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OPEN PEER REVIEW

Revolutionizing Tuberculosis Detection: High-resolution CT as a Game-Changer in Public Health Surveillance and Early Case Finding

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About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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1 Original submission

3 comments · 8 Jul 2025 – 22 Jul 2025

Referee 1 Reviewer

MINOR REVISION 8 Jul 2025

In this manuscript, the authors present data on Revolutionizing Tuberculosis Detection: High-Resolution CT as a Game-Changer in Public 2 Health Surveillance and Early Case Finding. However, there are several problems with the study's scientific writing, methodology, analysis, and interpretation that must be corrected (see specific points below).
1. There are many keywords; please choose the most relevant ones.
2. The introduction is short. Explain more about the different diagnostic tests for tuberculosis.
3. In the Materials and Methods section, explain how you analyzed and compared the tests.
4. Statistical analysis is not mentioned in the manuscript.
4. Tables do not have titles.
5. In all tables, abbreviations need to be expanded and explained.
6. Some of the discussion sentences lack references.
7. Some references appear outdated. Consider more recent studies (post-2018).

Associate Editor

MINOR REVISION 20 Jul 2025

Public Comment:
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Editor-in-Chief

MINOR REVISION 22 Jul 2025

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Decision:
Minor revision

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Response to Reviewers' Comments

Comment 1: There are many keywords, please choose the most relevant ones.

Response: The keyword list has been revised to include only the most relevant terms: Tuberculosis, High-resolution computed tomography (HRCT), Chest X-ray, Interferon-gamma release assay (IGRA), Diagnostic performance, Public health surveillance.

Comment 2: The introduction is short. Explain more about the different diagnostic tests for tuberculosis.

Response: The Introduction has been significantly expanded. It now discusses sputum smear microscopy, culture methods, molecular assays (e.g., GeneXpert), chest X-ray, HRCT, immunological assays (Quantiferon-TB Gold, T-Spot TB), and serology. For each method, advantages and limitations are described, and the knowledge gap leading to our study is clearly stated.

Comment 3: In the Materials and Methods section, explain how you analyzed and compared the tests.

Response: The Methods section now includes detailed descriptions of the statistical tools used: sensitivity, specificity, positive and negative predictive values, independent t-tests for age differences, chi-square tests for gender distribution, kappa statistics for inter-test agreement, and Bayesian analysis for overlap. This clarifies how diagnostic performance was evaluated.

Comment 4: Statistical analysis not mentioned in manuscript.

Response: A dedicated "Statistical Analysis" subsection has been added to the Methods. It specifies that analyses were performed using SPSS, with $p < 0.05$ considered significant. Tests included t-test, chi-square test, kappa agreement, and Bayesian inference models.

Comment 5: Tables do not have titles.

Response: All tables have been revised with clear, descriptive titles (e.g., "Demographic Characteristics of TB-Positive Cases by Diagnostic Method," "Diagnostic Accuracy of HRCT, Chest X-ray, and IGRA," "Detection Overlap between HRCT, Chest X-ray, and IGRA").

Comment 6: All tables – abbreviations need to be expanded and explained.

Response: Abbreviations have been expanded in table footnotes. For example, HRCT (High-resolution computed tomography), CXR (Chest X-ray), IGRA (Interferon-gamma release assay), PPV (Positive predictive value), NPV (Negative predictive value).

Comment 7: Some of the discussion sentences lack references.

Response: Additional references have been added throughout the Discussion to support interpretation of findings, including studies published after 2018 on HRCT utility, TB imaging advances, and IGRA performance.

Comment 8: Some references appear outdated. Consider more recent studies (post-2018).

Response: The reference list has been updated to include more recent literature (2019–2023), particularly regarding HRCT, GeneXpert, TB diagnostics in high-burden countries, and WHO reports. Older references were retained only when foundational.

2 Revision 1

4 comments · 5 Oct 2025 – 2 Nov 2025

Referee 2 Reviewer

MINOR REVISION 5 Oct 2025

Dear AE,
Thank you very much for giving me the opportunity to review this revised manuscript.
I believe that the manuscript has improved substantially after the revision, and I believe that it can be accepted after a number of minor revisions have been implemented. Here are my comments:
1. A minor language edit can further strengthen the manuscript.
2. A more detailed discussion of comparative studies would enhance the contextualization of findings in the current literature.
3. As part of the review process, we would like to draw the authors' attention to several recent publications that may be relevant to their study. These references are suggested to help strengthen the manuscript's background, contextualize its findings within the broader literature, and ensure that it reflects the most up-to-date research in the field. These references are provided solely as suggestions, and citing them is not mandatory. The aim is to enhance the academic rigor and comprehensiveness of the manuscript.
These articles are as follows:
A. Comparison of the Severity of Lung Damage on Chest X-ray Between New Drug-Resistant and Drug-Sensitive Cases of Pulmonary Tuberculosis Patients
* Reason: This article provides insights into the severity and detection of tuberculosis, relevant to high-resolution CT advancements.
** Link: https://doi.org/10.5812/archcid-137113
B. Evaluation of the Activity of Amoxicillin/Clavulanate, Ceftazidime/Avibactam and Colistin Against Drug-Resistant Mycobacterium tuberculosis Isolates by the E-test Method
* Reason: This study investigates the antimicrobial resistance patterns, which are vital to the context of tuberculosis treatment and detection.
** Link: https://doi.org/10.5812/jjm-162034
C. Enhanced Diagnosis of Chest X-Ray Using Hybrid Deep Learning Models and Feature Selection Techniques
* Reason: This study on AI-enhanced CXR analysis for lung disease detection provides a technological parallel to the manuscript's focus on HRCT for TB diagnosis. Both highlight advanced imaging's role in improving diagnostic accuracy, reinforcing the conclusion that integrating sophisticated radiological methods can enhance early disease detection and clinical decision-making.
** Link: https://brieflands.com/articles/ijradiology-163605

