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Table S1: Distribution of included studies by continent, country and decade

Continent	Incidence	Complication
Africa		1
North America	2	10
Europe	10	10
Asia	1	5
Country	Incidence	Complications
Japan	1	5
Finland	1	4
Netherlands	0	3
England	4 ^{1,2,3}	4 ⁴
Sweden	3	3
Denmark	1	0
Wales	3 ^{1,2,3}	3 ⁴
Greece	1	0
United States of America	2	8
Scotland	2 ^{2,3}	3 ⁴
Northern Ireland	1 ³	3 ⁴
South Africa	0	1
Norway	0	2
Hungary	0	1
Germany	0	2
Canada	0	2
Austria	0	1
Decade	Incidence	Complications
1980-1989	0	2
1990-1999	1	12
2000-2009	3	12
2010-2019	9	10

¹: one paper from England and Wales

²: one paper from Scotland, England, and Wales

³ and ⁴ each represent one paper from Scotland, England, Wales, and Northern Ireland

Figure S1: Detailed search strategy used for systematic review of THA in RA patients

RA		Total hip replacement		Rates		Adult
Rheumatoid	AND	Total hip replacements	AND	Rate(s)	AND	Adult
Arthritis		OR		OR		OR
OR		Total hip arthroplasty/ total hip arthroplasties		Incidence		Aged
Rheumatic		OR		Prevalence		OR
disease		Total hip implantation(s)		OR		Middle- aged
		OR	Trend(s)			
		Hip prosthesis implantation		Epidemiology		

Limit

- Human(s)
- English
- 1980-2019

Detailed MEDLINE search

1. Arthritis, rheumatoid/
2. Rheumatic, diseases/
3. Rheumatoid arthritis.mp
4. Rheumatic disease*.mp
5. 1 or 2 or 3 or 4
6. Arthroplasty, replacement, hip/
7. Hip prosthesis/
8. Total hip prosthesis.mp
9. arthroplast*.mp
10. Total hip replacement*.mp
11. Hip prosthesis implantation*.mp
12. 6 or 7 or 8 or 9 or 10 or 11 or 12
13. Incidence/
14. Epidemiology/
15. Prevalence/
16. Prevalence.mp
17. Incidence.mp
18. Rate*.mp
19. Trend*.mp
20. Epidemiology.mp
21. 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20
22. Adult/
23. Aged/
24. Middle-aged/
25. Adult.mp
26. Aged.mp
27. Middle-aged.mp
28. 22 or 23 or 24 or 25 or 26 or 27 or 28
29. 28 and 21 and 12 and 5
30. Limit 29 to English language and humans and yr=" 1980-2019"

Databases searched and results

- Scopus: 772
- MEDLINE: 307
- EMBASE: 651
- Cochrane: 68

Supplementary figures related to incidence of THA in RA patients

Figure S2a: Incidence of THA in RA patients from 2000-2009

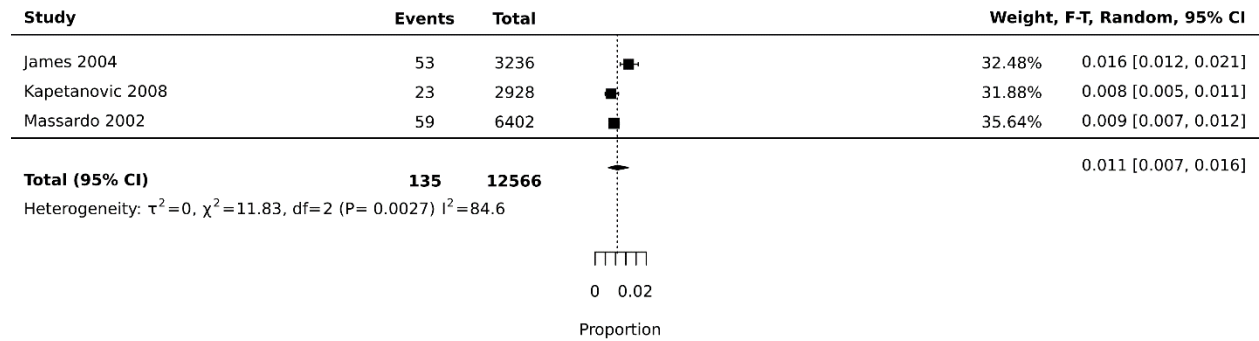


Figure S2b: Incidence of THA in RA patients from 2010-2019

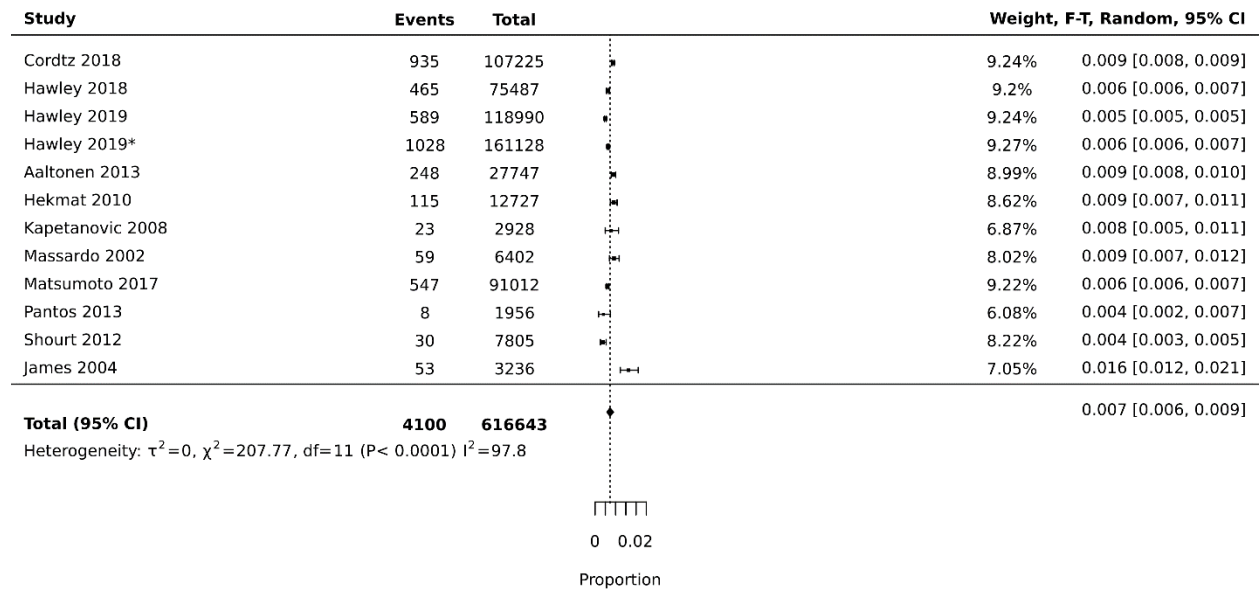
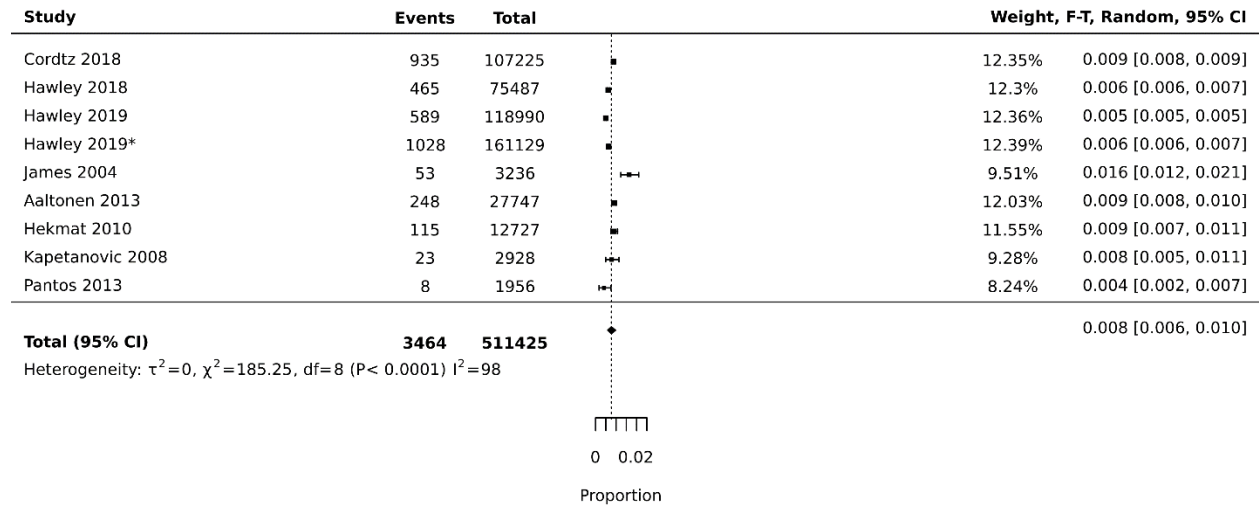


Figure S3a: Incidence of THA in European RA patients



One outlier study was removed from these results (1)

Figure S3b: Incidence of THA in North American RA patients

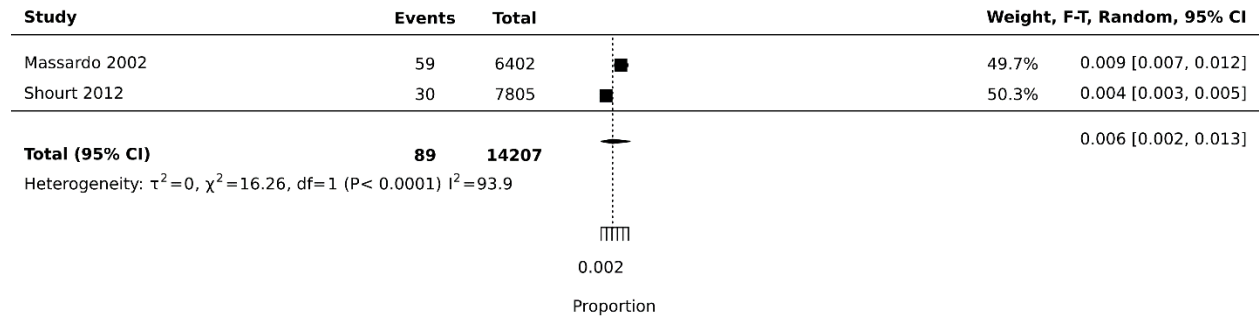


Figure S4a: Incidence of THA in RA population where OA diagnosis was specifically excluded

