

# Primordial-level Preventive Measures for Dental Care Providers against Life-threatening Corona Virus Disease (COVID-19)

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## ABSTRACT

The outbreak of this corona virus disease 19 (COVID-19) was first reported in Wuhan city in China and now it has become a global issue. The total number of confirmed cases of COVID-19 recorded globally has surpassed 100,000. The mode of transmission of COVID-19 is usually from person to person and it could also be through direct transmission such as cough, sneeze, and inhalation of droplets. Dental care providers are at higher risk since they are more prone to cross contamination with the patient's saliva and aerosols that are released during the dental procedures. They can also be transmitted through other routes such as direct contact with blood, oral fluids, and from contaminated instruments. This paper intends to provide primordial-level preventive measures for dental care providers against this life-threatening COVID-19.

**Keywords:** Corona virus, Dental care providers, Preventive measures, Primordial prevention.

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## INTRODUCTION

Coronavirus belongs to a family of viruses (Coronaviridae), which are usually zoonotic and are mainly transmitted between the animals and humans.<sup>1</sup> The outbreak of this corona virus disease 19 (COVID-19) was first reported in Wuhan city in China.<sup>2</sup> This has now become a global issue affecting 104 countries and territories around the world.<sup>3</sup> The total number of confirmed cases of COVID-19 recorded globally has surpassed 100,000.<sup>4</sup> The patients infected with COVID-19 report with symptoms such as fever, cold, cough, and shortness of breath, which may appear 2–14 days after the exposure to the virus.<sup>4</sup> In severe cases, the infection can result in pneumonia, severe acute respiratory syndrome, and acute kidney failure which could eventually lead to death.<sup>5</sup>

The spread of infection is usually from person to person. This could be between people who have been in close contact (within 6 feet distance) by exposure to the respiratory droplets let out by the infected individual while coughing and sneezing.<sup>6</sup> People who are at higher risk of getting sick are the older adults, individuals suffering from chronic medical conditions like cardiovascular disease, diabetes mellitus, and respiratory diseases.<sup>7</sup>

There are reports of COVID-19 claiming human lives at a rapid rate and also posing as a major threat for healthcare providers and these are because of the lack of the possible vaccine for the cure.

## HOW ARE DENTAL CARE PROVIDERS AT RISK?

Dental care providers are at higher risk of exposure to this virus as the transmission of this virus is mainly through person-to-person contact, which could result through inhalation or ingestion of the droplets containing these viruses, which could be from the cough and sneeze by the infected person.<sup>8</sup>

Dental care providers are at increased risk since these airborne infectious diseases begin with the viruses being dispersed into the

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air from the patient's cough and sneeze. The principal source for dentists can be through the contamination in the mouth with the saliva and aerosols developed during the dental procedures. The risk is even higher as the process of infection could be exacerbated by usage of high-speed instruments, which mainly composes of the ultrasonic dental scalers and high-speed airtors that are usually used for preparing the cavity.<sup>9</sup>

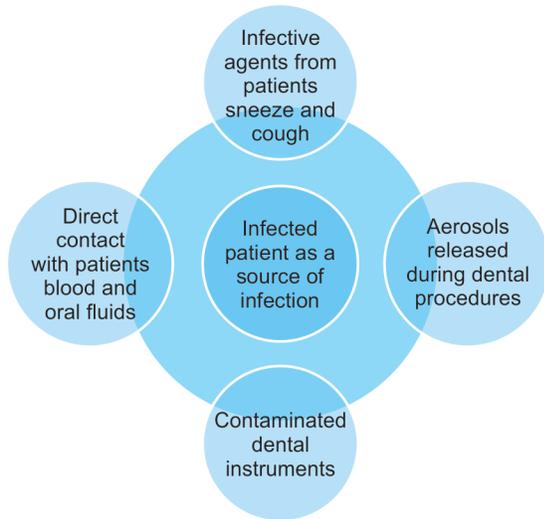


Fig. 1: Sources of infection for dental care providers

These airborne infections can also be transmitted through several other routes such as direct contact with blood (tooth extraction procedures, periodontal treatments), through oral fluids (impression taking procedures), through indirect contact from the contaminated instruments<sup>10</sup> (Fig. 1).

### WHAT SHOULD A DENTIST DO ON IDENTIFYING A SUSPECTED COVID-19 CASE?

Dental care providers should be extra cautious and should identify the patients with the classical symptoms of COVID-19, which include coughing, cold, fever, and shortness of breath.<sup>11</sup>

Patients should be enquired about close contact with any individual having COVID-19 symptoms and should also be enquired about the history of travel from any geographically affected areas.<sup>12</sup>

The suspected patients should be seated in a separate ventilated area, since isolation of these suspected cases is very much important, and these patients should be informed about the suspected illness and should be provided disposable surgical mask (which can efficiently block respiratory secretions from contaminating others and the environment) and they have to be immediately referred to state or local health department.<sup>13</sup>

### HOW SHOULD DENTAL CARE PROVIDERS PREVENT THEMSELVES FROM THE TRANSMISSION OF INFECTIONS?

Dental care providers are at higher risk of exposure to the COVID-19 since they are in close contact with aerosols and also oral fluids and blood of the infected patients.<sup>14</sup>

The primary objective for the dental care provider should be to minimize the risks of exposure.

These measures include those that should be implemented before the arrival of the patient into the dental clinic, upon the patient's arrival, and during the presence of the suspected patient in the clinic.<sup>15</sup>

### MEASURES TO BE TAKEN BEFORE THE PATIENT'S ARRIVAL TO THE CLINIC

- The dental receptionist should enquire about the patients' health conditions (cough, cold, fever) before scheduling the appointments.

