

Orthodontics in Post Covid Era – Aggregating the Inside Story

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How to citation this article: Dr. Rahul Shah, Dr. Anmol Patel, Dr. Sonali Mahadevia, Dr. Bhavya Trivedi, Dr. Arth Patel, Dr. Priyanka Shah, “Orthodontics In Post Covid Era – Aggregating The Inside Story”, IJMACR- March - April - 2022, Vol – 5, Issue - 2, P. No. 86 – 97.

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Objective: To provide all the necessary information regarding how COVID -19 pandemic affected the orthodontic practice, it’s implication and how to manage routine, clinical setup, sterilization protocol and orthodontic emergency while at pandemic and after that from currently available data, literature and information.

Materials and methods: A thorough research was done on studies related to COVID-19 pandemic and how it has affected the orthodontic practice on day to day basis. The databases included PubMed, MEDLINE, Scopus, Google Scholar, and COVID-19 Open Research Dataset. The research was focused on presenting symptoms, disease transmission, infection control, orthodontic care, and its complication affecting the delivery of orthodontic treatment. The research also included reports from major

health policy regulatory bodies such as WHO, CDC, ECDC, and major international dental and orthodontic societies and associations. The peer-reviewed publications and guidelines from the health regulatory authorities were given priority.

Results: All the information related to Sars-Cov-2 virus, its general and orthodontics considerations were sequentially arranged. It is mainly highlighted for keeping the orthodontic practice as risk-free and as smooth as possible.

Conclusion: The COVID-19 pandemic has changed our life drastically. For orthodontist its necessary to have a strict sterilization protocol, as minimal as possible aerosol production, minimal invasive orthodontics, and how to manage orthodontic complication and emergency.

Keywords: Covid -19, WHO, CDC, SARS-CoV-2.

Introduction

The coronavirus disease 2019 (COVID-19) infection was first identified and reported in the year 2019 in a cluster of cases, caused by a newly identified Beta-coronavirus. Reported at Wuhan, in Hubei province the virus was initially named as 2019 novel coronavirus (2019-nCoV) by the World Health Organization (WHO) on January 12, 2020. Later, a new name for the virus was given as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) on February 11, 2020. SARS-CoV-2 virus is very closely related to the original SARS-CoV virus and is thought to be zoonotic in origin. The COVID-19 has spread very rapidly in China. At present, more than 188 countries around the world have been affected. The Director-General of WHO declared the condition a “Public Health Emergency of International Concern” on January 30, 2020. On March 11, 2020, the WHO declared the ensuing condition a pandemic. As of 10th October 2021; 238,652,888 confirmed cases of COVID-19 including 4,867,517 deaths, reported to WHO. As of 10th October 2021, a total of 3,652,275,887 vaccine doses have been administered.

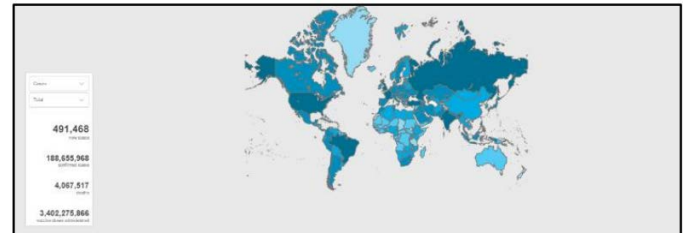
The present scenario has caused orthodontists to suspend active orthodontic treatment. At present, limited information and guidelines for clinical orthodontic care and the management of patients are available. This article aims to provide a comprehensive guideline for managing the emergency orthodontic condition and the patients at a clinical setup, using the currently available guidelines.

Etiology and Pandemic

The 2019-nCoV/SARS-CoV-2 Virus SARS-CoV-2 is a non-segmented positive-sense RNA virus encapsulated

by a lipid bilayer envelope, ranging from 60 nm to 140 nm in diameter with spike-like glycoprotein projections on its surface, giving it a crown-like appearance under the electron microscope; hence, the name coronavirus. The COVs are divided into four genera.

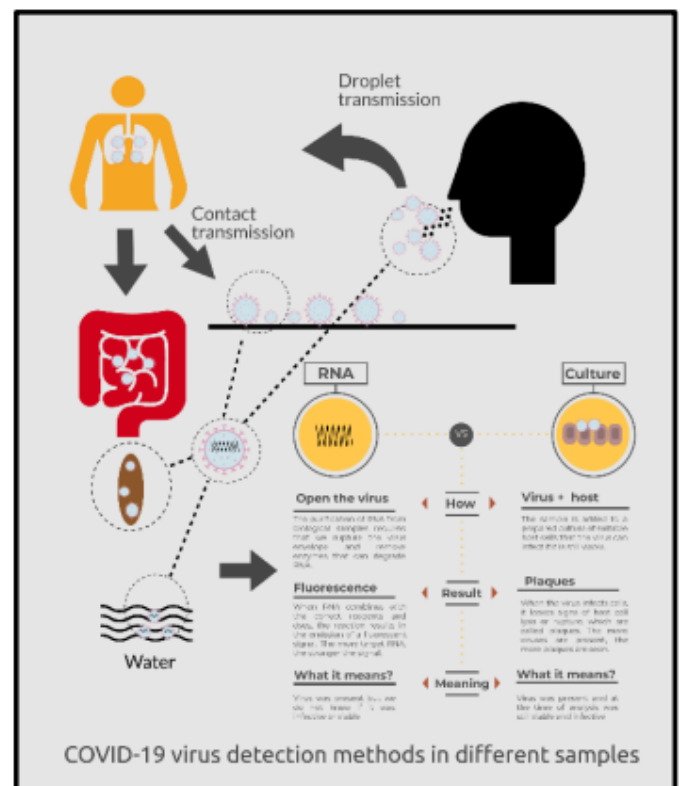
The SARS-CoV-2 is a member of the Beta virus genera.