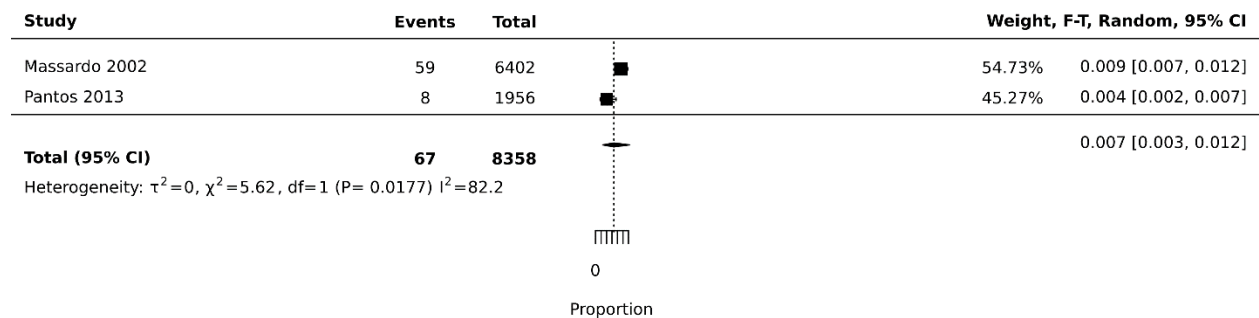
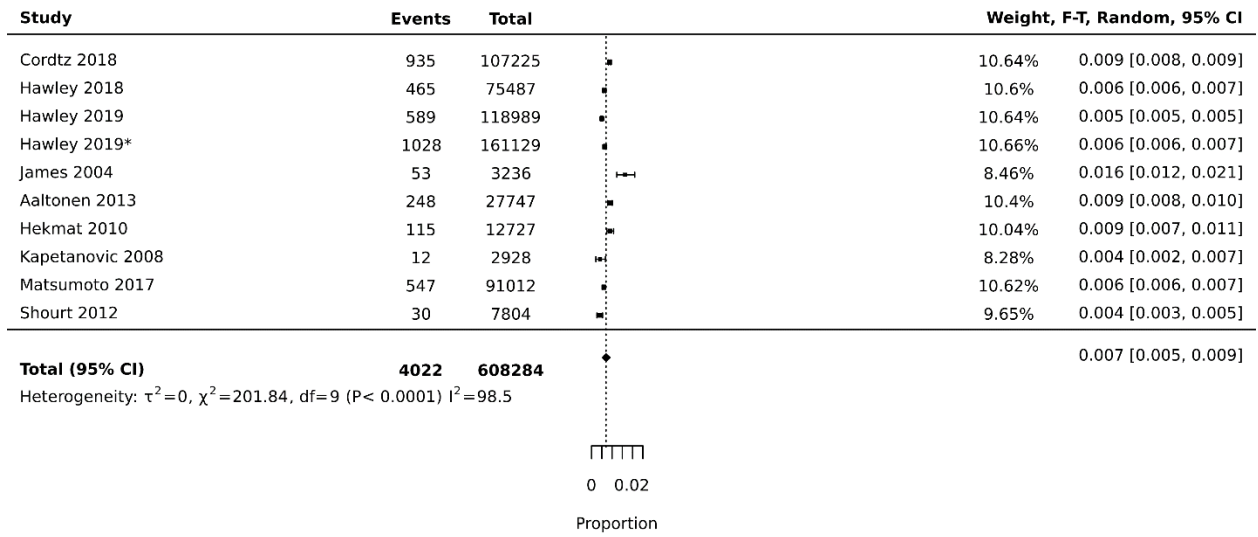


Figure S4b: Incidence of THA in RA population where OA diagnosis was not specifically excluded



One outlier study was excluded (1)

Supplementary figures related to post-operative complications for RA patients receiving THA

Overall Complication rate

Figure S5a: Combined rate of post-operative periprosthetic fracture, revision, dislocation, infection, aseptic loosening for RA patients receiving THA from 1980-2019

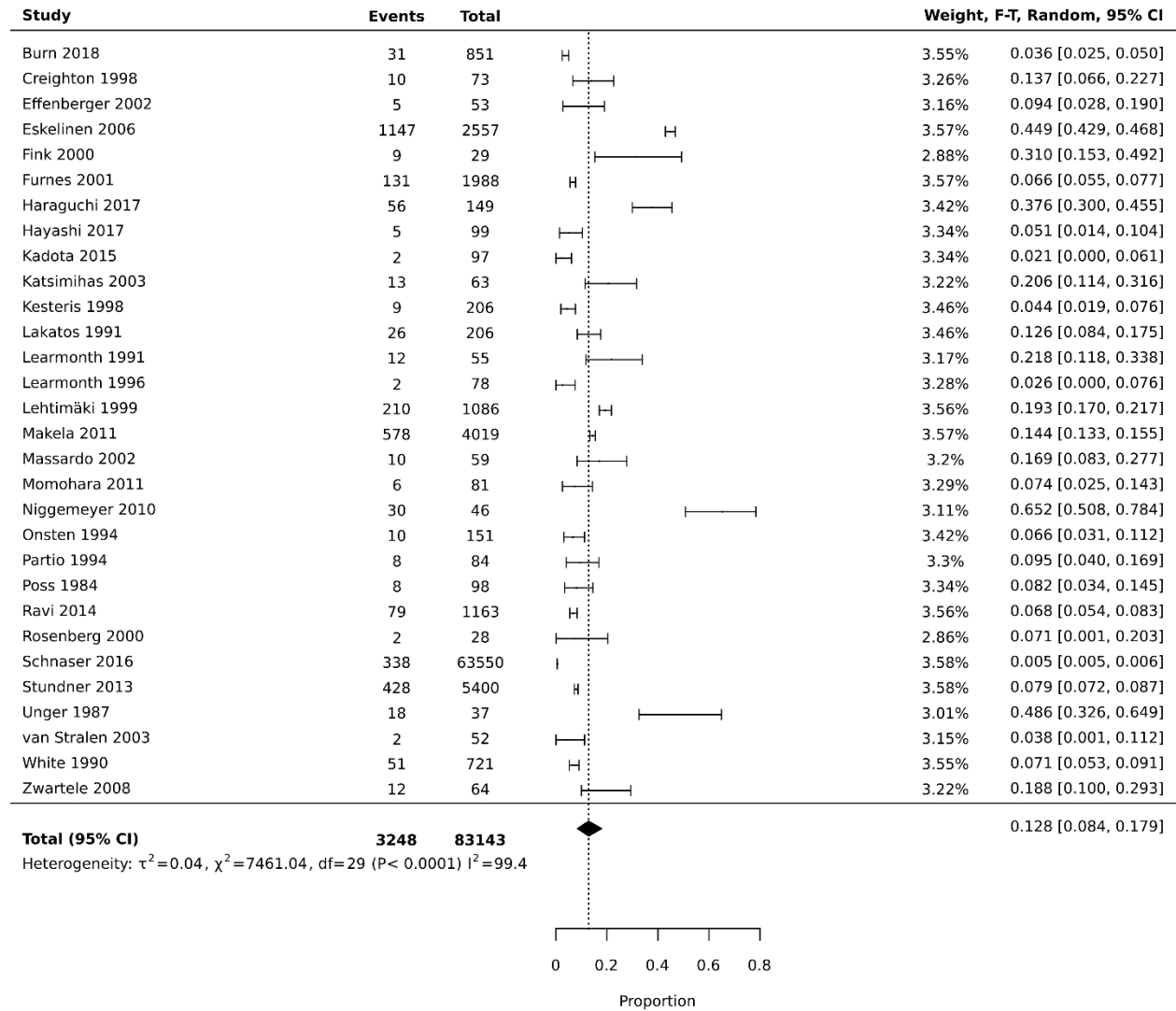


Figure S5b: Combined rate of post-operative periprosthetic fracture, revision, dislocation, infection, aseptic loosening for RA patients receiving THA from 1980-1989

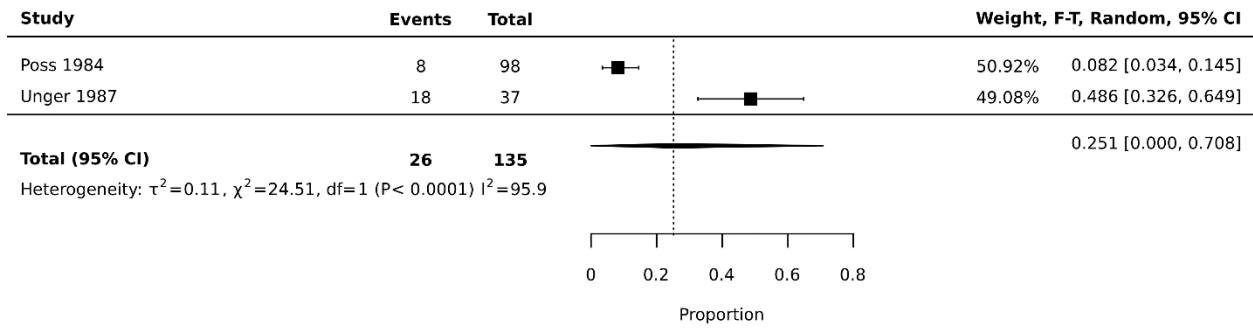


Figure S5c: Combined rate of post-operative periprosthetic fracture, revision, dislocation, infection, aseptic loosening for RA patients receiving THA from 1990-1999

