An HIV risk score designed for women

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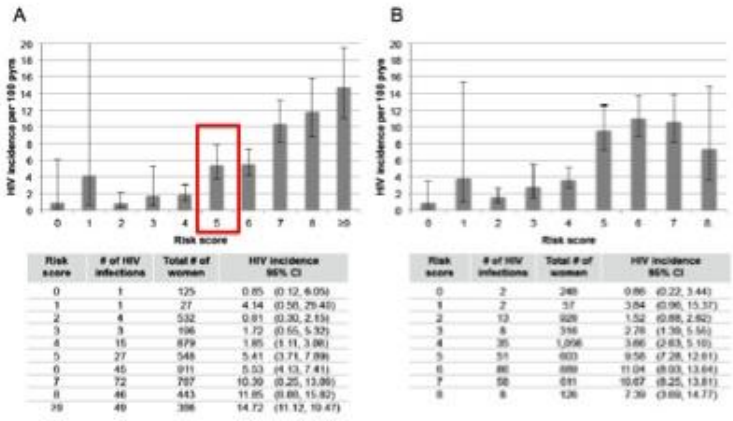

HIV incidence and 95% intervals by risk score using the full risk score (A) and a modified risk score that excluded variable for any curable STI at baseline and HSV-2 serostatus (B).

Figure provided by Dr. Jennifer Balkus

Globally, 16 million women live with HIV, accounting for 50% of the HIV-infected adult population, this proportion being even higher in sub-Saharan Africa. Therefore, there is an imperative need to address the problem of new infections in women, who, in many social contexts, are also more exposed to violence, discrimination and economical dependence. The first step is to identify women who are highly exposed to HIV, in order to focus the prevention effort on those who needs it the most.

Even though risk assessment tools exist for heterosexual serodiscordant couples in Africa and men who have sex with men in the United States, an effective method to identify women at risk of HIV infection in Africa had not yet been validated. Last month, a group of investigators at Fred Hutch, University of Washington, and different research institutions in South Africa published a method to determine the risk of HIV acquisition for African women. "In many settings in sub-Saharan Africa with generalized epidemics, it has been challenging to identify women who are at high risk of acquiring HIV", said Dr. Jennifer Balkus, a staff scientist working in the Vaccine and Infectious Disease Division and first author of the paper published in the *Journal of Acquired Immunodeficiency Syndromes*.

To identify the factors that can predict HIV risk more efficiently, the investigators utilized data from the VOICE study, a placebo controlled trial aimed at evaluating safety and efficacy of oral tenofovir disoproxil fumarate (TDF), oral TDF/emtricitabine, and vaginal tenofovir gel for prevention of HIV

acquisition. The study represents a source of data on exposure and HIV acquisition between study participants. To validate the risk score obtained through the VOICE study, data from two other trials testing effectiveness of a microbicide gel (HIV prevention trial network 035) and oral TDF/FTC (FEM-PrEP) for HIV prevention were utilized.

Numerous factors were included in the calculation of the final score, including age, alcohol use, living situation (married or living with primary partner, partner provides financial support), curable sexually transmitted infections (STI) at baseline and HSV-2 serostatus. Given the lack of availability of data on alcohol consumption or STIs in the two validation studies and the possible difficulty to obtain such information in certain contexts, partial scoring systems excluding either variable (alcohol consumption or STI) were tested as well. For full and partial risk scores, a sharp increase in HIV incidence was observed for risk scores equal or higher than 5 (See figure). The validation confirmed high sensitivity and specificity of both full and partial scores, opening the use of this new score system. "Our risk score could be used in the context of HIV prevention in several ways: (1) it could be used as a screening tool for biomedical HIV prevention trials to target enrollment of women who may be at higher risk of acquiring HIV; and (2) it could be used in public health settings as part of the implementation and scale-up of biomedical HIV prevention interventions for women such as oral PrEP and the dapivirine vaginal ring, in order to target women who would benefit most from these important HIV prevention tools", explained Dr. Balkus. This new tool sheds light on a unique and previously underrepresented population, and with proper implementation can highly impact HIV prevention in women.

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Balkus JE,Brown E,Palanee T,Nair G,Gafoor Z,Zhang J,Richardson BA,Chirenje ZM,Marrazzo JM,Baeten JM. (2016). An Empiric HIV Risk Scoring Tool to Predict HIV-1 Acquisition in African Women. J Acquir Immune Defic Syndr. doi: 10.1097/QAI.0000000000000974. [Epub ahead of print.]