One-stop-shop

Epistemoneikos already contains more than 90% of the systematic reviews that would be identified with a formal overview of reviews.

In over one-half of the overviews analyzed, it contained 100%

Background

Systematic reviews are widely considered as the best available evidence to inform health decisions. Because of their increasing recognition but also for other reasons, their number is growing fast (see figure 1), and so the effort needed to identify all of the existing reviews relevant for a specific question.

Epistemoneikos Database compiles evidence from different sources and is now the world’s largest systematic review database. However, it is not clear how comprehensive it is in comparison with more exhaustive approaches.

Objectives

To estimate the recall (sensitivity) of Epistemoneikos to identify systematic reviews in comparison with a more exhaustive approach, such as a formal overview of systematic reviews.

Methods

In order to estimate the recall of Epistemoneikos, we used a sample of overviews of systematic reviews indexed in PubMed during the first trimester of 2019, that provided a list of their included systematic reviews. We used all of the reviews included in these overviews as our gold standard.

We classified the reasons for a review not being included in Epistemoneikos Database in the following categories:

1. The review is not indexed in any of the databases regularly screened by Epistemoneikos (See Table 1)
2. The review is indexed, but it was not captured by the search strategy used by Epistemoneikos to retrieve potentially eligible systematic reviews.
3. The review was captured by the search strategy, but it was not classified as a systematic review by the algorithm (machine learning classifier) or the collaborators of Epistemoneikos.

Results

Our search strategy retrieved 2311 records, of which 73 fulfilled our definition of overview. The total number of systematic reviews included in the overviews was 1393 (average 19). Epistemoneikos Database contained 1267 (91%) of these reviews.

The reasons why some reviews were not identified were the following: 52 reviews (3.7%) were not indexed in any of the databases regularly screened by Epistemoneikos. The vast majority corresponded to Chinese articles indexed only in Chinese databases, and secondly to reports by specific organizations that are probably not indexed in any database; 19 reviews (1.4%) were not captured by the strategy used by Epistemoneikos to retrieve potentially eligible systematic reviews; and 55 reviews (3.9%) were not correctly classified by the algorithm (see figure 2).

The recall for each review was not normally distributed; while in 39/73 (53%) of the overviews Epistemoneikos already had the totality of their included systematic reviews, a small proportion concentrated a substantive proportion of the missing reviews (see figure 3).

Conclusions

In most cases, Epistemoneikos included all or most of the systematic reviews that would be identified with a formal overview of reviews.

We were able to quantify the likelihood of missing relevant reviews, so users can balance the pros and cons of searching only in Epistemoneikos versus a more exhaustive approach.

Additionally, we recognized some potential areas, such as Chinese medicine, where complementing with searches in databases not regularly screened by Epistemoneikos seems reasonable. More research in this area might be useful to decide when a more exhaustive approach is worth the effort.