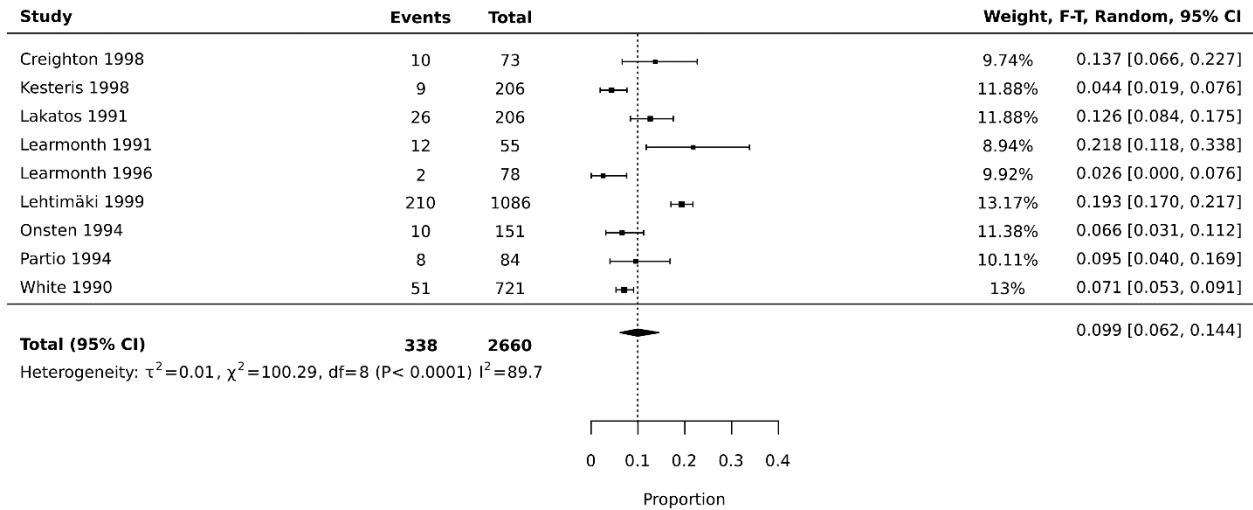
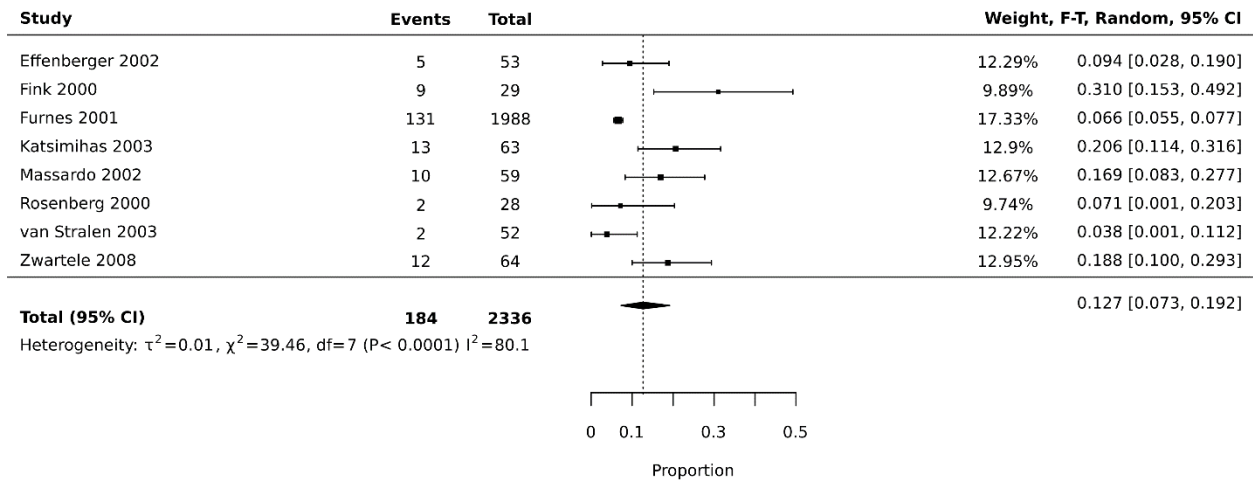
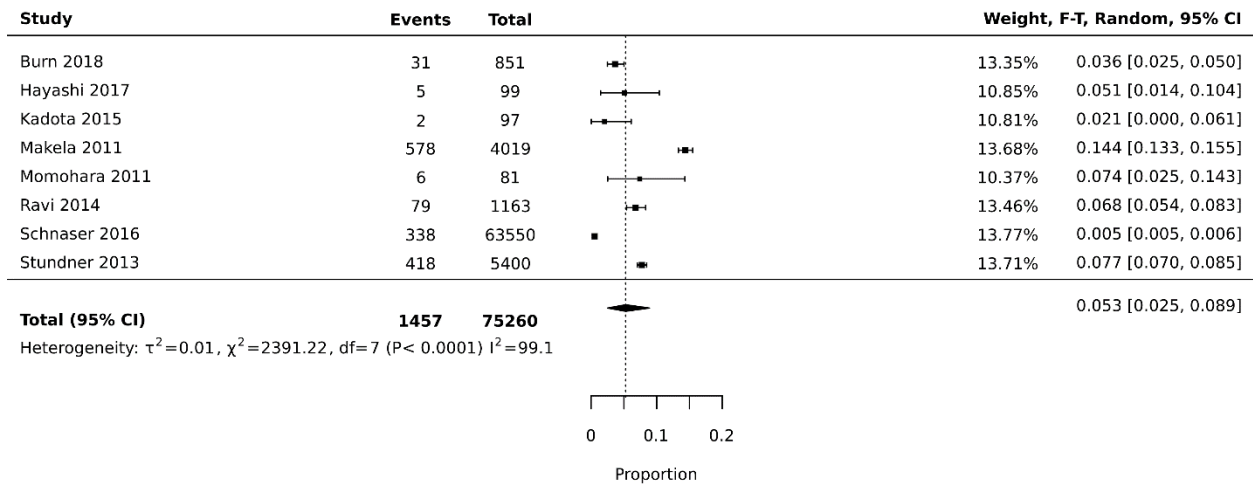


Figure S5d: Combined rate of post-operative periprosthetic fracture, revision, dislocation, infection, aseptic loosening for RA patients receiving THA from 2000-2009



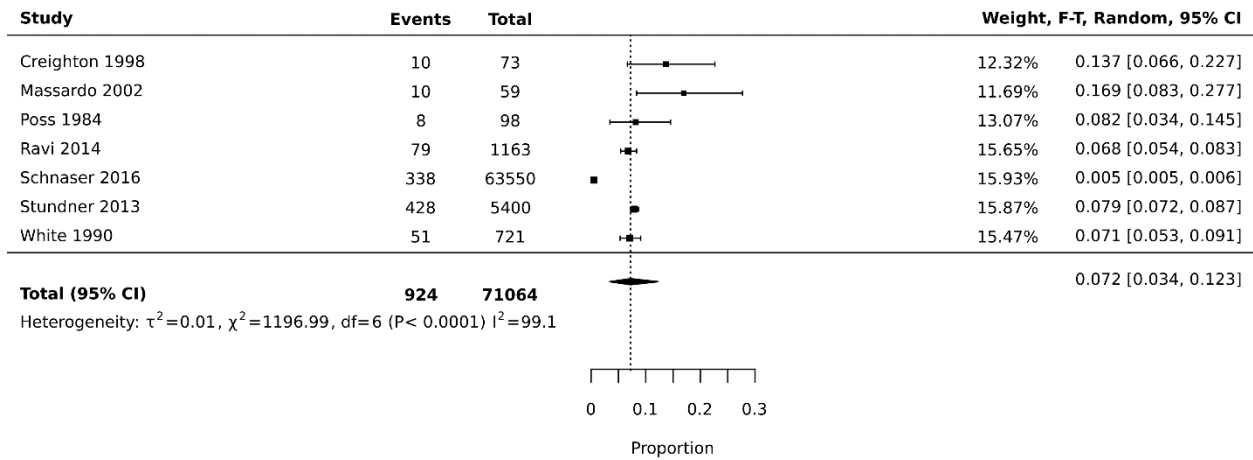
One outlier study removed (2)

Figure S5e: Combined rate of post-operative periprosthetic fracture, revision, dislocation, infection, aseptic loosening for RA patients receiving THA from 2010-2019



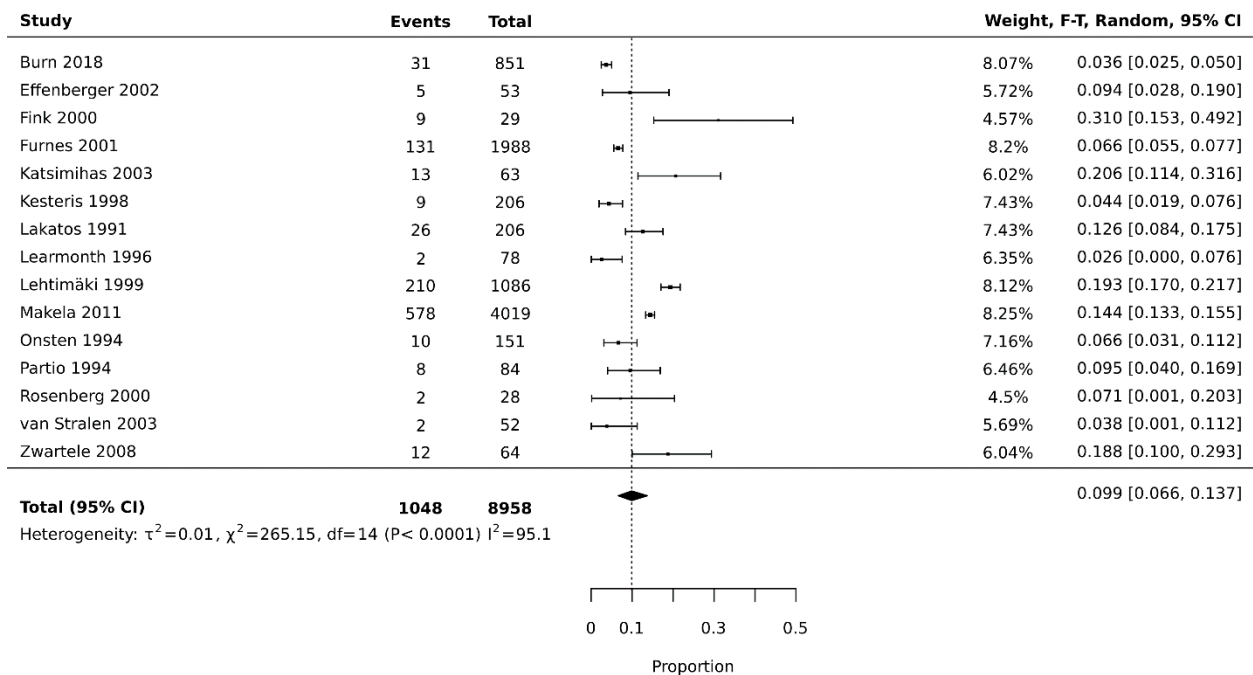
2 outlier studies removed (3, 4)

