Reviewer’s report

Title: A protocol for a systematic review of economic evaluation studies conducted on neonatal systemic infections in South Asia

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Reviewer: Naila Dracup

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The aim of this systematic review is to review the economic evidence related to the management of neonatal systemic infections in the South Asian region. The protocol highlights that this is an area of research that is likely to be of interest to researchers in this field. The authors state that this will be the first study that they are aware of that has been published in this area. A quick search on Medline for these concepts yielded very few results.

Review of search methods and strategy

The list of databases and sources of grey literature that the authors report will be searched is comprehensive and appropriate (lines 118-129). However, the list does not include any regional databases to ensure that local publications are not missed which may introduce language bias, particularly given that this review is focussed on the South Asian region. Local databases that would be of relevance include: IndMED (indmed.nic.in/) and WHO initiated databases for the South Asia, e.g. Index Medicus for the South-East Asian Region. A list of regional databases that could be of use is provided in the Cochrane Handbook http://handbook-5-1.cochrane.org/ (see Section 6.2.1 Box 6.2.a Examples of regional electronic bibliographic databases).

The authors state that they will only include information published in English language (lines 33 and 138) and have utilised the database language limit in the preliminary search strategy. Given that the focus of the review is about the South Asian region, it would be worth reporting why the decision to restrict to English language was taken as excluding Asian language publications could potentially introduce language bias.

It is useful that the authors reported that PubMed will be searched in addition to Medline, in order to retrieve papers that have yet to be indexed on Medline. However, the list of databases does not include Embase, which could result in relevant studies being missed as Embase contains over 2,900 unique journals. Mathes et al (2014) recommends searching at least Medline and Embase for systematic reviews of economic evaluations.

The search methods section states that the search will be conducted to 31st December 2016 (line 42) but it is not stated why the search will be limited to this date. I would recommend not applying a date restriction in order maximise the currency of the results, i.e. published in 2017.

The authors have included an appropriate set of grey literature sources and will employ the complimentary search methods of backwards citation searching. The search strategy employs
appropriate database specific indexing and free text terms and the search has been conceptually constructed for the appropriate themes of the review using Boolean logic.

The authors state (line 38) that the searches will be restricted to Humans using database specific limits, which is available on many databases. I would recommend using the following method (from the Cochrane search filters outlined in the Cochrane manual) to remove animal studies in order to not remove studies that are about animals and humans:

1 [result of topic search]
2 (exp Animals/ NOT exp Humans/)
3 1 NOT 2

The authors state that they will limit the searches to specific countries using database filters (line 138), where available. I would recommend that the authors do not rely on these filters and should also utilise free text and indexing terms to search for references relating to these countries and region in conjunction with the database limits in order to capture information that may have been missed by indexers. A free text search line in Medline for the countries of interest could be:

(Afghanistan* or Bangladesh* or Bhutan* or Indian or Maldives or Nepal* or Pakistan* or "Sri Lanka").ti,ab,kw,cp (Country of Publication),in (institution)

Indexing terms are also available for these countries.

Additional free text terms for the neonates (population #1) search domain include: 'Baby' or 'babies' or 'toddler*' or 'pediatric*' or 'paediatric*' or 'infan*' (to capture infant, infants or infancy).

Some of the MeSH terms for the population domain produced 0 results, e.g. 'neonate' as it is covered under the included term: 'Infant newborn' which indicates that this term could be replaced. I would recommend using Medline to develop the primary search strategy that will be translated to the other databases because of its increased functionality and to test each indexing and free text term individually.

Within the condition search domain of the search strategy (#2) I would recommend truncating the text word 'pneumonia' after the n ('pneumon*') in order to retrieve references referring to: 'pneumonectomy', 'pneumonophthis', 'pneumonectomies', 'pneumonophthisis' or 'pneumonorrhagia', if relevant. 'Meningitis' could also be truncated to 'mening*' to capture references to meningoencephalitis or meningococcus, if relevant.

An adjacency operator when searching for the term 'infection', in order to retrieve results that are related to systemic infections as searching for this term alone could yield irrelevant results. For example, searching for 'infection' within 3 words of: 'bone marrow', 'systemic', 'urinary tract' or 'respiratory' could increase the relevance of the results. Potential additional terms are 'UTI', 'bacteraemia' or 'cystitis'. I would also recommend using an adjacency operator when searching
for 'arthritis' by searching for the term within proximity of relevant terms, such as: bacteri* or infect* or pyogen*, in order to increase the relevancy of the results. A more focussed indexing term: arthritis, infectious/ might also reduce the amount of irrelevant results.

It is not stated if a published search filter was used for the cost domain of the search strategy. The ISSG Search Filters Resource hosts a list of published economic evaluations search filters that could be useful for developing and translating the search strategies.

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