Supplementary data

Table 2. Excluded studies with reasoning after reading full manuscripts

Study	Country	Reason for exclusion
Kumar et al. (2015)	United Kingdom	Uses subgroup of cohort completely used in Pandit et al. (2015)
Hamilton et al. (2016)	United Kingdom	Uses subgroup of cohort completely used in Pandit et al. (2015)
Mercier et al. (2010)	France	Study using the Oxford phase 2 prosthesis
Price et al. (2011)	Sweden/United Kingdom	Uses cohort of Oxford phase 1, 2 and 3. Reports results of all implants combined
Faour-Martin et al. (2015)	Spain	Uses subgroup previous cohort from Faour-Martin et al. (2013).
Emerson et al. (2008)	USA	Cohort using the Oxford Phase 2 implant
Pandit et al. (2010)	United Kingdom	Uses same cohort as more recent paper published by Pandit et al. (2015)
Jones et al. (2012)	United Kingdom	Uses same cohort as paper published by Bottomley et al. (2016)

Table 3. Total number of revisions and re-operations reported for Oxford Phase 3 medial UKA reported in the literature

Study	No. of knees	Mean follow up (years)	No. of revisions	Causes of revisions	No. of re-operations	Causes of re-operations	No. of non-revision re-operations
Alnachoukati et al. (2016)	825	9.7	93	19 tibial loosening 5 tibial and femoral loosening 6 tibial collapse 22 arthritic progression 2 tibial overload 1 loose body removal 7 femoral loosening 13 unknown 5 bearing dislocation 1 tibial fracture 1 instability 1 car accident 1 infection 3 pain 1 RA 3 chronic hemarthrosis 2 polywear impingement	n.r.	n.r.	n.r.
Aly et al. (2010)	45	8.75	2	2 revisions to TKA (1 fracture of medial tibial plateau after fall, 1 aseptic loosening)	n.r.	n.r.	n.r.
Bottomley et al. (2016)	1,084	5.2	46	12 aseptic loosening 13 lateral progression 7 infection 5 unexplained pain 7 bearing dislocation 1 tibial fracture 1 unknown	69	Same as revisions. Additionally: 15 exploratory arthroscopy 3 washout of wound and evacuation of hematoma 3 MUA 1 excision wound neuroma 1 open exploration impingement	23

Table 3. Continued

Study	No. of knees	Mean follow up (years)	No. of revisions	Causes of revisions	No. of re-operations	Causes of re-operations	No. of non-revision re-operations
Campi et al. (2017)	1,000	7	25	11 progression of arthritis in lateral compartment 7 bearing dislocation 2 tibial fractures 2 tibial component loosening 1 persistent pain 1 impingement 1 ACL tear	29	Revisions plus 2 washout 1 MUA 1 arthroscopy	4
Edmonson et al. (2015)	364	5.5	26	9 lateral compartment OA 5 combination of lateral and patellofemoral OA 6 aseptic loosening 4 dislocated bearing 2 unexplained medial pain	29	Revisions plus 1 washout 2 MUA	3
Emerson et al. (2016)	213	10	20	3 chronic hemarthrosis 2 loose femoral components 2 loose tibial components 9 progression of OA in lateral compartment 1 bearing dislocation 1 polyethelene wear 2 unknown	n.r.	n.r.	n.r.
Faour-Martin et al. (2013)	511	10.38	29	15 infection 2 bearing exchange 8 persistent pain 4 aseptic loosening tibial component	31	Revisions plus 2 MUA	2
Kendall et al. (2016)	523	3.92	29	6 unexplained pain 5 lateral OA 5 tibial component loosening 3 tibial and femoral component loosening 1 femoral loosening 1 infection 2 single-stage bearing exchange with debridement for infection 6 arthrotomy with bearing exchange	38	Revisions plus 1 femoral reimplantation for dislocation 5 MUA 3 wound revisions	9
Kornilov et al. (2016)	252	n.r.	19	8 loosening of tibial component 3 periprosthetic joint infection 2 OA progression 3 fracture of medial tibial/femoral condyle 2 bearing dislocation with ACL and MCL rupture 1 complete rupture ACL and MCL	21	Revisions plus 1 lateral meniscus tear 1 loose body formation	2
Kim et al. (2015)	166	10	16	7 bearing dislocations 1 bearing wear and breakage 1 MCL rupture with bearing dislocation 3 femoral component loosening 1 femoral and tibial component loosening 1 component loosening with bearing dislocation 1 tibial condylar fracture 1 Infection	n.r.	n.r.	n.r.