Figure S5f: Combined rate of post-operative periprosthetic fracture, revision, dislocation, infection, aseptic loosening for RA patients receiving THA in North America



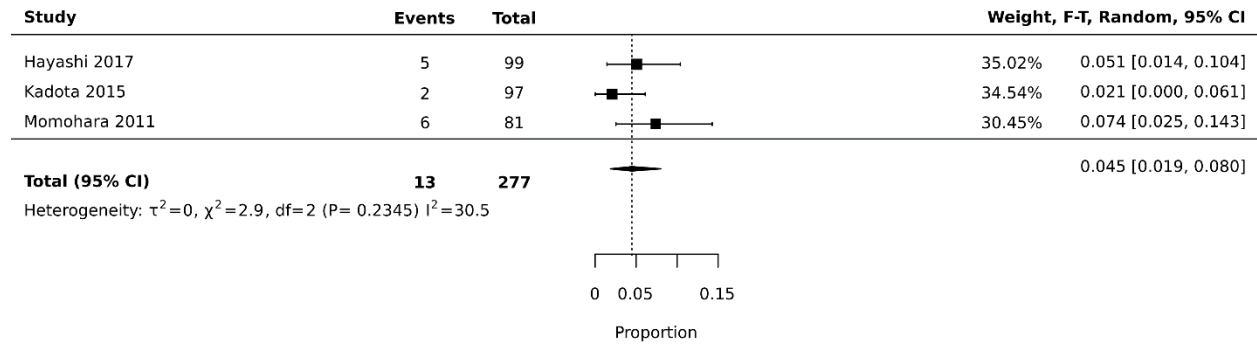
One outlier study removed (5)

Figure S5g: Combined rate of post-operative periprosthetic fracture, revision, dislocation, infection, aseptic loosening for RA patients receiving THA in Europe



Two outlier studies removed (2, 4)

Figure S5h: Combined rate of post-operative periprosthetic fracture, revision, dislocation, infection, aseptic loosening for RA patients receiving THA in Asia



One outlier study removed (3)

