

Embase database searches for CIDG reviews

Prepared by: Vittoria Lutje, CIDG Information Specialist

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1. Introduction

Up to March 2018, the Cochrane Infectious Diseases Group (CIDG) performed Embase searches for both intervention and diagnostic test accuracy (DTA) Cochrane Reviews. The CIDG Information Specialists could perform Embase searches but only through indirect access due to issues of prohibitive licence cost and lack of licence at the host institution of the CIDG editorial base (LSTM).

According to Cochrane MECIR standards (C24) “The minimum databases to be covered are the CRG’s Specialized Register (if it exists and was designed to support reviews in this way), CENTRAL, MEDLINE and Embase (if Embase is available to either the CRG or the review author)”.

Vittoria Lutje, CIDG Information Specialist, performed an evaluation of Embase database searches for CIDG reviews, and the following is the report she presented at the 12 March 2018 CIDG editorial meeting. This report was circulated to the CIDG Editors on 15 March 2018, and recommendations approved on 17 March 2018.

In brief, the recommendations following CIDG editorial meeting discussions are:

- (1) for intervention reviews where only RCTs are included, it is not necessary to search Embase and Embase searches will not be performed;
- (2) for reviews on a non-intervention question and/or reviews where study designs other than only RCTs are included, an Embase search is needed and will be performed.

2. Evaluation of EMBASE database searches for CIDG reviews

2.1. Methodological Expectations of Cochrane Intervention Reviews (MECIR) C24

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2.2. Embase RCTs and CCTs included in CENTRAL:

Embase is being searched regularly for reports of trials by Cochrane. Current screening process (from January 2017): Records with the publication type RCT are loaded into CENTRAL in the issue following the month they appeared in Embase. Records for which CENTRAL eligibility is unclear go through a two-stage screening process using Cochrane's RCT machine classifier and Cochrane's new platform, Cochrane Crowd, which have been built as part of Project Transform's Evidence Pipeline. These records are included in CENTRAL. For details see [Section S.3.2.2](#), Handbook (update 2018).

2.3. General characteristics of Embase vs MEDLINE (<http://www.clinfo.eu/databases-literature-searches/>)

MEDLINE	Embase
Over 23 million references to journal articles	Over 31 million indexed records
More than 5600 journals	More than 8500 indexed peer-reviewed journals
1946 to present with some older material	Biomedical literature from 1947 to present
Indexed with NLM Medical Subject Headings (MeSH)	Elsevier Life Science thesaurus Emtree

The indexing of articles differs between the both databases, thus, sometimes leading to different results of a given search strategy. EMBASE focuses more on drugs and chemicals whereas MEDLINE offers a lot of publications in the fields of dentistry, nursing and veterinary medicine.

2.4. Poor precision of Embase searches (large number of Emtree index terms used)

- Embase uses a large number of Emtree index terms for each records (an average of 3 to 4 major terms and up to 50 minor terms. In comparison, MEDLINE records may contain an average of 10 to 20 index terms)
- The volume of index terms can lead to poor precision in Embase searches (large proportions of irrelevant records retrieved).
- This experience has led to informal, pragmatic recommendations that search results can be reduced by carrying out searches of subject headings combined with subheadings (qualifiers) and/or searches with subject headings limited to those with a major focus (major headings).

Glanville J, Kaunelis D, Mensinkai S, Picheca L. Pruning Emtree: does focusing Embase subject headings impact search strategy precision and sensitivity?[Internet]. Ottawa: CADTH, 2015 Apr.

<https://www.cadth.ca/pruning-entree-embase>

2.5. Other published evaluations of Embase searches

Bramer et al 2017: Optimal database combinations for literature searches in systematic reviews: a prospective exploratory study. Analyzes 58 SRs, not only Cochrane, of different topics and including different study designs (9% limited to RCTs only,). The combination of Embase, MEDLINE, Web of Science Core Collection, and Google Scholar performed best, achieving an overall recall of 98.3 and 100% recall in 72% of systematic reviews. Of the five reviews that included only RCTs, four reached 100% recall if MEDLINE, Web of Science, and Google Scholar combined were complemented with Cochrane CENTRAL.

