

## Corona Virus Infection in Dental Practice

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### ABSTRACT

The outbreak of corona virus infection with COVID-19 is currently representing a challenge for dental practitioners because the dentist is the most affected individual in medical staff when they are becoming in direct contact with saliva droplets and cough, sneeze during the dental treatment even with all precautions that could be taken to prevent cross infection.

**Keywords:** COVID-19, SARS-CoV-2, Dental practice

**Abbreviations:** COVID-19: Corona virus Disease 2019; SARS: Sever Acute Respiratory Syndrome; AIIRs: Airborne Infection Isolation Rooms

### INTRODUCTION

The epidemic of corona virus disease 2019 (COVID-19), has become a major public health challenge for countries around the world. Infection control measures are necessary to prevent the virus from further spreading which can be high, especially among patients and dental practitioner. Also called COVID-19, is the latest infectious disease rapidly developed. The epidemics of this disease started from Wuhan, China, last December and have become a major challenging public health problem for not only China but also countries around the world [1]. The novel corona virus belongs to a family of single-stranded RNA viruses known as Coronaviridae [2]. Since dentists are the workers, most exposed to the risk of being affected by COVID-19, much more than nurses and general physicians. For this reason, strict and effective infection control protocols are urgently needed [3].

#### Routes of transmission

Infections with SARS-CoV-2 usually spread through respiratory droplets from coughing or sneezing by an infected person with SARS-CoV-2 infecting individuals within a radius of approximately 6 ft [4] or by direct contact with airborne droplets of virus land on items situated close by an infected person and are then touched by other individuals. A fact that people touch their face on an average of 23 times per hour, with 44% of these occurrences relating the mucous membranes of the mouth and/or nose [5].

The presence of SARS-CoV-2 in both saliva and feces of the patients [6,7]. It is known, this virus can bind to human angiotensin-converting enzyme 2 receptors, which are highly concentrated in salivary gland duct epithelium and explain

the presence of SARS-CoV2 in secretory saliva [8,9]. So, there is a big chance for the transmission of COVID-19 via aerosol, fomites, or the fecal-oral route that may add to nosocomial spread in the dental clinic [10].

A new study indicates that copper and paper can permit the virus to survive for 4 to over 24 h. In addition, the infectious accure can be radically reduced only after at least 48 h for strengthen and 72 h for plastic.

So, the virus remnants longer on steel instruments, or disposable material exposed to the flows of infected air, than in a magazine in the waiting room. The considerable action to be taken is to help maximum hand and surface hygiene, set that the virus is totally inactivated by water, soap, and other detergents [10].

#### Incubation period

The incubation period of COVID-19 has been likely at 5 to 6 days on average, but there is proof that it could be as long as 14 days, which is now the commonly adopted duration for medical observation and quarantine of suspected individuals [11].

**Systemic manifestations:** The majority of patients experienced fever and dry cough, dyspnea, fatigue, and other

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atypical symptoms, such as muscle pain, confusion, headache, sputum and haemoptosis, diarrhea, lymphopenia and vomiting [12].

**Oral manifestations:** Sore throat, reduced sense of smell (hyposmia), and abnormal taste sensation (dysguesia) have also been reported [13].

#### Effective infection control protocols

The limitation of people circulating outside their home, social distancing, the cessation of almost all working activities and the request to the population to use protective equipment [14].

Hand hygiene has been careful the measure for reducing the risk of transmitting microorganism [15]. SARS-CoV-2 can persist on surfaces for a few hours or up to several days, depending on the type of surface, the temperature, or the humidity of the environment [16]. This reinforces the need for good hand hygiene and the importance of thorough disinfection of all surfaces within the dental clinic.

#### Dental treatment recommendations

- Upon patient arrival in dental practice, patients should complete a detailed medical history form, COVID-19 screening questionnaire and assessment of a true emergency questionnaire.
- Dental professionals should measure the patient's body temperature using a non-contact forehead thermometer or with cameras having infrared thermal sensors. Patients who present with fever ( $\geq 38^{\circ}\text{C}$ ) and/or respiratory disease symptoms should have an elective dental care deferred for at least 2 weeks [5].
- In suspected or confirmed cases of COVID-19 infections requiring urgent dental care, such as tooth pain and/or swelling, pharmacologic management in the form of antibiotics and/or analgesics is an alternative.
- Dentists should follow the standard, contact, and airborne precautions, including the appropriate use of personal protective equipment including masks, gloves, gowns, and goggles or face shields, are recommended to protect skin and mucosa and hand hygiene practices [10].
- Preprocedural mouth rinse: with 0.2% povidone-iodine might reduce the fill of corona viruses in saliva [17]. Another alternative would be to use 0.5-1% hydrogen peroxide mouth rinse, as it has nonspecific veridical activity against corona viruses [11].
- Use of disposable (single use) devices such as mouth mirror, syringes, and blood pressure cuff to prevent cross contamination is encouraged.
- Radiographs: Extraoral imaging such as panoramic radiography or cone-beam computed tomographic imaging should be used to avoid gagging or cough reflex that may

occur with intraoral imaging. When intraoral imaging is mandated, sensors should be doubling barriers to prevent perforation and cross contamination [18].

Dentists should use a rubber dam to minimize splatter generation (of course, this is the standard of care for nonsurgical endodontic treatment). It may be advantageous to place the rubber dam so that it covers the nose.

- Dentists should reduce the use of ultrasonic instruments, high-speed handpieces, and 3-way syringes to reduce the risk of generating contaminated aerosols.

- Endodontic practices can dilute the sodium hypochlorite irrigation solution to 1% concentration, to extend the supplies without compromising on treatment outcome [19].

Negative-pressure treatment rooms/ airborne infection isolation rooms. That patients with suspected or confirmed COVID-19 infection should not be treated in a routine dental practice setting. But treated in negative-pressure rooms or AIIRs. Thus, preventive knowledge of health care centers with provision for AIIRs would help dentists to provide emergent dental care if the need arises [20].

Clinic staff should make sure to disinfect inanimate surfaces using chemicals recently approved for COVID-19 and maintain a dry environment to curb the spread of SARS-CoV-2.

#### CONCLUSION

In conclusion, the significant limitation of clinical and surgical activities in dental clinic should be carefully observed in order to reduce the risk of spread of COVID-19.

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