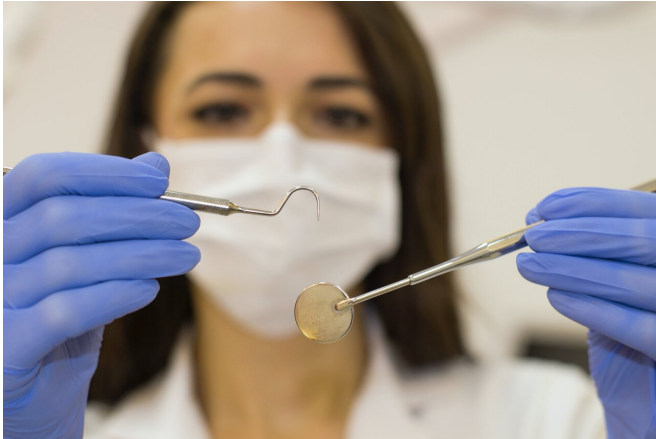


# Sources of SARS-CoV-2 and other microorganisms in dental aerosols

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COVID-19 was declared a global pandemic in March 2020 and given an incomplete understanding of the transmission of SARS-CoV-2 at that time, the American Dental Association recommended that dental offices refrain from providing non-emergency services. As a result, 198,000 dentists in the United States closed their doors to patients. The study "Sources of SARS-CoV-2 and Other Microorganisms in Dental Aerosols," published in the *Journal of Dental Research* (JDR), sought to inform infection-control science by identifying the source of bacteria and viruses in aerosol generating dental procedures.

Researchers at The Ohio State University College of Dentistry, Division of Periodontology, Columbus, USA, tracked the origins of microbiota in aerosols generated during treatment of 28 patients undergoing ultrasonic scaling, implant osteotomy or restorative procedures by combining reverse transcriptase qPCR, to identify and quantify SARS-CoV-2, and 16S sequencing, to characterize the entire microbiome, with fine-scale enumeration and source-tracking. Thirty minutes following the procedure, condensate was collected from the

operator and assistant's face shield, the patient's chest and an area 6-feet distant from the site of operation.

The results show that it is possible to trace the source of contamination through DNA microbiome analysis and that the major source of microbes in aerosols came from the dental irrigant. Saliva did not significantly contribute as [infection control measures](#) such as pre-operative mouthrinses and intra-oral high-volume evacuation were used. The authors conclude that the risk for transmission of SARS-CoV-2 and other respiratory pathogens from aerosolized saliva in dental operatories is moderately low and that current infection control practices are adequately robust to protect personnel and patients alike.

"Understanding the sources of microbial load in aerosols is important, not only for infection control in dental operatories during the COVID pandemic, but also to inform [best practices](#) in aerosol reduction, mitigation and abatement in the long term." said JDR Editor-in-Chief Nicholas Jakubovics, Newcastle University, England. "While further studies are needed with larger sample sizes, this study sets the stage for future work on risk of microbial transmission in oral health care settings."

**More information:** A.P. Meethil et al, Sources of SARS-CoV-2 and Other Microorganisms in Dental Aerosols, *Journal of Dental Research* (2021). [DOI: 10.1177/00220345211015948](https://doi.org/10.1177/00220345211015948)

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