

## **The Guidelines on Prevention and Disease Control in Dental Practice during the Outbreak of Corona Virus Disease 2019**

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The Corona Virus Disease 2019 (COVID-19) epidemic has spread throughout the country, seriously jeopardizing people's health. The National Health Commission and regional health administration departments have issued regulations on the prevention and control of COVID-2019. There are many invasive treatments in dental practice, differentiating it from other medical practice. The following guidelines were made by experts from Stomatological Healthcare Service Branch of Chinese Stomatological Association in an effort to prevent COVID-2019 outbreak in dental clinics. The Guideline is in accordance of relevant laws and documents from health administration department, from the technical level in combination with the characteristics of professional dental treatment. Dental institutions at all levels can consider using these suggestions as a reference, on the basis of the local epidemic and its actual situation, while enforcing the regulations of national and regional healthcare administration department. It is anticipated to be helpful to various dental institutions for the epidemic prevention.

**Key words:** corona virus disease 2019 (COVID-19), oral management, nosocomial infection prevention and control

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In December 2019, a case of unexplained pneumonia was found in Wuhan, Hubei Province, which was later confirmed and named as Corona Virus Disease 2019 (COVID-19). The epidemic rapidly spread throughout China in an unprecedented way. The National Health Commission of the People's Republic of China has classified the pneumonia as a Class B infectious disease under *China's Law on the Prevention and Treatment of Infectious Diseases* and is managing it as a Class A infectious disease. It is also included in the management of quarantinable infectious diseases. To effectively reduce the risk of disease transmission during the outbreak in dental institutions and protect the safety of both doctors and patients, in line with the documents issued by the National Health Commission, *Notification of Diagnosis and Treatment Program (Trial Sixth Version) of the Pneumonia Caused by COVID-2019 (National Health Office Medical Letter [2020] No.145)*, *Technical Guidelines of Prevention and Control of the Pneumonia Caused by COVID-2019 (First Version) (National Health Office Medical Letter [2020] No.65)* and *Usage Guidelines of the Common Medical Protective Equipment for Protection of Pneumonia Caused by COVID-2019 (Trial) (National Health Office Medical Letter [2020] No.75)*, in combination with the characteristics of professional dental treatment, the following suggestions for prevention and disease control are formulated for reference to dental institutions at all levels, according to the local epidemic situation, in meantime of the enforcement of the relevant regulations from local health administration departments.

### **Basic Principles**

- Dental institutions shall, in accordance with the management requirements of the national administrative department, pay close attention to the epidemic situation announcements issued by the government and the health administration departments, carry out external information release in coordination with the policies, and provide dental medical services while performing disease prevention and control.

- It is required to strengthen the organizational management, formulate relevant plans, regimes and process guidelines for the prevention and control of COVID-2019, carry out training for all staff on prevention and disease control knowledge, and promote awareness, particularly amongst healthcare personnel, administrative and logistic support, security personnel, cleaning personnel, etc., avoid crowd gathering in public places, reduce and shorten meetings, suggest to organize meetings or training by video, network and other means.
- The pre-examination triage system shall be strictly implemented to ensure early detection, early reporting, early isolation and early treatment, and sufficient protective equipment and disinfectants shall be prepared in compliance with the national standards.
- It is also needed to formulate the system of duty arrangement for healthcare personnel, and manage the healthcare personnel with symptoms and epidemiological history according to "*Diagnosis and Treatment Program of the Pneumonia Caused by COVID-2019 (Trial Fifth Version)*", arrange the work of the medical personnel in a reasonable way, avoid overwork, carry out the health status and epidemiological monitoring among healthcare personnel.
- Healthcare personnel are required to strictly carry out standard prevention, and to perform the hospital infection control protocol such as personal protection, hand hygiene, management of the clinic room, ventilation, environment surface cleaning and disinfection, instruments reprocessing and waste control during the dental practice, so as to avoid healthcare associated infection.
- During the severe period of epidemic and in the outbreak areas, dental practice shall be determined in accordance with the requirements of the local health administration department and the center for disease control and prevention, in combination of actual conditions of the dental institutions. Complete cessation of outpatient can be carried out, and only emergency treatment can be reserved (such as oral and maxillofacial trauma, oral space infection, acute pulpitis, temporomandibular joint dislocation, acute phase of pericoronitis, etc.), as well as other dental departments. It is recommended to make full use of WeChat public

accounts, the Internet and WeChat for the publicity. Patients are advised to carefully arrange medical treatment plans and postpone non-emergency treatment. Meanwhile, online consultation and appointment reservation service can also be provided.