Table 3. Continued

Study	No. of knees	Mean follow up (years)	No. of revisions	Causes of revisions	No. of re-operations	Causes of re-operations	No. of non-revision re-operations
Kristensen et al. (2013)	695	4.6	51	8 aseptic loosening of tibial component 1 aseptic loosening of femoral component 2 aseptic loosening of both components 14 progressive OA in lateral compartment 2 progression of retropatellar OA 10 pain without loosening 4 deep infection 2 periprosthetic fracture 2 malposition 4 instability 2 other	n.r.	n.r.	n.r.
Lisowski et al. (2016)	138	11.7	11	4 pain 6 disease progression laterally 1 bearing dislocation	n.r.	n.r.	n.r.
Pandit et al. (2015)	1,000	10.3	52	25 progressive OA in lateral compartment 7 bearing dislocation 7 unexplained pain 1 unknown 6 infection 1 ACL injury 1 ANV lateral femoral condyle 1 tibial malposition 1 aseptic loosening femur 1 aseptic loosening tibia 1 instability	n.r.	n.r.	
White et al. (2016)	563	6.6	16	6 progressive arthritis 4 instability 3 unexplained pain 1 aseptic loosening 1 infection 1 periprosthetic fracture	n.r.	n.r.	n.r.
Yoshida et al. (2013)	1,279	5.2	25	1 bearing rotation 2 periprosthetic fracture tibia 9 bearing dislocation 12 tibial subsidence of component 1 progression lateral OA	n.r.	n.r.	n.r.
Total	8,658		460 [a]		217 [b]		43 [c]

[a] 5.3% revisions out of 8,658 cases
[b] 5.8% re-operations out of 3,734 cases
[c] 1.2% non-revision re-operations out of 3,734 cases
n.r. = not reported.

Table 5. Incidence of causes for revision (460 revisions from 8,658 cases). This is reported from the total number of cases from papers which gave details of the causes of revisions

Reasons for revisions	No. of cases	Incidence rate (%)
Lateral disease progression	123	1.42
Aseptic loosening	108	1.25
Bearing dislocation	50	0.58
Pain	49	0.57
Infection	41	0.47
Other	24	0.28
Unknown	17	0.20
Periprosthetic fracture	14	0.16
Instability	10	0.12
Other bearing issues	8	0.09
Chronic hemarthrosis	6	0.07
Polyethylene wear	5	0.06
Lateral and patellofemoral OA	5	0.06
Malposition	3	0.03
Retropatellar OA	2	0.02

Table 6. Studies reporting the number of re-operations and mean follow-up period

Study	No. of knees	Re-operations	Non-revision re-operations	Mean follow-up (years)	Observed component years	Annual re-operations rate (95% CI)	Annual non-revision re-operations rate (95% CI)
Bottomley et al. (2016)	1,084	69	23	5.2	5,636.8	1.22 (0.95–1.55)	0.41 (0.26–0.61)
Campi et al. (2017)	1,000	29	4	7	7,000	0.41 (0.28–0.59)	0.06 (0.02–0.15)
Edmonson et al. (2015)	364	29	3	5.5	2,002	1.45 (0.97–2.07)	0.15 (0.03–0.44)
Faour-Martin et al. (2013)	511	31	2	10.4	5,304.2	0.58 (0.40–0.83)	0.04 (0.00–0.14)
Kendall (2016)	523	38	9	3.9	2,044.9	1.86 (1.32–2.54)	0.44 (0.20–0.83)
Total	3,482	196	41		21,988	0.89 (0.77–1.02)	0.19 (0.13–0.25)

These studies were used to calculate the total number of re-operations and observed component years, which were subsequently used to calculate the overall re-operations/non-revision re-operations per 100 observed component years.

Table 7. Studies reporting the survival of Oxford UKA and their sample sizes (n = 8,361)

Study	Location	No. of knees	10-year survival (%) (95% CI)	15-year survival (%) (95% CI)
Alnachoukati et al. 2016	Ohio/North Carolina, Texas, USA	825	85	n.r.
Bottomley et al. 2016	Oxford, UK	1084	93 (86–100)	n.r.
Campi et al. 2017	Oxford, UK/Christ Church, New Zealand	1000	97 (93–100)	n.r.
Edmondson et al. 2015	East Sussex, UK	364	88 (83–93)	n.r.
Emerson et al. 2016	Texas, USA	213	88 (82–94)	n.r.
Faour-Martin et al. 2013	Spain	511	96	n.r.
Kendall 2016	Canada	523	n.r.	96
Kim et al. 2015	Seoul, Korea	166	91 (86–95)	n.r.
Kristenen et al. 2013	Vejle, Denmark	695	85 (79–90)	n.r.
Lisowski et al. 2016	Amsterdam, Netherlands	138	n.r.	91 (85–96)
Pandit et al. 2015	Oxford, UK	1000	96 (93–100)	91 (83–98)
White et al. 2016	Oswestry, UK	563	95	n.r.
Yoshida et al. 2013	Japan	1279	95 (91–100)	n.r.

n.r. = not reported.

