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Short Communication

# Guidance for dental treatment of patients with disabilities during COVID-19 pandemic



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disabilities;  
Virus filter

**Abstract** People with disabilities are challenged managing their oral hygiene and more often burdened with oral diseases. They often require immediate dental treatment for severe pain and greater precautions are needed to cope with COVID-19. The potential for COVID-19 infection can be relatively high in patients with disabilities due to concomitant systemic diseases, unique individual circumstances, relationship with caregivers and the living conditions of long-term care facilities, which make them vulnerable to the virus. For behavior management, dental treatment is often provided under general anesthesia with meticulous preoperative evaluation and the use of high-quality viral filters. In response to COVID-19, additional considerations should be taken for dental procedures on patients with special needs. These recommendations for dental treatment of the disabled are based on 6 months of authors COVID-19 pandemic experience.

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## Introduction

COVID-19 emerged from Wuhan, China as first announced in December 2019,<sup>1</sup> and spread rapidly across the world. This outbreak was identified as a pandemic by the World Health Organization on March 11, 2020 and quickly became a global public health crisis.<sup>2</sup> Since the first confirmed case in South Korea on January 20, 2020, secondary infections have increased exponentially in specific regions, religious groups, and long-term care facilities. However, instead of mandatory enforcement, citizens voluntary engagement in social distancing, mask wearing, hand washing, coughing etiquette and drive-through testing with newly developed diagnostic kits has contributed to reductions in confirmed cases.

Unfortunately, dental treatments pose heightened risks of viral spread from exposure to droplets and aerosols in close proximity and direct contact between patients, dentists and their assistants.<sup>3</sup> Moreover, dental procedures on patients with disabilities pose additional behavioral challenges often managed through general anesthesia. Patients with disabilities commonly afflicted with concomitant systemic diseases and resident of long-term care facilities pose elevated risks of COVID-19 and warrant additional precautions. Since COVID-19 may endure long incubation periods and present asymptotically, guidelines for the dental treatment of patients with disabilities were developed and implemented at the Seoul National University Dental Hospital for Persons with Special Needs as follows.

## Guidance for infection control in dentistry

### Restricting access to buildings, clinics and operatories

At the entrance to the dental hospital building, patients and their guardians/caregivers are supervised in hand sanitizations and measured for body temperatures. Their response to the following questionnaire (Fig. 1) is reviewed to determine access permission or appointment rescheduling. If they have a fever (over 37.5 °C), symptoms (cough, phlegm, runny nose, sore throat, shortness of breath, muscle pain), a history of travel (within 14 days) from high risk regions/countries, or had recent contact with a confirmed COVID-19 patient, their access is restricted. Restricted patients not needing emergency treatment are offered rescheduled appointments and those suspected of COVID-19 infection sent to the adjacent Seoul National University Hospital COVID-19 Screening Center. As COVID-19 cases increased, those without masks and adequate hand hygiene were also restricted from hospital admission as they were from other dental clinics.<sup>3</sup> For larger hospitals, greater caution is recommended to prevent harming other patients, mass infections and hospital closure.

### Preventing viral transmission from patients

Patients are seated in alternate spaces within the waiting room to ensure that they are at least one meter apart. Upon entering the operatory, each patients' questionnaire

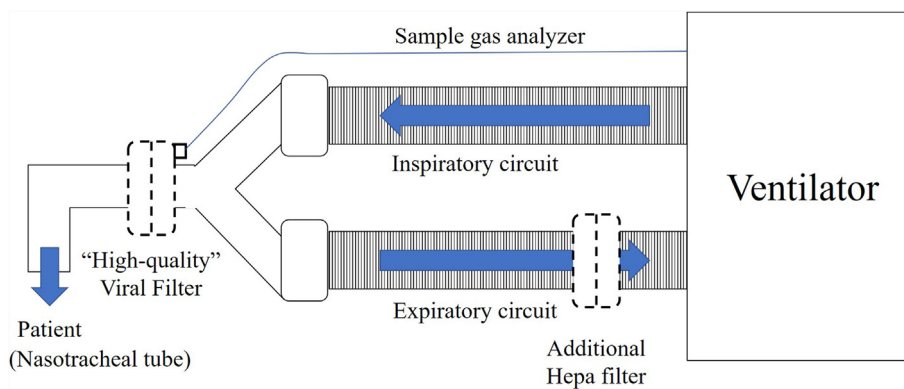
Entrance permit				
Q1. Have you travelled to <u>a country with known cases of COVID-19</u> within the last 14 days?				
Yes		Rescheduling appointment Required	NO	Go on to Q2
Q2. Do you have any of the symptoms below? (Fever, Cough · Phlegm · Runny nose · Sore throat · Shortness of breath · Muscle pain)				
Yes		Rescheduling appointment Required	NO	Measuring Body temperature
Q3. Your body temperature is				
Below 37.5°C		Access Permitted	37.5°C and over	Rescheduling appointment Required
※ <b>ONLY ONE</b> guardian allowed per patient.				
※ <u>I hereby declare that the above information is true to the best of my knowledge.</u>				
NAME	(signature)			
<ul style="list-style-type: none"> <li>○ The pass is valid only on the day of issue.</li> <li>○ Please contact customer service center to reschedule your appointment.</li> </ul>				

