Reviewer's report

Title: From two-tiered health systems to a two-tiered personalized medicine?

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Reviewer: Charles Auffray

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The paper by Alyas et al. starts with an overview of the socio-economic, scientific and technological challenges faced in the development of personalized medicine. This part is rather general and seems to be predicated on contradictory assumptions as reflected in the final sentences of the introductory remarks:

"In summary, the costs associated with personalized medicine transition remain unclear, but those resources may prove challenging to assemble in high-income countries. Personalized medicine is therefore likely to widen the economic inequality in health systems between high and low-income countries."

It ends with a discussion on the needs for hybrid multidisciplinary education to support the development of personalized medicine, which is of interest, but starts with an assertion that "Although solutions for the challenges of big data already exist with companies such as Google, Amazon, and Facebook" refering to [28], which is a very comprehensive review of "Computational solutions for omics data" but not discuss these big data companies.

The second half of the paper is a very thorough and up-to-date review of management, processing, and integrative methods of omics data, with a very well developed section on the curse of dimensionality and how to cope with it. If combined with a brief contextual introduction, it would make an excellent standalone short review of important issues in biostatistics and bioinformatics with relevant references that would be of interest to a broad community of readers. However, it is not immediately obvious from the title of the review that it has a focus on this important section.

Major essential revisions

The first part is too general and insufficiently documented to represent the state-of-the-art. It could be reduced to the general contextuel information that is needed to introduce the second part representing the core interest of the paper, and this should be reflected in the title of the paper.

Considerations on how the issues in data analysis and management can facilitate or hamper the development of cost-effective personalized medicine and its deployment in the less developed countries could then be left to the conclusion section.

Level of interest: An article of importance in its field
Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests