HIV Incidence in a Cohort of Predominantly Female Sex Workers and Men Who Have Sex with Men in Kenya

Josphat Kosgei[1,2], Natalie Burns[3,4], Rael Bor[1,2], Christine Akoth[1,2], Deborah Langat[1,2], Margaret Yacovone[5], Sandhya Vasan[3,4], Julie A. Ake[3], Fredrick Sawe[1,2], Trevor A. Crowell[3,4] for the Multinational Observational Cohort of HIV and other Infections (MOCHI) Study Group

[1]U.S. Military HIV Research Program, Walter Reed Army Institute of Research – Africa, Kericho, Kenya, [2]HJF Medical Research International, Kericho, Kenya, [3]U.S. Military HIV Research Program, CIDR, Walter Reed Army Institute of Research, Silver Spring, Maryland United States of America, [4]Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, Maryland, United States of America, [5]National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, Maryland, USA

Background

- HIV incidence is high among vulnerable populations in sub-Saharan Africa.
- HIV incidence tracking is critical for tailoring prevention strategies.
- Female sex workers (FSW) and men who have sex with men (MSM) remain disproportionately affected in Kenya.
- This study assessed HIV incidence in high-risk populations in western Kenya.

Methods

- **Study period:** Dec 2021 – Sep 2024
- **Sites:** Homa Bay & Kericho, Kenya
- **Participants:** 407 people without HIV, aged 15–55 years
- **Eligibility:** recent STI, transactional sex, condomless sex, injection drug use, anal sex (past 24 weeks)
- **Follow-up:** Clinic-based HIV testing every 12 weeks; home OraQuick self-testing every 4 weeks; maximum follow-up: 72 weeks
- **Analysis:** HIV incidence per 100 person-years (PY); Poisson regression for incidence rate ratios (IRRs); Kaplan-Meier survival analysis; Drug resistance testing via Stanford HIVDB 9.8

HIV incidence was 2.53/100 person-years, with all 12 seroconversions occurring among female participants

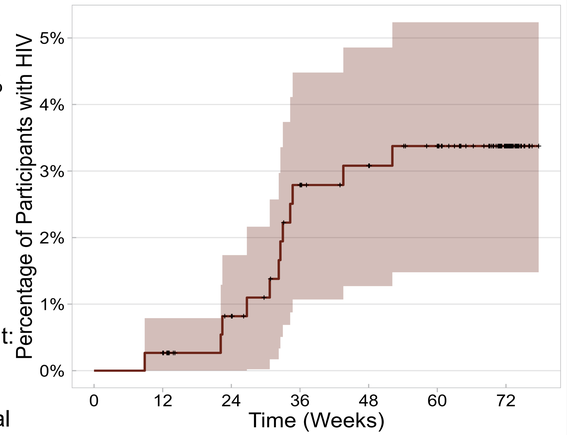
Results

Participants analyzed: 374 (92.1%, with ≥1 follow-up); median age: 22 years (IQR 19–24); females: 294 (88.1% transactional sex); Males: 81 (51.9% MSM; 37.0% transactional sex).

HIV incidence:

- 12 incident cases, all female, 80% transactional sex.
- Overall HIV incidence: 2.53/100PY (95% CI: 1.31–4.42);
- Among female: 3.27/100PY (95% CI: 1.69–5.71)
- By site: Kericho 3.09/100PY, Homa Bay 2.14/100PY, IRR 0.69 (p=0.524)

Figure 1. Cumulative incidence of HIV over 72 weeks of follow-up



Co-factors for Incident Cases: At enrolment: 80% had depression symptoms. Last visit to seroconversion: 50% had concurrent bacterial STIs, 67% reported inconsistent condom use.

PrEP Use: At enrollment: 2 (16.7%) on PrEP but discontinued; 10 (83.3%) never on PrEP.

Virology: Of the 7 viremic cases, all subtype A1; 1 case (14.3%) with NRTI mutation (S68N); No other resistance mutations.

Figure 2. HIV Incidence Rates by Sex, Age, and Study Site in Western Kenya

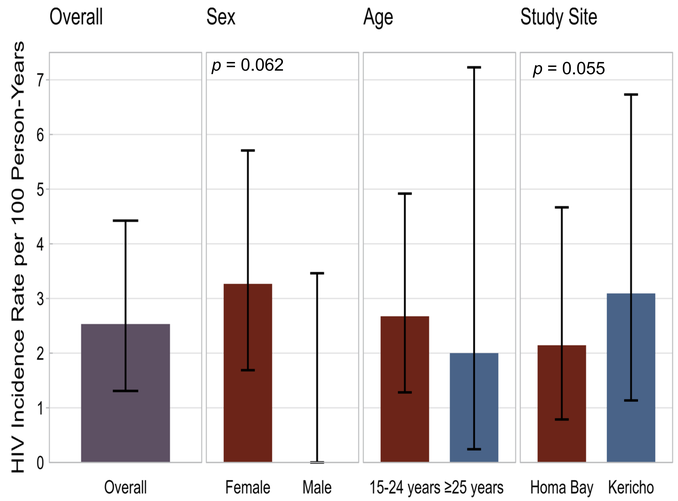


Figure 2: Incidence was higher among females compared to males, among participants aged 15–24 years compared to ≥25 years, and in Kericho compared to Homa Bay. Error bars represent 95% confidence intervals.

Conclusion

High HIV incidence among FSW in western Kenya highlights the need for tailored prevention; appropriate for HIV prevention and vaccine trials.

High HIV incidence predominantly among women requires urgent, tailored prevention

Material has been reviewed by the Walter Reed Army Institute of Research. There is no objection to its presentation and/or publication. The opinions or assertions contained herein are the private views of the author, and are not to be construed as official, or as reflecting true views of the Department of the Army, the Department of War, or HJF.

The investigators have adhered to the policies for protection of human participants as prescribed in AR 70–25.