



Embracing the New Normal in Dentistry Post Covid Pandemic - What has Changed?

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Received: June 16, 2021; **Published:** August 30, 2021

Abstract

An unnerving subject of the year 2020 was pandemic of COVID-19 (Coronavirus) which has affected day to day life and is slowing down the global economy. The COVID-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to all aspects of existence. As no area of society has left untouched with the effect of this pandemic, including dentistry; knowing the mode of entry, mainly oral and nasal cavity, dentists and dental procedures are considered at high risk in the chain of covid spread. Dental societies and healthcare communities around the globe developed various protocols and algorithms with standard infection control replace with measures. The aim of this review is to highlight the transformation the field of dentistry has undergone using its existing protocol and technologies, in what can only be called the new normal of today.

Keywords: COVID-19; Dentistry; Dental Societies; Healthcare Communities

Introduction

Dental profession is known for its aerosol producing procedures since inception. Modern procedures though minimally invasive do not concentrate on reduced aerosol production during the clinical procedure [1,2]. In such a case, the infection control was always considered prudent in managing the aerosol contamination.

Currently the highlight is on the spread of the covid virus through aerosol contamination, owing to the quick and pandemic spread of the virus [3,4]. All oral health care providers have been provided with certain safety protocols to ensure minimal risk of disease transmission [5]. FEMA (Federal Emergency Management Agency) recognized that dentists need PPE in order to treat emergency and near emergency dental cases in their offices rather than patients seeking that care from overburdened hospital emergency departments [3]. Now acc to ADA, whenever a patient visits a dental clinic, standardized protocol is to be followed including initial

screening of patient's general health, any signs and symptoms, any travel history to pandemic affected zone and vaccination. In case, patient is affected or at high risk of getting infected, all elective procedures should be delayed for at least fourteen days with close follow up and in urgent or emergency situations, all procedures to be performed under Negative pressure Rooms or Airborne Infection Isolation Rooms (AIIRs). If an AIIR is not available then, High-Efficiency Particulate Air (HEPA) filters should be installed in dental operatory [6].

Dental operatory staff

Covid spread has affected staff as well as patient management protocols which were followed earlier in both private as well as hospital establishments. Thus, the need of hour is to perform procedures with complete safety of the dental workers as well as the patient with minimal contact and equally efficient results. To achieve this; digitalization of dentistry is an excellent means which

requires less direct exposure of dentists and patients, requires less manpower for auxiliary support as well for the technical work, thus resulting in more accurate and better outcomes. This could be effective for small as well as multichair setups which require a lot of support to the operator. Digital technology including digital radiography, CAD-CAM, electronic record keeping are already in use [7,8]. Recently oral scanners have revolutionized dental practice, robotic science is being used for performing dental procedures like implant placement under guidance of dental practitioners [6,9,10]. Health care providers are finding ways to incorporate mobile technologies for remotely measuring health and preventive health services [11].

Dental auxiliary management

Dental auxiliary management was also a big challenge during covid times, conventional dental practice was greatly hit by lack of support to operator, which is not the scenario as far as digital dentistry is considered, starting from impression making, cast pouring, storage of impression material, disinfection all could be avoided using digital scanners which increase the efficiency of operator and also need of auxiliary staff [12,13]. Also transport cost for laboratory support is reduced as the use of scanners can directly send STL files to the laboratory, which can utilise CAD CAM/3D PRINTERS, for fabrication work with least human error and increased precision of the fabricated prostheses [14]. Sterilization protocol as ascertained by ADA, can be followed at ease and regular dental practice can be restored.

Easier record keeping

With oral scanners we can keep the records of patients in STL files for future use without need of case sheets or dental casts, thus record keeping is a much easier and easily accessible record system. Also electronic record systems are easier for future reference, evaluation of treatment provided, medicolegal cases as well. Also telephonic consultation which has been in high demand now-a-days can be added as a record.

Restorative therapy

Intraoral scanners or IOS can be used for making impressions for fabrication of various restorations including fixed prosthesis, complete dentures, RPD frameworks, temporary prosthesis, inlays and onlays. Scanning can help us detect undercuts in a patient's

mouth in prepared teeth for fixed restorations, scanning systems can also help in shade selection for prosthesis fabrication. Thus, IOS provides various advantages of better communication between patient and dentist and also between dentist and labs; better interdisciplinary discussion and diagnosis for complex cases; monitoring of cases before, during and after completion of treatment like in orthodontic relapse cases etc. thus digital systems can very well enhance our dental practice.