Mode of Transmission

Human-to-human transmission of SARS-CoV-2 virus has been noticed in health care, family, and community settings.

The most common mode of transmission was from the respiratory tract via droplets or indirectly through fomites and, to a lesser extent, via aerosols.



The scattering of the virus to the mucous membranes of nasal cavity, oral cavity, and eyes is possible through contaminated fingers or objects following contact. A recent study under experimental conditions noted that the human COV remained infectious on inanimate surfaces at room temperature for up to 9 days. The virulence of the SARS-CoV-2 virus decreases with increasing temperature.

The mean incubation period appeared to be between 4 days and 7 days, but it can be as short as 3 days or as long as up to 11 to 14 days. Studies have suggested that transmission can occur during incubation period and from asymptomatic or mildly infected people.

The convalescent patient has shown a near-normal body temperature for more than 3 days, near-normal respiratory symptoms, and the oropharyngeal to test swab the reverse transcriptase polymerase chain

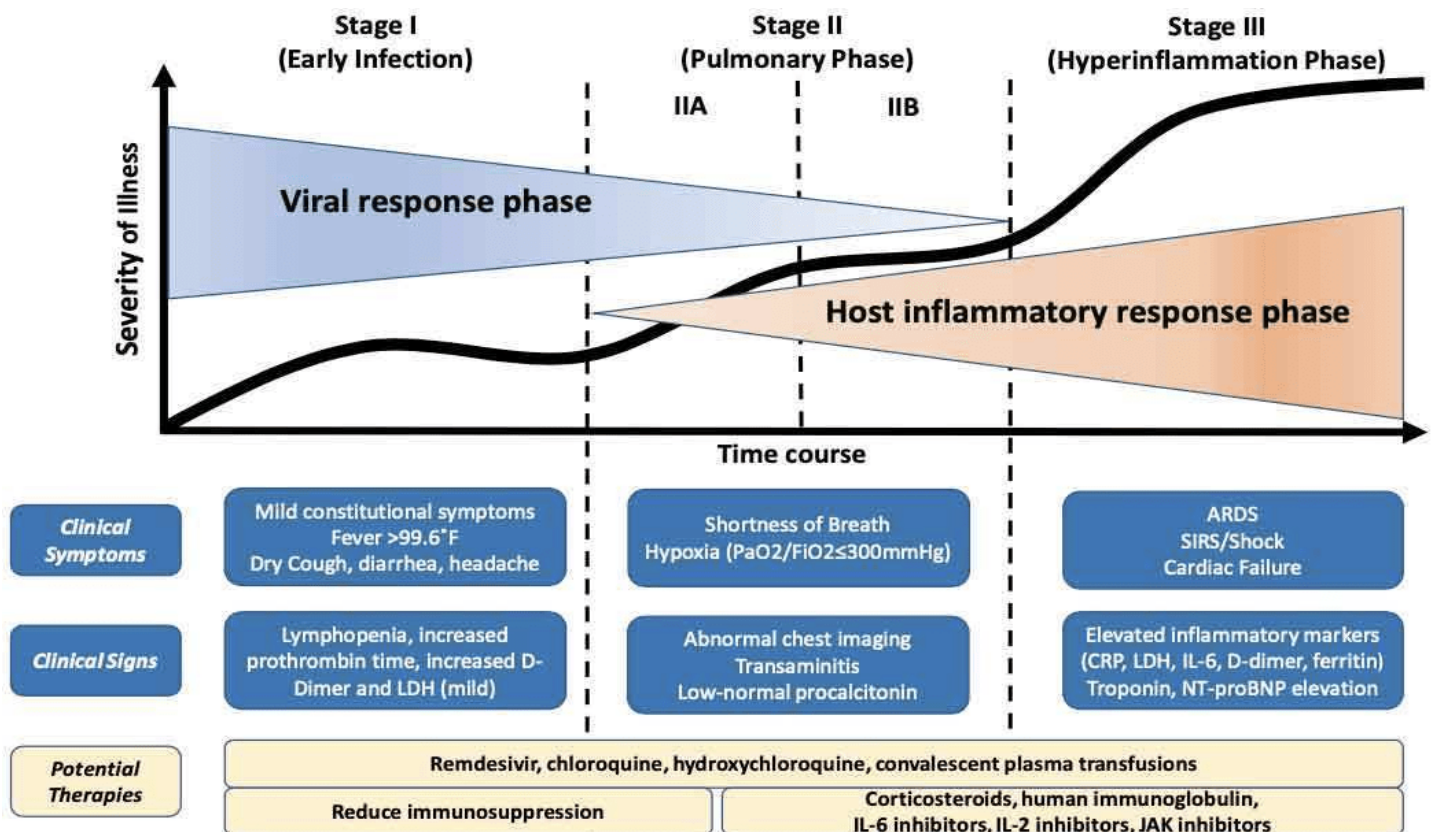
reactions (9RT-PCR) on two occasions were negative (taken at least 24 hours apart).

