

# Review of: "Measuring the efficacy of a vaccine during an epidemic"

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This paper highlights a very important and meaningful topic, vaccine efficacy, which has become a worldwide concern, especially during the COVID19 pandemic. The results show how performing efficacy measurements at different times of the evolution of an epidemic can lead to serious underestimates of a vaccine's efficacy.

In this article, vaccine efficacy is defined as one minus some measures of relative risk; according to the risk considered, several measures can be defined: efficacy for susceptibility to disease, for colonization, for progression, pathogenicity, infectiousness, indirect effects, population-level effects etc. On the other hand, vaccine effectiveness measures the real-world performance of a vaccine, in contrast with efficacy that can be defined as the performance of an intervention under ideal and controlled circumstances. So what is the "ideal and controlled circumstances"? More details are needed here in order to make it clear.

According to the title, this paper focuses on the efficacy of a vaccine, that is, the performance of an intervention under ideal and controlled circumstances. This is the basis for studying how vaccines really work in the real world. However, the results provide limited information, and cannot provide effective reference for the public health policies.

Besides, the manuscript needs careful editing and particular attention to English grammar. For examples:

1. In the Abstract, "We show that" is repeated.
2. Line 15: "Vaccine efficacy are defined as one minus some measure" would be "Vaccine efficacy is defined as one minus some measures"
3. Line 31: "troublesome" here is very confusing.