Table 8. Studies reporting preoperative and postoperative PROMs in their cohorts (n = 5,177)

Study	No. of knees	Age (range)	Gender	BMI (SD)	Preop. PROMS	10-year PROMS
Alnachoukati et al. 2016	825	64	47% M, 53% F	32	n.r.	AKSS-O 90, AKSS-F 77
Aly et al. 2010	45	57 (46–53)	18 M, 25 F	n.r.	HSS 74 (range 60–84)	HSS 178 (range 78–198)
Campi et al. 2017	1,000	66 (35–94)	n.r.	n.r.	OKS 23 (SD 8)	OKS 42 (SD 7)
Emerson et al. 2016	213	67 (38–89)	95 M, 78 F	30	AKSS-O 50, AKSS-F 56	AKSS-O 93, AKSS-F 78
Faour-Martin et al. 2013	511	59 (SD 9)	115 M, 287 F	27 (5)	AKSS-O 52 (SD 12), AKSS-F 51 (SD 19)	AKSS-O 90 (SD 8), AKSS-F 89 (SD 18)
Kim et al. 2015	166	62 (45–84)	5 M, 123 F	n.r.	AKSS-O 54 (range 25–70), AKSS-F 56 (range 35–80)	AKSS-O 85 (SD 9), AKSS-F 81 (SD 12)
Lisowski et al. 2016	138	72 (47–91)	n.r.	28 (5)	OKS 19 (SD 7), KSS 47 (SD 18)	OKS 42 (SD 6), KSS 81 (SD 21)
Pandit et al. (2015)	1,000	66 (32–88)	393 M, 425 F	n.r.	OKS 25 (SD 9), Tegner 2 (SD1), AKSS-F 69 (SD 18), AKSS-O 47 (SD 20)	OKS 40 (SD 9), Tegner 3 (SD 1), AKSS-F 76 (SD22), AKSS-O 80 (SD 15)
Yoshida et al. 2013	1,279	77 (47–94)	180 M, 810 F	n.r.	OKS 22 (SD 8)	OKS 38 (SD 7)

AKSS-O = American Knee Score Objective, AKSS-F = American Knee Score Functional, HSS = Hospital for Special Surgery Knee Score, OKS= Oxford Knee Score. n.r. = not reported.

APPENDIX 1

Ovid Medline search strategy

1   exp knee arthroplasty/
2   "knee replace*".ti,ab.
3   "knee arthroplasty".ti,ab.
4   "knee reconstruction".ti,ab.
5   1 or 2 or 3 or 4
6   partial.ti,ab.
7   unicompartmental.ti,ab.
8   unicondylar.ti,ab.
9   uni.ti,ab.
10 UKA.ti,ab.
11 UKR.ti,ab.
12 UCA.ti,ab.
13 UCR.ti,ab.
14 PKA.ti,ab.
15 PKR.ti,ab.
16 PCA.ti,ab.
17 Oxford.ti,ab.
18 meniscal.ti,ab.
19 mobile.ti,ab.
20 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19
21 5 and 20
22 1 and 20
23 21
24 limit 23 to yr="2008 -Current"
25 exp treatment outcome/
26 exp follow up/
27 (ten or "10-year" or "10 year" or "10year").ti,ab.
28 (fifteen or "15-year" or "15 year" or "15year").ti,ab.
29 long*.ti,ab.
30 25 or 26 or 27 or 28 or 29
31 5 and 20 and 30
32 31
33 limit 32 to yr="2008 -Current"
34 33
35 medial.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
36 34 and 35
37 exp Cohort Studies/
38 25 or 27 or 28 or 29 or 37
39 5 and 20 and 35 and 38
40 39
41 limit 40 to yr="2008 -Current"

EMBASE search strategy

1   exp knee arthroplasty/
2   "knee replace*".ti,ab.
3   "knee arthroplasty".ti,ab.
4   "knee reconstruction".ti,ab.
5   1 or 2 or 3 or 4
6   partial.ti,ab.
7   unicompartmental.ti,ab.
8   unicondylar.ti,ab.
9   uni.ti,ab.
10 UKA.ti,ab.
11 UKR.ti,ab.
12 UCA.ti,ab.
13 UCR.ti,ab.
14 PKA.ti,ab.
15 PKR.ti,ab.
16 PCA.ti,ab.
17 Oxford.ti,ab.
18 meniscal.ti,ab.
19 mobile.ti,ab.
20 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19
21 5 and 20
22 1 and 20
23 21
24 limit 23 to yr="2008 -Current"
25 exp treatment outcome/
26 exp follow up/
27 (ten or "10-year" or "10 year" or "10year").ti,ab.
28 (fifteen or "15-year" or "15 year" or "15year").ti,ab.
29 long*.ti,ab.
30 25 or 26 or 27 or 28 or 29
31 5 and 20 and 30
32 31
33 limit 32 to yr="2008 -Current"
34 33
35 medial.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading] (144350)
36 33 and 35

CENTRAL search strategy

ID Search Hits
#1 MeSH descriptor: [Arthroplasty, Replacement, Knee] explode all trees
#2 "knee replace*"
#3 "knee arthroplasty"
#4 "knee reconstruction"
#5 #2 or #3 or #4 or #1
#6 partial or unicompartmental or unicondylar or uni or UKA or UKR or UCA or UCR or PKA or PCR or Oxford or meniscal or mobile
#7 medial
#8 #5 and #6 and #7

APPENDIX 2

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Checklist

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You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Section/Topic	Item No.	Checklist item	Reported on Page No.
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3-4
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	4-5
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	5
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	5-6
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	5-6
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appendix 2
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	5-7
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	7
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	7