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**Background:** Bacterial vaginosis (BV) is a common syndrome associated with serious sequelae: however BV aetiology is unclear and microbiological risk factors remain unknown. This study analysed the vaginal microbiota from longitudinal specimens in a cohort of women-who-have-sex-with-women (WSW) to determine factors associated with the development of incident-BV.

**Methods:** Women self-collected high-vaginal swabs and completed questionnaires every three months for up to 24 months; BV was diagnosed by the Nugent method. Samples from 47 women who developed incident-BV (cases) and 50 women who did not (controls) were analysed by 16S rRNA gene sequencing using Illumina MiSeq platform, to determine vaginal microbial composition. Microbial risk factors for the development of incident-BV were analysed including diversity (Shannon diversity index) and “stability” (Bray-Curtis dissimilarity).

**Results:** Compared to controls, cases had (i) higher bacterial diversity at baseline (p<0.01) (ii) an “unstable” microbiome that was more likely to change composition over time (p=0.03). Microbiome instability was also increased by exposure to a new partner (p=0.045). Increasing log load of *Lactobacillus crispatus* was associated with a decreased risk of incident-BV (Adjusted Hazard Ratio [AHR] 0.99 95%CI 0.098–1.00, p=0.05). Increasing proportions of *Gardnerella vaginalis* (AHR 1.02, 95%CI 1.01–1.03, p<0.01) and detection of BVAB TM7 (uncharacterised bacterium of the candidate division TM7 (AHR = 4.67, 95%CI: 1.44, 15.21, p=0.01)) were associated with incident-BV.

**Conclusion:** Increased vaginal microbial diversity and decreased stability over time were associated with incident-BV in WSW. These data suggest that some women have a fragile microbiome that can be shifted from a healthy to a disease state by factors such as exposure to a new partner, while other women have an *L. crispatus* dominated microbiome that is resilient to exogenous factors. The presence of BVAB TM7 and higher load of *G. vaginalis* were both associated with an increased risk of incident-BV.