



New Ways to Stop Spread of Staph and MRSA



A new study suggests that a person's environment is more important than their genes in determining the bacteria that inhabit their noses. Interestingly, the study also suggests that some common nasal bacteria may prevent the spread of *Staphylococcus aureus* bacteria (or Staph), which can cause infections.

The study, published in the AAAS journal *Science Advances*, was led by scientists from the Translational Genomics Research Institute (TGen), the Statens Serum Institut, and Milken Institute School of Public Health (SPH) at the George Washington University.

"This study is important because it suggests that the bacteria in the nose are not defined by our genes and that we may be able to introduce good bacteria to knock out bad bugs like Staph," says Lance B. Price, PhD, the Director of TGen's Center for Microbiomics and Human Health and a Professor of Environmental and Occupational Health at the Milken Institute SPH.

Staph is a common inhabitant of the human nose, and people who carry it are at increased risk for dangerous Staph infections. This research might ultimately lead to interventions that could route Staph from the nose and thus prevent dangerous infections, including those caused by antibiotic resistant Staph.

"Using probiotics to promote gut health has become common in our culture. Now we're looking to use these same strategies to prevent the spread of superbugs," adds Professor Price.

The researchers examined data taken from 46 identical twins and 43 fraternal twins in the Danish Twin Registry, one of the oldest registries of twins in the world. "We showed that there is no genetically inherent cause for specific bacteria in the nasal microbiome," said senior author Dr. Paal Skytt Andersen, head of the Laboratory for Microbial Pathogenesis and Host Susceptibility in the Department of Microbiology and Infection Control at the Statens Serum Institut.

The research team also looked for possible gender differences. Using DNA sequencing, they found that there is no difference between men and women in the likelihood of nasal colonisation by Staph. The results contradict previous studies that showed that men are at higher risk for Staph nasal colonisation.

Notably, the study found evidence that other types of organisms can disrupt Staph. A prime example is *Corynebacterium*, a mostly harmless bacterium that is commonly found on the skin. The researchers found that having high amounts of *Corynebacterium* in the nose was predictive of having low amounts of Staph and vice versa.

"We believe this study provides the early evidence that the introduction of probiotics could work to prevent or knock out Staph from the nose," notes Dr. Cindy Liu, a Pathology resident at Johns Hopkins School of Medicine and the study's lead author.

The next step will be to prove out the findings of the study's models in a laboratory setting.

Source: [The Translational Genomics Research Institute](#)

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