

## REVIEW ARTICLE

# Challenges of Dentistry in Coronavirus Pandemic

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In 2020, a new type of novel coronavirus (SARS-CoV-2) was spread around global. The increasing spread of acute coronavirus (SARS-CoV-2) respiratory tract infections that caused by coronavirus 2019 (COVID-19) worldwide has raised concerns, preventions and control of SARS-CoV-2 from both the scientific community and the general public. While many specific precaution to stop the spread of respiratory viruses are being carried out, other transmission lines that are poorly understood must also be considered and addressed to reduce further spread. Dentist must be handling dental management treatment and provides guidelines to protect themselves, their colleagues and their patients against COVID-19 infection in dealing with such a pandemic situation. They are a high-risk medical career and one of the most vulnerable to coronavirus transmission. In dentistry, there are so many systems and acts that are fragile and have the ability for coronavirus transmission. In addition to infection management, several aspects of COVID-19 contribute to dentist, including preventing and management treatment care. There are also a number of dentists who are comfortable with clinical features that influence the orofacial zone.

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**INTRODUCTION**

The beta novel coronavirus, the 2019 novel coronavirus (2019-nCoV) (1), was the origin of a cluster of recent pneumonia cases in Wuhan, China. In regard to this daunting pandemic, dentists have been advised by the Center for Disease Control and Prevention (CDC), the American Dental Association (ADA), the National Health Service (NHS), and other health regulatory monitoring and providing advice to dentists in order to secure themselves from this epidemic (2,3). Respiratory in nature is the main clinical manifestations and manifests after a mean incubation period of 5 days (range:0-24 days). In patients with certain comorbidities, specifically hypertension, diabetes and ischaemic heart disease can have increasing the risk of infection. The circulating amount of Angiotensin-Converting Enzyme-2 (ACE2) is elevated in hypertensive and diabetic patients. You will note an elevated risk of infection (4). An estimated 80% of infected cases are asymptomatic (5).

Based on scientific report, through close contact and droplets, airborne, fomite, fecal-oral, bloodborne, and mother-to-child transmission, COVID-19 can be transferred from human to human (6). Daily hand washing, coughing and sneezing, avoiding eye contact and avoiding close contact with those exhibiting signs of respiratory disease such as coughing and sneezing are common recommendations for preventing the spread of infection. In addition, health services particularly in the emergency department, the introduction of infection preventive and control (PPI) (7). The high rank risk groups for coronavirus transmission and interaction are dentists, with several regular procedures that could spread the virus by aerosols (8,9).

At the moment, in our work and private lives, no one can be assured when we can return to some kind of 'normality'. To respond to the fact that the COVID-19 pandemic will reform the way of dental practice, dental practitioners are facing new challenges. Change is often challenging, and a large amount of fear is involved in this particular change. Dentists are concerned about their obligation to safeguard the safety and health of their patients, their staff and themselves.

## Prevention to provision of dental healthcare in coronavirus pandemic

An adverse occurrence which may include unintentional or willful bodily harm, activation and depression of the central nervous system, respiratory and circulatory disturbances, as well as allergic reactions, may be a medical emergency in the dental office. Dentists and their personnel should be trained to identify, respond to and treat a medical emergency effectively (10). Our key priorities today are to reduce the potential for COVID-19 transmission in emergency situations. Emergency category is a life-threatening condition that requires urgent care to avoid constant bleeding from the tissue, to minimize serious pain or infection. Cellulitis surgery, excessive bleeding or injuries are also signs of an emergency (9).

Dentistry needs to be a part of the scheme of health care. In order to play a more important role in the global health emergency response system and to tackle evolving life-threatening diseases, dentists must be trained (11). The ADA (2020) has established guidance on dental emergency and non-emergency dental procedures and offers a very detailed list of emergency dental treatments aimed at pain relief, infection prevention and discomfort reduction (12). Serious dental pain resulting from pulpal inflammation, pericoronitis or third molar pain, shift in dry socket dressing, abscess or local bacterial outbreak resulting in localized pain and swelling, tooth fracture resulting in pain or causing damage to soft tissue, avulsion/lubrication dental trauma are examples of urgent dental treatments that must be treated as non-invasively as possible (13).

