



Teaching dentistry in COVID-19 times: concerns about the gradual return to theoretical and clinical activities

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ABSTRACT

In December 2019, rumors coming from China about a new disease changed the entirely world as we know it. In Central America, El Salvador declared national emergency on March 14th, 2020 establishing a mandatory quarantine which affected face-to-face activities, including suspension of the entire educational system and dental attendance. Both measures have negative influences on dental schools, who had to move the entire curricula to virtual learning. Based on a review of the available literature, this short communication addresses faculty members and students concerns through core questions and presents a proposal for reopening academic and clinical activities, approaches to prevent contagion and ways to move forward with the consequences of COVID-19.

Keywords: Teaching, education institutions, COVID-19, dental education, practice guidelines.

La enseñanza de la odontología en tiempos del COVID-19: preocupaciones por el regreso paulatino a las actividades teóricas y clínicas

RESUMEN

En diciembre de 2019, rumores provenientes de China sobre una nueva enfermedad cambiaron el mundo entero tal como lo conoce-

mos. En Centroamérica, El Salvador declaró emergencia nacional el 14 de marzo de 2020, estableciendo una cuarentena obligatoria que afectó las actividades presenciales, incluida la suspensión de todo el sistema educativo y la atención odontológica. Ambas medidas tienen influencias negativas en las Facultades de Odontología, que tuvieron que trasladar todo el currículo al aprendizaje virtual. Con base en una revisión de la literatura disponible, esta breve comunicación aborda las inquietudes de los miembros de la Facultad y los estudiantes, a través de preguntas esenciales, y presenta una propuesta para reabrir las actividades académicas y clínicas, enfoques para prevenir el contagio y formas de superar las consecuencias del COVID-19.

Palabras clave: Enseñanza, educación superior, COVID-19, educación en odontología, guía de práctica clínica.

INTRODUCTION

In December 2019, rumors of a new disease coming from Wuhan, China, completely changed the world as we knew it until then. Everybody thought it was a rare type of flu until cases and deaths began to increase and spread to other countries. No one could imagine the global crisis, fear, and uncertainty that it would unleash.

On March 11, 2020, the WHO declared coronavirus disease 2019 (COVID-19) a pandemic. To date, on July 30th, 2020, there are 17.238.832 confirmed cases in 188 countries; El Salvador has already confirmed 16,230 cases (<https://coronavirus.jhu.edu/map.html>) and the contagion figures are increasing after the first case reported by the government. Although the fatality rate in the country is low, the risk of infection by the virus is high. Additionally, the reproductive number (Ro) for SARS-CoV-2 ranges from 2.24 to 3.58 and is significantly higher than 1. These findings indicate the potential for SARS-CoV-2 to cause outbreaks of disease.¹

In Central America, El Salvador declared a state of national emergency on March 14th, establishing

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a mandatory quarantine that affects all face-to-face activities, including the suspension of the entire education system and dental care.

MAIN SECTION

The impact of SARS-CoV-2 is significant in all aspects of world population lives. Higher Education (HE) is no exception. According to UNESCO, 9.8 million African students are experiencing interruptions in their studies due to the closure of higher education institutions. The danger of contamination has led institutions to teach their courses online (<https://www.universityworldnews.com/post.php?story=20200409103755715>). There is evidence to support that school closures were an effective intervention to mitigate the spread of respiratory infectious diseases and decrease the number of infected students at the peak during the H1N1 influenza pandemic disease.²

Schools of Dentistry apply different teaching-learning methods and techniques that also have been directly impacted by the measures taken to counter the pandemic, especially the clinical approach. As part of the Faculty of Dentistry at the University of El Salvador (UES), we also face many challenges to ensure the teaching-learning process and try to follow up the academic courses offered to students in the best possible way. Nevertheless, reasonable concerns do arise: when will be the right time to restart academic and clinical activities in dental schools? What will be our approach to prevent contagion and continue the teaching-learning process? What do we have to do to move on?

Regarding the appropriate time to reopen the theoretical and clinical activities of dental schools, it is clear that it will depend on many factors such as the lifting of restrictions decreed by the government, the level of control of the disease transmission, the health services capability to respond effectively in terms of prevention, treatment, and follow-up. Other factors to consider are the use of good practices suggested by scientific evidence for the daily management of the disease, all the preventive measures taken in the educational, commercial, and financial fields to reduce the probability of progressive transmission chains, and control compliance by the population.

In the HE context, the UES authorities must lead a high level of participation, analysis, discussion, and communication process to design a plan for phased incorporation into the academic activities, considering the characteristics of each school, to minimize the risk of COVID-19 infection.

