

Teaching experiences during the SARS-COV-2 pandemic in a Brazilian School of Dentistry

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Abstract: The coronavirus outbreak (2019) represents a public health emergency of global concern. Several measures have been taken to minimise the risk of infection among the population, including social distancing, working from home, closure of non-essential activities since the detection of the first case in Brazil. This study describes the teaching experiences during the SARS-COV-2 pandemic in a Brazilian School of Dentistry. The State University of Campinas (UNICAMP) was the first public university in Brazil to stop all the classroom activities on 13th of March 2020 due to COVID-19, followed by other universities. UNICAMP developed several initiatives and created a special support page for digital teaching, where it is possible to obtain guidance, support materials for teachers and a space for exchanging messages (e-mail and chat) for specific guidelines. UNICAMP has started lending computer equipment to undergraduate and graduate students according to socioeconomic criteria. Along with the equipment, 500 chips have been delivered with 10 GB of internet so that these students are able to access the network and carry out the remote activities related to their courses. In conclusion, quality education is the key-element in forming high-quality professionals that will in a near future provide health care for the community, be part in international research groups and become lecturers.

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The coronavirus outbreak (2019) represents a public health emergency of global concern¹ due to its high transmission among the population and that 5% of the infected people will need intensive hospital care, which puts additional pressure on the lack of available infrastructure to treat the serious cases². The outbreak officially started in December 2019 in Wuhan, capital of the province of Hubei, China, and it was characterised as a pandemic on 11th March 2020 by the World Health Organization (WHO) when 6,315 were affected (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>).

International centres for disease control and prevention are monitoring the COVID-19 outbreak, which presents the main following symptoms: fever, dry cough, absence of nasal congestion, persistent headache, anorexia, dizziness, asthenia (lack of energy and strength), chills, myalgia, conjunctivitis, diarrhoea and nausea/vomiting in the early stages, and more distinctive symptoms including anosmia (loss of smell), ageusia (loss of taste), dyspnoea, (shortness of breath), chest pain, haemoptysis, vascular lesions in the later stages³⁻¹⁰. The mortality rate due to COVID-19 is higher among people who suffer from chronic health problems (comorbidities), such as hypertension, diabetes or chronic kidney and obstructive pulmonary diseases^{5,11,12}.

The novel coronavirus continues to circulate with over 33 million affected worldwide (28th September 2020) (<https://covid19.who.int/>). However, Brazil has become the new epicentre of the pandemic as it has accumulated over 4.7 million infected people (28th September 2020) with 14,318 new cases in the last 24 hours and a total of 141,741 deaths (335 in the last 24 hours) (<https://covid.saude.gov.br/>).

Since the detection of the first case of coronavirus in Brazil, several measures have been taken to minimise the risk of infection among the population, including social distancing, working from home, closure of non-essential activities. However, delivery options have remained available. Additionally, schools and universities have ceased their activities due to the high risk of infection with agglomeration.

Dentists are directly impacted by the new coronavirus as they work with the oral cavity that is irrigated by the saliva and receive the respiratory aerosols and droplets from the patient. The fact that SARS-CoV-2 remains and replicates in the upper respiratory tract (mouth and nose) for approximately a week before reaching the lungs, trachea and bronchi, and before the classical symptoms of the disease are apparent, makes the disease even worse for dentists, who may have close contact with patients in this phase during treatment.

With regard to dental practice and biosafety in Dental teaching, the Association of Dental Schools in Brazil (ABENO) (http://www.abeno.org.br/arquivos/downloads/retomada_de_praticas_seguras_no_ensino_odontologico.pdf) and the Brazilian Dental Federal Council (CFO) (<http://website.cfo.org.br/cfo-reforca-necessidade-do-ministerio-da-educacao-suspender-autorizacoes-para-abertura-de-novos-cursos-de-odontologia/>), based on the American Dental Association (ADA) guidelines (<https://www.ada.org/en/publications/ada-news/2020-archive/march/ada-developsguidance-on-dental-emergency-nonemergency-care>), has advised dental practitioners to only attend dental emergencies and urgent care, with elective treatment not being recommended at the moment.