Numerous different emergency dental treatment involves comprehensive pain-causing caries or faulty repairs; removal of sutures; denture changes on patients with radiation/oncology; denture modifications or replacements when function is impaired; replacement of momentary filling on endo access openings in patients with pain; and snipping or modifications of an orthodontic wire or implant that pierces or ulcers the oral mucus. Dentists must recognise emergency cases required for dental care, and it may certainly become some help for patients, the people and as a whole to practice successful tele-dentistry when necessary (9).

## New normal in dental practice

Dentists have one of the highest risk groups for coronavirus spread and expansion. For patients undergoing urgent or emergency dental treatments, it is necessary to provide care. The primary objective ought to be to avoid infection from being spread to patients and dental care professionals (14). Cross-infection prevention strategies should be enforced at all periods, and social distancing in practice should

be embraced. There are only a few examples of most dental procedures that produce aerosol, prepare cavities for fillings, use rotary tools for root canal treatment, scaling and repainting teeth. The generation of aerosols from dental practice cannot be prevented. These aerosols, if developed from an infected patient, may be the carrier for covid-19 and thus serve as a potent source of cross-infection for medical and other patients across the clinical area (3).

Coronavirus molecules ranging from 60 to 140 nanometers (0.06 to 0.14 micrometers), with an average of 0.125 microns, do not support this which causes them a major aerosol hazard. Bioaerosols can be produced by the majority of daily dental procedures using low- or high-speed handpieces, electrosurgery systems, ultrasonic scalers, air polishers, air/water syringes or lasers, with daily takes devices such as ultrasonic scalers and high-speed handpieces generating further airborne exposure than any other system (10). The respiratory mask N95, full-face shields, and specific clinical PPE (including eye protection) are needed for aerosol-generating guidelines, and approved sanitizing practices should be performed immediately after any procedure. In order to preserve dental medical care, we have to minimize the amount of aerosol-generating procedures (15). The SARS-CoV-2 virus does not replicate or "grow" outside the body, and several popular disinfectants may interrupt its nanostructure. The virus can retain its viability a for prolonged period of time, from several hours to several days, on various surfaces, such as metal, glass, plastic, wood or paper (16,17), but some disinfectants, including 70% ethanol, 0,1% sodium hypochlorite, 1% povidone-iodine and 0,5% hydrogen peroxide, can be successfully inactivated within 1 to 5 minutes (18). After 15 years of exposure, povidone-iodine mouthwash has been found to have significant viricidal activity against SARS-CoV and MERS-CoV (19). For aerosol-generating techniques, patients should be advised to use 1% povidone-iodine or 1.5% hydrogen peroxide mouthwash for 1 min before surgery, and a rubber dam should be used during the operation to prevent saliva contamination and aerosol production. All usable work surfaces must be washed with 0.1% sodium hypochlorite just after process. Although all these measures are useful in minimizing the risk of nosocomial microbes in dental offices, hand cleaning with soap among practitioners and after contacting any nonsterile products is the most effective approach to prevent the spread of COVID-19 (12). More than half of dentists have financial problems caused by lower working hours and limited dental procedures. A study revealed that the COVID-19 pandemic is causing financial problems in the dental office. They spend their money saving for daily expenses. A study shows that health workers, including dentists, experience symptoms of stress and

depression during the COVID-19 pandemic compared to pre-pandemic conditions. Workload increases, working with changes repeatedly protocol, using PPE, social distancing, self-isolation, and caring for the deteriorating patient found to be a major concern among medical staff during a pandemic. Besides, a tough decision must be created by workers during a pandemic as limited resources. The dentist mentioned that they needed to consult a psychiatrist or therapist (20).

## CONCLUSION

To resist change in this situation, dentists must adapt to the conditions of the coronavirus pandemic, particularly dental practitioners. The outbreak of COVID-19 has influenced the practices of dentists. Due to the presence of patients who are infected and asymptomatic, safety of patients, dentists and staff during COVID-19 is difficult. Emergency or critical dental procedures are required to be carried out by dentists. If patients have a dental emergency or an urgent illness that can not be delayed without causing significant discomfort or anxiety, they can be treated in the dental clinic. Defense and preventive strategies depend on whether aerosols will be generated by the therapeutic approaches. It can all be helpful for patients to spread information based on facts based on and not myths that classify emergency cases suggested for dental care, and to practice successful tele-dentistry when appropriate.

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