

Methods to update systematic literature searches: full update searching vs. forward citation chasing: A case study from a systematic review of diagnostic test accuracy

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The Project

Management of a patient's diabetes is entirely dependent upon the type of diabetes they are deemed to have. Patients with Type 1 diabetes are insulin deficient, so require multiple daily insulin injections, whereas patients with Type 2 diabetes still have some endogenous insulin production, so insulin treatment is only required when diet and tablets do not establish good glycaemic control. Despite the importance of a correct diagnosis, current classification of diabetes is based on aetiology and it relies on clinical judgement. There are no clinical guidelines on how to determine whether a patient has Type 1 or Type 2 diabetes.

This project has systematically reviewed the literature to derive evidence-based clinical criteria for the classification of the major subtypes of diabetes.

The Poster

This poster explores how the literature searches were updated at the end of the project and prior to publication. It presents a head-to-head comparison of two methods for updating literature searches.

The Comparison

The methods used to update the literature searches were:

1. A standard, full-update search using the Systematic Review's (SR) original search strategy. This was checked and re-run in 12 databases, including MEDLINE and EMBASE (via OVID) and followed guidance from the Cochrane handbook (1); and
2. Using Web of Science (Thomson Reuters), forwards citation searching was conducted on the 10 studies included at full text in the SR.

Both sets of searches were date limited January 2012-April 2014. Both searches were double screened to the SR's inclusion/exclusion criteria.

We were interested in measuring two outcomes for this case-study: 1) the time taken between the two arms (the efficiency), and, 2) the effectiveness of each arm at producing includable studies. Specifically, could any one arm have been used to the exclusion of the other.

SR Update Search

The Results Vs.

Forward Citation

Time taken to search: 3 hours

Results: 2101 studies found

Time taken to screen: 7-7.5 hours

Identified for full text screening: 9



Time taken to search: 30 minutes

Results: 23 studies found

Time taken to screen: 15 minutes

Identified for full text screening: 1

In terms of time, the citation chasing arm was considerably more efficient.

In terms of effectiveness, the full-update search produced a greater number of includable studies for full-text screening. Interestingly, however, there was no cross-over between the arms of this case-study: each arm offered us unique studies, so no one arm could have been independently used.

The Conclusion

- A full-update search is a costly investment at a busy time in a review's time-line. Whilst alternative search methods have been used to update systematic searches in other topic areas, this case-study has found that, had we relied only on one arm in our review, we would have missed a number of potentially includable studies.
- This case-study is consistent with the methodological problems underlying the identification of studies in reviews of test accuracy. The study picked up in the citation chasing arm was missed from the full-update arm because it did not mention the test outcome (C-Peptide) in the title, the abstract or associated keywords. This reflects the heterogeneity of studies identified in this review, and the problems commonly associated with identifying studies in reviews of diagnostic test accuracy, where studies are commonly isolated from other identified studies (there is no citation link) and authors do not commonly reference keywords relating to their studies in the title, abstract and keywords;
- Our conclusion, on the basis of this study, is that full-update searching, including standard supplementary search methods, are advisable when searching for studies reporting diagnostic tests.

References

1. Lefebvre C, Manheimer E, Glanville J. Chapter 6: Searching for studies. In: Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 (updated March 2011). The Cochrane Collaboration, 2011. Available from www.cochrane-handbook.org