The State University of Campinas (UNICAMP) was the first public university in Brazil to stop all the classroom activities on 13th of March 2020 due to COVID-19, followed by other universities. However, in São Paulo state the quarantine period officially started only on the 24th March 2020. At the moment towns are opening/closing their commercial centres according to municipal decrees, but most of the schools/universities are closed until the beginning of September.

Several international web seminars have been held among the universities in Brazil, South and Central America and Portugal to address several topics including the need for an emergency change to remote education addressing such topics as:

- I. How to improve the remote activities being offered;
- II. How to deal with disciplines with practical activities, internships and laboratory experience;
- III. The semi-annual evaluations;
- IV. And lessons to be given.

The most important thing is the need to recognize the exceptionality of the moment, anticipating situations, and realising that we are all more vulnerable and need support. Webinars should be attended by teaching staff, employees, lecturers, under and post graduate students from UNICAMP and other universities

UNICAMP also developed several initiatives and created a special support page for digital teaching, where it is possible to obtain guidance, support materials for teachers and a space for exchanging messages (e-mail and chat) for specific guidelines. The material recorded and made accessible in the form of a Webinar are also publicly available.

Importantly, UNICAMP has a policy of admitting students from low income families under a quota system, varying from 9.6 to 13.5% in the most competitive courses (i.e. Medicine, Biological Sciences and Computer Sciences). Therefore, it is natural to expect that these students present a lower potential to invest in educational tools such as a personal computer and have broad-band internet access. In this context, institutional support is crucial to support such heterogeneity. It was also necessary that the students have access to the necessary equipment to use the internet, as well as being trained to use virtual learning environments and to study in the virtual context. In addition to special mobile phone internet packages, available to all students, UNICAMP has also started lending computer equipment to undergraduate and graduate students according to socioeconomic criteria. Along with the equipment, 500 chips have been delivered with 10 GB of internet so that these students are able to access the network and carry out the remote activities related to their courses.

A COVID-19 committee has been implemented in the School of Dentistry – UNICAMP to discuss important measures for the return of undergraduate and postgraduate students to research and pre-clinical laboratories, and to the dental clinics, setting rules for biosafety and well-being. Furthermore, protocols for surfaces and dental instruments disinfection, and the use of personal protective equipment (including how to

put it on and how to remove it) is being discussed. Overall, these rules aim to provide a healthy environment for both professionals and patients from the community.

UNICAMP has published a gradual return plan for the technical-administrative and academic activities, which should be followed under strict measures for control and prevention of COVID-19. Remote activities will be kept during the second semester of the current year. As for Postgraduate courses, in most of the cases ongoing research is based on surveys and data/samples processing. For the Dental School, clinical activities are still suspended.

It is important to emphasise that the reflections presented in this study are valid because the COVID-19 pandemic is still in progress; however, as the scenario changes novel measures/strategies may be considered according to the evolution of the disease. Moreover, this work should be interpreted as a portrait of the current pandemic state in order to guide future generations in case of new outbreaks. This article reports the experience of a single group in a Brazilian School of Dentistry. Therefore, evaluation of the local situation as well as the careful reading of any published guidelines should be considered before other Institutions adopt guidelines regarding their activities/plans for a gradual return to full activity.

Above all, education during the pandemic with social isolation and all its complications, should focus on the students, not only on their professional training, which is in the essence of the university, but also to train them as responsible citizens and how to interact with the community. We are living a moment with a need for innovation in all areas. Currently, in the field of Dentistry, and especially in Endodontics, several conferences are being held remotely which give students/professionals opportunities to participate and give presentations in events including the Brazilian Society of Endodontics (SBENDO) and Brazilian Division of the International Association for Dental Research (SBPqO), as well as others. In this new format conferences, professionals across Brazil will meet online removing the need to travel long distances.

In conclusion, quality education is the key-element in forming high-quality professionals that will in a near future provide health care for the community, be part in international research groups and become lecturers.

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Conflict of interest

The authors declare that they have no conflict of interest.

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