



Documentation of literature searching provided in support of the systematic review.

**Title: Systematic review of patients with proven or probable periprosthetic joint infection who are enrolled in RCTs for diagnosis or treatment**

Searching was done with mutual peer review from Cheryl Hamill and Bethwyn Allen.

| Database and platform                               | Database coverage   | Date of final search |
|---|---------------------|----------------------|
| Medline All (Ovid)                                  | 1946 to 25 May 2023 | 29 May 2023          |
| Embase (Ovid)                                       | 1974 to 2023 25 May | 29 May 2023          |
| Web Of Science                                      | 1997-present        | 29 May 2023          |
| Cochrane Library                                    |                     | 7 June 2023          |
| PubMed  |                     | 29 May 2023          |
| <b>STUDY Registries</b>                             |                     |                      |
| ClinicalTrials.gov                                  |                     | 31 May 2023          |
| EU Clinical Trials Register                         |                     | 31 May 2023          |
| WHO International Clinical Trials Registry Platform |                     | 31 May 2023          |
| Australian and New Zealand Clinical Trials Registry |                     | 31 May 2023          |

References from all sources searched were exported to an EndNote Library.

NOTE- Embase and OVID are limited to the English language

**Ovid Medline - Total number of references found - 936**

Filter used for RCTs: - Cochrane Highly Sensitive Search Strategy for identifying randomized trials in MEDLINE: sensitivity- and precision-maximizing version Ovid format (2008 revision) [4.S1 Technical Supplement to Chapter 4: Searching for and selecting studies | Cochrane Training](#) (Version 6.2, 2021);

- Phase 3 amendment based on Cooper, C., Varley-Campbell, J., & Carter, P. (2019). Established search filters may miss studies when identifying randomized controlled trials. *J Clin Epidemiol*, 112, 12-19. doi:10.1016/j.jclinepi.2019.04.002 [39]

Database(s): **Ovid MEDLINE(R) ALL** 1946 to 25 May 2023- searched 29 May 2023

Search Strategy:

| #  | Searches  | Results |
|----|---|---------|
| 1  | surgical wound infection/ or staphylococcal infections/   | 101757  |
| 2  | exp arthroplasty, replacement/ or exp joint prosthesis/   | 95675   |
| 3  | 1 and 2   | 2819    |
| 4  | Prosthesis-Related Infections/co, di, dg, mi, su, th [Complications, Diagnosis, Diagnostic Imaging, Microbiology, Surgery, Therapy]   | 10319   |
| 5  | bone diseases, infectious/ and (anti-bacterial agents/ or reoperation/ or surgical wound infection/)  | 199     |
| 6  | ((joint* or implant* or metalware or metal-ware or prosth* or periprosthe* or peri-prosthe* or TKA or THA or TJA or TAA) adj5 infection*) or PJI or PJIs or DAIR or (prosthetic adj joint adj infection*).ti,ab,kw. | 23752   |
| 7  | 3 or 4 or 5 or 6  | 30827   |
| 8  | (randomized controlled trial or controlled clinical trial).pt. or randomized.ab. or randomised.ab. or placebo.ab. or clinical trials as topic.sh. or randomly.ab. or trial.ab.                                      | 1754932 |
| 9  | phase 3 clinical trial/ or ("phase 3" or phase3 or "phase III" or P3 or "PIII").ti,ab.  | 82518   |
| 10 | 8 or 9  | 1795851 |
| 11 | (hip or hips or knee or knees or shoulder* or elbow* or bone* or joint* or orthopaedic or orthopedic or PJI or PJIs or DAIR or (prosthetic adj joint adj infection*).ti,ab,kw.                                      | 1493597 |
| 12 | 7 and 10 and 11   | 1072    |
| 13 | exp animals/ not humans.sh.   | 5124303 |
| 14 | 12 not 13   | 1021    |
| 15 | limit 14 to english language  | 936     |

**PubMed search to identify unindexed citations (ie, not in Medline) - Total number of references found - 181**

Searched - 29 May 2023

((periprosthet\* OR prosthet\* OR joint implant OR arthroplasty OR metalware) AND (orthopedic OR orthopaedic OR hip OR knee OR shoulder OR elbow) AND (infection OR infected OR infections))

AND (rct\* OR random\* OR controlled trial) AND (inprocess[sb] OR publisher[sb] OR pubmednotmedline[sb]) (181)

### Ovid Embase - Total number of references found - 1245

Phase 3 amendment based on Cooper, C., Varley-Campbell, J., & Carter, P. (2019). *Established search filters may miss studies when identifying randomized controlled trials*. *J Clin Epidemiol*, 112, 12-19. doi:10.1016/j.jclinepi.2019.04.002 [39]

**Embase** 1974 to 2023 May 25 – Searched 29 May 2023.

Search Strategy:

