

Review of: "A population-based model for rationing COVID-19 vaccine"

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Potential competing interests: No potential competing interests to declare.

This manuscript is designed for a very important issue of public health and has some novelty but some structural deficiencies are found. The analyses are worthy for the healthcare future. The provided manuscript can be accepted with the following corrections:

1. In the abstract, the results should be informative based on numerical statements.
2. Some significant keywords should be added before the introductory section.
3. The introduction should be more elaborate consisting of the importance of the current work, literature review, and advancement of this work.
4. A definitive discussion about the population model should be included in the introduction along with a short review of other models.
5. A methodology section can be added including the nomenclature of the technical terms utilized in this work.
6. The source of data should be mentioned with the weblink of institutional detail.
7. No details of the are found about the model used in this work. It is vitally required.
8. Computing tools and the implemented software should be mentioned clearly.
9. Too many abbreviations are used in the tables without their prior description. This invades the clarification of the tables. Explain the abbreviations in a reader-friendly manner.
10. After each table and figure a narrative statement on the findings should be added.
11. "Table 2a and b" and "Figure 2a and b" should be replaced by "Table 2a and Table 2b" and "Figure 2a and Figure 2b".
12. "Figure 1" should not be divided into "upper" and "lower", instead use "Figure 1a and Figure 1b". Correct the label of the sub-figures of Figure 1 accordingly.
13. Clarification of the age groups in the figures should be included.
14. "Figure 2a" and "Figure 2b" are very complicated. To minimize this issue, the definition of the axes should be appropriately described.
15. A Bayesian distribution can be applied to get a more accurate analysis of the target data.
16. Suggestions and recommendations are missing. Please, add them after the result discussion.
17. The conclusion should be separated as a new section.

