

# COVID-19's impact on private practice and academic dentistry in North America

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## Abstract

The COVID-19 pandemic is a major public health crisis for countries around the world. In response to this global outbreak, the World Health Organization declared a public health emergency of international concern. Dental professionals are especially at high risk of contracting the COVID-19 virus due to the unique nature of dentistry, more specifically, exposure to aerosols and droplets. When it comes to dental emergencies, it was crucial to maintain urgent dental care services operational to help reduce the burden on our healthcare system and hospitals already under pressure. The COVID-19 pandemic has significantly impacted how dentistry is practiced in North America in both the private practice and academic settings. This article shares the perspectives of dentists practicing in private practice and clinician-researchers in academic dental institutions. More specifically, we discuss about measures implemented to minimize risks of disease transmission, challenges in emergency dental care, impact on patients, as well as impact on the professional and personal lives of the dental team during the COVID-19 crisis.

## KEYWORDS

COVID-19, emergency dentistry, epidemiology, infection control, practice management, prevention, urgent care dentistry

## 1 | INTRODUCTION

The COVID-19 pandemic is a major public health crisis worldwide. Dental professionals are at high risk of contracting COVID-19 due to occupational hazard associated with aerosol generating dental procedures (Ge, Yang, Xia, Fu, & Zhang, 2020). In this commentary, we share the perspectives of dentists practicing in private practice and clinician-researchers in academic dental institutions. More specifically, we discuss about measures implemented to minimize risks of disease transmission, challenges in emergency dental care, and impact on patients and on private practice and academic dental team.

## 2 | IMPACT ON PRIVATE PRACTICE

### 2.1 | Measures implemented

During this crisis, emergency care clinics must follow strict measures recommended by regional health authorities to minimize risks of disease transmission. Dentists use a combination of algorithms and teledentistry for patient triage, evaluation, and treatment while minimizing occupational hazards (MSSS, 2020). First, dentists should decide if the patient's condition constitutes a true emergency, if so, attempt pharmacotherapy as indicated. When urgent onsite



intervention is deemed necessary, the dentist should ask screening questions based on epidemiological risk factors and clinical symptoms of COVID-19. Only patients with negative COVID-19 screening criteria requiring low aerosol-generating procedures can be seen in a private clinic like ours equipped with level 1 personal protective equipment (PPE). If the patient presents positive with one or more screening criteria or requires aerosol-generating procedures, they should be referred to a COVID-19-designated clinic in hospitals with adequate infrastructure and equipped with appropriate level 2 PPE (CSO-HNS, 2020).

During the pandemic, our clinic decided to maintain urgent dental care services operational to respond to the needs of existing patients and new patients referred by other private offices while helping reduce the burden on our healthcare system and hospitals already under pressure. Our clinic is designed to operate as an emergency-based dental practice, although we are not a COVID-19-designated clinic due to the lack of level 2 PPE. We operate seven days a week with a daily team of two dentists, two coordinators, three secretaries, four assistants, and a janitor. The clinic consists of twelve enclosed operatories to minimize cross contamination. Panoramic and intraoral radiographic machines are readily available.

Special precautionary measures should be taken because standard universal precautions are not sufficient against COVID-19 (Ge et al., 2020). Prior to treatment, patients are instructed to use pre-procedural mouth rinse such as hydrogen peroxide, an oxidative agent effective into reducing viral load in oral fluids (Peng et al., 2020). Panoramic radiograph is an appropriate alternative to intraoral radiograph as it minimizes saliva secretion and coughing (Meng, Hua, & Bian, 2020). Clinicians can use rubber dam isolation and 4-handed dentistry technique with low- and high-volume saliva ejectors to further reduce risks of transmission (ADA, 2020). Some emergency procedures, such as surgical extractions, use of ultrasonic instruments, and handpieces without rubber dam isolation are at high risk of generating aerosols and thus should be referred to COVID-19-designated clinics (Ge et al., 2020). In addition, adjustments are made at the administrative level. Appointments are scheduled with more time in-between to minimize possible contact between patients in the waiting room, while allowing more time for assistants to ensure adequate disinfection of the dental operatories. Patients are instructed to not bring companions to reduce the number of people in the waiting room. All non-essential objects, including magazines and toys, are removed from the waiting room. Patients are instructed to sit at least two meters from each other and respect the signage on standard recommendations for respiratory hygiene/cough etiquette (ADA, 2020).

