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Letter to the editor

# COVID-19 and its implications in dental care management against bioaerosol transmission



To the Editor

Bioaerosols are defined as airborne particles of liquid or volatile compounds that contain living organisms or have been released from living organisms. Previous studies have reported that the extent of bacterial aerosol contamination generated during dental treatment procedures such as cavity preparation using an air rotor, history and oral examination, ultrasonic scaling, and tooth extraction under local anesthesia.<sup>1,2</sup> More worrying, a recent study by van Doremalen et al.<sup>3</sup> raised concern in the infectivity of COVID-19 by revealing that only a slight reduction in the virus' infectious titer was observed during a 3-h period. It also found COVID-19 to be viable on materials widely used in a dental setting, such as plastic and stainless steel up to 72-h after surface contamination.<sup>3</sup> These findings implore a need to re-examine our current infection control protocols in dental settings in order to contain the extent of aerosol transmission.

Since dental aerosolization can be attributed to the use of ultrasonic scalers, high speed handpieces, and air turbines, infection control protocols should be implemented to avert the use of these equipment during the COVID-19 pandemic. During this time of crisis, the American Dental Association (ADA) has suggested the interim guidance for minimizing risk of COVID-19.<sup>4</sup> The practice of safe infection control protocols is recommended. Patients should be screened at their arrival and those who exhibit flu-like symptoms should have their appointment deferred until they regain health. However, the infeasibility to screen out all infected patients require dental professionals to be extra cautious. As COVID-19 may be susceptible to oxidation, an oxidizing pre-treatment mouthrinse will help reduce the viral load in the oral cavity.<sup>4</sup> The use of aerosol-generating equipment should be avoided unless adequate personal protective equipment such as N95 respirator, face shields, and surgical gown can be provided. The use of rubber dam and high level saliva ejector for aerosol and

splatter control is also recommended during the dental treatment procedures.<sup>4</sup>

As for the handling of treatment environment, innovative efforts have identified ways to minimize bioaerosol contamination. Certainly, the use of personal protective equipment when treating patients and thorough disinfection of treatment areas afterwards are crucial in decreasing viral spread. In addition, concerns with the contamination of dental unit waterlines could be resolved by the use of nanoemulsions with its extensive virucidal effect on biofilms to meet the ADA recommendation.<sup>5</sup>

Even though COVID-19 seems to be under control in Taiwan, future research should also look at the extent virus-vested aerosols are able to spread in dental procedures. The lighter mass of viruses may allow them to travel a further distance, posing patients and professionals and a greater threat. Efforts made to collect comprehensive data on the spreading of pathogenic aerosols and to investigate the potential methods of their reduction will allow the formulation of a more rigorous and numerical guideline, allowing our well-being to be safeguarded without overly compromising the quality of our work.

## Declaration of Competing Interest

The authors have no conflicts of interest relevant to this article.

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