

## Author's response to reviews

**Title:** Modelling the public health impact of male circumcision for HIV prevention in high prevalence areas in Africa

### Authors:

Nico J D Nagelkerke ([nico.nagelkerke@uaeu.ac.ae](mailto:nico.nagelkerke@uaeu.ac.ae))

Stephen Moses ([smoses@cc.umanitoba.ca](mailto:smoses@cc.umanitoba.ca))

Sake J DeVlas ([s.devlas@erasmusmc.nl](mailto:s.devlas@erasmusmc.nl))

Robert C Bailey ([rcbailey@uic.edu](mailto:rcbailey@uic.edu))

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The Editor of BMC ID

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Dear Editor,

Thank you very much for your letter of February 2 and Dr Valleron's additional comments. As before his comments are very insightful and useful and they are extremely useful in improving our ms.

We addressed his comments as follows.

1. In the present version, the authors quote Williams...not notice this statement in the paper from Williams. We have changed this to "the authors recognize that ignoring heterogeneity in sexual activity would lead to a predicted steady state prevalence of HIV that is much higher than is generally observed".
2. Not to write "they do not adequately incorporate this heterogeneity into their model" Has now been replaced by "they incorporated this heterogeneity into their model only indirectly".
3. "In the present work....comparison cannot therefore be done". We have now inserted the following section: "Our results also agree with those of Williams et al [19], although we predict a somewhat stronger effect of MC than they do. For example, for Botswana, they predict a reduction in incidence of 1.17%/year. Taking into account the average duration of HIV disease, between HIV infection and death, this corresponds to a decrease in prevalence of approximately 10% from 37.3% to approximately 27%, i.e. a relative reduction of 25-30%. The somewhat stronger effect predicted from our models appears to be due to a different approach to handling heterogeneity in sexual behaviour".
4. "Finally, by comparison...were divergent in the 2 models" . We compared our two models in the following section in the Discussion: "These estimates are similar to those predicted using our compartmental model, although the assumptions for these models were different, with an increase in MC rates from 10% to 50% or 80% in the latter model as opposed to from 0 to 100% in the former. This similarity suggests that our compartmental model in which individuals can move between high-risk and low risk compartments at significant rates can be closely approximated by a random mixing model". We considered a visual comparison but in view of the different assumptions these may have been misleading.
5. "Minor comment...reversely". Good point, we have changed the legends accordingly.

Thank you very much.

Sincerely,  
Nico Nagelkerke