

# Review of: "Analysing the Automation of Artificial Knowledge in Virology for Safety and Effectiveness in Healthcare: Equilibrium of Advancement and Trials for Secure and Productive Health Necessities"

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Potential competing interests: No potential competing interests to declare.

The manuscript reviews the application of AI in the field of virology, focusing on the current progress and challenges. Overall, the manuscript provides a relatively comprehensive description of the application fields and existing challenges, which can help readers quickly understand the current status of AI in virology, but lacks some in-depth description. Specifically, the following improvements could be made:

1. In the section of "Abstract", it is recommended to remove "While AI unfolds tremendous opportunities, setbacks related to data privacy, ethical considerations, frameworks of regulation, training the workforce, and liaisons that are collaborative require attention to fully realize the potential of AI." Because the theme of the manuscript is the application of AI in virology, and the latter sentence summarizes the application of AI in virology and the issues that need to be considered, which is largely repetitive with this sentence.
2. In the "Materials and Methods" section, the manuscript should provide a more detailed description of the literature inclusion methods, such as the search scope, search keywords, inclusion and exclusion criteria, etc., to as far as possible demonstrate that there is no obvious bias in the literature inclusion and interpretation.
3. In the section of "3. Global and Indian Applications of Artificial Knowledge in Health Care and Virology", for each part (aspect), the manuscript provides a brief summary of the application of AI; however, if specific examples can be given in each part, it seems that it can better illustrate the application of AI in a certain aspect and help readers understand.
4. Similarly, in the section of "3. Global and Indian Applications of Artificial Knowledge in Health Care and Virology", the manuscript lacks depth in discussing the application of AI in various aspects of virology. For example, in the part of "3.3. AI Involvement in Development of Vaccines", the author can explain how AI has accelerated the research and development process, how to use algorithms to improve the effectiveness and safety of vaccine design, how to assist in designing more reasonable clinical trial plans, and how to provide new ideas for vaccine research and development by mining big data, etc. Specific data can be adopted to support the elaboration of the manuscript.
5. In the parts of "3.4. Medical Imaging Analysis" and "3.5. Prognostic Modeling", the content does not seem to relate to virology. For example, how does AI play a role in the medical imaging and diagnosis of virus-infected patients?
6. AI in bioweapons is a very important topic. In this part, can the manuscript provide one or two specific examples to

illustrate the risks of AI in this regard?

7. The manuscript should add a section on the author's outlook on the application of AI in virology, that is, future research directions, prospects, etc.

8. The section of "6. Conclusion" and the section of "5. Discussion" partially overlap. "6. Conclusion" should be more concise.

9. It is recommended to summarize the contents of the section of "3. Global and Indian Applications of Artificial Knowledge in Health Care and Virology" and the section of "4. Exploring Critical Challenges and Pathways for the Future in AI" as figures respectively, so that readers can better read and understand.