Revision rate

Figure S6a: Rate revision for RA patients receiving THA from 1980-2019

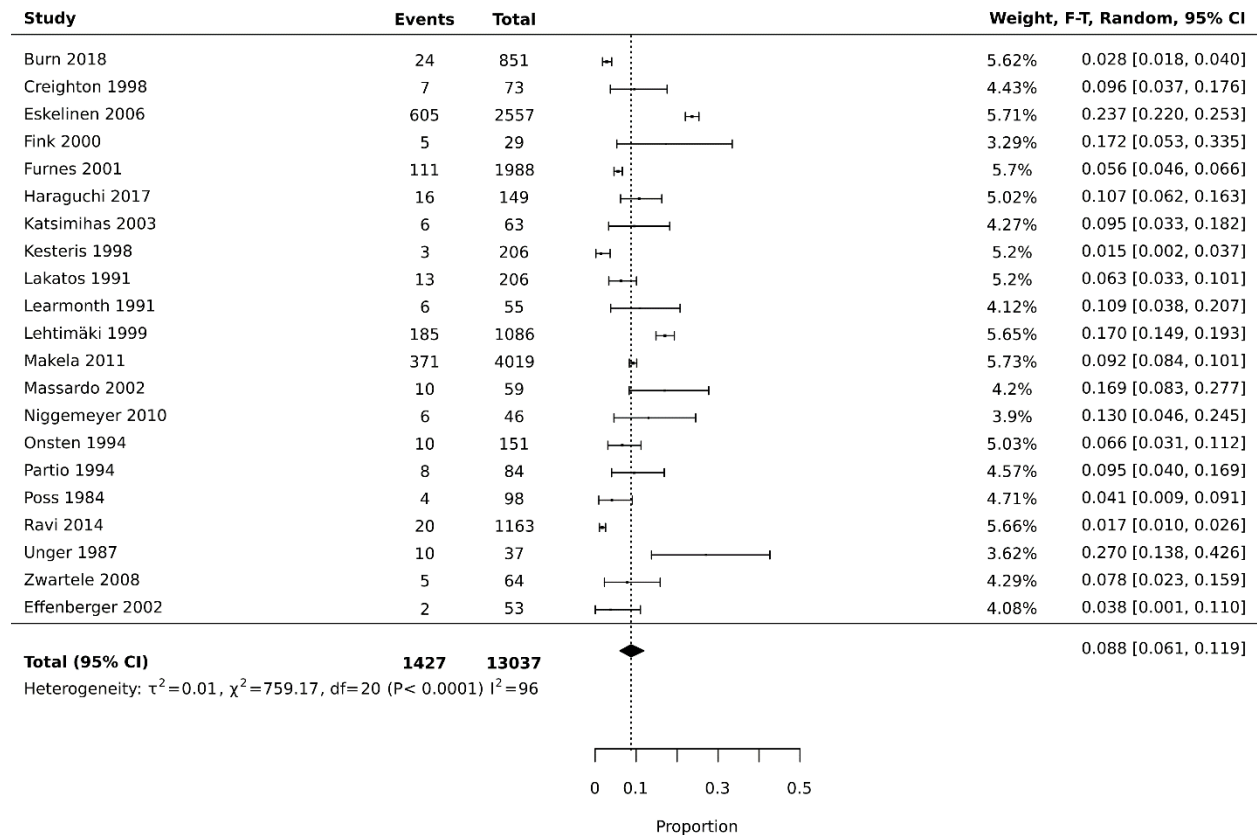


Figure S6b: Rate revision for RA patients receiving THA from 1980-1989

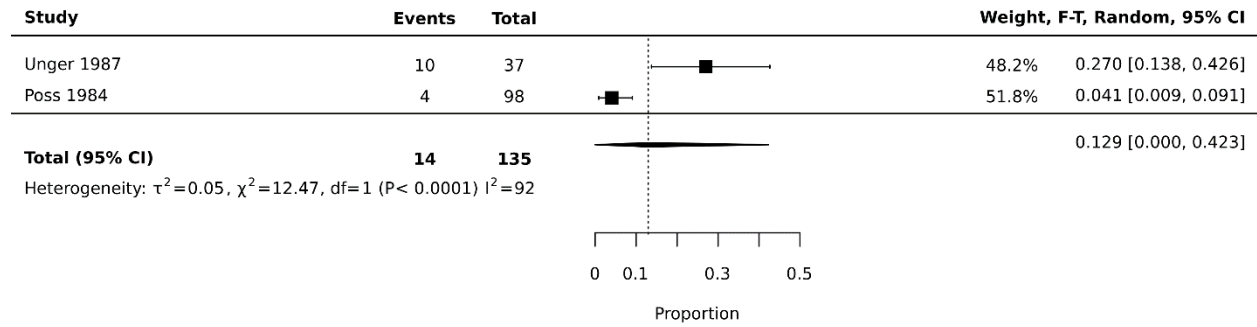


Figure S6c: Rate revision for RA patients receiving THA from 1990-1999

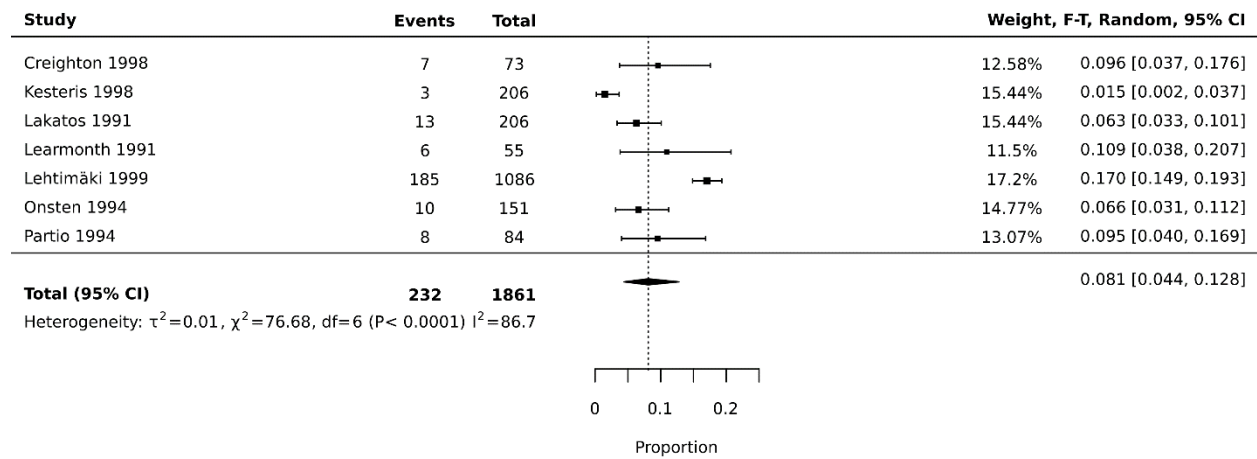
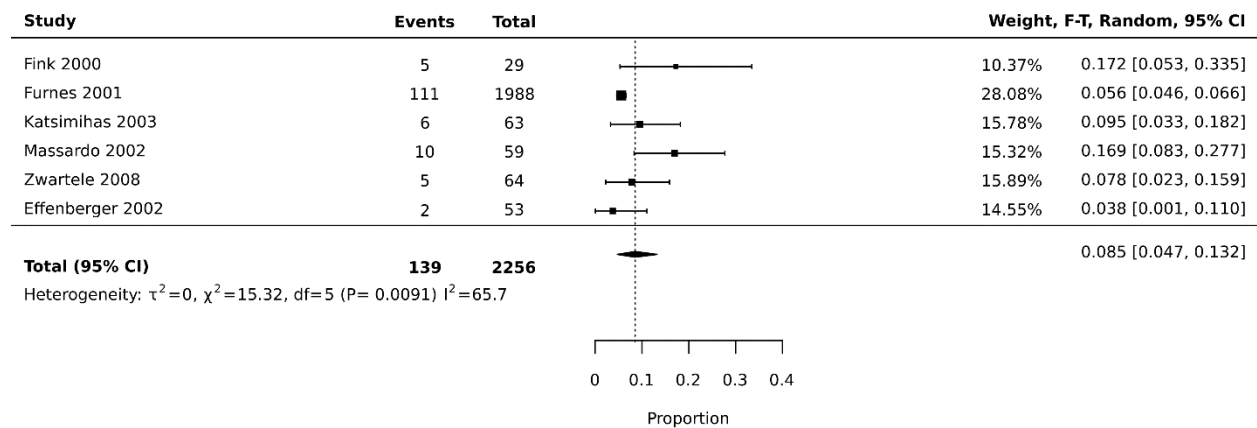
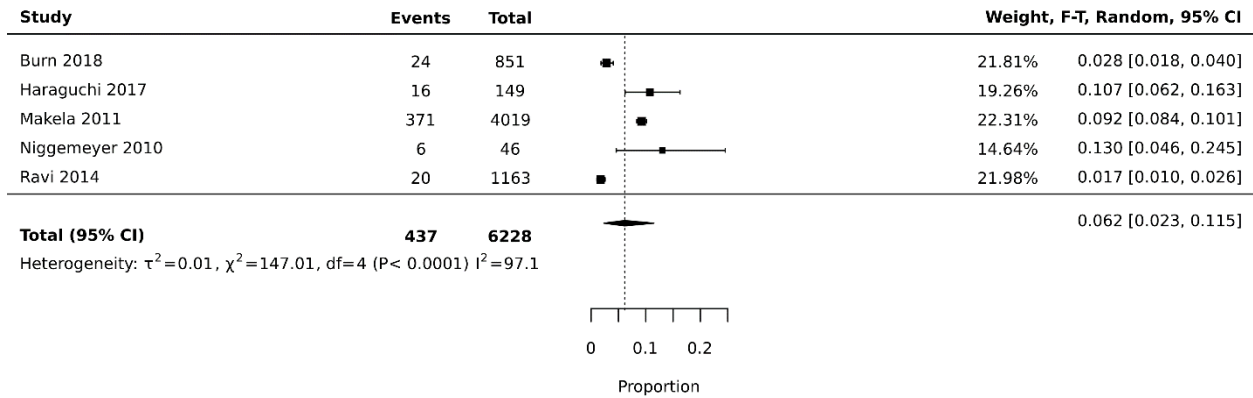


Figure S6d: Rate revision for RA patients receiving THA from 2000-2009



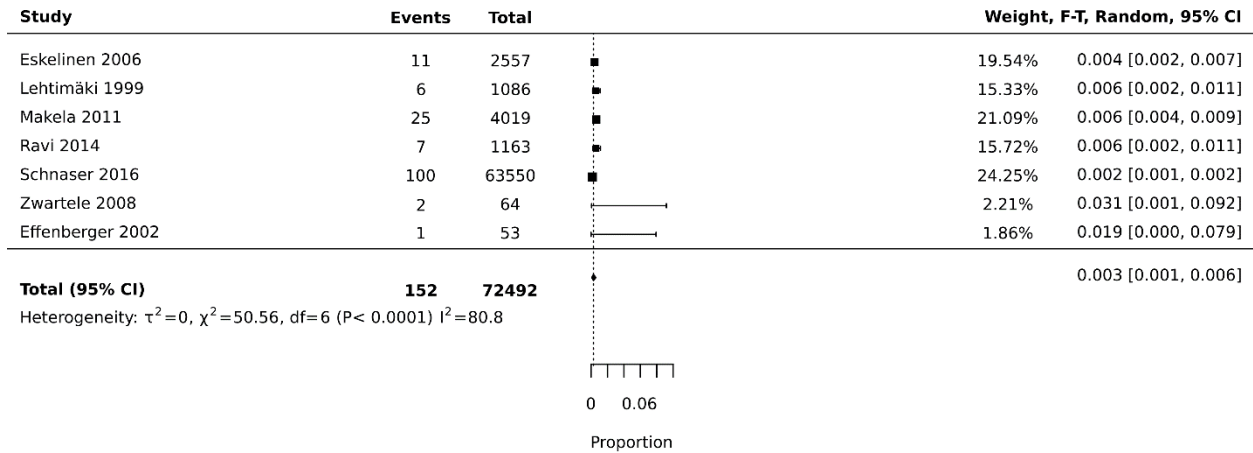
One outlier study was excluded (2)

Figure S6e: Rate revision for RA patients receiving THA from 2010-2019



Periprosthetic Fracture

Figure S7a: Post-operative periprosthetic fracture rate in RA patients receiving THA from 1990-2019



One outlier study was removed (3)

Figure S7b: Post-operative periprosthetic fracture rate in RA patients receiving THA from 2000-2009

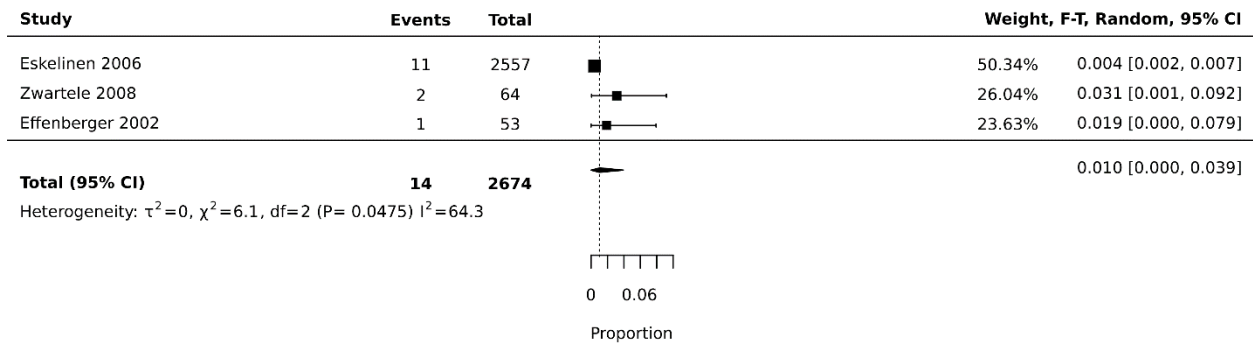
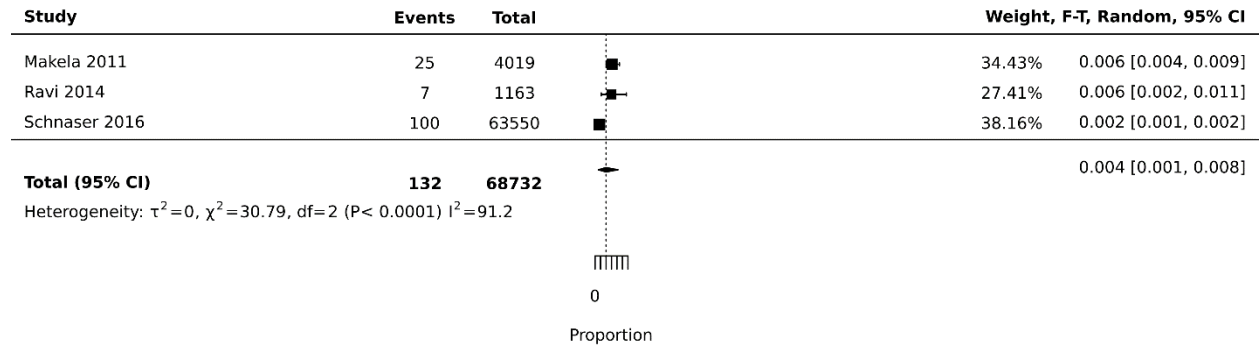


Figure S7c: Post-operative periprosthetic fracture rate in RA patients receiving THA from 2010-2019



Infection

Figure S8a: Post-operative infection rate for RA patients receiving THA from 1980-2019

