

A scoping review of indirect comparison methods and applications using individual patient data

Summary

One in three indirect comparison methods modeling IPD adjusted results from different trials to estimate effects as if they had come from the same, randomized, population. Key methodological and reporting elements (e.g., evaluation of consistency, existence of study protocol) were often missing from an indirect comparison paper.

Implications

By providing a comprehensive overview of the methods for completing indirect comparison analyses using IPD and describing the methodological and reporting characteristics of empirical networks in healthcare, these data can help designing future simulation studies, and also in refining the preferred reporting items for systematic reviews and meta-analyses (PRISMA) using IPD and developing the PRISMA for IPD-NMAs.

Reference: Veroniki AA, Straus SE, Soobiah C, et al. A scoping review of indirect comparison methods and applications using individual patient data. *BMC Med Res Methodol.* 2016;16:47.

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What is the current situation?

- Systematic reviews and meta-analyses using individual patient data (IPD) synthesize original research data for each participant from all studies that examine an intervention relevant to a specific clinical question
- Several indirect comparison methods, including network meta-analyses (NMAs), using IPD have been developed to synthesize evidence from a network of trials.
- Although IPD indirect comparisons are published with increasing frequency in health care literature, there is no guidance on selecting the appropriate methodology and on reporting the methods and results.

What is the objective?

The objective of this study is to conduct a scoping review of the methods used to perform indirect comparisons with IPD alone or IPD with aggregated data (AD) and summarize the characteristics of applications of indirect comparisons with IPD.

How was the review conducted?

- Searches were conducted on MEDLINE, Embase, the Cochrane Library, and CINAHL from inception until the end of October 2014.
- Published and unpublished studies, protocols or abstracts that reported on a method, application, or review of IPD indirect comparison methods involving studies of any design were included.
- After a calibration exercise, two independent reviewers screened citations (level 1), full-text articles (level 2), and abstracted data.
- Quantitative data were summarized with medians and interquartile ranges (IQRs), and categorical data by frequencies and percentages.

What did the review find?

- 37 publications, with 10 companion reports, were included: 23 application articles, 11 methodological articles, 2 reviews of methods, and 1 protocol for an unpublished application article
- 24 (73 %) of the 33 empirical networks were IPD-NMAs and 9 (27 %) were matching adjusted indirect comparisons (MAICs).
- The median number of trials included per network was 10 (IQR 4–19) (IPD-NMA: 15 [IQR 8–20]; MAIC: 2 [IQR 3–5]), and the median number of IPD trials included in a network was 3 (IQR 1–9) (IPD-NMA: 6 [IQR 2–11]; MAIC: 2 [IQR 1–2]).
- Half of the networks (17; 52 %) applied Bayesian hierarchical models, including either IPD alone or with AD. Models for dichotomous and continuous outcomes were available (IPD alone or combined with AD), as were models for time-to-event data (IPD combined with AD).