

The New Normal – Renewed Practice of Oral Health care in a Post-coronavirus Disease World

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ABSTRACT

Health-care planning and delivery systems worldwide have been transformed in response to that coronavirus disease (COVID-19) pandemic. All across the globe, entire health-care systems are facing similar challenges as regards the delivery of safe and high-quality patient care and this is applicable to oral health care as well. The role of dental professionals in preventing the transmission of COVID-19 is critically important. In India, during this lockdown period, all routine elective dental treatments had been suspended as appropriate safety measures and reduction in transmission rate took priority. This is primarily because there is also a high risk of transmitting this disease given the fact that many dental procedures are prone to generation of bio-aerosols. There is a plethora of information guidelines available online from regulatory bodies such as Dental Council of India and World Health Organization, regarding how to successfully emerge out of this challenging situation and restart a safe dental practice. This article will throw some light on the measures that can be undertaken to ensure that the infection prevention control protocols are followed while managing dental clinical work, to ensure that the delivery of routine oral health care is no more disrupted.


Key words: Aerosol-generating procedures, coronavirus, coronavirus disease-19, dentistry, infection, severe acute respiratory syndrome-coronavirus-2

INTRODUCTION

The widespread effects of the coronavirus disease (COVID-19) pandemic have transformed the entire spectrum of health-care planning and delivery and the practice of dentistry is no exception. Severe acute respiratory syndrome-CoV (SARS-CoV-2) was first reported from Wuhan, China, in December 2019. The World Health Organization (WHO) declared the spread of COVID-19 to be a Public Health Emergency of International Concern on January 30, 2020, and

later on declared it as a pandemic on March 11.^[1] Even in developed countries like Italy, France, the USA, Russia, and the UK, both the first and second waves, have majorly affected their health-care systems leading to severe disruption of routine health care. Strict lockdown measures and timely interventions, in India, helped in controlling of rate of new COVID-19 infections initially and spread out the number of cases. This, in turn, avoided the health system being overwhelmed, resulting in better services to the affected cases.^[2]

COVID-19 is caused by new coronavirus SARS-CoV-2 which belongs to Coronaviridae family. SARS-CoV-2 is different from SARS-CoV but it has same host receptor; human angiotensin-converting enzyme-2.^[1] According to the present understanding, the COVID-19 virus is primarily transmitted from one individual to another through respiratory droplets and close contact. Infected persons may spread the disease through droplets following coughing or sneezing. Transmission

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may also occur through indirect contact from previously infected surfaces.^[3] Early epidemiologic investigations at beginning of the outbreak showed that this virus is highly contagious, replicates much faster, and remains viable for a long time.^[4] Similarly, fever, cough, and dyspnea are some of the common reported symptoms, but many cases are also asymptomatic. A confirmatory diagnosis requires demonstration of SARS-CoV-2 RNA in respiratory samples by reverse transcription polymerase chain reaction.^[4] It is important to understand the various epidemiological aspects for institution of preventive measures and better clinical dental practice management.^[5]

Dental professionals are considered to be at very high risk as they work in close contact with patients. Dental professionals and other team members have been advised to take strict personal protective measures and to carry out minimum aerosol-generating procedures, in view of high risk of transmitting this disease to the patients, as well as to other staff members. It is known that the viral load in the saliva is high, hence, pre-procedural mouth rinses with antiseptic mouthwashes can only reduce the infectious amount but are not able to eliminate the virus in saliva.^[6,7] Therefore, clear and easy guidelines need to be issued to manage the clinical procedures and work environment in the dental clinic, to keep the dental team and patients free from risk of transmission of this disease. The oral health-care team is familiar with assessing cross-infection risks but they should not be placed at unnecessary risk themselves.^[8]

The main concern in the practice of routine dentistry remains the threat of spread of infection from aerosol generated during dental procedures. The dental profession is particularly at risk not only because of coughing, sneezing, and resultant fomites but also due to aerosol-generating procedures, while using cutting, drilling, and piercing tools such as high-speed air-driven dental handpieces, micromotor handpieces, and ultrasonic scalers. The contaminated droplets in the air are likely to be inhaled by any member of the dental team or subsequent patients. The droplets may get lodged on the surface of objects placed in the close vicinity of the dental chair or on the materials used during the dental treatment procedures in the clinics and be a source of indirect transmission of disease.^[3] Therefore, dental clinics at all levels must follow strict infection control protocols both before and after treatments to ensure that the such modes of transmission are minimized.^[5]

CHALLENGES IN DENTAL PRACTICE MANAGEMENT IN A POST-COVID WORLD

Prevention of this disease can be achieved simply by adopting the practices that stop virus propagation.^[5] This is why environmental disinfection becomes one of the most crucial steps in the dental practice management. Various advisories laid down by the national and international regulatory bodies, the guidelines for clinic environment, auxiliary staff, and the dental surgeon are to be followed.^[9-11]

Ministry of Health and Family Welfare in India has launched a platform with different online courses for different categories in health sectors. Each and every dental professional should undergo these certified courses and acquire adequate knowledge regarding infection prevention protocols and ICMR guidelines so that they can start their practice in the ideal manner. The WHO has also launched online certification courses which are useful and all health-care professionals should attend these. These certificates may also be displayed in the dental clinics to increase confidence in the public that the dental team is well-versed and aware of the safety and preventive guidelines.

