

Bacteria in smokeless tobacco products may be a health concern

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Several species of bacteria found in smokeless tobacco products have been associated with opportunistic infections, according to a paper published August 26 in *Applied and Environmental Microbiology*, a journal of the American Society for Microbiology.

Bacillus licheniformis and *Bacillus pumilus* could potentially cause inflammation of the lungs, as well as [opportunistic infections](#), said coauthor Steven Foley, PhD, research microbiologist, the National Center for Toxicological Research, US Food and Drug Administration.

Other *Bacillus* species also present health concerns, said Foley. "Some species have been identified as causative agents in spice-related outbreaks of diarrhea and vomiting. Additionally, they produce a mild toxin which, in large quantities could cause illness.

A further danger is that several species of *Bacillus*, as well as some *Staphylococcus epidermidis* and *Staphylococcus hominis* strains can reduce nitrates to nitrites, which can potentially lead to formation of carcinogenic, tobacco-specific N'-nitrosamines within the [tobacco products](#), said Foley.

Part of the concern over microbial risk from [smokeless tobacco](#) products stems from the fact that users typically hold these products in their mouths in close contact with mucus membranes, for extended periods of time, in order to allow nicotine to pass into the bloodstream. So doing provides an opportunity for the user to be exposed to bacteria present in

the product.

Additionally, users often have problems with gingivitis and other oral health issues that are caused by the smokeless tobacco products. Both [species](#) of Staphylococci found in these products have previously been reported to cause heart valve infection. The gum disease, and other oral issues enables bacterial entry into the bloodstream, which is how they could arrive at the heart.

An estimated 8 million people use smokeless tobacco products in the US. But there has been little data on the microbial populations that exist within these products. The study was undertaken to better understand the potential microbiological risks associated with the use of smokeless tobacco products, and to provide a baseline microbiological risk profile of these products, said Foley.

That data was designed to produce a microbiological baseline for smokeless tobacco products, and to lay a foundation for further studies to evaluate microbial risks of smokeless tobacco use, according to the report. This research will provide useful information regarding the US Food and Drug Administration's regulatory decision making around [smokeless tobacco products](#).

Provided by American Society for Microbiology

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