- During dental practice, a large quantities of droplets and aerosols can be produced through the oral power device from patients' saliva, blood and secretions, which pose high risk of disease transmission between doctors and patients and between patients. Spray equipment such as rapid turbines and ultrasonic tooth cleaning machines should be avoided or be minimized during the disease epidemic. It is better to use auxiliary equipment such as rubber barrier and high volume suction to reduce droplets and potential bioaerosol pollution.

### **Pre-examination triage of patients**

Dental institutions should establish the pre-examination triage system and the relevant process, set up corresponding position and train enough personnel to perform the pre-examination triage of patients. All patients entering the healthcare institutions should receive pre-examination triage. It is required to monitor the temperature of the patients, collect their epidemiological history, identify suspected cases at an early stage and provide correct treatment and guidance, in order to achieve the purpose of “early detection, early isolation, and early treatment”.

#### *Personal protection of pre-examination triage personnel*

During the disease epidemic, specific personnel shall be designated and trained for the pre-examination triage. Pre-examination triage personnel should wear disposable hats, surgical masks, work clothes and isolation suits, as well as goggles. First, patients should be instructed to carry out hand hygiene. Patients without masks and their companion should be provided with masks and instructed on how to wear it properly. The companion should be reduced or prohibited depending on the patient's condition. An appropriate distance (>1 m) should be maintained during consultation to reduce

the risk of transmission. Hand hygiene should be conducted immediately after each contact with the patient.

#### *Setting requirements for pre-examination triage points*

The pre-examination triage point is clearly marked with identification, relatively independent location and well ventilated, so as to ensure the pre-examination is carried out as priority for the outpatients (emergency) and their companion. Enough surgical masks, forehead thermometer, rapid hand sanitizer or 75% alcohol must be available.

#### *Responsibilities of the pre-examination triage personnel*

Patients and accompanying personnel are required to wear masks when entering medical facilities. In accordance of the *Notification of Diagnosis and Treatment Program (Trial Sixth Version) of the Pneumonia Caused by COVID-2019*, patients and their companion should be monitored for body temperature and inquired for epidemiological history, as well as an individual investigation form to be completed. The investigation includes ① whether there are fever, cough and other respiratory infection symptoms; ② within 14 days, whether there is a travel history or residence history in Wuhan and its surrounding areas or other communities with cases reported; ③ within 14 days, whether there is a contact history with *COVID-2019*-infected person (Nucleic Acid Test positive); ④ within 14 days, whether there is a contact history with patients having fever or respiratory symptoms from Wuhan and its surrounding areas, or from communities with cases reported; ⑤ whether there are confirmed clusters of *COVID-2019* cases in living and working areas.

#### *Disposal of pre-examination triage screening*

On the basis of the situation of pre-examination screening, the patients were disposed in triage.

- For asymptomatic patients with a positive travel history to the epidemic area or contact history of suspected NCP patients or having epidemiological history, it is

recommended to perform home isolation and select the time for treatment if it is not critical or severe dental emergency. If it is a dental emergency or it really needs immediate treatment, prevention and protection should be performed and the treatment should be arranged immediately by registering the information of doctors, nurses and patients.

- For the patients with symptom such as abnormal body temperature but no contact history or epidemiological history, if the patients have non-critical dental disease, it is recommended to go to fever clinic in general hospital and select another time for dental treatment. If it is a dental emergency or it really needs immediate treatment, the prevention and protection should be performed, and the treatment should be arranged immediately by registering the information of doctors, nurses and patients.
- For the patients with symptom such as abnormal body temperature and having travel history in epidemic area or contact history with suspected COVID-2019 patients, it is required to protect other patients and healthcare personnel, lead the patients into the designated area (quarantine point), and immediately report to the personnel responsible for disease prevention and control as well as the hospital infection control department, and carry out the quarantine and referral according to the requirements of local authorities.

