463	BHR	BHR
						57	Swank	2009	[57]		128	BHR	BHR
				30			Lingard	2009	[58]		132	BHR	BHR
Zhang	2010	[19]		34	ASR XL	Corail	Malviya	2009	[59]		670	BHR	BHR
Langton	2011	[20]		87	ASR XL	ASR	Myers	2009	[60]		64	BHR	BHR
				57			Aulakh (Arm 1)	2010	[61]	95	101	BHR	BHR
				30			Aulakh (Arm 2)	2010	[61]	97	101	BHR	BHR
Lavigne (Arm 3)	2011	[21]		32	ASR XL	Trilock	Bose	2010	[62]	71	96	BHR	BHR
Steele	2011	[22]	109	120	ASR XL	ns	McBryde	2010	[63]	1826	2123	BHR	BHR
Wynn-Jones	2011	[23]	54	62	ASR XL	Corail	Rahman	2010	[64]	302	329	BHR	BHR
Berthal	2012	[24]		70	ASR XL		Sandiford	2010	[65]		141	BHR	BHR
				64			Ollivere	2010	[66]		104	BHR	BHR
				6			Joseph	2010	[67]		26	BHR	BHR
Whitwell (Arm 2)	2012	[9]		100	ASR XL	Corail	Baker	2011	[68]		63	BHR	BHR
Hug	2013	[25]		149	ASR XL	Summit	Delpport (Arm 1)	2011	[69]	28	28	BHR	BHR
Reito (Arm 2)	2013	[12]	281	312	ASR XL		Giannini	2011	[70]	134	142	BHR	BHR
				233			Langton (Arm 2)	2011	[7]		1922	BHR	BHR
				54			Langton (Arm 5)	2011	[7]		180	BHR	BHR
				24			Langton (Arm 6)	2011	[7]		674	BHR	BHR
				1		P	Madhu	2011	[71]	104	120	BHR	BHR
Cip	2014	[26]	88	99	ASR XL	roxima	McMinn	2011	[72]		3095	BHR	BHR
				97			Reito	2011	[73]	126	144	BHR	BHR
				2			van der Bracht	2011	[74]		297	BHR	BHR
							Loughead	2011	[75]		181	BHR	BHR
						ARGE	Carrothers	2011	[76]		106	BHR	BHR
Fernandez (Arm 2)	2014	[15]		23	ASR XL	Proxima	Coulter	2012	[77]	213	230	BHR	BHR
Reito	2015	[27]	196	225	ASR XL		Hartmann	2012	[78]	95	100	BHR	BHR
				149			Holland	2012	[79]	90	100	BHR	BHR
				53			Murray	2012	[80]	554	646	BHR	BHR
				21			Nam (Arm 2)	2012	[81]	126	137	BHR	BHR
				1			Kohan	2012	[82]		840	BHR	BHR
De Smet	2002	[28]		310	BHR	BHR	MacKenzie	2012	[83]		499	BHR	BHR
Pollard	2003	[29]		54	BHR	BHR	Bisschop	2013	[84]	129	149	BHR	BHR
McMinn	2003	[30]		1209	BHR	BHR	Pailhe (Arm 2)	2013	[85]		42	BHR	BHR
Daniel	2004	[31]		446	BHR	BHR	van der Straeten	2013	[86]	232	250	BHR	BHR
De Smet	2005	[32]		252	BHR	BHR	Whitehouse	2013	[13]		103	BHR	BHR
Treacy	2005	[33]		144	BHR	BHR	Matharu	2013	[87]		447	BHR	BHR
McMinn	2005	[34]		232	BHR	BHR	Nijman	2013	[88]		47	BHR	BHR
Back	2005	[35]		230	BHR	BHR	Nakasone	2013	[89]		43	BHR	BHR
Pollard	2006	[36]		54	BHR	BHR	Langton	2013	[14]		53	BHR	BHR
Revell	2006	[37]		55	BHR	BHR							

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S 5. Annual cumulative number of hips included in the published studies for each implant type. Growth indicates the change in hips included in the published studies each year compared with the previous year

Year	BHR			ASR HRA			ASR XL THR		
	Cumulative	Per year	Growth	Cumulative	Per year	Growth	Cumulative	Per year	Growth
2002	310	310	-	-	-	-	-	-	-
2003	1573	1263	+307%	-	-	-	-	-	-
2004	2019	446	-65%	-	-	-	-	-	-
2005	2877	858	+92%	-	-	-	-	-	-
2006	2986	109	-87%	300	300	-	-	-	-
2007	4006	1020	+836%	300	-	-100%	-	-	-
2008	6621	2615	+156%	415	115	-	-	-	-
2009	9316	2695	+3%	720	305	+165%	-	-	-
2010	12337	3021	+12%	1352	632	+107%	121	121	-
2011	19318	6981	+131%	1841	489	-23%	422	301	+149%
2012	21870	2552	-63%	1997	156	-68%	592	170	-44%
2013	23048	1178	-54%	2626	629	+303%	1053	461	+171%