

## Treatment rankings derived from network meta-analyses have a substantial degree of imprecision

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Treatment rankings derived from network meta-analyses feature a substantial degree of imprecision, according to a new study by researchers at Cochrane France and INSERM U1153 in Paris. More than half of the differences between the best-ranked treatment and the second, third, or fourth best-ranked treatments did not differ from the null beyond chance. The paper "Uncertainty in Treatment Rankings: Reanalysis of Network Meta-analyses of Randomized Trials" is published in the *Annals of Internal Medicine*.

Network meta-analysis is a method of evidence synthesis that allows comparing multiple treatments available for the same disease, even when there are no clinical <u>trials</u> for some comparisons between treatments. Ranking of treatments is one of the most appealing elements of <u>network</u> meta-analysis.

To address the question if the rankings are reliable, the team of researchers has reanalyzed a sample of published network meta-analyses. These network meta-analyses were identified from two previous systematic reviews that involved searches of the *Cochrane Library*, MEDLINE, and Embase up to July 2012 for articles that included networks of at least 3 treatments. In all, 58 network meta-analyses involving 1308 randomized trials and 404 treatments were reanalyzed.

For each network, the surface under the cumulative ranking curve



(SUCRA) and its 95% uncertainty interval was estimated for each treatment. Based on these SUCRA values, the treatments were then rank-ordered between 0% (worst) and 100% (best) in each network.

According to the researchers, the findings suggest a considerable degree of uncertainty. The median width of the 95% uncertainty intervals of the SUCRA was 65%. In about a third of networks, there was a 50% or greater probability that the best-ranked treatment was actually not the best. There was no evidence of difference between the best-ranked intervention and the second and third best-ranked interventions in 90% and 71% of comparisons, respectively. These findings must be balanced with other factors that were not considered, such as the risk of bias within trials or small-study effects, and that may affect the reliability of rankings.

The researchers recommend that readers of network meta-analyses interpret with caution the ranking of treatments, especially if <u>uncertainty</u> is not reported, and that they should be careful in the use of rankings to guide practice.

**More information:** Ludovic Trinquart et al. Uncertainty in Treatment Rankings: Reanalysis of Network Meta-analyses of Randomized Trials, *Annals of Internal Medicine* (2016). <u>DOI: 10.7326/M15-2521</u>

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