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# Challenges of preventing the new coronavirus (COVID-19) in dental practice

Desafíos de prevenir el nuevo coronavirus (COVID-19) en la práctica dental

Desafios da prevenção do novo coronavírus (COVID-19) na prática odontológica

## ABSTRACT

Describe the main challenges faced in dental practice about COVID-19 prevention methods. **METHOD:** This is a literature review, using national and international articles published in the first half of 2020, indexed on the MEDLINE, LILACS and BBO platforms. To select the articles, the descriptors "COVID-19" and "Dentistry" were used, resulting in a sample of 5 articles for complete reading. **RESULTS:** Considering the work environment, the practices and instruments used by dentists, they are professionals constantly exposed to biological risks. The protective measures used before the pandemic, are not fully effective to prevent contamination by COVID-19, causing apprehension among professionals, and the need to acquire knowledge about the forms of prevention and control of Covid-19. **CONCLUSION:** The challenges include the quality of information about the disease, adaptations related to bio-safety, generation of protocols, fear and anxiety present in the daily lives of professionals in the current health context.

**DESCRIPTORS:** COVID-19, Dentistry, integrated health care, Biosecurity.

## RESUMEN

Describe los principales desafíos que enfrenta la práctica dental sobre los métodos de prevención de COVID-19. **MÉTODO:** Esta es una revisión de la literatura, que utiliza artículos nacionales e internacionales publicados en la primera mitad de 2020, indexados en las plataformas MEDLINE, LILACS y BBO. Para seleccionar los artículos, se utilizaron los descriptores "COVID-19" y "Odontología", lo que resultó en una muestra de 5 artículos para lectura completa. **RESULTADOS:** Considerando el ambiente de trabajo, las prácticas e instrumentos utilizados por los dentistas, son profesionales constantemente expuestos a riesgos biológicos. Las medidas de protección utilizadas antes de la pandemia no son completamente efectivas para prevenir la contaminación por COVID-19, causando aprensión entre los profesionales, y la necesidad de adquirir conocimiento sobre las formas de prevención y control de Covid-19. **CONCLUSIÓN:** Los desafíos incluyen la calidad de la información sobre la enfermedad, las adaptaciones relacionadas con la bioseguridad, la generación de protocolos, el miedo y la ansiedad presentes en la vida cotidiana de los profesionales en el contexto de salud actual.

**DESCRIPTORES:** COVID-19, Odontología, atención médica integrada, Biosec.

## RESUMO

**OBJETIVO:** Descrever os principais desafios enfrentados na prática odontológica acerca dos métodos de prevenção da COVID-19. **MÉTODO:** Trata-se de uma revisão de literatura, foram utilizados artigos nacionais e internacionais publicados no primeiro semestre de 2020, indexados nas plataformas MEDLINE, LILACS e BBO. Para seleção dos artigos utilizou-se os descritores "COVID-19" e "Odontologia", resultando em uma amostra de 5 artigos. **RESULTADOS:** Considerando o ambiente de trabalho, as práticas e instrumentos utilizados pelos cirurgiões-dentistas, são profissionais constantemente expostos a riscos biológicos. As medidas de proteção utilizadas antes da pandemia, não são totalmente eficazes para impedir a contaminação por COVID-19, causando apreensão nos profissionais, e a necessidade de adquirirem conhecimento sobre as formas de prevenção e controle da Covid-19. **CONCLUSÃO:** Os desafios incluem a qualidade das informações sobre a doença, as adaptações relativas à biossegurança, geração de protocolos, o medo e a ansiedade presentes no cotidiano dos profissionais no atual contexto sanitário.

**DESCRIPTORES:** Odontologia; COVID-19; Atendimento Integral à Saúde, Biossegurança.

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**INTRODUCTION**

In December 2019, some cases of pneumonia were found in Wuhan, Hubei province, China. This pneumonia was later attributed to infection with a new coronavirus (SAR-CoV-2) and its clinical manifestation called COVID-19.<sup>1</sup>

Coronaviruses are part of a family of viruses that cause respiratory infections and their nomenclature comes from their microscopic appearance similar to crown-shaped ears on their surface. Spreading all over the world, COVID-19 received Pandemic status from the World Health Organization (WHO), demanding joint efforts from the international community.<sup>2</sup>

The clinical course of the disease is heterogeneous, with patients presenting asymptomatic forms while another portion evolves to clinical conditions classified as mild, moderate or severe, according to the degree of clinical impairment.<sup>3</sup>

According to WHO data<sup>4</sup>, the first confirmed case of COVID-19 in Brazil was on February 26, 2020. Brazil is one of the countries most affected by the COVID-19 pandemic, in June 2020 it became the second country with the highest number of cases and deaths attributed to COVID-19.

In view of this public health emergency, this study verifies in the literature the main challenges faced by dentists to adapt the routine of dental services in preventing COVID-19.

**METHOD**

This is an integrative review on the main challenges of preventing the new coronavirus (COVID-19) faced in dental practice. A search was made for articles published in the MEDLINE (Online System for the Search and Analysis of Medical Literature), LILACS (Latin American and Caribbean Literature in Health Sciences) and BBO (Bibliography of Brazilian Dentistry). For the search, the keywords were used: Covid-19

and Dentistry, using the Boolean operator AND for combination.