SOP FOR ORAL HEALTH CARE IN POST-COVID WORLD

The entire dental team must be trained and follow the SOPs that are mandated so that safe and effective treatment delivery can be carried out.

REDUCTION OF THE BIOMEDICAL HAZARD

In the dental clinic, there should be an adequate airflow to facilitate clearing of any contaminated aerosol from within the operatory with adequate provision of ventilation to allow minimum of 6 air cycle changes per hour.^[5,9] This can be achieved by stand-alone HEPA filters, or exhaust fans and natural ventilation. Use of air conditioners, if not having in built HEPA filters, should be avoided at all costs. If an air purifier is not available, ultraviolet germicidal irradiation for 15 min within 100–280 nm wavelength can be used to disinfect the operatory. Disinfection of the room can also be achieved with the help of fogging machine with 1% hydrogen peroxide solution or chlorine dioxide.^[5,9,12] Once the patient leaves the operatory, a 3 ft area around

the chairside needs to be disinfected and mopping is to be done with 1% sodium hypochlorite. Flushing of suction tubing, and other water lines, spittoon, and drainage with 1% sodium hypochlorite is necessary. All the instruments used should be mandatorily cleaned, packaged, sterilized, and stored in color changing sterilization autoclave bags. The dental team should continue to follow the laid down biomedical waste disposal practices.^[10] It is also important that the members of the dental team also follow the recommended personal hygiene and disinfection protocols for all health care workers.^[11,12]

Teledentistry

For each and every patient, the dental staff should fix an appointment through telephonic conversation for new cases or through any suitable social messaging app for follow-up or existing patients. This is primarily done to discourage any “walk-in” patients. Disclosure/patient consent forms which are revised in this post-COVID scenario are to be sent to the patient through electronic media. Instructions such as those for strict usage of mask while coming to the dental clinic, and if possible not bringing an attendant along with the patient, are to be given over the phone. Relevant travel history and medical symptoms related to COVID-19 infection are to be noted.^[8,12] This information is required to be mentioned in the disclosure form also. Patients are strictly instructed to follow their given appointment schedule as an adequate time interval must be kept between two appointments to allow for the disinfection protocol to be completed in the dental clinic.

Protective Measures to be followed in the Waiting Area

There should be a laid down reception/waiting area protocol. A trained receptionist, must give instructions to the patients regarding hand hygiene, respiratory hygiene and he/she should record patient body temperature using a digital non-contact infrared thermometer.^[9,12,13] The receptionist is required to use a face shield, a 3-layer surgical mask and head cap.^[9] An alcohol-based hand rub should be accessible in the waiting/reception area. Ensure that, the patient wears a mask and shoe covers as soon as they enter the reception area. For patients, sitting arrangements should be made ensuring minimum of 3 ft physical distancing.^[12] There should be display of patient education material on “hand and cough hygiene.”^[12,13] The patient should

submit the disclosure/consent form before entering the operatory room. The entire waiting areas can be cleaned with detergent and 1% sodium hypochlorite with a contact time of 10 min preferably every 2 h.^[9,12]

Preparation of the Operatory Room

The dental team should make sure that the clinical operatory as well as reception area are free of any unnecessary items to avoid their surface contamination with fomites. Ventilation is the key for the reduction of air-borne infective material hence cross-ventilation in dental clinics should be ensured. For consultation, the recommended items are N95 masks, face shield, surgical scrubs, and a disposable surgical gown along with gloves for all members of the dental team that is in close proximity to the patient.^[12,14,15]

Pre-operative Protocol

Pre-procedural mouth rinse with 1% hydrogen peroxide or 0.2% povidone-iodine is advised for 1 min before any procedure.^[9,12] Extraoral scrubbing of the entire facial region, not just around the mouth, with antiseptic wipes may be done. After examination and diagnosis, the treatment plan should differentiate into aerosol- and non-aerosol-generating procedures. High-speed air-rotor handpieces used in the dental clinic increases the formation of bio-aerosols contaminated with bacteria, viruses, and fungi.^[16,17] Similarly, oral surgical drills and ultrasonic scalers also generate aerosol along with blood splatter.^[16-18] Hence, all aerosol-generating procedures should be carried out only in a specially designated isolated room. A well-trained dental assistant is essential to ensure that all safety measures are implemented. Coverall suit, disposable/autoclavable/surgical gown along with face shields, N-95 masks, and double pair of nitrile gloves are mandatory for the dental surgeon as well as the assistant.^[9,12] Rubber dam application and high-volume suction for all aerosol-generating procedures are mandatory to reduce the risk of infection. There should be minimum use of intraoral periapical radiographic films. Digital radiography should be preferred. The designated room for aerosol-generating procedure should be equipped with HEPA filters or at least should have the facility of augmented ventilation. Keeping the windows open and having exhaust fan is a must where air purifiers are not available to ensure air circulation with natural air.^[9,12]

