

## **Abstract**

### **OBJECTIVE:**

Vaginal colonisation with *Lactobacillus* species is characteristic of normal vaginal ecology. The absence of vaginal lactobacilli, particularly hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>)-producing isolates, has been associated with symptomatic bacterial vaginosis (BV) and increased risk for HIV-1 acquisition. Identification of factors associated with vaginal *Lactobacillus* colonisation may suggest interventions to improve vaginal health.

### **METHODS:**

We conducted a prospective cohort study of correlates of vaginal *Lactobacillus* colonisation among Kenyan HIV-1 seronegative female sex workers. At monthly follow-up visits, vaginal *Lactobacillus* cultures were obtained. Generalised estimating equations were used to examine demographic, behavioural and medical correlates of *Lactobacillus* isolation, including isolation of H<sub>2</sub>O<sub>2</sub>-producing strains.

### **RESULTS:**

*Lactobacillus* cultures were obtained from 1020 women who completed a total of 8896 follow-up visits. Vaginal washing, typically with water alone or with soap and water, was associated with an approximately 40% decreased likelihood of *Lactobacillus* isolation, including isolation of H<sub>2</sub>O<sub>2</sub>-producing strains. Recent antibiotic use, excluding metronidazole and treatments for vaginal candidiasis, reduced *Lactobacillus* isolation by approximately 30%. H<sub>2</sub>O<sub>2</sub>-producing lactobacilli were significantly less common among women with *Trichomonas vaginalis* infection and those who were seropositive for herpes simplex virus type 2. In contrast, H<sub>2</sub>O<sub>2</sub>-producing lactobacilli were significantly more common among women with concurrent vaginal candidiasis.

### **CONCLUSIONS:**

Modifiable biological and behavioural factors are associated with *Lactobacillus* colonisation in African women. Our results suggest intervention strategies to improve vaginal health in women at high risk for HIV-1.