| #  | Searches   | Results |
|----|--|---------|
| 1  | periprosthetic joint infection/  | 5406    |
| 2  | *prosthesis infection/ or *staphylococcus infection/ or *bone infection/ or *surgical infection/ or orthopedic surgery/ec  | 36117   |
| 3  | exp arthroplasty/ or joint surgery/ or orthopedic surgery/ or exp joint prosthesis/  | 192411  |
| 4  | 2 and 3  | 3180    |
| 5  | ((joint* or implant* or metalware or metal-ware or prosthesis* or periprosthetic* or peri-prosthesis* or TKA or THA or TJA or TAA) adj5 infection*) or PJI or PJIs or DAIR or (prosthetic adj joint adj infection*).ti,ab,kw.  | 30414   |
| 6  | 1 or 4 or 5  | 32991   |
| 7  | crossover-procedure/ or double-blind procedure/ or randomized controlled trial/ or single-blind procedure/ or (random* or factorial* or crossover* or cross over* or placebo* or (double* adj blind*) or (single* adj blind*) or assign* or allocate* or volunteer*).tw. | 2908178 |
| 8  | phase 3 clinical trial/ or ("phase 3" or phase3 or "phase III" or P3 or "PIII").ti,ab.   | 171877  |
| 9  | 7 or 8   | 2989946 |
| 10 | (hip or hips or knee or knees or shoulder* or elbow* or bone* or joint* or orthopaedic or orthopedic or PJI or PJIs or DAIR or (prosthetic adj joint adj infection*).ti,ab,kw.   | 1951367 |
| 11 | 6 and 9 and 10   | 1328    |
| 12 | limit 11 to english language   | 1245    |

### Web of Science - Total number of references found – 571

Searched 29 May 2023

Database coverage (years) - 1997–present [Science Citation Index Expanded (Sci-Expanded), Social Science Citation Index (SSCI), Arts & Humanities Citation Index (AHCI). 2018–present [Emerging Sources Citation Index (ESCI)]:

| # | Searches   | Results   |
|---|--|-----------|
| 1 | TOPIC: (periprosthe* or peri-prosthe* or arthroplast* or implant or metalware or hip or knee or shoulder or elbow)   | 704,570   |
| 2 | TOPIC: ((infect* NEAR/8 (joint* or prosth* or implant or metalware)) or PJI)   | 24,481    |
| 3 | TOPIC: (rct or randomized or P3 or "phase III")  | 1,032,455 |
| 4 | #3 AND #2 AND #1   | 759       |
| 5 | #3 AND #2 AND #1 Refined by: [excluding] WEB OF SCIENCE CATEGORIES: ( RADIOLOGY NUCLEAR MEDICINE MEDICAL IMAGING OR DENTISTRY ORAL SURGERY MEDICINE OR UROLOGY NEPHROLOGY OR ENDOCRINOLOGY METABOLISM OR PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH OR OBSTETRICS GYNECOLOGY OR ZOOLOGY OR OTORHINOLARYNGOLOGY OR ANDROLOGY OR CLINICAL NEUROLOGY OR VETERINARY SCIENCES OR OPHTHALMOLOGY OR CARDIAC CARDIOVASCULAR SYSTEMS OR DERMATOLOGY OR RESPIRATORY SYSTEM OR GASTROENTEROLOGY HEPATOLOGY OR NEUROSCIENCES OR ONCOLOGY OR PARASITOLOGY ) | 571       |

[Cochrane Library \(including the Trials Register\)](#) - Total number of references found - 1235

Searched 7 June 2023

| # | Searches  | Results   |
|---|---|-----------|
| 1 | MeSH descriptor: [Prosthesis-Related Infections] explode all trees  | 255       |
| 2 | (arthroplasty OR orthopedic implant OR prosthetic joint or metalware):ti,ab,kw (Word variations have been searched) | 15,163    |
| 3 | (infection OR infected OR infections):ti,ab,kw (Word variations have been searched)                                 | 144,732   |
| 4 | #2 AND #3   | 1481      |
| 5 | #1 OR #4  | 1642      |
| 6 | (RCT* OR random*):ti,ab,kw or randomized controlled trial   | 1,319,464 |
| 7 | #5 AND #6   | 1344      |
| 8 | hip or knee or knees or shoulder or elbow or joint or joints or pji or orthopaedic                                  | 119,767   |
| 9 | #7 AND #8   | 1246      |

20 Cochrane Reviews  
917 Journal articles  
214 ClinicalTrials.gov  
94 ICTYRP

[Australian and New Zealand Clinical Trials Registry](#)

Date of search - 31 May 2023

Total number of references found – 36

*search terms* - prosthesis or prosthetic or prostheses or arthroplasty or hip or knee

*condition category* - infection

[WHO International Clinical Trials Registry Platform](#)

Date of search – 31 May 2023

Total number of references found - 39

(Periprosthetic OR peri-prosthetic OR PJI) “in title”

AND Infection “in condition”

[ClinicalTrials.gov](#)

Date of search – 31 May 2023

Total number of references found – 107 (Phase 3 and Phase 4, Interventional studies only)

Study List: - ((Periprosthetic OR peri-prosthetic OR joint OR arthroplasty OR PJI) AND infection)  
NOT (ankylosing OR hepatitis)

[EU Clinical Trials Register](#)

Date of search – 31 May 2023

Total number of references found – 75 (Phase 3 and Phase 4 only)

((infection AND (prosthesis OR prosthetic OR prostheses OR arthroplasty OR hip OR knee)) OR  
PJI) NOT HIV

**Removal of duplicate records in EndNote**

**Clinical trials** (Cochrane, WHO (ICTRP), ANZCTR, ClinicalTrials.gov, EUCTR)

The clinical trials were deduplicated manually by the Librarian (BA); some trials may be the same ones registered in different Registries, but these were left in the EndNote file. Of the 561 trials, 33 were removed as duplicates.

**Journal articles** (Medline, Embase, Web of Science, Pubmed, Cochrane)

EndNote deduplication protocols removed a total of 1331 duplicate records from the EndNote library containing the raw data.

### **Key to symbols and search terms**

\* = wildcard in keyword, focus on indexed term

/ = indexed term term

exp = explodes the term entered and retrieves records that contain the term and any of its narrower, more specific terms.



## PRISMA 2009 Flow Diagram