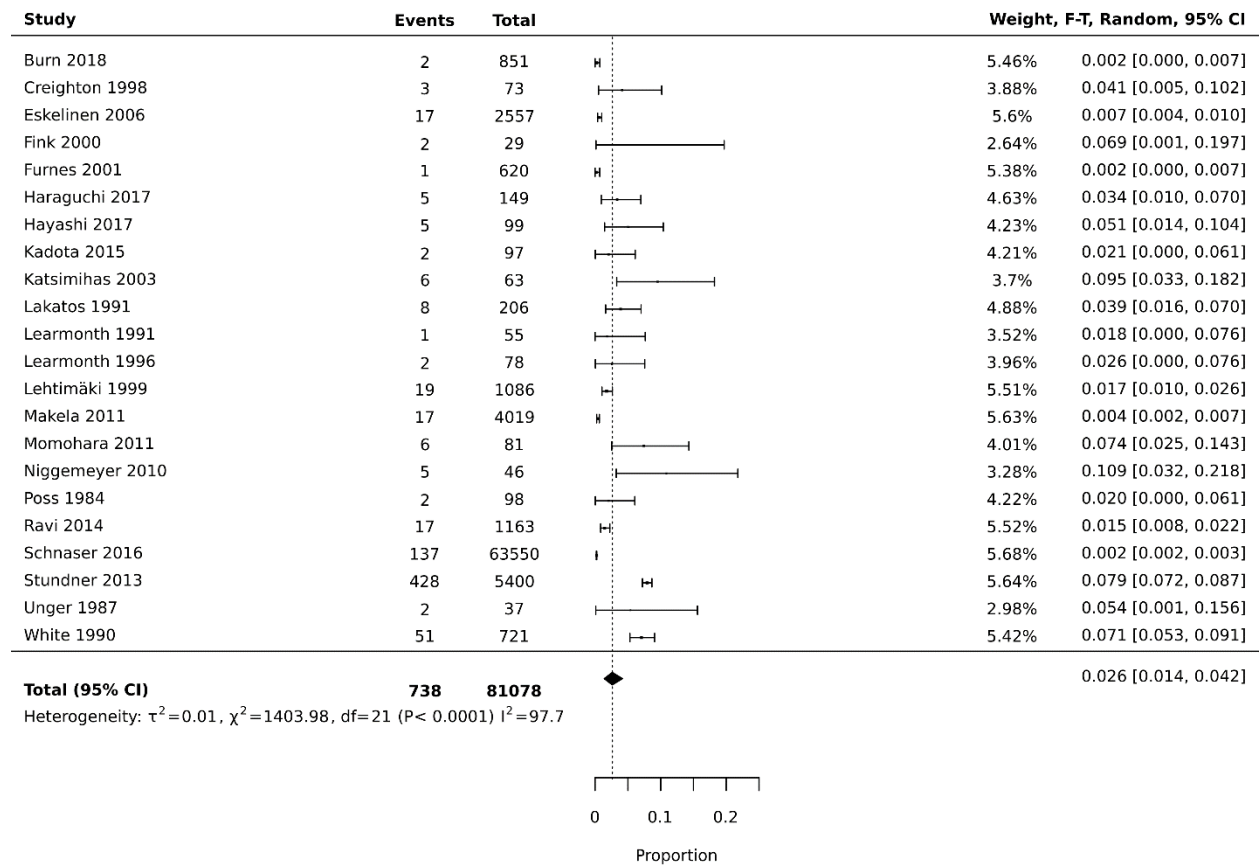
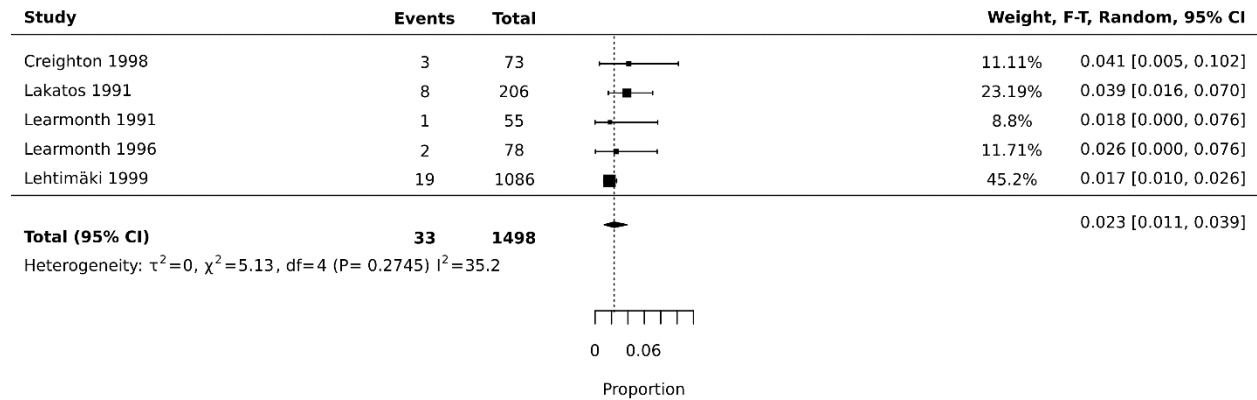


Figure S8b: Post-operative infection rate for RA patients receiving THA from 1990-1999



Removal of one outlier study (6)

Figure S8c: Post-operative infection rate for RA patients receiving THA from 2000-2009

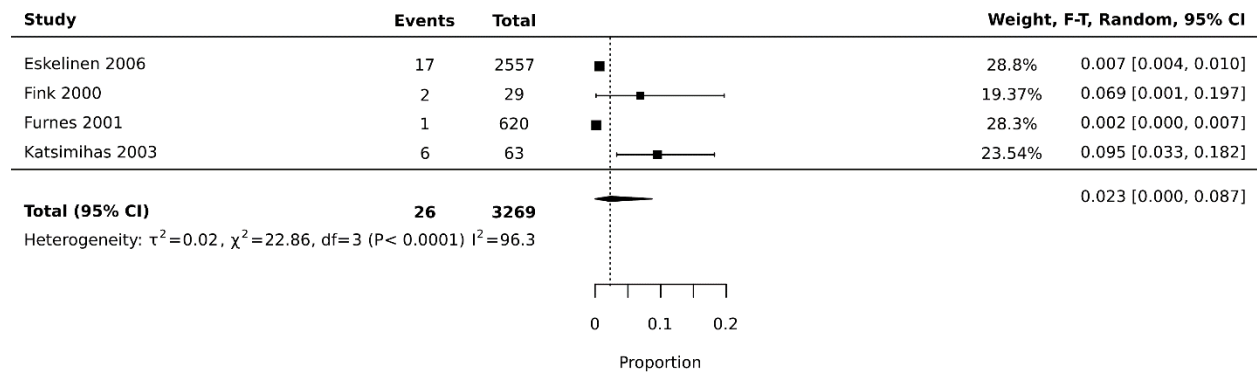
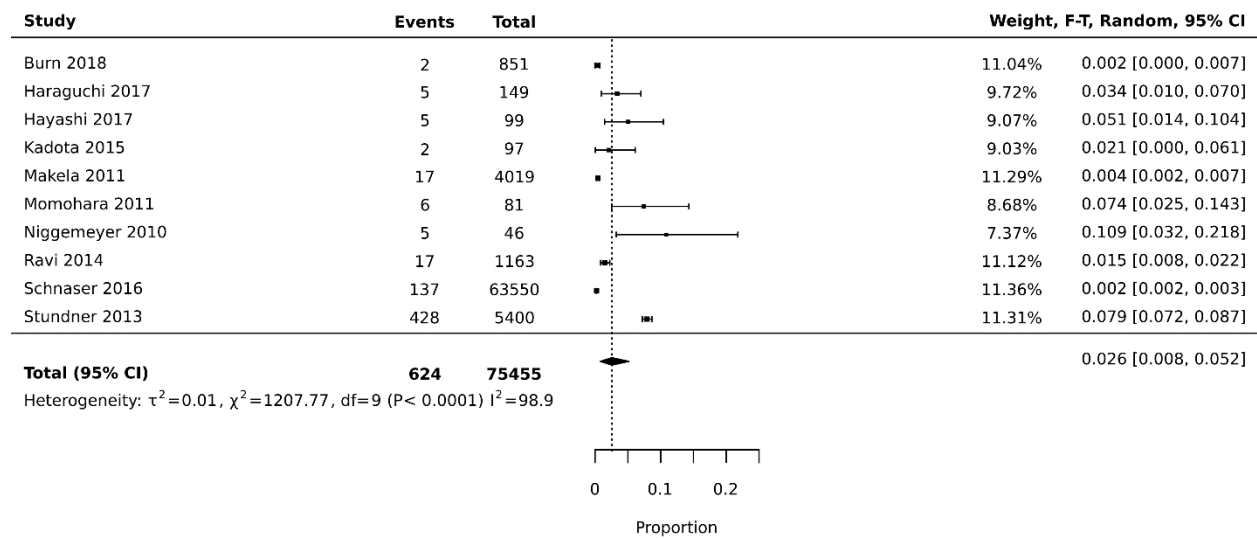


Figure S8d: Post-operative infection rate for RA patients receiving THA from 2010-2019



Aseptic Loosening

Figure S9a: Post-operative aseptic loosening rate for RA patients receiving THA from 1980-2019

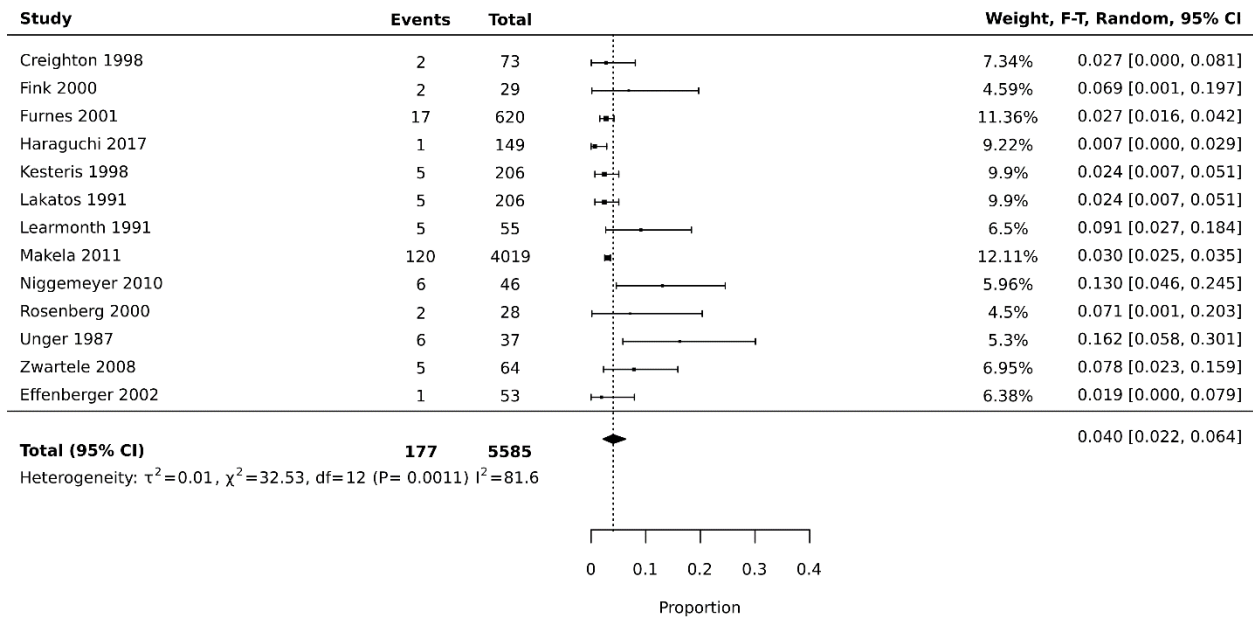


Figure S9b: Post-operative aseptic loosening rate for RA patients receiving THA from 1990-1999

