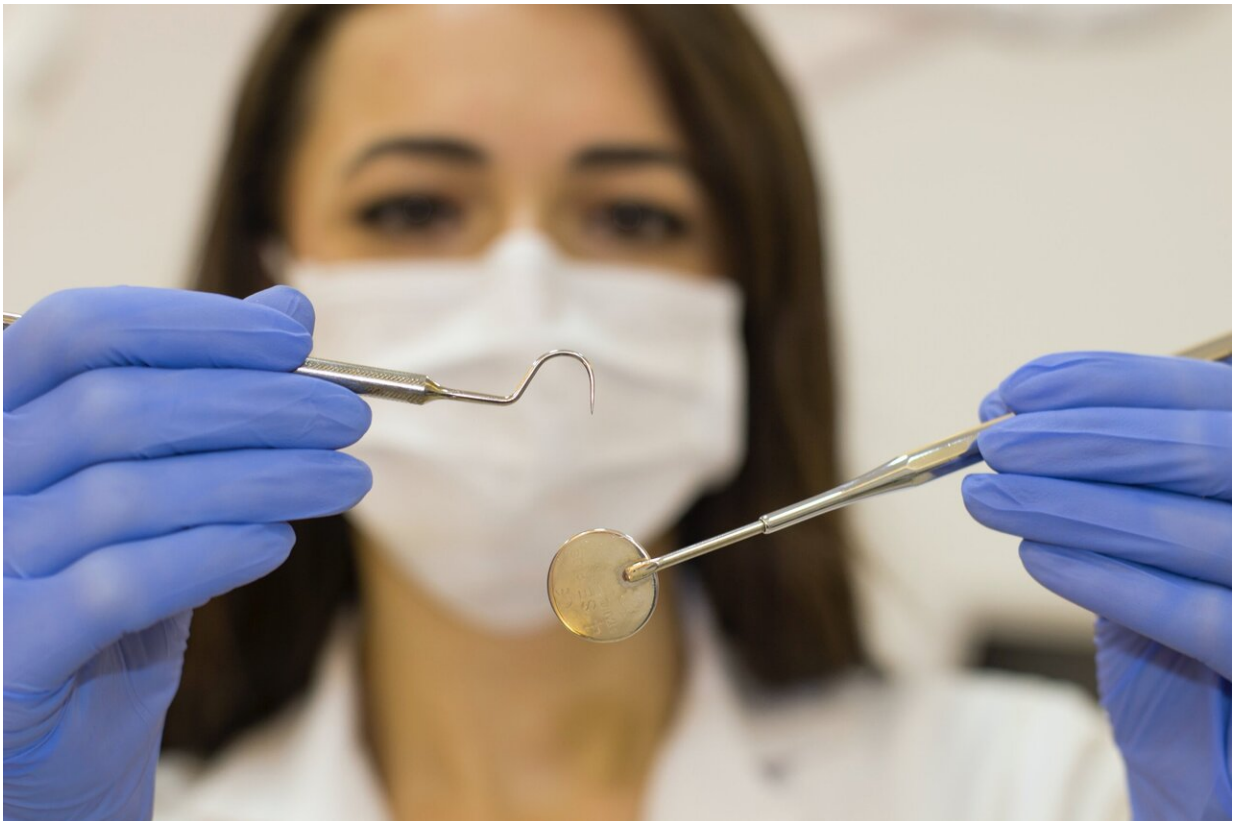


Ventilation assessment by carbon dioxide levels in dental treatment rooms

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Credit: Unsplash/CC0 Public Domain

Carbon dioxide (CO₂) is a byproduct of human metabolism and exists in high levels in exhaled air, and is therefore often used as a proxy for indoor air quality. The study "Ventilation Assessment by Carbon

Dioxide Levels in Dental Treatment Rooms," published in the *Journal of Dental Research* (JDR), evaluated CO₂ levels in dental operatories and determined the accuracy of using CO₂ levels to assess ventilation rate in dental clinics.

Researchers at the University of Rochester, Eastman Institute for Oral Health, N.Y., U.S., conducted CO₂ concentration and ventilation rate assessments in 10 closed dental treatment rooms with varying air change rates by ventilation. Mechanical ventilation rate in air change per hour was measured with an air velocity sensor and air flow balancing hood.

The results showed that CO₂ level in dental treatment rooms could be measured with a simple consumer-grade CO₂ sensor, and that ventilation rate could be determined by either natural or experimental buildup of CO₂ levels in dental settings. Assessing CO₂ levels allows dental care professionals to conveniently and accurately calculate the ventilation rates in their offices and help them to devise effective strategies for ventilation improvement. They also demonstrated that ventilation rates in air change per hour could be accurately assessed by observing CO₂ levels after a simple mixing of household baking soda and vinegar.

"Accurate measurements of [ventilation rate](#) in dental settings are important for risk assessment and for risk mitigation, especially during the COVID-19 pandemic," said JDR Editor-in-Chief Nicholas Jakubovics, Newcastle University, England. "This study demonstrates the precision of a practical tool that will enable dental care professionals to conveniently and accurately monitor CO₂ levels and assess the ventilation rates in order to devise a pragmatic and effective strategy for ventilation improvement in their work environment."

More information: Q. Huang et al, Ventilation Assessment by Carbon Dioxide Levels in Dental Treatment Rooms, *Journal of Dental Research* (2021). [DOI: 10.1177/00220345211014441](https://doi.org/10.1177/00220345211014441)

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