There is no risk of vertical transmission from mother to fetus. Studies presented a strong virulence of the virus in saliva; therefore, it can be considered as a potential source of infection. The virus was also isolated from blood and fecal swabs, but its presence in tears and urine has not been established, suggesting the possibility of additional transmission routes.

All secretions (except perspiration) and excretions, including diarrheal stools from patients with known or possible COVID-19, should be considered as potentially infectious.

Signs and symptoms of patients with COVID 19

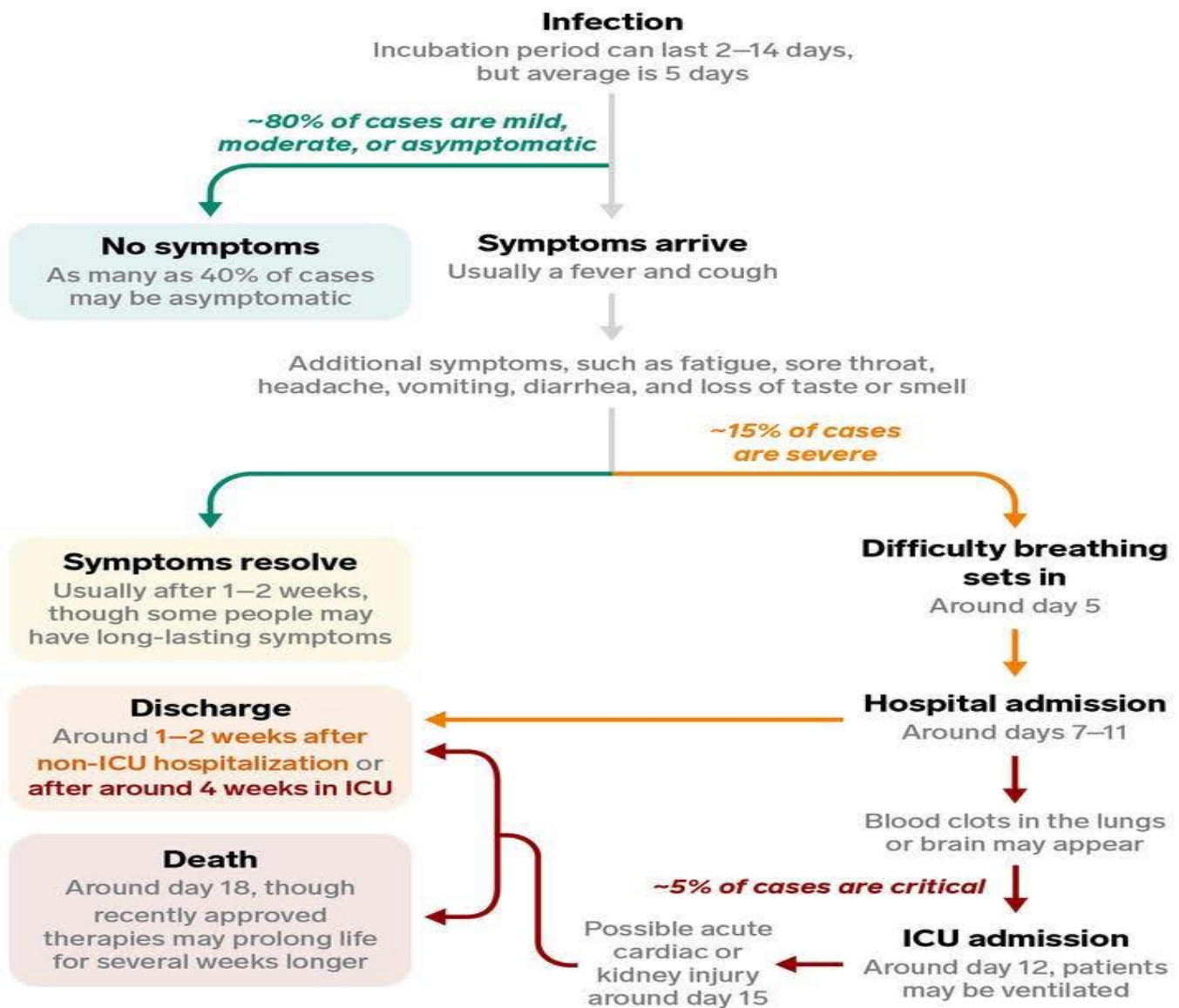
Individuals confirmed with the disease can be as short as 3 days or as long as up to 11 to 14 days. Studies have suggested that transmission can occur during incubation period and from asymptomatic or mildly infected people.