## 2.2 | Impact of COVID-19 on dental patients

In our emergency clinic, we have noticed that patients present with more severe disease. Advanced odontogenic infection, extensive extra-oral swelling, and trismus are increasingly more common clinical

findings. Serious complications including dysphagia and partial airway obstruction are encountered, requiring immediate referral to hospital emergency departments. In addition, there is an increase in extractions performed and a decrease in endodontic treatment acceptance in our practice, possibly due to the clinical and economic repercussions of the COVID-19 crisis. Patients tend to opt for extraction as a definitive treatment and refuse endodontic treatment, which may be attributed to lost dental insurance due to layoff, precarious financial situations, and a feeling of financial burden. On average, 8 of 10 patients require extractions compared to 4 of 10 before the pandemic. More than half present with teeth of hopeless prognosis, including class 3 mobility and extensive decay, requiring tooth removal. Moreover, case acceptance rate of pulpectomy and subsequent root canal therapy decreased significantly from one in two patients prior to less than one in four patients during this pandemic.

Finally, we have observed that a significant number of patients (15%–20%) have received antimicrobial therapy prior to their emergency appointments. These antibiotics are mainly prescribed by the patients' private dentists via teledentistry consultations or by emergency physicians in hospitals. A significant number of patients are also referred to our emergency clinic after receiving IV antibiotics in hospitals. It is worth mentioning that some antibiotic prescriptions are not indicated according to the clinical practice guideline on antibiotic use reported by the American Dental Association (Lockhart et al., 2019). Many patients reported no significant pain control after antibiotics use and some have experienced side effects, including diarrhea, abdominal pain, nausea, and headache.

## 2.3 | Challenges in emergency dentistry

Many new challenges are encountered by emergency dentists during this pandemic. On the clinical side, dentists are recommended to prioritize teledentistry, which can limit their ability to assess the patient. This may limit diagnostic accuracy and lead to inappropriate management strategy and antibiotic prescriptions. We have also observed that assessments through teledentistry may be compromised by language barrier between the clinician and patients that do not speak or are not fluent in English or French. In addition, privacy and patient confidentiality are at concern with teledentistry. Particularly, non-encrypted mode of communication such as videoconferencing or emails is at risk of breach of confidentiality. Therefore, according to the Order of Dentists of Quebec, Canada, dentists must obtain a patient's verbal informed consent prior to the use of teledentistry (ODQ, 2020). Furthermore, the use of panoramic radiographs instead of intra-oral radiographs poses challenges to the dentist as it lacks the diagnostic precision to evaluate the extent of tooth decay, tooth restorability, root canal configuration, and bone loss. For instance, without periapical radiograph, the root canal configuration of an infected tooth cannot be adequately assessed; thus, emergency pulpectomy becomes more challenging and less predictable.



Several considerations are important for emergency endodontic and oral surgery treatments. First, longer lasting temporary restoration material should be used after emergency pulpectomy as we are unsure when will the patient receive definitive endodontic treatment due to the stay-at-home measures. These temporary restorations should be built to a sub-occlusal level, since we cannot use handpiece for occlusal adjustment upon rubber dam removal to avoid generation of aerosols. Similarly, for oral surgery interventions, since surgical handpiece cannot be used, odontectomy and ostectomy cannot be performed. We have observed that some molar extractions may be quite uncomfortable for patients due to excessive pressure and longer duration. We have also noticed more complications including tuberosity fracture, sinus communication, buccal plate fracture, and root fracture. Therefore, it is important to perform a thorough preoperative assessment and refer challenging cases that may benefit from surgical extractions to COVID-19-designated hospital-based dental clinics.

Dentists are confronted with several decision-making dilemma and should weigh the risks versus benefits of an emergency dental visit. In-person interventions should be kept at a minimum for populations at high risk of developing severe or fatal symptoms associated with SARS-CoV-2 infection including elderlies over the age of 65, immunocompromised patients, and patients with other medical comorbidities. However, there are numerous risks of not seeing these patients including exacerbation of pain and infection leading to potential hospital emergency visits and antibiotics/analgesics side effects. In addition, dentists are confronted with the dilemma of whether or not to treat cases that do not constitute true dental emergency as complications may arise. For example, delay in providing definitive treatment for a failed restoration with acute pain may lead to irreversible pulpitis and pulp necrosis. Despite all the challenges, a positive aspect of providing emergency services is that many patients are particularly appreciative of the dental team and dental profession for their services.

