

Headline	Cervicovaginal microbiome composition affects HIV risk		
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Cervicovaginal microbiome composition affects HIV risk

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Women with cervicovaginal bacterial communities that are high in diversity but low in *Lactobacillus* abundance may be at increased risk of acquiring HIV, shows the FRESH* study.

This prospective cohort study that monitored 236 healthy South African women 18–23 years of age identified four distinct types of bacterial communities referred to as ‘cervicotypes’ (CTs) ie, *Lactobacillus crispatus* (CT1), *Lactobacillus iners* (CT2), *Gardnerella vaginalis* (CT3), and another bacterial genus other than *Gardnerella* or *Lactobacillus* as the dominant taxon (CT4). [*Immunity* 2017;46:29–37]

“None of the women who acquired HIV had [a *Lactobacillus* crispatus-dominant community. Women with CT2 communities were also underrepresented among participants who subsequently acquired HIV relative to the un-



Certain species of vaginal bacteria can increase a woman’s susceptibility to HIV.

infected group, while those with CT3 and CT4 communities were more prevalent among women who went on to become infected,” said the researchers.

There was a fourfold increased risk of HIV acquisition in partici-

pants with a highly diverse, *Lactobacillus*-deficient cervicovaginal bacterial community (58%) dominated by either CT3 (n=68, hazard ratio [HR], 4.22, 95% confidence interval [CI], 1.06–16.88; p=0.042) or CT4 (n=70, HR, 4.03,

95% CI, 1.14–14.27; p=0.031).

After adjusting for *Chlamydia* infection, the risk remained significantly increased in women with CT4 communities (HR, 4.41, 95% CI, 1.17–16.61; p=0.028)

CT1 was dominant in the low-diversity communities identified in 10% (n=23) of the participants, while CT2 was found in 32% (n=74).

Of note was the lack of distinct viral communities, which the researchers suggested highlighted the role of bacteria in modifying the risk of HIV acquisition.

“The increased rate of HIV acquisition in women with high-diversity, low *Lactobacillus* abundance bacterial communities observed in our study could be

explained by the sensing of specific bacterial antigens or components such as lipopolysaccharide ... [which] likely results in activation and recruitment of HIV target cells to the female genital mucosa,” said the researchers.

Given the high prevalence of HIV in young African women, a comprehensive understanding of factors that affect HIV acquisition and identifying advanced regimens that could potentially reduce the risk are essential, noted the researchers.

“Our results advance our understanding of the cervicovaginal microbiome as an HIV risk factor and demonstrate the importance of considering the microbiome in the development of new treatments and preventive strategies to reduce HIV acquisition in young women living in sub-Saharan Africa,” they said.

*FRESH: Females Rising through Education, Support and Health study