COVID 19 showed symptoms like fever, coughing, sneezing, generalised fatigue, lower respiratory tract infection and severe pneumonia. The disease onset can be categorised into mild, moderate and severe. These symptoms may vary from one person to another from

being asymptomatic to Acute Respiratory Distress Syndrome (ARDS), sepsis, shock, multiple organ failure followed by death. The target organ affected by who had travelled to Wuhan and stayed for less than a day over a period of three weeks.

Typical progression of COVID-19



Sources: CDC, Computers, Materials & Continua (Jiang et al.), JAMA (Wang et al.), Lancet (Zhou et al.), NEJM (Bhatraju et al.), NEJM (Guan et al.), WHO

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Recent studies have demonstrated that there is pulmonary thrombosis which impairs blood supply and gas exchange leading to respiratory failure.

Incubation period of SARS CoV 2:

It was found that the mean incubation period was 6.1 days (range 1-16 days) amongst 33 cases who had a close contact with the infected symptomatic person.

The mean incubation period for 25 cases was 6 days (range 1-15 days).

Dentistry and COVID 19

The dental fraternity is the known source of aerosol production during maximum of its procedures, which is exclusive to dentistry. Salivary pool being one of the main reservoirs of the virus, it is very important for the dentists and health care professionals to take utmost care while performing oral procedures. It is necessary to maintain the infection control as it will prevent the spread of virus on a larger scale.

Post COVID Oral Manifestation

Dysgeusia i.e. loss of taste sensation is the first recognized oral symptom of novel coronavirus disease. Lack of oral hygiene, opportunistic infections, stress, immunosuppression, vasculitis and hyper-inflammatory response secondary to COVID-19 are the most important predisposing factors for onset of oral lesions in COVID-19 patients. Oral manifestations includes ulcer, erosion, bulla, vesicle, pustule, fissured or depapillated tongue, macule, papule, plaque, pigmentation, halitosis, white lesions, hemorrhagic crust, necrosis, petechiae, swelling, erythema, and spontaneous bleeding. The most common sites of involvement in descending order were tongue (38%), labial mucosa (26%), palate (22%), gingiva (8%),

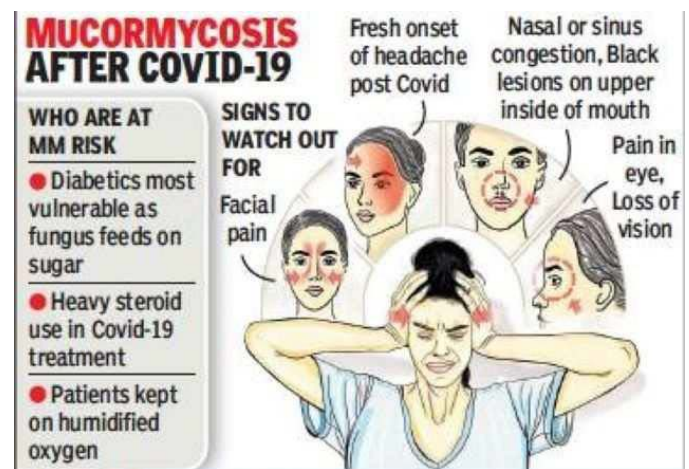
buccal mucosa (5%), oropharynx (4%), and tonsil (1%). Latency time between appearance of systemic symptoms and oral lesions was between 4 days before up to 12 weeks after onset of systemic symptoms.

Post-COVID Mucormycosis

Mucormycosis is an aggressive and invasive fungal infection that can affect various vital organs such as brain, and cause internal damage to the ear, nose, throat and oral cavity. There are increasing case reports of rhino-orbital mucormycosis in patients with COVID-19, especially from India. Diabetes mellitus (DM) is an independent risk factor for both severe COVID-19 and mucormycosis. According to recent studies an indiscriminate use of high dose of steroids in patients could trigger the disease post covid infection. The line of treatment is use of anti-fungal i.e. Liposomal Amphotericin B which is given over an extended period of time under strict observation. Surgery might also be warranted.

Post COVID Orthodontic Implication

All dental professionals, including orthodontists, may be at risk of acquiring COVID-19 through multiple transmission routes, including the following:



- (1) Respiratory droplets from coughing and sneezing or created during a dental or orthodontic procedure,

(2) Indirect contact where viral droplets fall onto a surface that the dental professional or orthodontist or dental professional later contacts

(3) Aerosols generated during dental or orthodontic procedures,

(4) Treating patients who may have experienced indirect contact transmission from removing and replacing aligners, appliances, and rubber bands, and

(5) Being in contact with multiple persons, including those who accompany the patients.

As SARS-CoV-2 has also been identified in the saliva of infected individuals, this poses an additional risk for dental professionals and their patients.

Orthodontists must be especially knowing of the available evidence to provide a safe environment for themselves, their patients (and patient family members), and the entire orthodontic team.