- The patient should also be enquired about the travel history (to any geographical areas affected with COVID-19).

### MEASURES TO BE TAKEN AFTER THE PATIENT'S ARRIVAL AT THE CLINIC

- The dental receptionist or the dental personnel should anticipate the signs of suspected COVID-19 or any respiratory infections (sneezing, running nose).
- The dental personnel should advise the patients to adhere to respiratory hygiene and cough etiquette and hand hygiene (mouth masks and hand sanitizers).
- There should be an appropriate display of visual alerts (posters) at the entrance and in the patient waiting areas.
- The suspected patient has to be isolated from the common waiting areas and have to be seated in a well-ventilated space with a minimum of 6 feet distance in order to prevent the spread of infection.
- The suspected patients should be enquired about the travel history to areas affected by COVID-19.
- If the patient gives a history of travel to the suspected areas, then immediately implement respiratory hygiene and cough etiquette by placing a mouth mask.
- Immediately inform the health condition to the suspected individual or accompanying person and also the local and state health authorities.
- As a precautionary measure, all the patients in the waiting areas should be provided with alcohol-based hand sanitizers and disposable mouth masks.

### Measures to be Taken during the Dental Procedures with the Suspected Patient at the Clinic

It is very much important to consider using standard healthcare precautionary measures for all the patients undergoing dental procedures. Additional emphasis has to be given to patients who are suffering from respiratory infections or suspected of COVID-19. The dental care provider should maintain standard hygiene and asepsis of the dental office, which is one of his or her legal obligation toward his or her patients. The dental care provider should specially adhere to standard contact and airborne precautions which are listed below.<sup>16,17</sup>

- The dental care providers should stick to the standard personal protective equipment (PPE).
- They should protect their skin and mucous membranes from exposure to infectious materials.
- This can be achieved by wearing PPE such as disposable surgical mouth masks or N95, protective eyewears, face shields and protective clothing (fluid-resistant disposable gowns), head covering, and shoe coverings.

### Protective Gloves

- Dental care provider should wear gloves, which can prevent their hands from getting contaminated with the blood and oral fluids of the patients.
- The dental care providers should consider using surgical gloves during patient's clinical examination and while performing the dental treatment procedure.
- Nonmedical gloves have to be worn during cleaning and disinfecting the instruments and while handling the contaminated instruments.

### Protective Mouth Masks

- Dental care providers should wear surgical mask during the entire process of patient examination/screening till the dental procedure is completed. These surgical masks should cover both the mouth and nose.
- Dental care providers should change their disposable surgical masks between patients, or during patient treatment if it becomes wet.

### Protective Eyewear or Face Shield

- Dental care providers should wear protective eyewear during the dental procedure to avoid the large droplets of water, saliva, blood, microorganisms that are created by using high-speed dental handpieces and ultrasonic instruments.
- Head should be covered using disposable coverings.

### Protective Draping

- Single-use drapes or bibs should be used to protect self and also the patient clothing and reduce their exposure to the spatter and debris created during the procedures.
- Fluid-resistant disposable gowns must be worn when treating the patients.
- Wearing disposable gowns can cover the skin that are more likely to get soiled with the blood and saliva of the patients.
- Scrub suits alone would not be accepted for personal protection.
- Clinical gowns should not be worn outside the clinical working area.
- Religious head and facial coverings worn during the dental procedures are likely to be contaminated by aerosols and hence need to be treated the same way as the clinical gown (should be changed often if they are soiled).

### Use of Rubber Dam and High-volume Suction

- Dental care providers should adopt proper isolation procedures which include the application of rubber dam and suction to reduce the release of droplets and spatter and spray of aerosols.

### Disposable Foot or Shoe Coverings

- Dental care providers should wear disposable shoe coverings during the dental procedures.

### Effective Hand Hygiene

- Dental care providers should practice effective hand hygiene procedures by using effective alcohol-based hand sanitizers by rubbing both the hands and then spreading the sanitizer all over the hands.
- Washing with an antibacterial soap and then using alcohol-based hand sanitizer is highly recommended.

Dental care providers should remove all the PPE in a sequence, starting with the gown and then peeling off the gloves, removing the protective eyewears, and then the face mask. These things have to be disposed in an appropriate manner following the guidelines for hospital waste management.

All the above-mentioned PPE should be considered when rendering care to the patients to minimize the risk of transmission and prevent exposure to other patients and coworkers.

### RESPONSIBILITIES OF DENTAL CARE PROVIDERS

Healthcare workers are considered as frontline workers responding to this outbreak. They are always exposed to hazardous particles placing them as a high-risk group. So it is the moral duty of every healthcare provider to ensure necessary preventive and protective measures to protect themselves from the risk factors. During the process of rendering care to the patients, the dental care workers should use adequate infection control procedures and use appropriate PPE. They should report the suspected cases to the nearest local or state healthcare facilities, maintaining complete confidentiality of the patient identity to others and treating patients with respect and dignity. Strictly follow occupational safety and health procedures to avoid exposing to risks.

### CONCLUSION

Corona virus disease 19 is currently a global and serious issue since an antidote/vaccine for this virus is not yet available. This COVID-19 is affecting the lungs and airways of the affected individuals, ultimately leading to death. The World Health Organization is providing all possible aid to tackle this issue. Since this is an airborne infection and it is spreading rapidly from person-to-person contact. Preventing the spread of this COVID-19 can be achieved by avoiding visiting crowded areas and traveling to the geographically affected countries. This can be best achieved by self-isolating from public places and avoiding travel and avoiding close contact with people who are unwell. Preventive measures such as proper hand hygiene using an alcohol-based hand sanitizer and using face masks like N95 can be of great use.

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