

The emerging evidence synthesis tools: Actively Living Network Meta-Analysis

Background

Network meta-analyses (NMA) are increasingly becoming the norm in evidence synthesis for comparative effectiveness research and living systematic reviews have been proposed as a mean to providing timely evidence. The key feature of a living systematic review is the frequent update of the evidence with new studies as these become available. This process of updating could be improved by making specific recommendations about what sort of research is needed to improve the output of a living systematic review by identifying gaps in the evidence.

Objectives

We aim a) to introduce the concept of ‘Actively Living Network Meta-Analysis’(AL-NMA); a living NMA that actively makes specific suggestions about the need of further studies to answer the research question they address b) to present results from a survey among trial methodologist to explore the acceptability of the paradigm shift that AL-NMA entails.

Methods

To present the potential and applicability of AL-NMA a) we compared the strength and speed of evidence accumulation using living NMA compared with living pairwise meta-analysis in 46 NMAs b) we virtually designed a new study to resolve uncertainties about the efficacy of biologics in rheumatoid arthritis using data from an existing NMA as ‘historical data” c) we conducted a survey of trial methodologists about their perceptions for NMA and their opinions about using NMA to design a new clinical trial.

Results

Living network meta-analysis had 20% more chances to obtain strong evidence against the null hypothesis compared with living pairwise meta-analysis. Using data from NMA resulted to reducing more than one third the required sample size compared with using data from pairwise meta-analysis. Three out of four participants of the survey were willing to definitely or possibly consider using NMA to design a new clinical trial.

Conclusions

AL-NMA can increase precision, timeliness and relevance in evidence synthesis; its adoption can help investigators, trialists, funders and regulators to make informed decisions about the best use of existing and the planning of new clinical trials.

Patient or healthcare consumer involvement

Not involved.