

Teledentistry: The Need of An Hour During Pandemic COVID-19

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Abstract

The epidemic of coronavirus disease 2019 (COVID-19), originating in Wuhan, China, has become a major public health challenge. According to WHO, “It is possible to halt the virus spread, by adopting measures to detect disease early, isolate and treat the cases, tracing the people who came in contact with those who are infected, wearing gloves and masks, limitation of people going outside their home and promote social distancing measures.” Due to the characteristics of dental settings, the risk of cross infection can be high between patients and dental practitioners and can spread from patient to patient. As part of its efforts to mitigate the spread of the COVID-19 pandemic the American Dental Association (ADA) provided essential guidance on (i) emergency vs. non-emergency dental care and (ii) the use of teledentistry. In response to the current health crisis, teledentistry is emerging as a viable care option in an effort to help “flatten the curve” of the COVID-19 pandemic. During the COVID-19 outbreak, teledentistry is an effective way to triage patients and conduct problem-focused evaluations in order to limit office visits to patients needing urgent or emergency care. This article, based on relevant guidelines and research, introduces the essential knowledge about COVID-19, and focuses on how teledentistry can be helpful in preventing dental emergencies by providing effective dental care to patients during quarantine, and also educate and motivate people to opt necessary dental hygiene measures.

Keywords: COVID-19, Teledentistry, Cross infection, Social distancing.

Introduction

On January 8, 2020, a novel coronavirus was officially announced as the causative pathogen of COVID-19 by the Chinese Center for Disease Control and Prevention (Li et al. 2020).¹ The epidemics of coronavirus disease 2019 (COVID- 19) started from Wuhan, China, last December and has become a major challenging public health problem for not only China but also countries around the world. On January 30, 2020, the World Health Organization (WHO) announced that this outbreak had constituted a public health emergency of international concern (Mahase 2020).²

The New York Times published an article on 15 March 2020 entitled “The Workers Who Face the Greatest Coronavirus Risk”, where figures described that dentists are the workers who are most likely to be exposed to the risk of being affected by COVID-19, much more than nurses and general physicians.³ Various measures are taken to combat this pandemic and highly contagious disease by the limitation of people circulating outside their home, forced quarantines on an extraordinary scale, social distancing, the cessation of almost all working activities and the request to the population to use protective masks and gloves, all have the aim of minimizing the likelihood that people who are not

infected come into contact with others who are already infected and probably still asymptomatic.⁴ As part of its efforts to mitigate the spread of the coronavirus disease 2019 (COVID-19) pandemic, on March 18, 2020, the American Dental Association (ADA) provided essential guidance on (i) emergency vs. nonemergency dental care and (ii) the use of teledentistry. In response to the current health crisis, teledentistry is emerging as a viable care option in an effort to help “flatten the curve” of the COVID-19 pandemic.⁵

Teledentistry is the use of information technology and telecommunications for dental care, consultation, education and public awareness in the same manner as telehealth and telemedicine.⁶ The ADA defines teledentistry as “the use of telehealth systems and methodologies in dentistry,” which includes “a broad variety of technologies to deliver virtual medical, health and education services.”⁵ Such technologies can take place the following ways – “real-time consultation” and “store-and-forward method.” Real-time consultation includes a video conferencing between dental professionals and their patients, at different locations, they may see, hear, and communicate with one another. Store and forward method is the method in which clinical information and static images collected and stored by the dental practitioner are stored first and later they forward them for consultation and treatment planning to teleconsultants. The third method has also been described, known as “remote monitoring method,” in which patients are monitored at a distance and can either be hospital-based or home-based.⁷

In spite of large-scale transmission of COVID-19 in China during the epidemic; demand for urgent dental treatment decreased by only 38% (Guo et al., 2020).⁸ This impressive figure shows that the public need for urgent dental care even during this pandemic will always be essential. Dental associations responses and actions around the world varied from advising practitioners to close their practices in the UK (Scottish Government, 2020)⁹; to reducing the number of routine check-ups in California, USA (CDA, 2020)¹⁰; to no advice at all from several dental associations around the world. These all steps were taken in order to halt disease spread.

A fundamental concept behind transmission of the virus is mainly through inhalation, ingestion, direct

mucous contact with saliva droplets; it is also critical to remember that the

virus can live on hands, objects or surfaces that were infected saliva with in the previous nine days. The most recommended guidelines indicate that dentists should avoid the scheduling of any patient: only urgent dental diseases can be considered during the COVID-19 outbreak. This action will drastically limit the interpersonal contact, the waiting time of patients in dental cabinets and, in general, the conditions predisposing patients to be infected.³

The use of communication and information technologies to provide dental care (teledentistry) can help dentists to sort out emergency need and urgent dental care, and provide non-essential services while avoiding close contact with patients.

