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Reducing Risk Of Aerosol-Transmitted Infection From Dental Ultrasonic Instrumentation

Tech ID: 32942 / UC Case 2021-942-0

CONTACT

Alvin Viray
aviray@uci.edu
tel: 949-824-3104.



INVENTORS

- » Milner, Thomas
- » Wilder-Smith, Petra

OTHER INFORMATION

KEYWORDS

Aerosol transmitted disease, Ultrasonic scaler, Infection control

CATEGORIZED AS

- » **Medical**
- » Devices
- » Disease: Dental
- » Research Tools

RELATED CASES

BRIEF DESCRIPTION

Pathogenic transmission of dental aerosol created by ultrasonic scaling is considered a major concern during dental procedures. Researchers at UC Irvine have developed a novel tool/method to address this concern by removing the created aerosol at the source.

SUGGESTED USES

- Preventing aerosol-transmitted infection in dental procedures

FEATURES/BENEFITS

- No need for second pair of hands to hold separate HVAC system
- No need for external fixation of suction device
- Cost-effective
- Direct removal of aerosol through already regulatory-compliant and regularly maintained suction disposal channels
- Design includes ergonomic optimization of the handpiece

TECHNOLOGY DESCRIPTION

Production of infectious aerosols during ultrasonic scaling is a growing concern in the dental profession. Liquid and solid particles produced during ultrasonic scaling contain high amounts of microorganisms, which are responsible for the development of a variety of aerosol-transmitted diseases. Further, there are many types of airborne infections that are primarily transported through spatter and droplet nuclei – including but not limited to COVID-19, tuberculosis, SARS, measles, hepatitis and herpetic viruses – and their potential to stay airborne or to become re-airborne as a dust particle is considered a major challenge to infection control in connection with dental procedures. Even though several different types of devices have been developed in an attempt to solve this problem, none are ideal. Existing solutions lack adequate suction power, inhibit the working ability of the dental instrument, or require either a second pair of hands or external devices for holding the suction nozzles to the handpiece.

Addressing this need for a device capable of effectively capturing dental spray, researchers at University of California, Irvine have invented a method/tool to evacuate the dental aerosols through the suction of these particles very close to the source. This novel technology reduces the risk of aerosol-transmitted infection from many dental procedures by limiting spray dispersion at its source, thereby overcoming the limitations of currently available approaches.

STATE OF DEVELOPMENT

Proof of principle completed. Prototypes are being optimized.

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Reference for National Filings	WO 2023/055595	04/06/2023	2021-942

Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ Simple Imaging Tool for Oral Cancer Detection and Monitoring
- ▶ Rapid optical detection system for SARS-CoV-2 and other pathogens

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5270 California Avenue / Irvine, CA
92697-7700 / Tel: 949.824.2683



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