Final Decision: Minor Revision

Kind Regards | Publishing Assistant

Referee 3 Reviewer

MINOR REVISION 12 Oct 2025

This manuscript focuses on the use of High-Resolution CT (HRCT) for Tuberculosis detection, effectively highlighting its advantages over Chest X-Ray (CXR). The paper is well-structured and falls within the journal's scope. However, it currently omits several key topics.

I recommend acceptance following minor revisions to address the following point:

Comment:
Please expand the Materials and Methods section to include a description of the underlying physics for both HRCT and CXR, as well as the manufacturers of the equipment used in the study.

Associate Editor

MINOR REVISION 2 Nov 2025

Your manuscript has been assessed and requires revisions prior to further consideration for publication. Please carefully review the enclosed comments and revise your manuscript accordingly. (Minor revision)

Editor-in-Chief

MINOR REVISION 2 Nov 2025

We appreciate your submission to CHBS. The reviewers see potential in your work but have identified areas that need minor improvement. We invite you to revise your manuscript, addressing the points detailed below.

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Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Response to Reviewers

We sincerely thank the reviewers for their valuable time, insightful comments, and constructive suggestions, which have significantly improved the quality and clarity of our manuscript. Below is a detailed, point-by-point response outlining the revisions made in accordance with each comment.

Reviewer 0

Comment 1: A minor language edit can further strengthen the manuscript.

Response: The entire manuscript has undergone a comprehensive language revision to enhance clarity, academic tone, and readability. Grammatical inconsistencies and redundant phrases have been corrected throughout.

Comment 2: A more detailed discussion of comparative studies would enhance the contextualization of findings in the current literature.

Response: The Discussion section has been extensively revised to include a more comprehensive comparative analysis of similar studies from other high-burden TB regions. Recent literature has been incorporated to contextualize the findings and emphasize HRCT's diagnostic advantages over conventional X-ray and immunological assays.

Comment 3: Consider inclusion of recent relevant publications to strengthen the manuscript's background and discussion.

Response: The following recent and relevant studies have been added and discussed appropriately in the Introduction and Discussion sections to enhance contextual depth and align with current research:

Ali S et al., Arch Clin Infect Dis. 2024;19(3):e137113. doi:10.5812/archcid-137113.

Hussain T et al., Jundishapur J Microbiol. 2024;17(2):e162034. doi:10.5812/jjm-162034.

Khan M et al., Iran J Radiol. 2024;21(1):e163605. doi:10.5812/ijradiology-163605.

These studies have been cited to strengthen the manuscript's scientific foundation and update its literature coverage.

Reviewer 1

Comment: Please expand the Materials and Methods section to include a description of the underlying physics for both HRCT and CXR, as well as the manufacturers of the equipment used in the study.

Response: The Materials and Methods section has been thoroughly revised to include:

A detailed description of the physical principles underlying HRCT and chest X-ray imaging.

Specific equipment details, including model names and manufacturers (e.g., Siemens Ysio Max for X-ray and GE Revolution Evo for HRCT).

Additional information on image acquisition parameters, reconstruction algorithms, and radiological interpretation methods.

These additions provide a clearer methodological framework and ensure reproducibility and technical transparency.

Overall Improvements

- The Introduction has been refined to improve flow and highlight the rationale for combining radiological and immunological methods.
- The Results section now presents data in a structured, comparative format, supported by statistical interpretation and concordance analysis.
- The Discussion integrates global and regional evidence, emphasizing diagnostic complementarities, demographic insights, and implications for resource-limited settings.
- The Conclusion has been rewritten to concisely summarize findings and propose future directions involving multi-modal diagnostics and AI-driven imaging analytics.
- All reviewer suggestions have been carefully implemented. The revised manuscript now offers improved scientific rigor, contemporary contextualization, and enhanced methodological detail. We appreciate the reviewers' insightful guidance, which has significantly strengthened the overall quality of this study.

3 Revision 2

1 comment · 8 Nov 2025

Editor-in-Chief

ACCEPT 8 Nov 2025

We are pleased to inform you that your manuscript has been accepted for publication in CHBS. Congratulations on this excellent achievement.