#### *Cleaning and disinfection of the pre-examination triage point*

The triage table and forehead thermometer should be kept clean. It is required to clean and disinfect the triage table and forehead thermometer every two hours or at any time in case of contamination. It is recommended to use 75% alcohol or disinfection wipes (containing the effective ingredients against 2019-nCoV) or chlorine disinfectant (500 mg/L effective chlorine content) to wipe and disinfect. If the suspected patient has been referred, the quarantine point should be cleaned and disinfected in time and registered.

#### **Outpatient treatment**

### *Settings of the clinic room*

In principle, it is required to use an independent or relatively independent treatment unit. If spatter exists during practice, it should be performed in an independent room. All items irrelevant to the treatment should be removed or put into the cabinet and the surface should be neat to facilitate the disinfection. During the practice, it should maintain airflow and make fresh air infuse ceaselessly indoor by opening a window or using air purification device.

### *Principles of diagnosis and treatment*

Based on the strict following of standard prevention, additional preventions should be added such as goggles, double gloves and isolation suits. It is recommended to adopt four-hand operation. In the practice, low-speed handpiece or manual device can be used instead of high-speed handpiece in view of the transmission route of the 2019-nCoV "with the possibility of aerosol transmission under the condition of prolonged exposure to high concentrations of aerosols in a relatively closed environment". In the area with severe epidemic, high-speed handpiece, ultrasonic tooth cleaner and air water syringe and other spatter equipment should be avoided. In case of spillage operation, the disinfection should be done for each patient and each room.

### *Protection requirements during dental practice*

#### *Patient management*

Healthcare personnel should monitor patient's temperature, symptoms and relevant epidemiological history before treatment. At the beginning of treatment, the patient should be asked to gargle with mouthwash. It is recommended to avoid using or not to use the spittoon. Instead, it is needed to instruct the patient to cover mouth with the disposable mouthwash cup and then spit mouthwash into the cup, then the nurse should immediately use strong suction to reduce the generation of droplets and aerosols.

## Personal protection for healthcare personnel

During the epidemic of COVID-2019, healthcare personnel should first strictly implement standard prevention. In order to better prevent the risk of transmission through droplets and contact during dental treatment, and to ensure the safety of doctors and patients, healthcare personnel should add additional preventive measures on the basis of standard prevention during treatment, such as the application of goggles, isolation suits and double gloves.

1) When performing non-invasive and non-splash general treatment, disposable hats, surgical masks, disposable latex gloves, goggles and work clothes should be worn, and the isolation suits could be added.

2) For splash operation, disposable hats, surgical masks or surgical protective masks (N95, N99, etc.), disposable latex gloves, goggles and/or protective face shields, work clothes and disposable isolation suits should be worn. Healthcare personnel should pay attention to the sequence of wearing and removing of personal protective equipment, and strictly implement hand hygiene in the process. At the same time, it is recommended to register doctors, nurses and patients' information for two-way traceability.

3) Medical protective masks should be tested for tightness after wearing. The duration of use of the mask is generally no more than 4 hours, and the replacement is needed in case of pollution or humidity at any time. It is recommended to dispose the mask after each patient. After each treatment, the goggles and protective face shield should be cleaned, disinfected and dried. It can be disinfected with 75% alcohol, 500 mg/L~1000 mg/L chlorine-containing disinfectant or disinfectant wipes which is effective against 2019-nCoV.

4) Protective equipment such as goggles, protective face shield, isolation suit and protective clothing shall be used in the dental unit (beside the dental chair) and shall be removed when leaving the room. When removing the protective equipment, the hands shall not touch the contaminated surface, handle it from inside to outside, and perform hand hygiene timely. Disposable items cannot be reused.



5) Supportive departments (radiology department, laboratory department, pathology department, etc.) should use protective equipment in a reasonable way, including surgical masks, disposable hats, goggles, isolation suits, gloves, etc. The radiology department shall reduce the shooting of the inner teeth and can use the panoramic film instead. When shooting the panoramic film, the technicians and patients shall wear masks all the time.

6) Hand hygiene of healthcare personnel shall be strictly implemented in accordance with the *Hand Hygiene Code for Medical Personnel* (WST313-2019). Do not touch mouth, nose, eyes, etc. with contaminated hands.