Hartling et al 2016: The contribution of databases to the results of systematic reviews: a cross-sectional study. Analyzes SRs with at least one meta-analysis from three Cochrane Review Groups: Acute Respiratory Infections (ARI), Infectious Diseases (ID), Developmental Psychosocial and Learning Problems (DPLP). For CIDG reviews, yield was highest for Medline (92 %), Embase (81 %), and BIOSIS (67 %). Restricting meta-analyses to trials that appeared in Medline + BIOSIS yielded fewest changes with 1 meta-analysis changing in statistical significance.

Several studies comparing database performance for SR in specific topics (anesthesiology, musculoskeletal disorders, acute kidney injury..) = variable efficiency depending on topic, need to search additional databases.

2.6. Analysis of included studies in recently published new CIDG reviews

Review title	Published in Cochrane library/search date	Study types included	Number of includes studies/source
Mosquito repellents for malaria prevention	February 2018/June 2017	RCTs, cluster RCTs	10 included studies/8 in PubMed, 2 from CENTRAL (conference abstracts)
Interventions to increase tuberculosis case detection at primary healthcare or community-level services	November 2017/December 2016	RCTs or parallel groups trials	17 included studies/all in PubMed
Rapid diagnostic tests for typhoid and paratyphoid (enteric) fever	May 2017/March 2016	Diagnostic	37 included studies/34 in PubMed, 3 in Embase

Vitamin D supplementation for preventing infections in children under five years of age	November 2016/June 2016	RCTs	4 included studies/all in PubMed
Six-month therapy for abdominal tuberculosis	November 2016/September 2016	RCTs	3 included studies/all in PubMed
Fixed-dose combinations of drugs versus single-drug formulations for treating pulmonary tuberculosis	May 2016/November 2015	RCTs	13 included studies in 19 articles/16 in PubMed, 3 from CIDG register (CENTRAL)
Lateral flow urine lipoarabinomannan assay for detecting active tuberculosis in HIV-positive adults	May 2016/February 2015	Diagnostics	12 included studies/9 in PubMed, 3 in Embase (conference abstracts)
Ivermectin versus albendazole or thiabendazole for Strongyloides stercoralis infection	January 2016/August 2015	RCTs	7 trials/6 in PubMed, 1 from CIDG register
Interventions to improve water quality for preventing diarrhoea	October 2015/November 2014	RCTs, quasi-RCTs, and CBAs	55 studies in 68 articles/ 63 in PubMed, 4 dissertations, 1 book
Incentives and enablers to improve adherence in tuberculosis	September 2015/June 2015	RCTs	12 trials/all in PubMed
Vector and reservoir control for preventing leishmaniasis	August 2015/January 2015	RCTs	14 studies/all in PubMed
Tafenoquine for preventing relapse in people with Plasmodium vivax malaria	April 2015/April 2015	RCTs	3 studies/all in PubMed

2.7. [Systematic reviews updates: searching MEDLINE may be sufficient](#)

The efficacy of a focused Boolean search paired with a search using the PubMed “similar articles” feature is effective in MEDLINE for retrieving studies for systematic review updates. The approach is robust across clinical domains.

[Sampson et al 2016: Complementary approaches to searching MEDLINE may be sufficient for updating systematic reviews.](#)

3. Conclusions relevant to searches for CIDG systematic reviews

- For nine reviews including only RCTs, all studies could be found in PubMed, CENTRAL, and the CIDG Specialized Register.
- For two DTA reviews and one including non-RCTs, included studies were also found in Embase and Dissertations (these were not found in PubMed).
- Pubmed, Cochrane CENTRAL, and CIDG register (+ trials registries and smaller specialized databases such as CINAHL, according to review topic) may be sufficient to identify RCTs for reviews of interventions.
- Embase searches may be needed for DTA reviews and reviews that include non-RCTs.