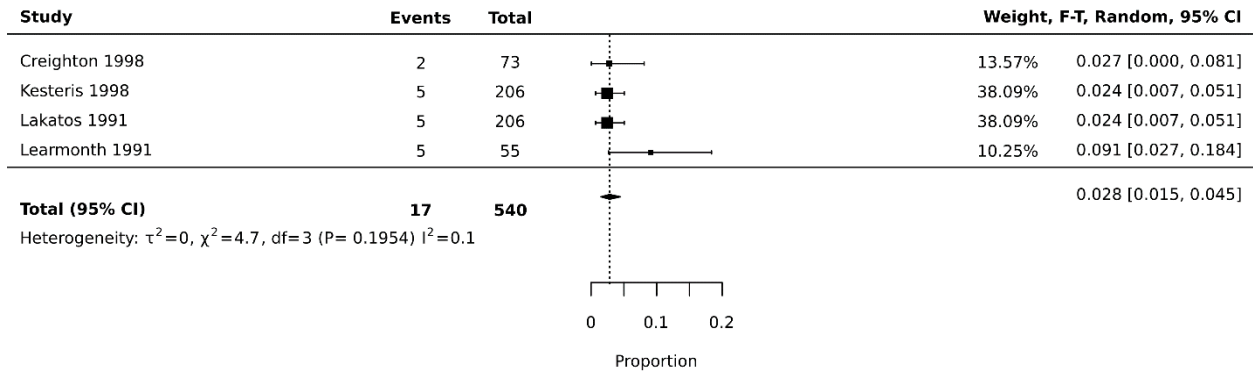


Figure S9c: Post-operative aseptic loosening rate for RA patients receiving THA from 2000-2009

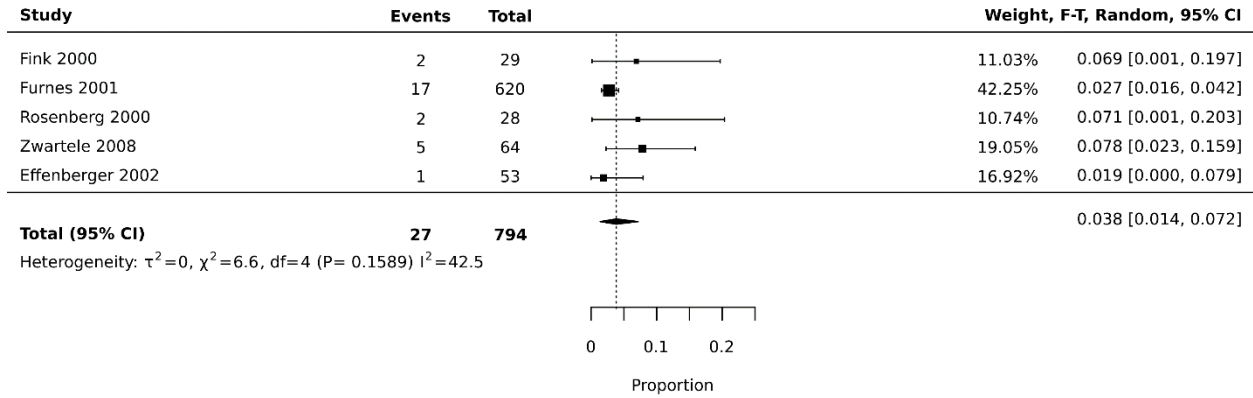
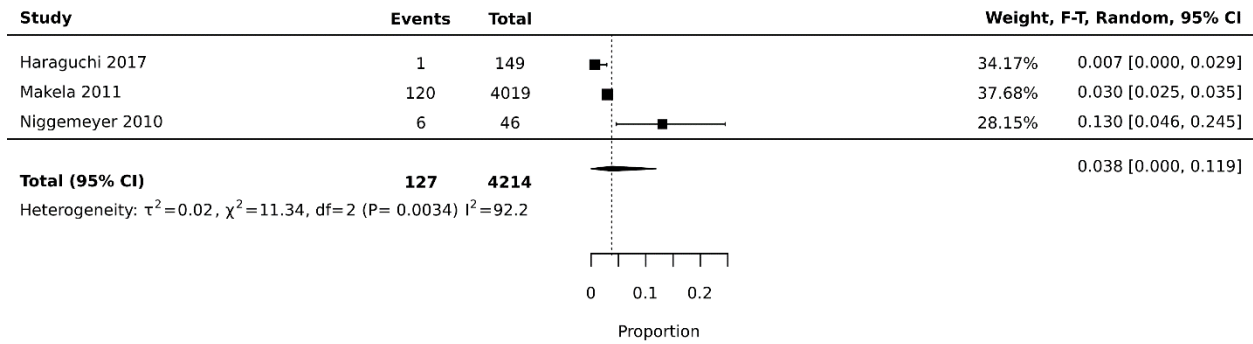


Figure S9d: Post-operative aseptic loosening rate for RA patients receiving THA from 2010-2019



Dislocation

Figure S10a: Post-operative dislocation rate in RA patient receiving THA from 1990-2019

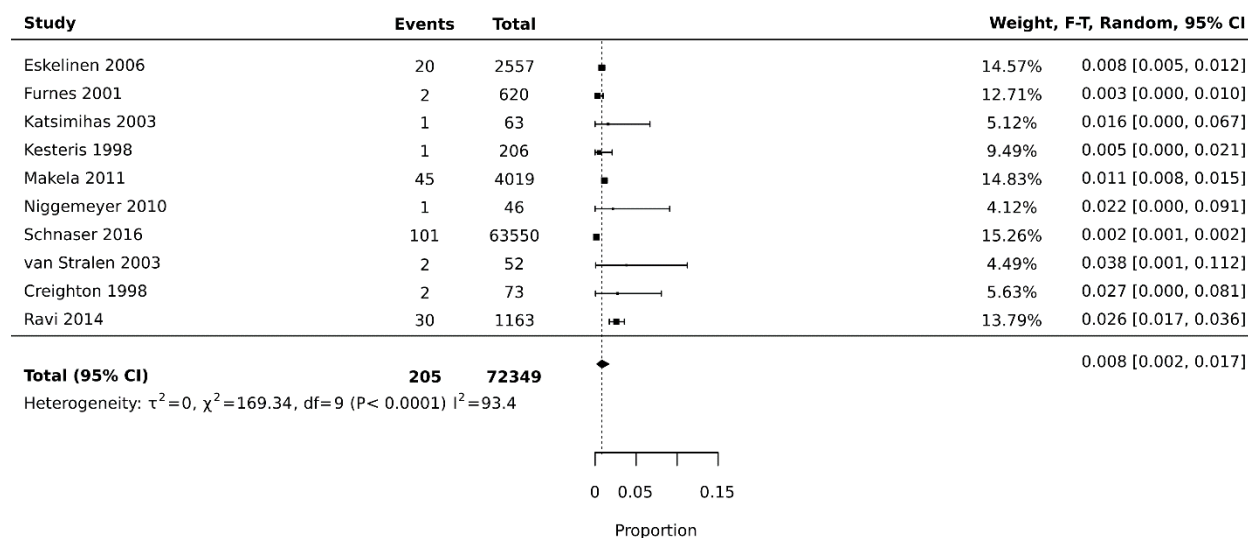


Figure S10b: Post-operative dislocation rate in RA patient receiving THA from 1990-1999

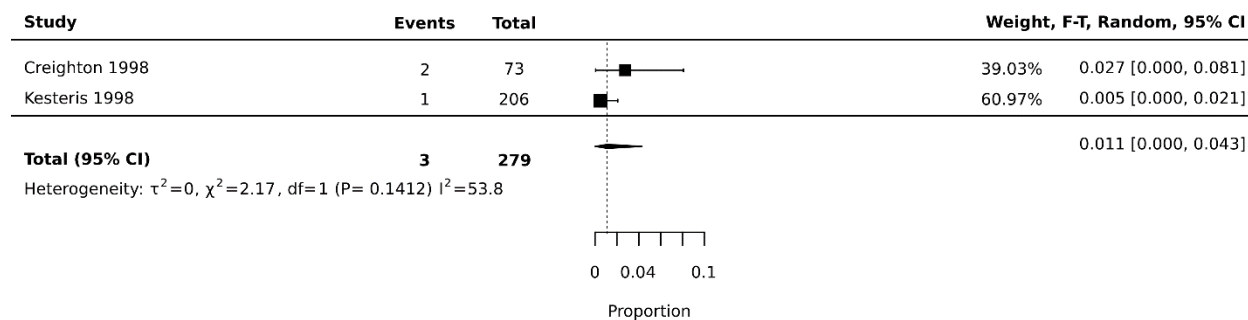


Figure S10c: Post-operative dislocation rate in RA patient receiving THA from 2000-2009