Strict adherence to the most up-to-date recommendations from, government and health authorities is essential for all orthodontists.

In the current stage of the COVID-19 pandemic, most authorities have suggested that all elective and routine dental treatment should be suspended and that only emergency dental treatment can be provided.

A true dental emergency is one that deals with swelling, uncontrollable pain, bleeding, infection, and trauma to teeth and or bones.

Orthodontic Management during and after pandemic.

Tele-screening and virtual assistance

A trained clinical staff member should perform an initial telephone triage or telescreen procedure before the dental appointment to assess the vulnerability of patients and the potential threat they may pose to members of the

professional team, other patients, and accompanying people.

The three most pertinent questions to be asked for initial screening should include the

1) Presence of any symptoms of respiratory illness such as fever or cough, 2) any recent travel history to an area with a high case of the COVID-19,

3) or exposure to a person with known or suspected COVID-19 symptoms.

The doctor can ask the patient to come with a negative RT-PCR or Rapid Antigen Test.

Virtual Assistance

A virtual triage by using photos, videos, and video-calling can be of great help to differentiate and prioritize the actual orthodontic emergency that needs immediate attention in the clinics from the problem that can be self-aided by a home remedy and deferred without reporting to the clinic.

A true dental emergency is the one that deals with swelling, uncontrollable pain, bleeding, infection, and trauma to teeth or bones.

As far as orthodontic emergencies are concerned, severe pain or infection that arises due to the embedment of an orthodontic appliance into the gingiva or oral mucosa, circumstances related to dental trauma, or a condition in which a lack of management that leads to patient harm should be attended.

Many messenger apps and video calling apps such as google meet, WhatsApp video-call, zoom are available at present. Such mobile messenger with a video calling facility can be used by a hospital or dental clinic to communicate with patients.

Clinical Practice Modification

In the context of the COVID-19 pandemic, many orthodontists will find themselves asking what

modifications to their practices must be made to meet new Occupational Safety and Health Administration requirements for infection control. These modifications are intended to maximize not only the safety of staff, but also the safety of patients and parents who enter the practice.

1. Patient evaluation and screening: In general, it is recommended to postpone any routine appointments and restrict patient's visits to emergency treatment only. Screening patients for COVID19 symptoms and recording their body temperature is essential. Updating patient's medical history and asking targeted questions relevant to COVID19 before initiating any dental work is mandatory. This includes

- (1) History of fever (37.3_C or higher) or use of antipyretic medication in the past 14 days;
- (2) Symptoms of lower respiratory tract infection, including dyspnoea in the past 14 days;
- (3) History of travel to a COVID-19 epidemic area in the past 14 days; and
- (4) History of contact with a confirmed COVID-19 in the past 14 days.

Front Office Modifications	<ul style="list-style-type: none"> ● Post visual alerts on hygiene and infection control. ● Provide hand rub (60-95% alcohol), tissues, and no-touch receptacles for disposal. ● Install physical barriers at common locations such as reception area and brushing station. ● Modify waiting room: <ol style="list-style-type: none"> 1. Arrange to meet minimum distance guidelines. 2. Regularly disinfect furniture and reception desk surfaces at designated intervals. 3. Remove common contact objects such as magazines, toys, and coffee machines.
Clinical Environment Modifications	<ul style="list-style-type: none"> ● Utilize anti-retraction valves on handpieces. ● Stagger chairs and physical barriers to respect minimum distance recommendations. ● Organize clinic to minimize foot traffic contact between patients. ● Install teledentistry monitoring stations to conduct teledentistry monitoring professionally. ● Stock Environmental Protection Agency-registered List N disinfectants.

1. If the patient is a suspected asymptomatic (no symptoms and no fever), then reschedule the appointment and advise the patient to self-quarantine at home for 14 days. It is unlikely that a confirmed COVID-19 with acute symptoms will visit the orthodontic clinic yet if the patient showed any symptoms, reporting and referral to COVID-19 prepared hospital is mandatory.

2. Daily self-evaluation of the dental health care provider is advised. If the orthodontist does not feel well or developed any symptoms, he/she is prohibited to work and spread infection.

3. Mouth rinse before any procedure using 0.12%- 0.2% betadine could help minimizes the number of microbes within the oral cavity.

4. Personal protective equipment (PPE), including facial mask, face shield, eye protection, gowns, and gloves, are essential protective gear during the outbreak. COVID-19 was reported to transmit through contact of the virus with ocular mucosa; thus, any contact with mucosal tissue of the eyes, nose, or mouth should be avoided. Patients in the waiting area and operator should also be provided with mask, gloves, head-cap, shoe-cover as safety measure

5. Aerosol production should be restricted, and if necessary, particulate respirators such as N95, EU FFP2, or equivalent in addition to face shield are required.

6. Reinforcement of hand hygiene measures according to WHO recommendations (washing hands for 20 seconds minimal) is essential to combat this robust microorganism

7. Training of the orthodontic team on disease symptoms, routes of transmission, infection control measures, and keeping up with regulation updates are beneficial during SARS-CoV-2 infection crisis.