7) Occupational exposure shall be strictly treated in accordance with the *Guidelines on Occupational Exposure Protection Against Blood-borne Pathogens* (GBZ/T213-2008).

### **Cleaning and disinfection after treatment**

- After the treatment, the medical personnel shall remove all protective equipment in sequence and perform hand hygiene throughout the whole process; for those who are able to shower, it is recommended to change clothes, for those who do not have shower, it is recommended to wash hands and face before leave dental institute. Hand hygiene shall be carried first after arriving home, the clothes shall be changed and stored in ventilated place.
- Reprocess of dental instruments shall strictly follow the *Regulation for disinfection and sterilization technique of dental instruments* (WS 506-2016).
- After each treatment, the disinfection should be carried out on the surfaces of all the facilities, equipment and high-frequency contact point, such as chair, door handle, computer and other surfaces. The first choice is to wipe with 500 mg/L-1000 mg /L chlorine-containing disinfectant, for non-corrosion resistant surfaces, 75% ethanol can be used for wiping, and the disposable disinfection wipes (containing effective ingredients against 2019-nCoV) can also be used for one step cleaning and disinfection; surfaces with high-frequency contact such as

sink, door handle and faucet shall be disinfected at least every 2 hours; and dental unit waterline can be rinsed for 30 seconds when needed.

- Air disinfection

- 1) Turn on the air disinfection machine or properly open the window for ventilation during the treatment.

- 2) After noon shift and afternoon shift, strengthen disinfection by irradiation with ultraviolet lamp for 30 minutes ~ 60 minutes, then open the window for ventilation for at least 30 minutes.

- Requirements for clinic room floor

The floor of the clinic room should be kept clean and dry and disinfected every 2 hours. In case of obvious pollution, the decontamination, cleaning and disinfection should be performed with 500 mg/L~1000 mg/L chlorine-containing disinfectant. All anti-slip mats on floor should be removed.

- Medical waste management

It is required to strengthen medical waste management, focus on the training of healthcare personnel and cleaning personnel. Protective equipment such as surgical masks and hats worn by medical personnel should be treated as medical waste. The medical waste in the clinic room should be transported to the temporary storage of medical waste in a timely manner, and the medical waste shall be cleaned up on a daily basis. After the daily delivery, the temporary storage of medical waste shall be cleaned and disinfected with 1000mg/L chlorine-containing disinfectant. Personal protection is required for medical waste disposal personnel.

- Terminal disinfection

After daily treatment, the terminal disinfection should be carried out on the floor and surfaces of all objects every day. It is recommended to wipe with 1000 mg/L chlorine-containing disinfectant or disinfectant wipes and rinse the dental unit waterline for 2 minutes, and disinfect the waterline if necessary. The 500mg/L chlorine-containing disinfectant can be used to disinfect saliva suction pipes, spittoons and sewage pipes; after ultraviolet irradiation for 30 minutes ~

60 minutes, ventilation shall be carried out. Personal protection and hand hygiene are required for the personnel.

In summary, on the premise of enforcing the relevant regulations of the national and local health administration departments, dental institutions in different regions should pay great attention to prevention and disease control measures according to the epidemic situation. The suggestions above on prevention and disease control from technical level can be referred to in dental practice. In the implementation of epidemic prevention and disease control, strict management of dental outpatient (emergency) is conducive to prevention and control of the epidemic. When the epidemic situation is under control and entered into a routine working state, both doctors and patients will still face the risk of healthcare associated infection outbreak of other infectious diseases (such as HBV, HCV, HIV and TB) transmitted by blood or respiratory tract during dental treatment. Therefore, it is needed to strengthen the awareness of the hospital infection prevention and control for all dental medical personnel, improve the ability of the hospital infection prevention and control and perform routine work of dental infection prevention and control and implement in place the infection control measures and management regulations. Only in this way, it will be possible to minimize the hospital infection risk for both doctors and patients. We suggest that all dental medical institutions should establish additional prevention systems and measures on the basis of standard prevention, and put them into clinical practice, so that when facing new infectious diseases outbreak, they can not only protect the safety of healthcare personnel but also carry out clinical work in an orderly manner.

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