Figure 1 Questionnaire for entrance permit.

is carefully reviewed and checked for any concerns. During dental treatment, potential routes of transmission include airborne, contact and contaminated surface spread.<sup>3</sup> As asymptomatic cases may elude screening, personal protective equipment should be worn extensively throughout. Clothing, surgical scrubs and disposable gowns should be frequently changed, and gloves and goggles should be mandatory. N95 or KF94 face masks should be worn and thorough hand washing followed. Patients pre-operatively rinse with 0.2% povidone-iodine or 0.5–1% hydrogen peroxide solution to reduce viral load and activity.<sup>4</sup> Rubber dam isolation is utilized to minimize aerosol and spatter during restorative and root canal treatments.<sup>3,5</sup> Air spray from the three-way syringe is minimized and airborne aerosols are suctioned through a high-performance aspirator by the assistant. Scaling should be limited to hand instruments rather than ultrasonics. If the patient coughs, their mouth is covered by the dentist/assistant with their hands. Following procedures, treatment rooms are ventilated for as long as possible, surfaces disinfected and instruments sterilized in accordance with standard infection control guidelines.<sup>3</sup>

### Preventing cross-infection from dental staff

All hospital staff on site are expected to wear a mask at all times and avoid unnecessary conversations. During meals at the cafeteria, social distancing is maintained and partitions separate diners. Staff are encouraged to stay home if not



**Figure 2** Schematic drawing of ventilator-respiratory circuit-filter installation (Modified from source: Kim HJ et al. *Korean J Anesthesiol* 2020; 73:271–4.).

working, to remain home for 3–4 days when sick and consult their supervisor.

### Additional considerations for patients with special needs

1. People with disabilities are often unable to maintain oral hygiene, and have relatively more oral disease and traumatic dental injuries.<sup>6</sup> They often need immediate emergency dental treatment due to severe pain.
2. People with disabilities may be unable to maintain personal hygiene and often have additional systemic diseases that make them relatively more vulnerable to COVID-19. Risk of severe illness from COVID-19 is higher in adults 65 years and older, residents of long-term care facilities, and people of all ages with underlying medical conditions, particularly if not well controlled according to the Centers for Disease Control and Prevention (CDC). These include chronic lung disease, moderate/severe asthma, serious heart conditions, immunocompromised, severe obesity (BMI over 40), diabetes mellitus, chronic kidney disease undergoing dialysis, and liver disease.<sup>7</sup> Their medical history should be carefully reviewed.
3. Patients requiring routine recall appointments receive a phone call to determine if they are experiencing any discomfort. Those asymptomatic are delayed from scheduling their appointment, to reduce unnecessary hospital visits.
4. People with disabilities may live at home, but often reside in long-term care facilities. Residents of facilities are at higher risk of infection and should be managed with extra precaution.<sup>8</sup> The facility should be contacted to verify their condition prior to any scheduled hospital visits.<sup>9</sup>
5. Patients with disabilities are usually accompanied by a caregiver. Additional care should be taken to prevent transmission between the caregiver and hospital staff.
6. People with disabilities have a potential for increased violence and neglect because of social isolation and disruption to daily life.<sup>9</sup>
7. Patients with special needs are often treated as outpatients using general anesthesia with meticulous

preoperative evaluations, involving physical examination, chest x-ray, electrocardiography and blood test. Patients are asked to take extra precautions for preventing respiratory infections prior to scheduled anesthesia. In the anesthesia suite, the anesthesiologist wears a disposable gown, N95 or KF94 mask, goggle, disposable shoe cover and double gloves. Intubation is completed with a disposable video laryngoscope and disposable medical supplies wherever possible.<sup>10</sup> For each patient, a “High-quality” (Viral Filter Efficiency > 99.99%) viral filter and Heat Moisture Exchanger (HME) is used in the breathing circuit (Fig. 2). The high-quality virus filter prevents infection through the ventilator.<sup>10</sup>

### Summary

During this COVID-19 pandemic, dental treatment procedures are high risk for viral transmission. However, dental treatment is indispensable for patients with disabilities that have more immediate needs including behavior management through general anesthesia. Their circumstances and comorbid conditions make them vulnerable to severe infections. Accordingly, guidelines for dental treatment of patients with disabilities were developed and implemented at the Seoul National University Dental Hospital for Persons with Special Needs.

### Declaration of competing interest

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

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