Rapid Reviews COVID-19 •

Review 1: "Estimating Data-Driven COVID-19 Mitigation Strategies for Safe University Reopening"

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RR:C19 Evidence Scale rating by reviewer:

- **Reliable.** The main study claims are generally justified by its methods and data. The results and conclusions are likely to be similar to the hypothetical ideal study. There are some minor caveats or limitations, but they would/do not change the major claims of the study. The study provides sufficient strength of evidence on its own that its main claims should be considered actionable, with some room for future revision.

Review:

The authors have generated an agent-based model to study the levels of vaccination that would allow a complete return to university, with and without the implementation of NPIs (such as face mask usage). The implemented model is straight forward, and easy to understand and implement. See below for comments.

1. There are several non-granular and comprehensive models that perform threshold analysis for vaccination and multiple non pharmaceutical intervention measures. The authors should highlight the novelty of this study and the intellectual merit of the work.
2. Single adoption of face mask usage may not be sufficient in representing reality. For example, additional interventions such as partial classroom capacity, and social distancing may also be considered. Have the authors thought of including them? Also does the paper assume 100% compliance to mask usage?
3. Was compliance to quarantining and isolation considered?
4. 50% is an aggressive contact tracing rate, does this align with the university's target or the state's established rate?
5. As increasing cases of infections occur post vaccination, why have the authors not considered that?
6. Please define what is an active case.
7. The input parameters are large. Was a sensitivity analysis performed on the key parameters?
8. The paper would benefit from Figure 3 implemented with the use of face mask (i.e., with a reduced beta).
9. Figure 4 can be moved to the appendix.
10. The results or trends of results should be validated or compared to existing studies and models.

11. Although the paper uses the term NPIs, it is confusing to see that a single non pharmaceutical intervention was used, which is face mask usage. Perhaps this confusion should be addressed or eliminated.
12. I believe that there are several data available on the parameters assumed in the model, and even if the authors don't use it, they should mention these sources and justify the use of the current assumption.

I think the model is simple and has several assumptions that make the results generic. However, if the model is tailored to a small population, increasing its granularity might provide better insights into the interventions and their impacts. However, a simple model is powerful, and the insights from this paper are useful, provided the authors highlight the intellectual merit and the broader impact of this paper.