

Differences in the mouths of youth born with HIV may increase their risk of dental decay

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A team of scientists from The Forsyth Institute, a global leader in oral health research, in collaboration with the NIH-funded Pediatric HIV/AIDS Cohort Study (PHACS), has published the results of a new study indicating that differences in the mouth bacteria of youth born with HIV may increase their risk of cavities. The researchers found that HIV-infected youth, compared with uninfected youth, had lower numbers of *Corynebacterium*, a microbe that is abundant in dental plaque of healthy individuals.

"At the Forsyth Institute, we encourage our scientists to explore the unknown and equip them with the resources and partnerships to do so," said Dr. Wenyuan Shi, CEO and Chief Scientific Officer at the Forsyth Institute. "This group of researchers did exactly that. When there was limited information on the potential role of [oral bacteria](#) in HIV-infected youth, they spearheaded a study to fill in these research gaps and understand more globally how systemic diseases, or their treatment, may affect the microbes that help keep us healthy or cause disease."

The researchers followed two groups of youth: those born with HIV and a comparison group of youth born to HIV-infected mothers who were not infected. The youth were enrolled in the PHACS AMP study, which investigates the long-term outcomes of HIV infection and its treatment among children who acquired HIV from their mothers. This research demonstrated that bacterial composition was similar in both testing groups, implying that pediatric HIV infection, and its treatment, are not causing large-scale imbalances in the bacteria found in [dental plaque](#).

The HIV-infected youth, however, had fewer corynebacteria in their dental plaque. This type of bacterium can help prevent the lactic acid produced by cavity-causing bacteria from reaching healthy teeth, which may help protect teeth from dental decay. Thus, the lower amounts of corynebacteria may explain why the HIV-positive youth also had more cavities.

"This is critical information, as we are now beginning to have a better understanding of the potential role of the [oral microbiome](#) in youth born with HIV. It is exciting to think that these bacteria could be involved in protecting teeth from cavities—this may guide us in developing new therapies to prevent dental decay in these youth," said Dr. Bruce Paster, Senior Member of Staff at The Forsyth Institute and Professor in Oral Medicine, Infection and Immunity at the Harvard School of Dental Medicine.

The research team hopes to take this study one step further, comparing the oral microbiome of the two groups in this study with HIV-negative youth who have never been exposed to HIV. This will help researchers understand the role of HIV exposure in determining the makeup of the oral microbiome. Additionally, the research will help reveal how species such as *Corynebacterium* might keep some oral diseases at bay with the ultimate goal of understanding treatment, risk assessment and prevention in HIV-infected youth.

The Forsyth Institute partnered with researchers from the Harvard School of Dental Medicine, Harvard T.H. Chan School of Public Health, University of California Los Angeles, University of California San Francisco, and Tulane University School of Medicine on this study.

More information: undefined undefined et al. Oral microbiota in youth with perinatally acquired HIV infection, *Microbiome* (2018). [DOI: 10.1186/s40168-018-0484-6](https://doi.org/10.1186/s40168-018-0484-6)

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