

## REVIEW ARTICLE

**Establishing “new normality” as we return to the department**Santosh Kumar<sup>1</sup>, Shraddha Gupta<sup>2</sup>, Fatima Alam<sup>2</sup>, K Athira<sup>2</sup>**Abstract:**

*The novel coronavirus (COVID-19) pandemic started in Wuhan, China with severe acute respiratory syndrome (SARS) in December, 2019. The disease has rapidly spread throughout the inhabited world and led to unprecedented major health, humanitarian, and financial crises. The COVID-19 is mainly transmitted from patient to Orthodontist and Orthodontist to patient through aerosol and splatter produced by the dental procedure and saliva of an infected person. To avoid transmission of virus screening tests should be done at dental setups. This article describes ways to reduce COVID-19 transmission in orthodontic practice. While the virus is still emerging, knowledge is limited and as such it is difficult to provide robust and complete recommendations for best practice. Further studies to inform future practice are required.*

**Key Words:** COVID-19, SARS-CoV-2, Orthodontics, Dentistry, Orthodontic emergency, Protocols

**Introduction**

***To the virus that jolted our normal lives and got us rattling to think of what and how would we get the “new normality” – The Standard!***

The novel coronavirus was officially announced as the causative pathogen of COVID-19 by the Chinese Center for Disease Control and Prevention on January 8, 2020 (Li et al. 2020). The epidemic started from Wuhan city of China and have become a major challenging public health problem for not only China but also countries around the world (Phelan et al. 2020). The novel coronavirus was initially named 2019-nCoV and officially as severe acute respiratory syndrome coronavirus 2 (SARSCoV-2).

COVID-19 affect different people in different ways. The patients who suffered from this virus showed typical symptoms such as fever, cough, fatigue with abnormal chest CT.

Sputum production, head ache, hemoptysis and diarrhea were also observed in some cases. Most infected people will develop mild to moderate illness and recover without hospitalization

The route of transmission from one individual to another through exhaled droplets, aerosols, contamination of surfaces and possibly through fecal oral contamination. The COVID virus can be detected in aerosols up to 3 hours postoperatively and can persist on surfaces for extended periods (figure 1).

Covid-19 being declared as a global pandemic on January 30, 2020, by the World Health Organization (WHO). This outbreak had constituted a public health emergency of international concern (Mahase 2020) that led to the shutdown of entire globe. Efforts to contain the spread of the disease have led to major disruptions, forcing regional and, in many cases, national emergencies and lockdowns, leaving only essential services to continue. In such a transmissible health condition, performing elective tasks, including orthodontic treatment, are required to be suspended on order of the federal, provincial/state, and local civic and public health or professional regulatory bodies. Since orthodontic treatment is a long and continuous process there are millionsof patients who were already undergoing orthodontic treatment when scheduled care was abruptly suspended. With each passing day of the COVID-19 lockdown, each of us is getting more and more

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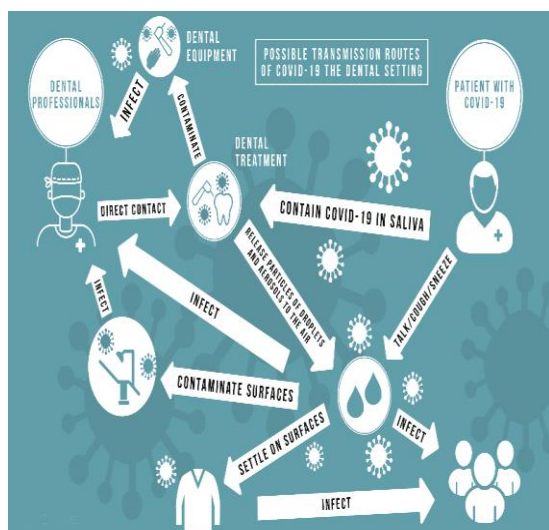
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eager to return to a state of normalcy. Now after almost 6 months of layoff there arises inflating needs to reinstate to our orthodontic practice.



### RECOMMENDED MEASURES DURING THE COVID-19 OUTBREAK-

As a general rule, we as any other medical professionals were taking universal precautions while treating our patients for the safety of all involved in and out (figure 2).

Patients who present with an orthodontic emergency may be experiencing pain or discomfort and should be scheduled in priority. Consequently, repeated breakages prolong treatment time and can lead to decreased patient motivation due to a loss of confidence in the appliance or the operator.

Orthodontic problems represent urgencies not true emergencies and can be managed with step by step protocols, firstly by virtual assistance. The orthodontist should not let the patient use anything that could generate an urgency in the office such as appliance that can be activated by patient like elastics, facemasks, headgear, lip bumper or non-removable appliance that can be activated by the patient. If the bracket breakage is present than spot can be covered with orthodontic wax instead of rebonding it in case of orthodontic emergency.

Based on guidance from the Centers for Disease Control and Prevention (CDC) and the Indian Orthodontic Society (IOS), orthodontists and their office employees should adhere to the following protocol for COVID period.

A cross-sectional study found that the most commonly retained predecessor was the mandibular second primary molar, followed by the maxillary deciduous canine.<sup>6</sup>In a study conducted by Aktan et al. in 2011, primary teeth were more

### RISK OF NASOCOMIAL INFECTIONS IN ORTHODONTIC SETTINGS

The transmission of virus in an orthodontic setting can occur through human-human contact; saliva; aerosols and use of orthodontic instruments. Hence there arises the need for optimum infection control and strict cleaning, surface disinfection and sterilisation protocols.