The droplets of saliva are a dangerous vehicle of contagion, so dental health professionals can become potential carriers of the disease and preventive measures should be taken for a dental facility during this epidemic disease.³ If the aforementioned conditions are not met, the measures will not be sufficient to open dental school clinics.

Concerning the second question, dental schools around the world adopted online methodologies and the indefinite suspension of clinical activities, except for urgent treatments.⁴ Up to now, there has been no consensus on the provision of dental services during the COVID-19 pandemic. Even though the rush and inexperience, the virtual curriculum (online lectures, case studies, and problem-based learning tutorials³) with the help of a digital platform, other available applications on the internet, and evaluation logistics efforts, we consider everything works well enough, but there is room for improvement in our school that must be addressed shortly.

Due to the deleterious effects that droplets of saliva and aerosols might have both in the clinics and in the classrooms, standard protective measures in daily work might not be effective enough to prevent the spread of COVID-19, especially when the virus is in the incubation period and people (students, patients, colleagues) are unaware they are infected or hide their infection.

First, during the outbreak period, online lectures, case studies, and problem-based learning tutorials should be adopted to avoid unnecessary aggregation of people and associated risk of infection. Second, it is worth advocating to encourage students to engage in self-learning, make full use of online resources, and learn about the latest academic developments. Third, during this period, it is easy for students to be affected by disease-associated fear and pressure, and dental schools should be prepared to provide psychological support.^{3,4}

The traditional way of teaching and learning has suddenly been shaken from its foundations, so institutions must develop a comprehensive plan and a rigorous monitoring scheme to ensure that teachers and students make proper use of the digital platform (<https://www.universityworldnews.com/post.php?story=20200409103755715>).

However, the biggest challenge for our school administration lies in rescheduling clinical activities. The health of students, teachers, workers, and patients must be guaranteed without violating local and/or national guidelines; international sources on this subject are still scarce.⁴

Although the route of infection and pathogenesis of SARS-CoV-2 have not been fully clarified, concerns

related to dental schools are based on confirmed facts: first, SARS-CoV-2 uses the cellular entry receptor, the angiotensin-converting enzyme II (ACE2) and ACE2 expression in minor salivary glands were higher than in lungs. Second, these findings may suggest that the cause of the asymptomatic SARS-CoV-2 infection may come from the salivary glands.⁵ Currently, there is evidence that SARS-CoV-2 can be transmitted by asymptomatic people,⁶ who could be treated in our clinical facilities, increasing the cases of contagion and complicating the crisis in a country with a precarious health system, like ours.

The literature is increasingly reporting on key clinical guidelines related to patient assessment, treatment procedures, personal hygiene measures, infection control, and disinfection, preoperative mouth

rinses, isolation techniques, and barrier control, imaging, and waste management,⁷ all essential to consult and practice rigorously. One should not lose the perspective that a dental school clinic has a more complex interactive environment, so the operational logistics must be comprehensive, precise, and understood by all designated staff inside. The course of action of private dental practices is not linked to decisions and actions taken in dental schools.

It is essential that in the current scenario, priority be given to dental procedures labeled by the WHO as emergencies, proceeding in the most conservative way possible and postponing all elective treatments until the moment the outbreak enters recession. This would be an appropriate step in attempts to shorten the spread of COVID-19.⁸

