Peer-Review Report

Peer Review of "Real-World Performance of COVID-19 Antigen Tests: Predictive Modeling and Laboratory-Based Validation"

Gerald Kost

UC Davis, Davis, CA, United States

Related Articles:
Preprint (medRxiv): https://www.medrxiv.org/content/10.1101/2024.10.21.24315762v1
Authors' Response to Peer-Review Reports: https://med.jmirx.org/2025/1/e83474
Published Article: https://med.jmirx.org/2025/1/e68376

JMIRx Med 2025;6:e83479; doi: 10.2196/83479

Keywords: COVID-19; real-world data; limit of detection lateral flow test; probability of positive agreement; logistic regression; COVID-19 antigen test clinical performance

This is a peer-review report for "Real-World Performance of COVID-19 Antigen Tests: Predictive Modeling and Laboratory-Based Validation."

Round 1 Review

General Comments

This paper [1] introduces a novel approach to speeding COVID-19 antigen test deployment, possibly during the next pandemic, whether it be a COVID-19 variant or a new pathogen that arises.

Specific Comments

Major Comments

1. The authors' clinical conclusions based on their prediction theory are overly optimistic.

2. The authors can explore actual clinical evaluations to determine the robustness of their prediction modeling.

3. Thus, the paper merits publication, providing the limitations are more clearly described and the conclusions are limited to the mathematical results for which the authors have proven their claims theoretically. Extension to clinical applicability is a different story yet to be told.

4. The authors should be encouraged to move forward in view of the need and the poor performance of COVID-19 rapid antigen tests during the pandemic because of low sensitivity, a lack of deep understanding, and the "prevalence boundary," a measure of when the rate of false omissions becomes too high and false negatives spread disease.

Minor Comments

5. Needs English grammar review. This could be achieved by using an artificial intelligence editor.

Conflicts of Interest

None declared.

References

1. Bosch M, Garcia D, Rudtner L, et al. Real-world performance of COVID-19 antigen tests: predictive modeling and laboratory-based validation. JMIRx Med. 2025;6:e68376. [doi: 10.2196/68376]

Edited by Fuqing Wu; This is a non–peer-reviewed article; submitted 03.09.2025; accepted 03.09.2025; published 06.10.2025

Please cite as:
Kost G
Peer Review of "Real-World Performance of COVID-19 Antigen Tests: Predictive Modeling and Laboratory-Based Validation"
JMIRx Med 2025;6:e83479
URL: https://med.jmirx.org/2025/1/e83479

doi: 10.2196/83479