### CLINIC, CLINICIAN AND SUPPORTING STAFF

The table 1 highlights the recommended measures which should be taken by the clinician and supporting staff in the clinics for implementing new office environmental and infection controls.



Figure 2. Universal precautions

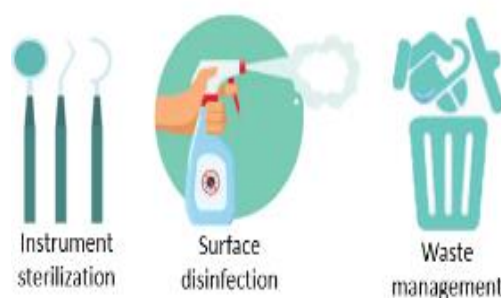






















Table 1:

	Use of <b>Arogya Setu app</b> by all staff before starting for clinic, the review of their status should be safe or low risk.
	At Entrance- Pre- check triage – every patient should be checked by measuring temperature
	Hand sanitization + donning of PPE
	Social – distancing protocol inside clinical area- minimum 6 ft. distance between each dental chair
	Proper cross ventilation
	Centralized air conditioning to be avoided
	STERILIZATION AND DISINFECTION Surface disinfection with 1% NaOCl
	Use of sterilized and packaged instruments. (Manual scrubbing followed by packing after every instruments)
	Concent for and travel history should be recorded prior to treatment onset
	Aerosol generating procedures should be avoided or if to be used should be done precautiously. It is recommended by IOS to leave the room vacant for one hour
	Minimum of 15-20 minutes time interval between the scheduled appointments for every patient
	OPERATOR POSITION – o'clock operator's sitting position is mostly recommended as it is considered to be a more safe position and prevents direct aerosol exposure.

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	MANAGEMENT OF MEDICAL WASTE- Should be disposed in accordance with the biomedical waste management and handling rules.
	DOFFING OF PPE – IMAGE
	DAILY FUMIGATION IN THE END OF THE DAY

## 1. PATIENT AND ATTENDANT:

	INITIAL TELE-SCREENING AND TELE-TRIAGING
	SCREENING ON ARRIVAL- Identification of signs and symptom of febrile respiratory illness such as fever and cough by a proper questionnaire given to the patient.
	Patient should come wearing masks
	Hand sanitization strictly advocated at entrance.
	Attendant to stay back in the vehicle or waiting room following the social distancing norms.
	Digital payments to be promoted.
	Schedule next appointment on triage basis.

**ORTHODONTIC EMERGENCY PROCEDURES AND METHOD TO RESOLVE THEM:**

BONDING	<ul style="list-style-type: none"> <li>• Light cured resin modified glass ionomer cement can be used without any prior enamel preparation.</li> <li>• Use dry cotton roll to clean the enamel surface after etching. Suction can be used because it is non-aerosol generating procedure.</li> </ul>
LEVELING AND ALIGNMENT	Square or rectangular nickel titanium wires are preferable to avoid emergencies caused by slippage. Additionally, cinch back the arch wires to prevent the sharp ends from impinging on the gums. The use of flowable composite is also recommended at the ends to avoid slippage of wire in case small round NiTi wires are to be used.
INTRUSION OR EXTRUSION	As intrusion or extrusion arches exert continuous force on the system, may cause inadvertent effect on bite if not monitored at regular intervals, thus such procedures can be avoided.
SPACE OPENING	Measure the exact amount of space needed and calibrate the coil length to avoid excessive space opening, root

	<p>convergence, or proclination of anterior teeth in case of missed appointments.</p> <p>Alternatives such as opening loops on rectangular stainless steel wires can be adapted to create space as the forces diminish or dissipate, once the measured activation is reached.</p>
LIGATION	<p>Archwires should be tied to the brackets with stainless steel ligatures instead of elastomeric rings, since they offer more hygienic</p> <p>Prefer passive self-ligating brackets as they offer advantages in delayed appointment situations, including fewer emergencies associated with torn or loose elastomeric rings or oral hygiene concerns caused by food and plaque accumulation around elastomeric rings.</p>
SPACE CLOSURE	It is wiser to employ tie-back, power chain or elastic thread for space closure, since their forces decay over a shorter period, rather than closed coil springs that are regularly applied for exerting continuous force.
EXTRACTIONS	Meticulous planning for orthodontic anchorage is essential prior to extractions. Be aware that if there is a COVID-19 return and a lockdown is reimposed, further measures may be required to avoid

	undesirable anchorage loss.
EXPANSION	Overactivation can cause undesirable buccal tipping of posterior teeth, causing delay in finishing due to round tripping.

**CONCLUSION:**

During COVID-19 pandemic it is imperative that orthodontists think globally and act locally to minimize the rate of transmission in the orthodontic set up.

Emergency orthodontic treatment can be provided by following a contingency plan founded on effective communication and triage. Treatment should be performed in a well developed operatory following the necessary precautions and IPC (Infection prevention and control) protocol.

The 'new' normal will probably not look like the 'old' normal for a long time, if ever again. Things will change, but not inevitably for the worse in the longer term.

The key to getting dental activity back on track lies in:

- Reducing infection risks, to allow the;
- Resumption of dental provision, which will require the adoption of;
- New approaches, products, technologies and treatments,

It's not going to be easy, but together we can do better. This seems to be the COVID-ified' future for the orthodontists.

While with the progress towards the completion of this review, vaccination trials had already been initiated. Expectantly, by the time the article gets published, we hope for the accessibility of the vaccination for all.

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