DSI-NRF Centre of Excellence in

Epidemiological Modelling and Analysis (SACEMA),

19 Jonkershoek Road,

Stellenbosch, South Africa

August 11, 2022

Dear Editor,

I am submitting for your consideration a systematic review manuscript entitled, “Models and modelling practices for assessing the impact of outbreak response interventions to human vaccine-preventable diseases (1970-2019) - A systematic review.”

In this systematic review, we argue that mathematical modelling could form an essential component of outbreak response decision-making but achieving this would require collaboration between model developers and decision-makers, and local stakeholders with location-specific expertise to incorporate relevant operational realities. We investigate the extent to which these collaborations were practiced in the literature for the period 1970-2019. We grouped the 253 included studies into two collaboration types: purely academic (papers having only authors with academic institution affiliations), and mixed (papers having authors with all combinations of academic institutions, and decision-makers - governmental, and/or non-governmental organizations). We analyse the distribution of these groups and patterns in model design and practices between the two groups. We find that the outbreak response modelling literature was dominated by purely academic collaborations, but mixed collaborations increased in the last seven years in the studied period (2013-2019). This could suggest that modelling is being used or at least being recognised by decision-makers during outbreak response. Additionally, mixed collaborations were more likely to include at least one author from the country studied and use more complex model designs. We recommend that modelling groups continue to form mixed collaborations as a first step towards ensuring that modelling outputs get translated to decision-making through knowledge transfer among collaborators.

We initiated the review prior to the COVID-19 pandemic and covered the period 1970 to 2019. We think the findings are interesting because they establish baseline practices prior to the pandemic and the proliferation of modelling papers and changes in practices that may have occurred as a result. We have already corresponded with one of the Editors-in-Chief, Dr. Cecile Viboud, about this review, and she indicated that she believed it to be a good fit for *Epidemics.*

Thank you for considering our manuscript, and we look forward to receiving your response. Please address any correspondence to me via my email [jamesazam@sun.ac.za](mailto:jamesazam@sun.ac.za).

Yours sincerely,

**James M. Azam**