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Relation of study quality, concordance, take home message, funding, and impact in studies of influenza vaccines: systematic review

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STUDY QUESTION What is the relation between study concordance, take home message, funding, and citation (as a proxy for dissemination) in 274 studies on influenza vaccines?

SUMMARY ANSWER Influenza vaccines studies have poor methodological quality. There are discrepancies between results and conclusions, but these are overwhelmingly favourable. Publication in prestigious journals and higher citation is associated with partial or total industry funding, but this is not due to study quality or size.

Selection criteria for studies

We searched the Cochrane Library, PubMed, Embase, and the internet, without language restriction, for any studies comparing the population effects of influenza vaccines against placebo or no intervention.

Primary outcome(s)

Methodological quality, concordance (agreement between data presented and conclusions), impact, and citation of included studies in relation to funding.

Main results and role of chance

Higher quality studies were significantly more likely to show concordance between data presented and conclusions (odds ratio 16.35, 95% confidence interval 4.24 to 63.04) and less likely to favour effectiveness of vaccines (0.04, 0.02 to 0.09). Government funded studies were less likely to have conclusions favouring the vaccines (0.45, 0.26 to 0.90). A higher mean journal impact factor was associated with complete or partial industry funding compared with government or private funding and no funding (differences between

RELATION OF STUDY QUALITY, FUNDING, AND PUBLICATION IMPACT		
Question: Is there a relation between	Answer	Interpretation
Methodological quality and journal impact factor?	No	The impact factor of the journal is not an indicator of quality of the influenza vaccines study published in it
Methodological quality and citation factor index?	No	The number of subsequent citations of the influenza vaccine study has nothing to do with its quality
Methodological quality and comparator sample size?	No	Just because an influenza vaccine study is powerful it does not mean it is sound
Funding source and journal impact factor?	Yes	If your influenza vaccine study is funded by industry then you have a higher chance of getting it published in a journal with high impact factor than your competitors
Funding source and citation factor index?	Yes	If your influenza vaccine study is funded by industry then it will probably be cited more than other similar studies

means 5.04). Study size was not associated with concordance, content of take home message, funding, or study quality. Higher citation index factor was associated with partial or complete industry funding.

Bias, confounding, and other reasons for caution

The association between higher citation index factor and funder was sensitive to the exclusion from the analysis of studies with undeclared funding. These comprised 23% of the population (64/274).

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Competing interests: TJ has acted as consultant for pharmaceutical companies active in the influenza field.

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We hope that you will participate in this pilot if your research article is accepted. There is no need to prepare a BMJ pico in advance, however—please wait until we offer to publish your article and invite you to take part.

Several authors have already joined us in this pilot, helping us to develop BMJ pico. For instance, Jefferson and his fellow “piconeers,” inspired by their production of the above pico, summed up the highlights of their study in a PowerPoint presentation (a “Powerpico”) for *bmj.com* (www.bmj.com/cgi/content/full/338/feb12_2/b354/DC3). Going forward, we will be pleased to consider other authors’ proposals for such enhancements and improved pico templates.

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