8. Adequate ventilation of the operatory and waiting area with new air, high airflow, or with air filters is advised, with special attention to minimizing the number of patients in the waiting area and allowing adequate space for social distancing. A minimum of 2m distance should be present to ensure social distancing. 9. The operation room could be contaminated with droplets and aerosol. A recent study reported SARS-CoV-2 viability up to 3 hr in aerosol, with a half-life of 5.6 hr on stainless steel and 6.8 hr on plastic surfaces. Therefore, strict surface disinfection protocol should be applied after every patient.

10. Medical wastes during the outbreak should be handled as infectious medical wastes. Double layer yellow anti-leakage medical waste marked with a special tag is recommended.

Office Team Protocols	<ul style="list-style-type: none">● Fit doctors and staff with N95 or KN95 masks:<ul style="list-style-type: none">○ Limit makeup for best fit.○ Conform facial hair to optimize mask fit.○ Conduct seal checks regularly.● Record, check, track, and save team screenings and temperatures each day.● Conduct training on preventing transmission of infectious agents:<ul style="list-style-type: none">○ Changing of contaminated work clothes and shoes.○ Disinfection protocol.○ Donning, doffing, and disposal of personal protective equipment (PPE).○ Hand hygiene.● Script communications and send patients letters to inform them of office changes due to COVID-19.● Consider schedule modifications and accommodations:<ul style="list-style-type: none">○ Extended hours or days.○ Teledentistry for non-essential appointments.
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Clinical Setup Modification

Modifications to patient treatment are designed to minimize the risk of COVID-19 spread in the office.

Many of these recommendations are related to prudent screening of patients as a form of risk assessment, as well as to minimize chairside viral contamination from patients with subclinical infections.

Sterilization and Infection Control

As our understanding of COVID-19 transmission has improved significantly in parallel with the progression of the pandemic, clinical protocols have evolved to maximize the chances that we can re-enter practice safely and effectively. While orthodontists may not be performing as many AGP as their other dental colleagues are, it is still ultimately important to understand the rationale behind updated safety guidelines.

Appointment Scheduling	<ul style="list-style-type: none">● Categorize patients based on urgency when scheduling.● Initial Screening: Conduct phone prescreening for COVID-19.● Permit only patient with appointment and one guardian in office.● Instruct patient to brush teeth before appointment and arrive wearing mask.● Utilize tele-dentistry appointments when possible.
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Dental white coats are frequently contaminated in the chest, pocket, and sleeve regions by splatter from blood, aerosols, or saliva, posing the risk of cross-contamination between patients.

Due to increased possibility of contamination of clinic attire, the authors recommend that doctors and staff arrive at the clinic in street clothes, change into clinic attire for the workday, and change out of clinic attire before leaving the office. Although orthodontic practices perform relatively fewer AGP per patient, the complete elimination of aerosols is impossible.

Day-of Screening

- Instruct patient and parents to wait in vehicle until chair is prepared and they are messaged or called.
- **Secondary Screening:** Measure and document temperatures of patient and guardian and complete COVID-19 questionnaires:
 - Screening should be done outside clinic (if possible) by appropriate PPE-wearing staff.
 - Non-contact infrared thermometers and disposable thermometers are options of choice.
- Obtain additional informed consent for infectious diseases.^{20,21}
- Instruct parents to wait in vehicle for duration of appointment.

Regardless of handpiece speed or the presence or absence of water coolant, aerosols are still produced in the orthodontic setting and can be inhaled and deposited in the conducting airways and terminal bronchi of the lungs. Therefore, proper PPE is necessary depending on the health status of the patient and whether AGP will be performed. Well-fitted N95 masks and disposable gowns are recommended to prevent inhalation and contamination, respectively, during AGP. Many clinicians are concerned about the limited supply and variable costs of masks, both surgical and N95.