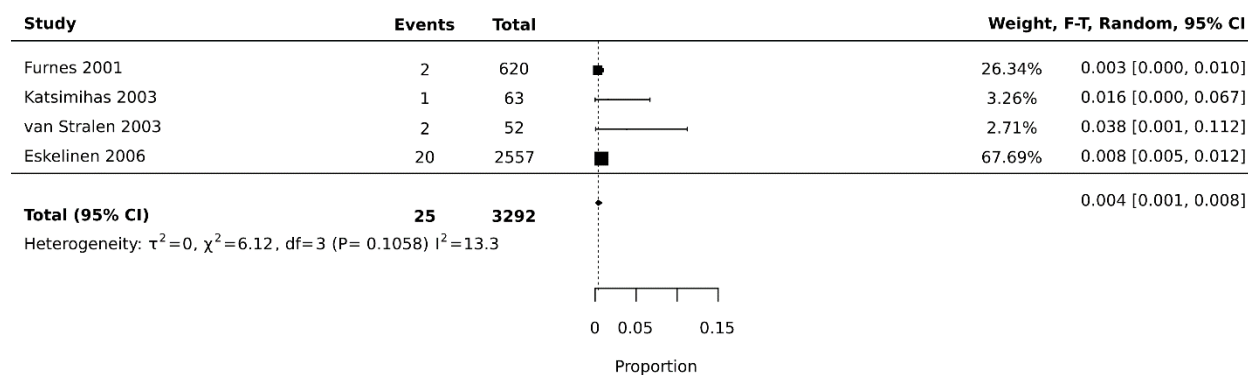
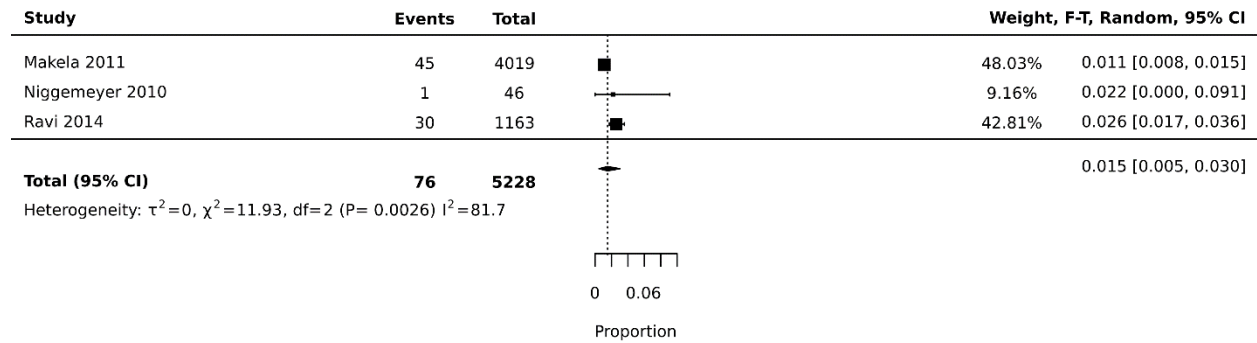


Figure S10d: Post-operative dislocation rate in RA patient receiving THA from 2010-2019



One outlier study was removed (7)

VTE

Figure S11a: Rate of post-operative VTE in RA patients receiving THA 1980-2019

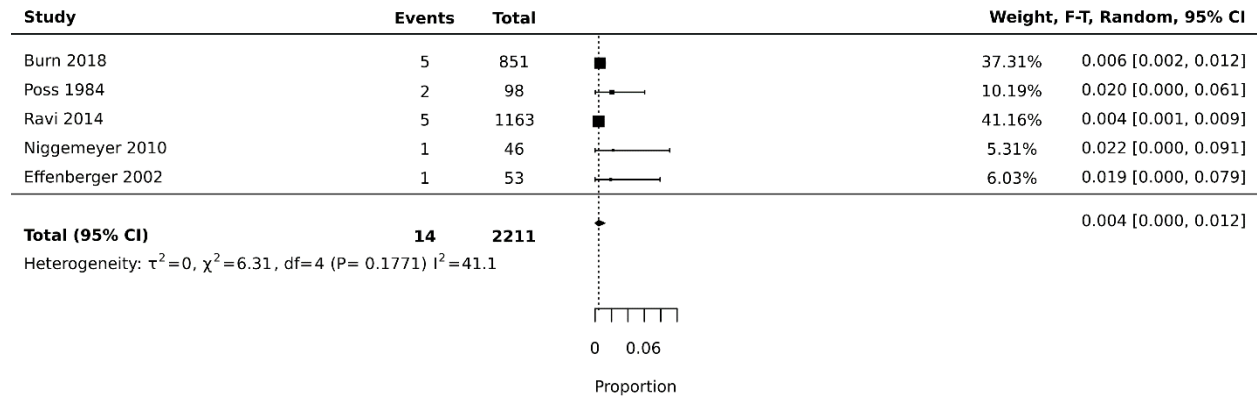
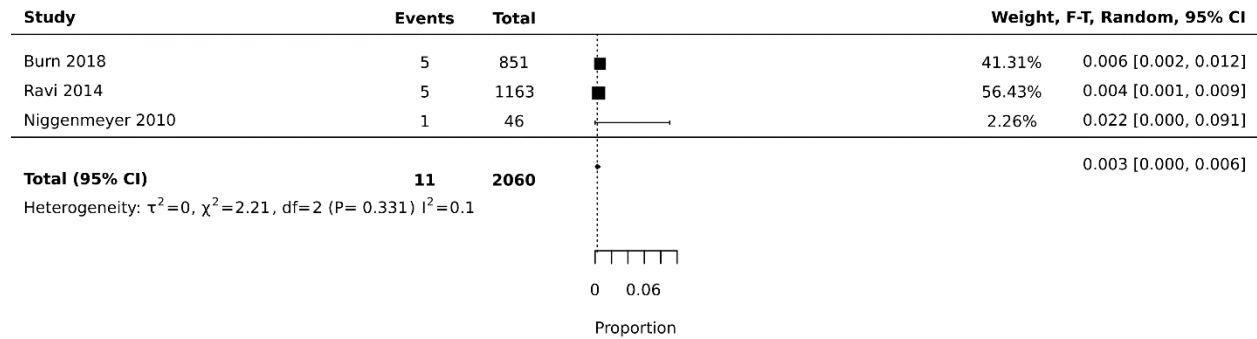


Figure S11b: Rate of post-operative VTE in RA patients receiving THA 2010-2019



Mortality

Figure S12a: Post-operative 90-day mortality rate for RA patients receiving THA between 1980 and 2019

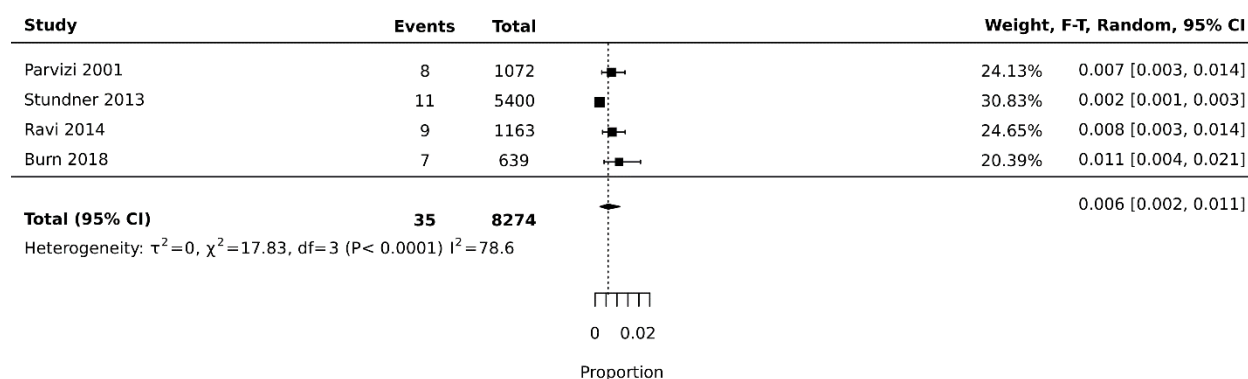
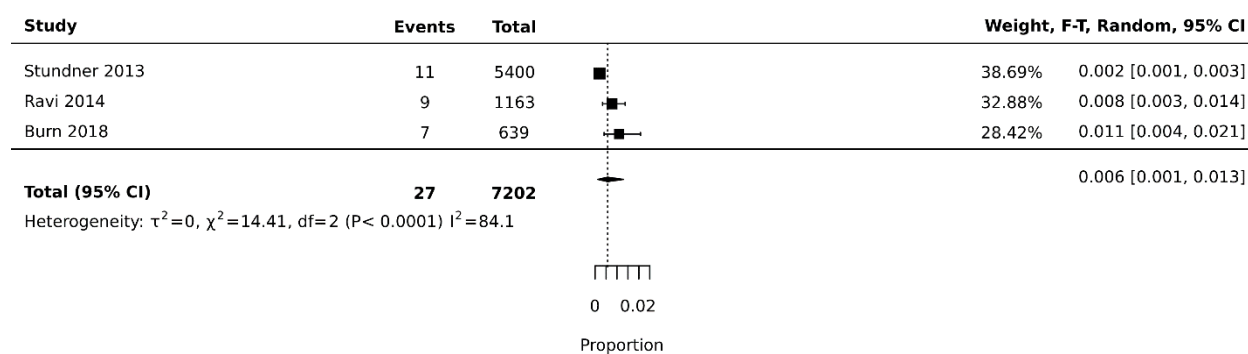


Figure S12b: Mortality rate for studies from 2010-2019 with mean follow up time less than 90 days



1. Eberhardt K, Fex E, Johnsson K, Geborek P. Hip involvement in early rheumatoid arthritis. *Annals of the rheumatic diseases*. 1995;54(1):45-8.
2. Eskelinen A, Paavolainen P, Helenius I, Pulkkinen P, Remes V. Total hip arthroplasty for rheumatoid arthritis in younger patients: 2,557 replacements in the Finnish Arthroplasty Register followed for 0-24 years. *Acta orthopaedica*. 2006;77(6):853-65.
3. Haraguchi A, Nakashima Y, Miyahara H, Esaki Y, Okazaki K, Fukushi J-I, et al. Minimum 10-year results of cementless total hip arthroplasty in patients with rheumatoid arthritis. *Modern rheumatology*. 2017;27(4):598-604.
4. Niggemeyer O, Steinhagen J, Ruether W. Long-term results of the thrust plate prosthesis in patients with rheumatoid arthritis: a minimum 10-year follow-up. *Journal of orthopaedic science : official journal of the Japanese Orthopaedic Association*. 2010;15(6):772-80.
5. Unger AS, Ranawat CS, Johanson NA. Total hip arthroplasty in rheumatoid arthritis: A long-term follow-up study. *Journal of Arthroplasty*. 1987;2(3):191-7.
6. White RH, McCurdy SA, Marder RA. Early morbidity after total hip replacement: rheumatoid arthritis versus osteoarthritis. *Journal of general internal medicine*. 1990;5(4):304-9.
7. Schnaser EA, Browne JA, Padgett DE, Figgie MP, D'Apuzzo MR. Perioperative Complications in Patients With Inflammatory Arthropathy Undergoing Total Hip Arthroplasty. *The Journal of arthroplasty*. 2016;31(10):2286-90.