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Paper: “Independent Evaluation of Four SARS-CoV-2 Antigen Rapid Tests Against qRT-PCR in Niger”

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Peer review:

Reviewer 1: Janhavi Nagwekar
St. Michael's Hospital, Canada

Reviewer 2: Oscar Gutierrez Coronado
University of Guadalajara, Mexico

Reviewer 3: Blinded

Reviewer A:
Recommendation: Revisions Required

The TITLE is clear and it is adequate to the content of the article.

yes

The ABSTRACT clearly presents objectives, methods, results, and conclusions.

yes

There are a few grammatical errors and spelling mistakes in this article.

no

The study METHODS are explained clearly.

yes

The results are clear and do not contain errors.

1. The study itself states that the four tests were evaluated in different patient populations and at different periods, and therefore "are not directly comparable and should not be read as a ranking." Under these circumstances, the statement that SAY-Na performed "comparably" to another test is difficult to support unless a formal comparison was performed in comparable populations. I recommend revising this statement to indicate that the findings support further evaluation of SAY-Na in larger and geographically diverse populations, rather than recommending widespread use across Africa.

2. The sensitivity estimates are:

STQ-Np: 75.0%
PANB-Np: 85.7%
PANB-Na: 76.3%
SAY-Na: 80.1%

However, these estimates were obtained from different patient groups and different periods. Therefore, differences of several percentage points cannot be interpreted as evidence that one assay has superior diagnostic performance.

3. The study included symptomatic patients with symptom onset ≤ 7 days. Because Ag-RDT

sensitivity can vary substantially according to time since symptom onset, it would be useful to report sensitivity by symptom duration if sufficient data are available.

For example:

0–3 days;
4–7 days.

If this analysis was not performed, this should be acknowledged as a limitation.

4. The manuscript defines high-viral-load specimens as Ct <20 and reports 97.0% sensitivity for SAY-Na in this group.

Ct values are commonly used as a proxy for viral burden, but they are not direct measurements of viral load and can vary according to the PCR platform, assay, target gene, specimen type, and other technical factors.

I recommend using terminology such as "high viral RNA concentration as defined by Ct <20" or clearly explaining why Ct <20 is being designated as high viral load.

The CONCLUSION or summary is accurate and supported by the content.

The manuscript should consistently use either "Ag-RDTs" or "antigen rapid diagnostic tests" after the abbreviation has been introduced.

The list of REFERENCES is comprehensive and appropriate.

yes

Please rate the TITLE of this paper.

[Poor] 1-5 [Excellent]

3

Please rate the ABSTRACT of this paper.

[Poor] 1-5 [Excellent]

3

Please rate the LANGUAGE of this paper.

[Poor] 1-5 [Excellent]

3

Please rate the METHODS of this paper.

[Poor] 1-5 [Excellent]

3

Please rate the RESULTS of this paper.

[Poor] 1-5 [Excellent]

3

Please rate the CONCLUSION of this paper.

[Poor] 1-5 [Excellent]

3

Please rate the REFERENCES of this paper.

[Poor] 1-5 [Excellent]

4

Overall Recommendation!!!

Accepted, minor revision needed

Comments and Suggestions to the Author(s):

Reviewer B:
Recommendation: Accept Submission

The TITLE is clear and it is adequate to the content of the article.

The title is clear and informative, and it adequately represents the scope and main content of the article. It is consistent with the study objectives and the diagnostic evaluation presented in the manuscript. Therefore, no changes to the title are recommended.

The ABSTRACT clearly presents objectives, methods, results, and conclusions.

The abstract is well structured and clearly presents the main objective of the study, the methodological approach, the principal findings, and the overall conclusions. The information provided is consistent with the content of the manuscript and allows the reader to understand the scope and relevance of the study. No major changes are considered necessary

There are a few grammatical errors and spelling mistakes in this article.

Only minor grammatical and spelling issues were identified. These do not compromise the scientific content of the manuscript, but a final language revision would improve clarity and overall presentation.

Abstract: section Results: exceeded

The study METHODS are explained clearly.

The methods are clearly and adequately described and are consistent with the objectives of the study. The information provided allows the reader to understand the study design, diagnostic procedures, and analytical approach used to evaluate the performance of the antigen rapid diagnostic tests

The results are clear and do not contain errors.

There appears to be an important internal inconsistency in the PANB-Np results. The reported Ag-RDT-positive and -negative results (69 and 108, respectively) sum to 177 rather than the stated N = 183, and the corresponding percentages do not sum to 100%. Moreover, these values do not appear to be consistent with the reported sensitivity, specificity, and concordance. The authors should carefully verify the original 2 × 2 contingency table and correct all related values before further interpretation of PANB-Np performance.

The CONCLUSION or summary is accurate and supported by the content.

The conclusion is generally consistent with the main findings; however, some statements are stronger than the data support. In particular, the statement that SAY-Na performed “comparably” to the imported nasal test should be interpreted cautiously because the assays were evaluated in different patient groups and at different time points, precluding a direct comparison. More importantly, the recommendation that SAY-Na “should be widely used in the continent for future emergencies” is not sufficiently supported by a single field evaluation in Niger, particularly since this assay did not meet both WHO minimum performance criteria. The conclusion should be revised to emphasize the need for additional independent, multicentre evaluations before recommending broader regional implementation

The list of REFERENCES is comprehensive and appropriate.

The references are relevant and appropriate to the subject of the manuscript and adequately support the background, interpretation, and discussion of the study findings. The reference list appears sufficiently comprehensive for the scope of the article. Each in-text citation has to be included in the list of references and vice versa

Please rate the TITLE of this paper.

[Poor] 1-5 [Excellent]

5

Please rate the ABSTRACT of this paper.

[Poor] 1-5 [Excellent]

5

Please rate the LANGUAGE of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the METHODS of this paper.

[Poor] 1-5 [Excellent]

5

Please rate the RESULTS of this paper.

[Poor] **1-5** [Excellent]

4

Please rate the CONCLUSION of this paper.

[Poor] **1-5** [Excellent]

5

Please rate the REFERENCES of this paper.

[Poor] **1-5** [Excellent]

5

Overall Recommendation!!!

Accepted, minor revision needed

Comments and Suggestions to the Author(s):