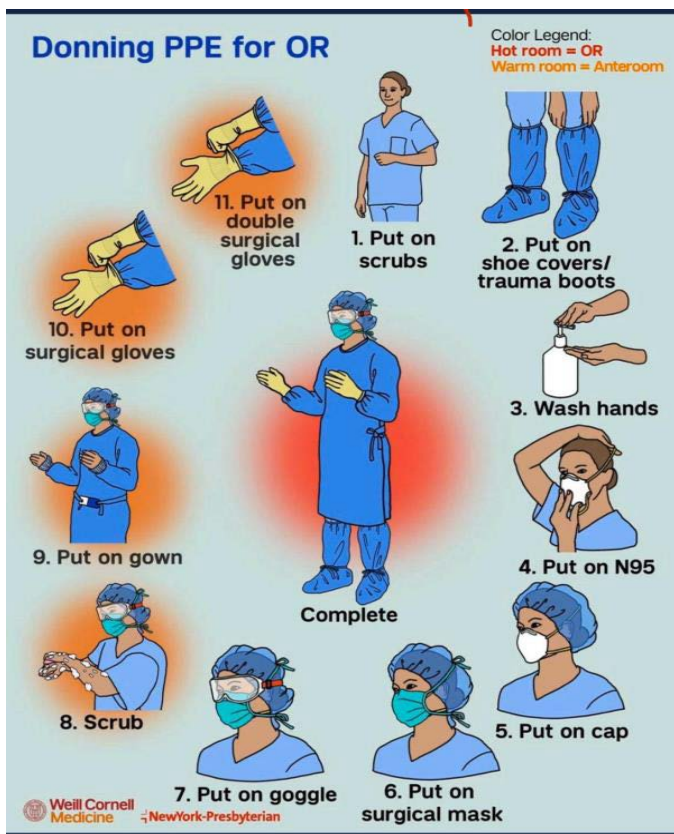
Treatment Protocol Recommendations

- Prepare brushing station where patient enters treatment area for:
 - Hand washing for 20 seconds and subsequent drying.
 - Toothbrushing for two minutes, if not done at home before arrival; consider oral rinse for at least 15 seconds after initial brushing, using 1.5% hydrogen peroxide or .2% povidone-iodine.
- Provide appropriate PPE based on treatment type: for aerosol-generating procedures (AGP), PPE should include N95/KN95 masks, face shields, and disposable gowns per patient.
- Minimize AGP such as cement removal, bonding material removal, enameloplasty, microetching, air-rotor stripping, interproximal reduction, and ultrasonic cleaning.
- Use high-volume evacuation during AGP to reduce operative site contamination.
- Blot dry teeth with cotton gauze before air drying.
- Consider not using water during removal of cement and debonding procedures, if possible.

masks or autoinoculation from face touching. The following are recommendations to reduce the risk of cross-contamination and help protect vulnerable patients as well as the orthodontic staff.

1. Orthodontic pliers can be sterilized with steam autoclave sterilization, ultrasound bath and thermal disinfection, or disinfected with chemical substances 2% glutaraldehyde or 0.25% per acetic acid. Instrument cassettes can be effectively used, with pliers preferably sterilized in an open position.
2. An autoclave is preferred over cold sterilization, without negatively affecting surface characterization of archwires.
3. Orthodontic markers can be autoclaved or disinfected using glutaraldehyde solution.
4. Cleaning photographic retractors with washer disinfectant were reported as the most effective method of decontamination.
5. Tungsten carbide debonding burs could be effectively decontaminated from bacterial infection.
6. It is safe to use tried-in orthodontic bands after adequate pre-cleaning and sterilization.
7. Decontamination does not jeopardize clinical stability of minis crews nor mechanical properties of elastomeric chains.
8. Flushing dental unit waterline for at least 2 min or using disinfectants improves the quality of water within the dental unit and minimize the risk of infection

The Centres for Disease Control and Prevention has published a protocol for disinfecting and reusing masks in crisis shortage situations, but does not condone the use of disinfected N95 masks for AGP. Face shields are recommended to prevent contamination of operator



Orthodontic Emergencies

In the case of orthodontic emergencies, orthodontists should first try to manage the emergency over the phone or remotely. A proper counselling over a phone call could also help the patient.

A verbal or electronically signed consent should be obtained to provide advice in this manner and orthodontists should record all advice that was given in accordance with normal record keeping. If possible, orthodontists should guide patients on how to manage minor emergencies at home.

Here are a few orthodontic emergencies and how could they be treated at home under proper guidance.

Orthodontic Emergency	How the Patient Can Attempt to Handle it at Home
<ul style="list-style-type: none"> Irritation of lip and/or cheek from the brackets 	<ul style="list-style-type: none"> Push/pinch a small piece of rolled relief waxed over the bracket or long wire that is causing the irritation. Orthodontic wax that is accidentally swallowed is harmless. Mouth sores can be relieved by applying a small amount of topical anesthetic directly to the ulcerated surface using a cotton swab (reapplication might be needed)
<ul style="list-style-type: none"> Elastic ligature has come loose from a bracket during eating or tooth brushing 	<ul style="list-style-type: none"> Push/pinch a small piece of rolled relief waxed over the bracket or long wire that is causing the irritation. Orthodontic wax that is accidentally swallowed is harmless. Mouth sores can be relieved by applying a small amount of topical anesthetic directly to the ulcerated surface using a cotton swab (reapplication might be needed)
<ul style="list-style-type: none"> Metallic ligature has come loose from a bracket or is irritating the lips and cheeks 	<ul style="list-style-type: none"> If the ligature is loose, a sterile tweezer can be used to remove it. If the ligature is not loose but is sticking out, a cotton swab/cotton bud or a clean pencil eraser can be used to bend the ligature back down.
<ul style="list-style-type: none"> Food caught between the teeth and brackets or soft tissue, leading to discomfort 	<ul style="list-style-type: none"> The patient is advised to maintain optimal oral hygiene. Interproximal brushes or toothpick or Waterpik can be used to dislodge food, which has been caught between the teeth and bracket or soft tissue