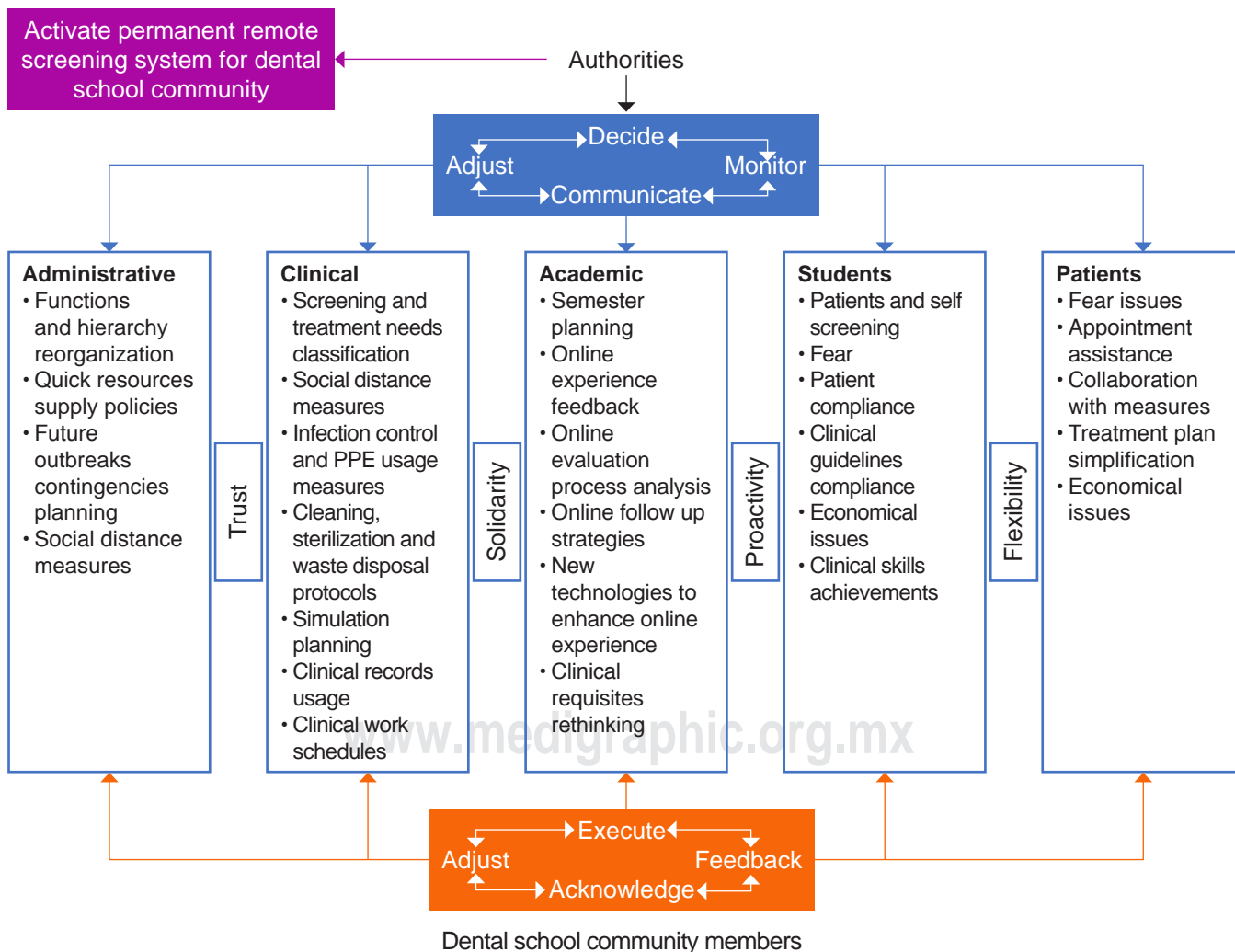


Figure 1: Schematic representation of relevant measures and issues to consider for reducing the risk of COVID-19 infection at dental school.

Regarding the third question, it is advisable to start with a cautious and stepped approach, expanding the virtual curriculum and preclinical practice with social distancing to the maximum. Teachers must embrace technology and pay special attention to student experiences for learning to be rich and effective.⁹

This important period would allow everyone to take a breath and reflect on the mistakes and adjustments to overcome this unwanted learning curve, the need for psychological support for students affected by disease-associated fear and pressure, the expense and availability of personal protective equipment (PPE) for students and clinical instructors⁸ and financial problems of the patient, which may interfere with the clinical requirements of the student.¹⁰ Some people think that fatality is the main factor in making decisions but cannot explain why some people can get sick or be cured and others cannot. There is no chance of errors in judgment, every action is taken involves lives. It is true that dentistry is familiar with the risk of cross-infection, but no one should be in unnecessary danger. Until the evidence is complete or a vaccine is available, decisions carry strong moral weight.⁸

The management of this crisis needs a plan that encompasses all the activities to be carried out, before, during, and after the outbreak.⁷ It should include a deep analysis and consensus among all the participants in the related processes (*Figure 1*), analyzing whether treatment philosophies and educational paradigms still are current or is it a call to reengineering and innovation.

In the meantime, it is important to establish a remote communication system to identify trends and outbreaks, as well as to monitor disease in the student community. In this regard, a Brazilian university created a communication channel through which students and staff can report by phone or texting if they are exposed to a person with suspicion or confirmation of COVID-19 or the appearance of symptoms related to the disease. This exemplifies a fast and inexpensive alternative to epidemiological surveillance not only before, during, and after the onset of the outbreak but also upon students and faculty arrival at dental school. It is important to note all patients scheduled for clinical

practices at dental school can also be easily monitored through this communication system.

Patients should be assessed remotely (phone call, text, or email) for symptoms of fever, dry cough, and myalgia two weeks before and after clinical attendance at the dental school. Any time, even in the absence of illness confirmation due to limited resources for laboratory testing, students, staff, and patients with suspected symptoms should be advised to self-quarantine. The periodic analysis of the information collected through this remote communication system will not only measure the compliance of the clinical guidelines by the students but will also minimize the possibilities of cross-infection in the activities of clinical practices, facilitate effective communication between teachers and students, will decrease stress and support surveillance efforts.

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