Published in final edited form as:

Lancet. 2007 December 1; 370(9602): 1823–1824. doi:10.1016/S0140-6736(07)61764-4.

Diaphragms and lubricant gel for prevention of HIV(Authors' reply)

Nicholas Jewell, Ariane van der Straten, Elizabeth T Montgomery, Michael Rosenblum, and Nancy S Padian*

University of California at Berkeley, Berkeley, CA, USA (NJ, MR); and University of California at San Francisco, San Francisco, CA 94105, USA (AvdS, ETM, NSP)

Both James Shelton and Zena Stein question whether our trial, which assessed provision of a latex diaphragm used with a non-contraceptive lubricant and condoms, had any demonstrable effect on underlying HIV incidence. We cannot answer this directly because we had neither an “observational-only” control group, nor access to data estimating concurrent background incidence in the trial communities. We compared the age-specific (18–35 years) incidence among Zimbabwean women in both our study and a cohort study¹ that had similar condom promotion, although less reported use. The cohort study reported a yearly incidence of 4.07% whereas we noted an incidence of 3.08%.

Shelton and Stein also ask for a disentanglement of the separate effects of condom and diaphragm use on incidence of HIV infection in the trial, part of which necessarily involves an estimation of the independent effect of condom use. We agree that such analyses are important additions to basic intention-to-treat results, and in fact, we prespecified appropriate methods to address these issues in our analytical plan and included results in the submitted paper. Regrettably, we were directed not to include these findings by both a referee and an editor of the original article.

To examine whether decreased condom use in the intervention group cancelled out a possible, although modest, protective effect of diaphragms in that group, we did a direct-effects analysis.^{2,3} This approach estimates what infection rates would have been in each group had all participants been constrained to condom use at certain prespecified levels. Although the full details of the statistical methods and analysis are being submitted to another journal,⁴ we provide a brief synopsis of the findings.

The estimated relative risk of HIV infection for assignment to the intervention versus control group, had all participants been constrained to always use condoms, was 0.96 (95% CI 0.59–1.45). By contrast, the estimated analogous relative risk of HIV infection had all participants never used condoms was 0.59 (0.26–4.56). In both these scenarios, point estimates are in the direction of assignment to the intervention group as being protective; however, neither is close to significance. Although the second result is tantalising, the scarcity of women who consistently reported non-condom use does not permit a level of precision sufficient enough to draw meaningful conclusions.

Thus, the variability in these results neither supports nor refutes the bolder assertions regarding the effectiveness of diaphragms.

npadian@globalhealth.ucsf.edu.

We thank Steve Shiboski for his contribution to this letter. We declare that we have no conflict of interest.

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