

## **ABSTRACT**

### **OBJECTIVE:**

To test the hypothesis that increasing community antiretroviral therapy (ART) coverage would be associated with lower HIV incidence in female sex workers (FSWs) in Mombasa District, Kenya.

### **DESIGN:**

Prospective cohort study.

### **METHODS:**

From 1998 to 2012, HIV-negative FSWs were asked to return monthly for an interview regarding risk behavior and testing for sexually transmitted infections including HIV. We evaluated the association between community ART coverage and FSW's risk of becoming HIV infected using Cox proportional hazards models adjusted for potential confounding factors.

### **RESULTS:**

One thousand four hundred four FSWs contributed 4335 woman-years of follow-up, with 145 acquiring HIV infection (incidence 3.35/100 woman-years). The ART rollout began in 2003. By 2012, an estimated 52% of HIV-positive individuals were receiving treatment. Community ART coverage was inversely associated with HIV incidence (adjusted hazard ratio 0.77; 95% confidence interval 0.61-0.98;  $P=0.03$ ), suggesting that each 10% increase in coverage was associated with a 23% reduction in FSWs' risk of HIV acquisition. Community ART coverage had no impact on herpes simplex virus type-2 incidence (adjusted hazard ratio 0.97; 95% confidence interval 0.79-1.20;  $P=0.8$ ).

### **CONCLUSION:**

Increasing general population ART coverage was associated with lower HIV incidence in FSWs. The association with HIV incidence, but not herpes simplex virus type-2 incidence, suggests that the effect of community ART coverage may be specific to HIV. Interventions such as preexposure prophylaxis and antiretroviral-containing microbicides have produced disappointing results in HIV prevention trials with FSWs. These results suggest that FSWs' risk of acquiring HIV infection might be reduced through the indirect approach of increasing ART coverage in the community.