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Extra-couple HIV transmission a major driver of Africa's HIV epidemic

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New research suggests that heterosexual couples in long-term relationships who have sexual encounters outside their established partnership (extra-couple relationships) are one of the main drivers of the HIV epidemic in sub-Saharan Africa.

The findings of the modelling study, published Online First in *The Lancet*, indicate that current HIV-prevention efforts, which chiefly target couples where one partner is HIV-positive and the other is not (serodiscordant couples), will be insufficient to bring about major reductions in HIV incidence in the general population.

"Because of the large contribution of extra-couple transmission (from outside partnerships) to new HIV infections, interventions should target the larger sexually active population and not just serodiscordant couples", explains Steve Bellan from the University of Texas, Austin, who led the research. "Pre-couple (prior to relationship), extra-couple, and within-couple transmission are all common, and HIV control policies that address all these routes are needed to stem the HIV epidemic in Africa."

In sub-Saharan Africa, where most new HIV infections occur, defining the most-at-risk groups is crucial to targeting intervention efforts effectively. But the proportion of heterosexual HIV transmissions that occur within couples—compared with the proportions that occur in single people or in people in extra-couple relationships—has been hotly debated.

To help clarify HIV risk for African couples, the authors of this new study developed a sophisticated modelling system that, unlike previous models, combines serostatus and relationship data from Demographic and Health Surveys (DHS) with country-specific trends for the prevalence of HIV, and estimates of HIV survival times.

They used the model to distinguish the specific routes by which individuals became infected in 27 201 cohabiting couples from 18 sub-Saharan African countries.

The estimates suggest that 30% of all new HIV infections in men and 10% in women within stable partnerships are the result of extra-couple transmission.

Other important findings to emerge were that transmission in couples occurs more from men to women than vice versa, and that women have a period of high infection risk before entering a cohabiting partnership—emphasising the continuing need for prevention strategies aimed at young women.

The researchers believe that despite its expense and logistic demands, a test-and-treat strategy that targets all heterosexual routes of transmission could be key to fighting the HIV epidemic.

Writing in a linked Comment, Connie Celum and Jared Baeten from the University of Washington say that the findings reinforce that, "HIV prevention for only HIV serodiscordant couples will not be enough to reverse the HIV epidemic completely."

They add, "HIV prevention is at a crucial stage: strategies to deliver evidence-based combination prevention efficiently and effectively, targeted at high risk populations and with high coverage for those at risk, will maximise this incredible opportunity in the history of the HIV

epidemic."

More information: Paper www.thelancet.com/journals/lan … (12)61960-6/abstract

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