Orthodontic Emergency	How the Patient Can Attempt to Handle it at Home
<ul style="list-style-type: none"> Poking/protruding wire at the end of the brackets 	<ul style="list-style-type: none"> The wire can be pushed from the back with a clean tweezer to make the wire flush with a band/bracket. If it is due to slipping away from the wire, then, using a clean tweezer, the wire is repositioned making sure it is equally and symmetrically positioned. In case the wire causes extreme discomfort, it can be cut with a clean nail clipper; before cutting the wire, a small clean gauze is placed near the area to minimize accidental swallowing or soft tissue piercing.
<ul style="list-style-type: none"> The patient has swallowed the piece of the band/ bracket/orthodontic appliance accessories 	<ul style="list-style-type: none"> If the orthodontic accessory is small and swallowed, assure the patient that it will pass through the gastrointestinal tract, and there is nothing to worry. In case it has been swallowed, the patient should make sure there are no acute respiratory symptoms associated with it (such as a cough) or acute abdominal pain/colic. If such symptoms are present, patient is advised to visit an emergency department of a hospital for clinical examination or, if required, radiological assessment.
<ul style="list-style-type: none"> Broken bonded lingual/palatal (BLR) retainers 	<p>If BLR has come out from one or two teeth with resin pads or without resin pads, it should be trimmed or cut with a clean nail clipper.</p> <ul style="list-style-type: none"> In cases where whole BLR is loose, and the patient is unable to come to orthodontic clinics, it is advised to take the whole BLR out carefully. <p>In both the abovementioned scenarios, the patient is advised to use the removable retainers, if provided, until the next appointment.</p>
<ul style="list-style-type: none"> Broken/loose-fitting transpalatal arch (TPA), lower lingual holding arch (LLA), and maxillary expanders 	<ul style="list-style-type: none"> If the TPA becomes loose or broken and still in the patient's mouth close to its original position, and the patient cannot visit the orthodontic clinic, it should be placed back. For expander, no further activation/expansion is advised until the next visit to the orthodontists. If the TPA, LLA, or the expander has fallen out completely, patient should keep it safe and bring it to the orthodontic clinic at the next visit.
<ul style="list-style-type: none"> Poking edges of the aligner 	<ul style="list-style-type: none"> If patients feel that the aligner margin is biting on the gum, it can be smoothed with a nail file or by using the previous set of the aligner.

Orthodontic Emergency	How the Patient Can Attempt to Handle it at Home
<ul style="list-style-type: none"> Broken removable retainer/functional appliance or nonfitting of the same 	<ul style="list-style-type: none"> Avoid using the broken/distorted appliance. Keep the broken removable functional appliance in water.
<ul style="list-style-type: none"> Fixed functional appliance 	<ul style="list-style-type: none"> The patient is advised to send the photos every 3 weeks. Asymptomatic—nothing to do Mild pain/discomfort—warm saline rinses 3-4 times/day for a week. Mild analgesic Moderate to severe—emergency care at the orthodontic clinic
<ul style="list-style-type: none"> Part of orthodontic appliance embedded in the gingiva leading to severe pain and/or infection 	<ul style="list-style-type: none"> This would represent a true emergency that could be seen by the orthodontist in office, provided that the patient has cleared the triage questions with respect to COVID-19 and the orthodontist has suitable PPE and if this is permitted by the local health regulatory bodies, or should be seen in a hospital setting. If the patient cannot be seen in person by the orthodontist, the patient or home care provider can use a sterile clipper to cut the wire if it is attached to the broken or loose part and remove the broken part from the mouth using sterile tweezers. However, this may not be possible to do with large diameter wires.

Discussion

The dental practice and orthodontic care during the pandemic and future practice will require precautionary and selective case evaluation based on the practitioner's judgment to reduce cross-contamination and prevent new outbreaks.

The clinician should follow the guidelines provided by the concerned health regulatory authorities. Modification and redesign of the dental clinic might be required to maintain efficient air circulation and ventilation and appropriate standard PPE. Effective telescreens and triaging should be part of a routine clinical screening protocol until the uncertainty of the COVID-19 pandemic subsides. Any suspected patient with signs and symptoms of COVID-19 should require deferred orthodontic care and a referral to the COVID-19 screening unit as a priority. The dental treatment should be minimally invasive, of minimal contact, and avoid aerosols generation.

The clinic disinfection protocols during pre-treatment, during treatment, and post treatment should be strictly followed. The staff and patients' wellbeing should be given maximum priority. The proposed workflow and guidelines collected from various health regulatory authorities in the article will provide appropriate and effective management of dental and orthodontic care during the COVID-19 pandemic and post-COVID practice.

Conclusion

This pandemic has affected each and every lives on a great extent. We do not know the true extent of the financial and bioethical problems we will have to face as a result of COVID 19 pandemic.

The need social isolation and continues hand washing and use of hand sanitizer imposed by coronavirus has

been shown to have an impact on scheduling the orthodontic appointments as well as patient's anxiety about prolonging their treatments.

The use of communication technologies has been of great value in patient care, as well as in initial screening before a face-to-face consultation. Strict infection control protocol must be adopted so that orthodontic practice is fully performed without offering risk to patient and professionals.

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