IOS can be used for preventive care, by educating patients about their oral health; showing them their current oral hygiene, carious lesions or any soft tissue lesions. New IOS systems used fluorescent technology for early detection of surface caries. Thus, patients can be very well explained about their condition, understand their disease state and need for treatment and compare it with the final treatment outcome. Also this can be used as a record for medicolegal cases.

Cost effectiveness

Although initial installation of oral scanners can be exorbitant, this investment is worth in the long run; slackening your extra cost of auxiliary support and lab charges. We can make as many scans as possible thus avoiding re-impression making and messy procedures of impression pouring and transportation of these to labs, also in-house labs can be helpful in saving time and cost both for patient and dentist. In recent intraoral scanners in-built software for tip change alert is also available. Diode lasers are now available at lower prices for performing painless, bloodless procedures like gingivectomy, depigmentation, frenectomy etc. All these procedures can reduce charges for auxiliary support as the need of the armamentarium is reduced, and so are its cleaning and management procedures. Improved accuracy, improved efficiency and predictable outcomes are the greatest advantage of digital systems over conventional dental procedures.

Possible challenges

Various digital systems like lasers are being used in large scale now but because of high prices of IOS and CAD-CAMS, its adoption has not reached majority practitioners. Also there is still a great area of dental practitioners who are not willing to adopt for digital dental procedures, so there is need for educating and updating the current dental practitioners about these digital systems and also

these digital technologies should be incorporated at various dental schools so that the current learners can be made well knowledgeable about various application of digital technologies.

Conclusion

Dentistry has always been at high risk of infectious disease transmission, so has the current pandemic of COVID-19 has raised new challenges for the dental practitioners to play a remarkable role in breaking the chain of transfer of this highly infectious disease by following not only the standardized sterilization protocols, but special precautionary measures a well. This could help us today as well as in the upcoming future in preventing transmission of any infectious and such highly contagious disease in dental operator. Now is the time that we should increase use of digital technology to overcome unnecessary exposures and outline our clinical role in more cohesive terms.

Bibliography

- Oliveira DC. Minimally invasive dentistry approach in dental public health.
- Banerjee A, Watson TF. Essentials of minimally invasive operative dentistry. Pickard's Guide to Minimally Invasive Operative Dentistry. 2015.
- Mallineni SK, Bhumireddy JC, Nuvvula S. Dentistry for children during and post COVID-19 pandemic outbreak. Children and Youth Services Review. 2021;120:105734.
- Patel M. Infection control in dentistry during COVID – 19 pandemic: what has changed? Heliyon. 2020;6:e05402.
- Hegde M, Qaiser S, Hegde N. Clinical protocols in dental practice: Post-COVID-19. Journal of Conservative Dentistry. 2019;22:408.
- World Health Organization. Corona Virus Disease: Infection Prevention and Control of Epidemic and Pandemic. 2020.
- Portable digital radiography system. Veterinary Record. 2016;178:221-221.
- Ishiguro E, Ishida T, Kita M, et al. A11 Development of CAD/CAM System for Cross Section's Changing Hole Electrical Discharge Machining: Formulation of Post Processor (Digital design and digital manufacturing (CAD/CAM)). Proceedings of International Conference on Leading Edge Manufacturing in 21st century: LEM21 2009; 2009.5: 251-256.
- Kachhara S, Nallaswamy D, Ganapathy DM, et al. Assessment of intraoral scanning technology for multiple implant impressions - A systematic review and meta-analysis. J Indian Prosthodont Soc. 2020;20:141-152.
- Amalgamation of digital and manual workflow for the full mouth esthetic and functional rehabilitation of a patient with amelogenesis imperfecta to improve patient satisfaction and quality of life - a case report, 2021.
- Shetty V, Yamamoto J, Yale K. Re-architecting oral healthcare for the 21st century. Journal of Dentistry. 2018;74:S10-S14.
- Tysiąc-Miśta M, Dubiel A, Brzoza K, et al. Air disinfection procedures in the dental office during the COVID-19 pandemic. Medycyna Pracy. 2020.
- Strazzi-Sahyon, Strazzi-Sahyon, Arruda-Vasconcelos, et al. Ultraviolet irradiation as a disinfection protocol during COVID-19 outbreak for dental practices. Photodiagnosis and Photodynamic Therapy. 2020;32:102079.
- Rajaraman V, Nallaswamy D, Maiti S, et al. Amalgamation of digital and manual workflow for the full mouth esthetic and functional rehabilitation of a patient with amelogenesis imperfecta to improve patient satisfaction and quality of life - a case report. Int J Biol Pharm Sci. 2021;10(2):613-629.

Volume 4 Issue 9 September 2021

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