

Reviewer's report

Title: Modelling the Public Health Impact of Male Circumcision for HIV prevention

Version: 1 **Date:** 24 July 2006

Reviewer: CATHERINE HANKINS

Reviewer's report:

General

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

none but I would hope that the authors take into account the few comments below:

This is a well written manuscript which addresses the question of the potential impact of scaling up male circumcision services in two high HIV prevalence areas: the country of Botswana and the province of Nyanza in Kenya. The former is assumed to have a higher number of non-commercial casual contacts. Both a random mixing model and a compartmental model, distinguishing risk groups associated with sex work, are used. The methods are well described and the assumptions in the model are justifiable (see a few suggestions below). The title could perhaps be more specific geographically.

Focusing on specific discrete geographical areas allows for potentially more precise data inputs than the modelling work published thus far which looked at potential impact for all of sub-Saharan Africa. Scale up of male circumcision is set at a constant rate leading to a 50% or 80% equilibrium prevalence of circumcision in HIV uninfected men - assumptions that are more realistic than the model published in July 2006 which assumed that full coverage of male circumcision could be met by 2010 or 2015.

Specific comments:

- 1) The assumption in the fourth sensitivity analysis that individuals are 5 times more infectious on average during the first year after infection than during the remainder of their infection (versus uniform infectiousness based on early and alter infectiousness) should perhaps include the assumption of 3 weeks or so of very high infectiousness during primary infection rather than throughout the first year (cf. Pilcher CD, Tien HC, Eron JJ, et al. Brief but Efficient: Acute HIV infection and the sexual transmission of HIV. *J Infect Dis*, 2004, 189(10):1785-92).
- 2) The reference (number 13) to a 2000 publication from Gray et al about the possible impact of male circumcision on male to female transmission could be updated from the CROI meeting presentation by Quinn showing an RR of 0.76; 95% CI:0.62-0.92 (Gray et al), CROI 2006 (cf discussion of the second sensitivity analysis).
- 3) The figures in the introduction should be updated from the UNAIDS Global Report 2006, as should the figures for Botswana entered in the model if these are different in 2006 from 2005.

http://data.unaids.org/pub/GlobalReport/2006/2006_GR_ANN2_en.pdf

4) There are four trials, not three. Rakia has 2 trials, each with a different funder. The NIH funded one is examining the effect of male circumcision on female to male transmission while the Bill and Melinda Gates Foundation funded trial is examining the effect of male circumcision on male to female transmission. Both funders are keen that they be understood to be two separate trials.

5) Language

a) the term 'risk compensation' is increasingly being used in preference to 'behavioural disinhibition' (cf. Cassell MM, Halperin DT, Shelton JD, Stanton D. Risk compensation: the Achilles' heel of innovations in HIV prevention? BMJ 2006; 332: 605 - 607.). Risk compensation is particularly a better term in the case of male circumcision because disinhibition implies that the foreskin is in some way inhibiting.

b) the term 'people living with HIV' includes people who have AIDS

6) The upper limit of the Orange Farm Intervention Trial estimate was the 95% CI not the 90% CI. (intention to treat: 60%; 95% CI: 32% to 76%); per protocol: 75%, 95% CI: 54% to 86%.

7) Page 10 Sensitivity analyses: it would be good to mention that because the analyses are very sensitive to assumptions about the degree of protection that the results of the ongoing trials will help refine the models.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

very few and the author can be trusted to make these.

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes

Declaration of competing interests:

I declare that I have no competing interests.