Reviewer's report

Title: Frequency and impact of selection bias in observational studies assessing influenza vaccine effectiveness: A systematic review

Version: 3 Date: 2 June 2015

Reviewer: Mitsuru Mori

Reviewer's report:

This article is a review of observational studies on effectiveness of influenza vaccines, regarding confounding by indication and healthy vaccinee bias. They evaluated the magnitude of confounding by indication using a ratio of crude odds ratio per adjusted odds ratio, and the magnitude of healthy vaccinee bias comparing in-season estimate to off-season estimate. However, these two methods are not appropriate to evaluate these two types of selection bias as following reasons:

Confounding by indication is induced in a study by comorbidities. However, in general, adjustment has been conducted for not only comorbidities, but also for age, sex, and other various factors. Therefore, a ratio of crude odds ratio per adjusted odds ratio is not accurate to estimate confounding by indication.

Healthy vaccinee bias induced in a study by that more healthy persons participate in a study than unhealthy persons. Therefore, an off-season estimate is not good for estimating healthy vaccinee bias.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.