Bacteria at day care might raise kids' odds for asthma

September 12 2023, by Cara Murez

Certain combinations of bacteria found in dust in children's day care

settings may have an impact on their young lungs.

Researchers are trying to understand whether attending day care can affect children's lung health. Their aim is to lower the risk of asthma.

"We find mixtures of different bacteria and other microbes living everywhere—outside, inside our homes, on our skin and even inside our bodies. These communities of bacteria, known as microbiota, can have beneficial or harmful effects on our health," said Dr. Annabelle Bédard, a researcher at Inserm (the French National Institute of Health and Medical Research) in Paris, France.

"Young children will come into contact with the bacteria living in day care centers via their skin and mouths and by breathing them in. So we might expect this exposure to have an impact on children's developing lungs via the different microbiota that arise in children's airway, gut or skin," Bédard said in a news release from the European Respiratory Society. The findings are scheduled for presentation at the society's annual meeting this week in Milan, Italy.

In the United States, 6 million children—about 1 in 12—have asthma, according to the U.S. Centers for Disease Control and Prevention. It is a serious disease causing wheezing, difficulty breathing and coughing.

For this study, researchers used an adapted vacuum cleaner to collect dust samples from the floor of more than 100 day care settings in Paris. Then they used genetic analysis to identify the different types of bacteria they found.

They also asked parents of 515 children attending daycare facilities whether their children experienced any respiratory symptoms, such as wheezing. The children were an average age of 2 years.

The team then grouped mixtures of microbiota from the center into four broad categories.

The investigators found that one of these categories, in which two different bacteria called Streptococcus and Lactococcus were dominant, was linked with an increase in the risk of wheezing, when they compared it to a more common category, which included a mixture of Streptococcus, Neisseria and Haemophilus bacteria.

"In children under 3 years old, wheezing is considered to be an early sign of asthma. Our research suggests that there are differences in the risk of recurrent wheezing depending on mixtures of bacteria in the day care setting," Bédard said.

"We now need to understand what factors influence this bacterial community, for example how the rooms are cleaned and ventilated, and indoor air quality. This, along with future findings from other studies, could help us understand how to improve conditions and inform public health strategies for preventing chronic respiratory diseases such as asthma in children," Bédard added.

Findings presented at medical meetings are considered preliminary until published in a peer-reviewed journal.

More information: The U.S. National Library of Medicine has more on asthma in children.