Post-operative Protocol

At the end of the procedure, the patient is advised to remask and proceeds to reception area. Medicine prescriptions and post-operative instructions should be given through electronic media. Cashless payment is to be preferred as it reduces indirect contact transmission.^[9] Patients leaving and entering the reception room should maintain physical distancing. The next patient may be allowed to enter the operatory only after the sterilization/disinfection cycle is complete. Any short cuts or failure to follow the laid down procedure is unacceptable as the consequences are severe for the whole society.

CONCLUSION

The incidence of new cases of COVID-19 has reduced dramatically at the time of writing and Phase 1 of vaccination of health-care professionals has begun. Despite vaccination having started, it is not the end of the challenge and safety precautions still need to be maintained. Dental professionals have a responsibility to provide essential oral health care to the population in a safe and controlled environment. The pandemic has reminded us that we need to strictly follow all the safety precautions, biomedical waste disposal guidelines, and laid down SOP's for ensuring safe and effective dental treatment for the patients. Patient awareness drives should be carried out to ensure that the patients understand the importance of additional biosafety measures being implemented and cooperate accordingly. All stakeholders – the public health authorities, dental regulatory authorities and dental professionals – need to work unitedly so that this “new normal” practice of oral health care becomes a reality as soon as possible.

REFERENCES

1. Spanguolo G, De Vito D, Rengo S, Tatullo M. COVID-19 outbreak: An overview on dentistry. *Int J Environ Res Public Health* 2020;17:2094.
2. Stevens H. Why Outbreaks like Coronavirus Spread Exponentially and How to Flatten Curve. Available from: <https://www.washingtonpost.com/graphics/2020/world/corona-simulator/?itid=hp>. [Last accessed on 2021 Dec 10].
3. World Health Organization. Modes of Transmission of Virus Causing COVID-19: Implications for IPC Precaution Recommendations: Scientific Brief. Geneva:

- World Health Organization; 2020.
4. Huang C, Wang Y, Ren L, Zhao J, Hu Y, Li X, *et al*. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020;395:497-506.
5. Thomé G, Bernardes S, Guandalini S, Guimarães MC. Guidelines for Best Practices in Biosafety at the Dental Clinic. Basel, Switzerland: Straumann Group; 2020.
6. Meng L, Hua, F, Bian Z. Coronavirus disease 2019 (COVID-19): Emerging and future challenges for dental and oral medicine. *J Dent Res* 2019;99:481-7.
7. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci* 2020;12:1-6.
8. Coulthard P. Dentistry and coronavirus (COVID-19) - moral decision-making. *Br Dent J* 2020;228:503-5.
9. Dental Council of India. Revised Guidelines of Disaster Management Act 2005. New Delhi: Dental Council of India; 2020.
10. Available from: <https://www.cpcb.nic.in/uploads/projects/bio-medical-waste/bmw-guidelines-covid.pdf>. [Last accessed on 2021 Jan 29].
11. Available from: <https://www.cdc.gov/oralhealth/infectioncontrol/summary-infection-prevention-practices/standard-precautions.html>. [Last accessed on 2021 Jan 28].
12. Chugh A, Kaur A, Kohli A, Kumar P. Oral and maxillofacial minor surgery practice post-COVID 2019 pandemic - An insight. *Ann Maxillofac Surg* 2020;10:439-43.
13. Available from: https://www.who.int/gpsc/5may/Hand_hygiene_why_how_and_when_brochure.pdf. [Last accessed on 2021 Feb 02].
14. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/using-ppe.html>. [Last accessed on 2021 Feb 02].
15. Available from: <https://www.covid.aiims.edu/personal-protective-equipment-covid-19-preparedness>. [Last accessed on 2021 Feb 10].
16. Moodley R, Naidoo S, Van Wyk J. The prevalence of occupational health-related problems in dentistry: A review of the literature. *J Occup Health* 2018;60:111-25.
17. Szymańska J. Dental bioaerosol as an occupational hazard in a dentist's workplace. *Ann Agric Environ Med* 2007;14:203-7.
18. Ishihama K, Iida S, Koizumi H, Wada T, Adachi T, Isomura-Tanaka E, *et al*. High incidence of blood exposure due to imperceptible contaminated splatters during oral surgery. *J Oral Maxillofac Surg* 2008;66:704-10.

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