By telecommunication patients can avoid unnecessary dental visits and thus prevent themselves and clinicians from exposure to COVID-19. Rather than directly visiting the dental clinics patient can use any of the above methods to consult the dental surgeon and can get advice on self help care.¹¹ By listening to patient’s chief complaint, dental and medical history treating doctor can determine whether the condition falls under emergency dental care or non emergency dental procedures, and subsequently decides whether there is a need for patient to visit dental clinic or not.

Non-essential dental work should be delayed until further notice during the pandemic according to the American Dental Association. Orthodontic concerns can also be reviewed by teledentistry. “A pencil eraser could be used to push in poking wires or wax could be used.” Viewing photos or face-timing with patients can provide consultation and professional advice for parents when their children have dental issues. Sometimes after a phone consult, a patient doesn’t have to come into the office immediately and may get relief in his pain by the prescribed antibiotic.¹²

Apart from the consultation, diagnosis and treatment planning teledentistry also plays role in educating the patients by using “Web-based self-instruction educational system,” which contains the information that has been developed and stored. Teledentistry could also be used to increase the awareness regarding oral hygiene, dental,

and oral diseases, counselling, assessment or evaluation (e.g., for new or existing conditions or lesions, and for the fit of appliances); monitoring or follow-up (e.g., for existing ongoing treatment, new devices, or following recent treatment) in general population during such kind of adversities when people are under strict quarantine and are not allowed to visit dental clinics.¹³

Conclusion

Teledentistry is a relatively new and exciting field that has vast potential. It is useful in long-distance consultations, screening, treatment planning and dentist laboratory communication. Due to pandemic COVID-19 the dentists and their patients are facing unprecedented and extraordinary circumstances. WHO, ADA and various other organizations across the world have given their guidelines to halt transmission while also supporting emergency care for patients. ADA recognizes that during this time patients would be best served when telecommunication technology is added to support dental care. The use of information and communication technologies to provide dental care remotely (teledentistry) can enable dentists to sort out emergency and urgent dental care and provide non-essential services while avoiding close contact with patients during these unfavourable conditions when patients are forced quarantined with limited access to dental clinics.

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References

- Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, Ren R, Leung KSM, Lau EHY, Wong JY, et al. 2020. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *N Engl J Med*.2020;382(3).
- Mahase E. China coronavirus: WHO declares international emergency as death toll exceeds 200. *BMJ*. 2020;368:m408.
- Gamio L. The Workers Who Face the Greatest Coronavirus Risk. Available online:<https://www.nytimes.com/interactive/2020/03/15/business/economy/coronavirus-worker-risk.html?action=click&module=Top+Stories&pgtype=Homepage> (Accessed on 2 May 2020)
- pagnuolo G, De Vito D, Rengo S, Tatullo M. COVID-19 Outbreak: An Overview on Dentistry. *Int J Environ Res Public Health*. 2020;17(6):2094.
- American Dental Association Official Website. What Constitutes a Dental Emergency? Available online:https://success.ada.org//media/CPS/Files/Open%20Files/ADA_COVID19_Dental_Emergency_DDS.pdf (Accessed on 3 June 2020).
- Daniel SJ, Wu L, Kumar S. Teledentistry: a systematic review of clinical outcomes, utilization and costs. *J Dent Hyg*. 2013;87(6):345-52.
- Gadupudi SS, Nisha S, Yarramasu S. Teledentistry: A futuristic realm of dental care. *Int J Oral Health Sci* 2017;7:63-7.
- Guo H, Zhou Y, Liu X, Tan J. The impact of the COVID-19 epidemic on the utilization of emergency dental services. *J Dent Sci*. 2020:1-9.
- Scottish Government, 2020. Updated guidance for dental practices [WWW Document]. <https://www.gdc-uk.org/docs/default-source/-covid-19/ocdo-scotland-letter.pdf> (Accessed on 2 May 2020).
- CDA, 2020. Dental Office Closure Due to COVID-19 [WWW Document]. <https://www.cda.org/Portals/0/cda-covid19-dentaloffice-closure.pdf>. (Accessed on 2 May 2020).
- MOH, Saudi Arabia, 2020. Dental Emergency Protocol during COVID-19 Pandemic.<https://www.moh.gov.sa/Ministry/MediaCenter/Publications/Documents/MOH-Dental-emergency-guidline.pdf> (Accessed on 4 May 2020).
- Teledentistry during COVID-19 in New Jersey. <https://patch.com/new-jersey/redbank/teledentistry-during-covid-19-new-jersey>. (Accessed on 3 May 2020).
- Rana N, Deepa D. Teledentistry: A must in the era of patient driven dentistry. *J Oral Res Rev* 2015;7:77-9.