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Perspective

The implication of COVID-19 pandemic on domiciliary dental care

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This article aimed at presenting a practical framework for understanding the guidelines of domiciliary dental care (DDC). Chung Shan Medical University Hospital (CSMUH) is the pioneer for providing DDC service in Taiwan from March, 2010.¹ During the past 11 years, CSMUH has established a standard operating procedure for DDC at patient's residences. The total DDC services were up to 2444 visits including dental prophylaxis, teeth fillings, and extraction in central Taiwan.¹

Unfortunately, patients with pneumonia of unknown cause were reported in Wuhan, China in December, 2019. On January 8th, 2020, a novel coronavirus was officially announced as the causative pathogen of coronavirus disease 2019 (COVID-19) by the Chinese Center for Disease Control and Prevention.² Dentists and other oral health coworkers have a higher risk of bioaerosols in clinical dentistry due to the operative instrumentation within an oral environment bathed in salivary organisms.³ It is a real challenge for providing DDC service during COVID-19 pandemic.

The guidelines or protocols for dental care during the COVID-19 pandemic has been developed in many

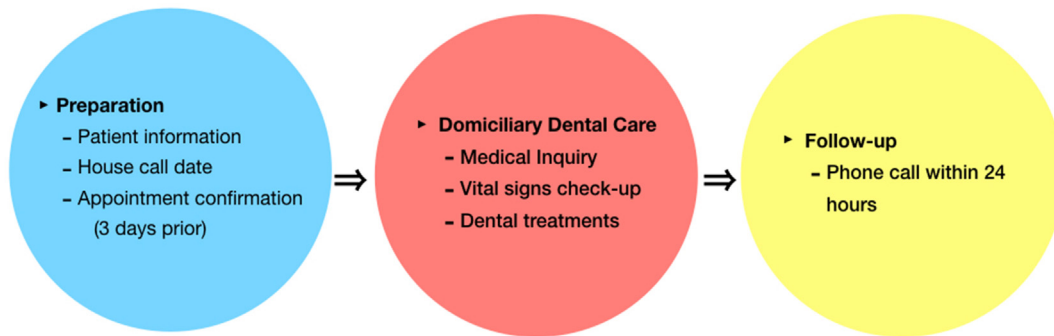
countries.^{4–8} However, little is known about the guidance for DDC. The people who need for DDC service are usually the older adults with multiple comorbidities or with disabilities.¹ The places of DDC contain the patients home and long-term care institutions such as nursing home or vegetative care home. Unfortunately, the people who need for DDC service have never in the focus of essential oral health care during COVID-19 pandemic. It is not surprising that the high fatality rate in the long-term care institutions due to the close living quarters, undertrained staff, or without enough protective equipment. Therefore, the authors presented the experience and practice guidelines of DDC service from CSMUH in normal situation and the additional considerations during COVID-19 pandemic as illustrated in Fig. 1 to guide the action in tackling DDC service. During COVID-19 crisis, the reinforcement of question screening, the enhancement of personal protective equipment (PPE), the improvement of infection control, and the conduction of teledentistry have been emphasized and implemented at CSMUH and discuss as follows.

Before providing DDC service, the response to questions from patients via telephone from patient themselves, their family members, or caregivers is very important. Careful review is critical to determine DDC service, reschedule the appointment, or even postpone the service. The regular TOCC document records patients' travel history, occupation, contact history, clusters history. However, the transformation of COVID-19 virus is very fast. The prominent symptoms such as cough, loss of taste or smell, etc. should be noted and updated frequently. Comprehensive medical

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Regular Domiciliary Dental Care Flowchart



Additional Consideration During COVID-19 Pandemic

- The reinforcement of question screening
- The enhancement of personal protective equipment
- The improvement of infection control
- The conduction of teledentistry

Figure 1 The flowchart illustrates the regular domiciliary dental care and additional considerations during COVID-19 pandemic.

review is required in the current stage for this potential highly susceptible group. Suspected patients with COVID-19 infection should be sent to the COVID-19 screening center for reverse transcriptase polymerase chain reaction or rapid antigen tests before DDC. Don't forget, the teleconsultation should also include patient's family and caregivers whether they might display symptoms of possible infection. Many asymptomatic patients in their incubation periods may spread out virus transmission in this stage.

In the period of COVID-19 pandemic, PPE including the full length disposable gown, cap, face masks, face shield, goggle, and gloves should be used to protect dental professional safety throughout DDC procedures. In addition, N-95 or FFP2 mask are preferred over the surgical face mask. It is important that the dental health workers should follow the standard operating procedures to avoid any cross-contamination when they put on, take off, and throw away the PPE. The health status of dental professional should be monitored every day. If possible, it is highly recommended that dental health worker should have the fully COVID-19 vaccination.

Dental treatment is well known a bioaerosol generating procedures and might have a higher risk of getting microbes infection. It is recommended to perform minimally invasive procedures during the COVID-19 crisis. The retreat course of infection control is necessary for dental health care team to rouse and maintain the standard operating procedures again. A review article demonstrated that COVID-19 could be detected in saliva specimen by real-time reverse transcription polymerase chain reaction.⁹ The prophylactic antimicrobial mouth rinses such as chlorhexidine gluconate, cetylpyridinium chloride, povidone-iodine, or hydrogen peroxide are suggested to decrease

viral load in aerosols and drops before dental treatment. The application of rubber dam is also important to reduce infectious microbe contamination from saliva, serum, and blood. The use of high volume evacuation is highly recommended to efficiently reduce bioaerosols in the clinic environment.

Teledentistry is a type of medical telecommunication technology to provide dental services remotely.¹⁰ This newly developed digital teleconsultation is a safe and effective way to assess suspected cases and guide the patient's diagnosis and treatment, minimizing the risk of disease transmission in far-flung and underserved areas that may not otherwise have access to specialized oral care. The tools contain telephone, the internet, or video conferencing software provided by the store-and-forward method, in real-time method, or the hybrid technique with both two methods. It is gaining popularity in the COVID-19 pandemic to make the DDC more convenient, better coordinated, and closer to home, especially during the lockdown period. However, teledentistry stills can not totally replace the face-to-face consultation. After the teleconsultation is finished, some dental problems still need the immediate treatment such as open chamber for tooth with acute pulpitis. Therefore, digital conducting could partially maintain DDC services during COVID-19 disaster, it still needs a lot works to improve in the real clinical scenario.

Taken together, the updated safety and operator protocols for providing DDC still face the greater challenges during COVID-19 crisis. By the reinforcement of question screening, the enhancement of PPE, the improvement of infection control, and the conduction of teledentistry, dental professional team can be safety to deliver DDC service and avoid COVID-19 infection.

Declaration of competing interest

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

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