Reviewer's report

Title: Empiric antibiotic duration and other potential factors mediating the effect of a checklist prompting intervention on mortality: an exploratory analysis

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Reviewer: Wen-Feng Fang

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The paper entitled 'Empiric antibiotic duration and other potential factors mediating the effect of a checklist prompting intervention on mortality: an exploratory analysis'

submitted by Curtis H Weiss tries to answer an important question raised in their previous work, “Prompting Physicians to Address a Daily Checklist and Process of Care and Clinical Outcomes: A Single-Site Study “ published in Am J Respir Crit Care Med. 2011 Sep 15;184(6):680-6. The authors used a mediation model, seeking to identify and explicate the mechanism of reduced severity-adjusted mortality by prompting to use a checklist. They found that prompting physicians on one MICU team to discuss care practice parameters on a checklist improves multiple processes of care compared to a similar team that received checklists but no prompting. However, as they said, this was a small study, with a 95% confidence interval for the adjusted odds ratio of mortality that was wide (0.15-0.76), which precludes a definitive analysis of the factors that may have contributed to the mortality reduction. Limitations of the work are clearly stated.

In this study, prompting was associated with shorter empiric antibiotic duration and lower risk-adjusted mortality in patients receiving empiric antibiotics (OR 0.41, 95% CI 0.18-0.92, P=0.032). When empiric antibiotic duration was added to mortality models, the adjusted OR for the intervention was attenuated from 0.41 to 0.50, suggesting that shorter duration of empiric antibiotics explained 15.2% of the overall benefit of prompting. Although most of the mortality benefit of prompting was unexplained. Some improvement in mortality associated with prompting can be explained by shorter empiric antibiotic duration. The discussion and conclusions are well balanced and adequately supported by the data. Multiple improvements in, and synergy between, processes of care may have had small, incremental contributions to lowering mortality since ICU is a complex system that must be considered more than the sum of its parts.

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