## 2.4 | Impact of COVID-19 on professional and personal life

We have noticed more disagreement between members of our dental team, primarily due to each staff member's understanding and conception of COVID-19 and its risks and modes of transmission. Many team members have reported increased work-related stress as our tasks have increased significantly. Dentists are more anxious due to the high occupational risk of infection; therefore, we have to be extremely cautious and follow rigorously infection control precautions. We fear becoming the next SARS-CoV-2 victim, being an asymptomatic spreader, and infecting our family members. Several team members have moved out of their family home to self-isolate, while others follow a strict protocol at home if they live with at-risk family members such as seniors over the age of 65. Moreover, longer work hours under higher pressure and stress due to the increased dental emergencies and teledentistry

consultations may contribute to higher burnout rates among dental professionals.

## 3 | IMPACT ON ACADEMIC DENTISTRY

The COVID-19 pandemic has impacted how dentistry is practiced in academic dental institutions (Coulthard, 2020; Meng et al., 2020). In February 2020, when the virus began its community transmission in USA and Canada, dental institutions had to react to the rapidly evolving crisis. Elective and routine dental procedures were cancelled until further notice in order to prioritize essential urgent care and prevent community transmission of COVID-19. Dental and oral surgery procedures were restricted to non-aerosol generation procedures to reduce the risks of contamination. More specifically, the use of dental drills and ultrasonic devices were largely limited. The distribution of PPE to students and staff was centralized and rationed in order to limit waste, prevent contamination, and prevent potential theft as it was evident that there will be a shortage of these supplies in the months ahead. In March 2020, when physical distancing and stay-at-home measures were implemented by various levels of government to flatten the curve, academic dental institutions adapted accordingly. To begin with, all dental care in the setting of teaching clinics is suspended for all dental students and resident dentists. When it comes to dental emergencies, it was crucial to maintain urgent dental care services operational to help reduce the burden on our healthcare system and hospitals already under pressure (Dave, Seoudi, & Coulthard, 2020).

### 3.1 | Strategies and measures

Several strategies and measures were implemented by various dental institutions across North America to mitigate the risks of disease transmission. First, teledentistry consultations allow clinicians to triage patients and identify the urgency of each case in order to reduce the need for in-person appointments if the issue can be resolved virtually. Verbal informed consent is obtained, and consultation details are documented in the patient's electronic dental chart. When an urgent intervention is deemed necessary, teledentistry also helps clinicians determine whether the intervention can be safely performed with available equipment. If the intervention requires the use of aerosol generating procedures, these cases will be referred to hospital-based clinics with higher standard infrastructure. Follow-up appointments can also be done using teledentistry to minimize contact while ensuring patient safety and well-being. Second, maintenance of a small multidisciplinary and multispecialty team of essential clinicians and support staff helps reduce risks of spread in the event of contamination. Last, when onsite intervention is necessary, the use of private operatory rooms instead of open area operatories and staggered patient schedule further minimize risks of viral transmission.



### 3.2 | Impact of COVID-19 on professional and personal life

The COVID-19 pandemic has immediate impact on the professional and personal lives of faculty members and students. Essential clinicians performing emergency treatments are confronted with increased risks of contracting the viral infection, while screening tests for COVID-19 are not readily available and accessible. In addition, although educational activities have transitioned to remote delivery teaching, students can no longer perform clinical procedures and continue their hands-on learning. In the United States, dental licensing examinations involving live patients are postponed until further notice. Consequently, students may be confronted with mental health issues such as anxiety and depression precipitated by financial burden and worries about an uncertain future. Many are worried about the possible economy in recession and its impact on the job market, financial burden associated with student debt, and occupational hazards of performing dentistry in the world post-COVID.

### 3.3 | Outlook into the future

Despite these challenges, there are encouraging measures of support and collaboration. Many institutions are providing mental health counseling and financial assistance resources to help students and staff affected by the COVID-19 crisis. In addition, many dental institutions and professional societies unite to provide free online courses and seminars to share knowledge and promote professional collaboration. Moving forward, dental professionals and institutions across North America must join forces to help each other persevere through these turbulent times. Together, the dental profession will adapt, persevere, and overcome the challenges of COVID-19 pandemic just like we did when confronted with the HIV, SARS, and MERS outbreaks since the late 20th century.

#### AUTHOR CONTRIBUTIONS

Kevin Yang Wu: Conceptualization; Writing-original draft; Writing-review & editing. David T Wu: Conceptualization; Writing-original draft; Writing-review & editing. Thomas T Nguyen: Conceptualization; Supervision; Writing-review & editing. Simon D Tran: Conceptualization; Supervision; Writing-review & editing.

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