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## Role of concurrency in generalised HIV epidemics

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Despite its claims, the study by Frank Tanser and colleagues<sup>1</sup> is not “a formal test of the concurrency hypothesis”. The analysis does not tell us whether a woman in this community is more likely to become HIV positive if her partner(s) have concurrent partners, because Tanser and colleagues did not measure this; they measured the future risk a woman faces from the past characteristics of men who live within a few km radius of her.

The model assumes that women’s sexual relationships are most likely to be with their immediate neighbours, become increasingly less likely with men living somewhat farther away, and are non-existent with men who live beyond 2.5–3.8 km. These assumptions are neither credible nor supported by the empirical evidence in this study. Furthermore, the estimated coefficient on neighbourhood men’s lifetime partners does not change after controlling for HIV prevalence. This either means that neighbourhood men’s previous

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behaviour affects a woman's future incidence *even in a neighbourhood with no HIV-infected men*, or it means that there is something wrong with the model, the data, or both.

The data, like the model, have serious problems, the most important of which is the very low response rates. Tanser and colleagues report that the HIV testing response rate was 63%, but factoring in the low contact rate, only 43% of eligible respondents were tested in the first wave, falling to only 34% by the third wave.<sup>2</sup> Refusal to test was linked to higher HIV risk and prevalence.<sup>3,4</sup> Non-response was high for the behavioural measures too: 25% of women did not complete the sexual behaviour questions, and 37% of men refused to participate in the 2004 behavioural survey.

One does not have to turn to such convoluted, indirect analytical strategies to test the concurrency hypothesis. Direct empirical evidence comes from nine published studies,<sup>5–13</sup> spanning 20 years and multiple sites in sub-Saharan Africa, none of which is cited by Tanser and colleagues. In these studies, half to three-quarters of observed HIV incidence in stable couples can be definitively attributed to concurrent sexual partners. It is not acceptable to state that “the effect of concurrent partnerships on HIV incidence has not been appropriately tested in a sub-Saharan African setting”.<sup>1</sup>

The tone of the academic debate about the effect of concurrent partnerships on HIV risk is puzzling. Science and policy would be best served by moving beyond the longstanding partner reduction messages to test specific concurrency reduction interventions the old-fashioned way, with a multisite randomised controlled trial. Such studies are in development, and, contrary to Tanser and colleagues' assertions, they are quite feasible.

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