IADR
International Association for Dental Research

AADOCR
American Association for Dental, Oral, and Craniofacial Research

FOR IMMEDIATE RELEASE
November 10, 2021

CONTACT:
Elise Bender
+1.703.299.8084
media@iadr.org

Local Exhaust Ventilation to Control Dental Aerosols and Droplets

Alexandria, VA, USA — Dental procedures produce aerosols which contain oral microbes, creating potential for infectious disease transmission. This study, "Local Exhaust Ventilation to Control Dental Aerosols and Droplets" published in the *Journal of Dental Research* (*JDR*), investigated the effect of a Local Exhaust Ventilation (LEV) device on aerosols and droplets produced during dental procedures. These devices are designed to be placed over the patient's mouth to capture aerosols and droplets at the source.

Researchers at Newcastle University, England, conducted experiments on dental mannequins. Ten-minute crown preparations were performed with an air-turbine handpiece in a large open plan clinic, and full mouth ultrasonic scaling was performed for ten minutes in a single dental surgery. Fluorescein was added to instrument irrigation reservoirs as a tracer. In both settings, Optical Particle Counters (OPCs) were used to measure aerosol particles between 0.3 – 10.0 µm and liquid cyclone air samplers were used to capture aerosolised fluorescein tracer. An LEV device with High Efficiency Particulate Air (HEPA) filtration and a flow rate of 5,000 L/min was tested during the experiments.

The results show that using LEV reduced the dispersion of aerosols from the air turbine handpiece by 90% within 0.5 m, and this was 99% for the ultrasonic scaler. The settling of larger droplets was also measured for the air-turbine, and this was reduced by 95% within 0.5 m when LEV was used.

This study shows that the effect of LEV was substantially greater than suction alone for the air-turbine and was similar to the effect of suction for the ultrasonic scaler," said IADR President Eric Reynolds, The University of Melbourne, Australia. "While no mitigation measure alone will completely eliminate risk, LEV appears to be a useful approach, which in addition to other measures, substantially reduces dispersion of aerosols, and therefore risk of exposure to pathogens.

About the *Journal of Dental Research* The IADR/AADOCR *Journal of Dental Research* (*JDR*) is a multidisciplinary journal dedicated to the dissemination of new knowledge in all sciences relevant to dentistry and the oral cavity and associated structures in health and disease. The *JDR* 2-year Journal Impact Factor™ is 6.116, ranking #5 of 91 journals in the "Dentistry, Oral Surgery & Medicine" category, and the *JDR* 5-year Journal Impact Factor™ is 7.199. The *JDR* ranks #1 of 91 journals in total citations at 26,197 and Eigenfactor at 0.01683. The *JDR* Editor-in-Chief is Nicholas Jakubovics, Newcastle University, England. Follow the *JDR* on Twitter at @JDentRes!

International Association for Dental Research
The International Association for Dental Research (IADR) is a nonprofit organization with over 10,000 individual members worldwide, with a mission to drive dental, oral and craniofacial research for health and well-being worldwide. To learn more, visit www.iadr.org. The **American Association for Dental, Oral, and Craniofacial Research (AADOCR)** is the largest Division of IADR with 3,100 members in the United States. To learn more, visit www.iadr.org/aadocr.