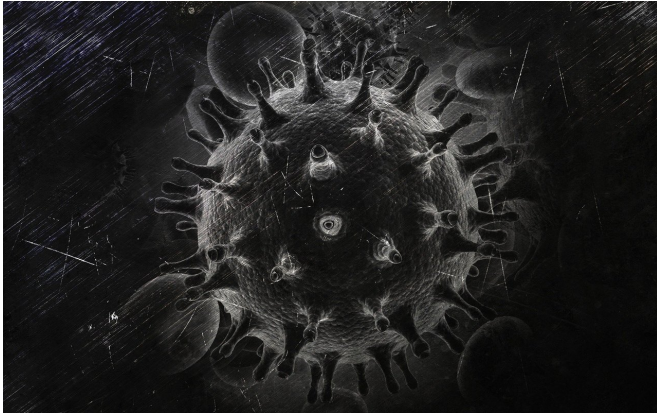


How the vaginal microbiome may affect HIV prevention

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Healthy *Lactobacillus* bacteria in the vagina are critical for women's health, but the accumulation of additional bacterial genera can imbalance the vaginal ecosystem. Such an imbalance may result in bacterial metabolism of drugs designed to prevent HIV infection, thereby decreasing their effectiveness and enhancing risks to women, according to a study published December 3, 2020 in the open-access journal *PLOS Pathogens* by Dr. Nichole Klatt of the University of Minnesota Medical School, and colleagues.

With no effective vaccine for HIV, alternative strategies such as pre-exposure prophylactic (PrEP) drugs are necessary to prevent transmission. PrEP drugs are highly effective in preventing the acquisition of HIV infection in men, but they are much less effective at preventing HIV infection in women. Recent evidence demonstrates that vaginal microbial communities are associated with increased HIV acquisition risk and may impact PrEP efficacy. To better design and conduct [clinical studies](#) assessing HIV prevention in women, it is essential to understand how microbes in the female reproductive tract affect therapeutic

drug levels.

In the new study, Klatt and her colleagues investigated how vaginal bacteria alter PrEP drug levels and impact HIV infection rates using cervicovaginal lavage samples from women with and without bacterial vaginosis (BV)—a highly common syndrome in women that is caused by bacteria that can induce itching, discharge and discomfort, and has been associated with increased sexually transmitted infections and negative reproductive tract outcomes in women. However, current treatments for BV frequently fail and recurrence is common. The researchers found that bacteria associated with BV—but not healthy *Lactobacillus* bacteria—can metabolize PrEP drugs and may potentially reduce PrEP efficacy due to reduced levels of available preventative drug. According to the authors, better measurements and interventions for bacterial vaginosis will be critical for improving the efficacy of HIV prevention efforts in women.

Dr. Klatt highlights, "women's health, and factors that contribute to health and disease prevention in women are grossly under studied. This study demonstrates the critical need to develop better treatments for [bacterial vaginosis](#), and in general, to promote more studies of [women's](#) health."

More information: Cheu RK, Gustin A, Lee C, Schifanella L, Miller CJ, Ha A, et al. (2020) Impact of vaginal microbiome communities on HIV antiretroviral-based pre-exposure prophylaxis (PrEP) drug metabolism. *PLoS Pathog* 16(12): e1009024. doi.org/10.1371/journal.ppat.1009024

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