English, Portuguese and Spanish articles were included, published in the aforementioned databases during the period from January 1, 2020 to June 30, 2020. Studies that met the objectives of this study, with full text available. The following were not included: studies related to dental education, teleodontology/telehealth, patient knowledge, review articles, overview, abstracts, editorials and guidelines.

In the initial search, 109 results were found. When considering the inclusion and exclusion criteria and then reading the abstracts, 5 articles were selected. This process is described in table 1. The data of the selected studies were organized in a spreadsheet with the following information: Title, authors, objective, results, conclusion.

**RESULTS**

All health professionals had to adapt their actions during the pandemic. Dentists stand out in this context, because with the use of equipment used constantly in dental procedures, droplets and aerosols are generated and spread in the environment. Thus, dental appliances can become contaminated after use or be exposed to a contaminated clinical environment. Because of this, Meng et al.<sup>5</sup> claim that standard protective measures in daily clinical work are not ef-

Chart 1: Articles selected in the databases

BASE DE DADOS	ENCONTRADOS	SELECIONADOS
MEDLINE	86	5
LILACS	23	0
BBO	6	0
TOTAL	109	5

Source: Research data, 2020.

fective enough to prevent the spread of the disease.

According to Botta et al.<sup>6</sup> one of the ways to limit the airborne transmission of pathogens in the dental environment is to inactivate the viruses as soon as possible after their production and to block the routes of transmission from person to person in dental clinics.

With the increase in the number of COVID-19 cases in Brazil, dental surgeons must be able to identify patients with symptoms of the disease and adopt preventive measures in clinical practice, following biosafety measures in all consultations.<sup>7</sup>

Given the context of the COVID-19 pandemic, it becomes more feasible to

perform dental care only in cases of urgencies and emergencies. The cost-benefit for performing dental procedures indiscriminately during the pandemic, can be considered a greater harm to the population, than an aid itself.<sup>3</sup>

Table 2 shows the main results found in the articles selected for the sample of the present study.

Chart 2: Description of the data found in the included articles.

Nº	TÍTULO	AUTORES	OBJETIVO	RESULTADOS	CONCLUSÃO
1	Conhecimento sobre o novo coronavírus (COVID-19) entre estagiários, auxiliares e especialistas em odontologia na Arábia Saudita: um estudo nacional.	Quadri MFA, et al.	Investigar o conhecimento atual sobre o COVID-19 entre os profissionais de saúde bucal.	O conhecimento estava significativamente relacionado ao nível de qualificação. No entanto, a diferença na fonte de informação não demonstrou nenhum efeito.	O conhecimento básico sobre o COVID-19 entre os profissionais de saúde bucal na Arábia Saudita é aceitável.
2	Surto de COVID-19 no norte da Itália: uma visão geral sobre odontologia. Uma pesquisa de questionário.	Cagetti MG, et al.	Avaliar os sinais/sintomas, medidas de proteção, conscientização e níveis de percepção em relação ao COVID-19 entre dentistas na Lombardia, Itália.	14,43% dos participantes apresentaram um ou mais sintomas relacionados a COVID-19. Trinta e um indivíduos foram positivos ao vírus SARS-CoV-2 e 16 indivíduos desenvolveram a doença. 2% dos dentistas estavam confiantes em evitar a infecção, dentistas que trabalhavam em áreas de baixa prevalência de COVID-19 estavam mais confiantes do que aqueles que trabalham nas áreas de alta prevalência.	Esta pesquisa demonstrou que os dentistas na área de maior prevalência do COVID-19, embora relatassem ter mais sintomas/sinais do que o restante da amostra, foram os que adotaram mais medidas preventivas, embora estivessem menos confiantes em evitar a infecção.
3	Investigação das atitudes e comportamentos clínicos dos dentistas turcos em relação à pandemia de COVID-19: um estudo de pesquisa	Duruk G, Gümüşboğa ZS e Çolak C.	Investigar que tipo de precauções os dentistas turcos tomaram em clínicas odontológicas durante a pandemia de COVID-19.	Mais de 90% dos dentistas estavam preocupados com si mesmos e suas famílias. Apenas 12% dos dentistas usavam máscaras N95. Embora os dentistas turcos tenham tomado algumas medidas de precaução, não tomaram precauções suficientes para se protegerem, proteger profissionais da equipe e pacientes.	É altamente recomendável que os dentistas tomem as precauções máximas no ambiente clínico. As diretrizes sobre a pandemia de COVID-19 devem ser enviadas a todos os dentistas pelas associações odontológicas regionais e nacionais.
4	Odontologia durante a epidemia COVID-19: um fluxo de trabalho italiano para o gerenciamento da prática odontológica	Peditto M, et al.	Apresentar um fluxo de trabalho de gerenciamento de procedimentos odontológicos, já em uso na Unidade de Odontologia do Hospital Universitário de Messina.	Não foram detectados casos de infecção por COVID-19 entre pacientes e funcionários da unidade odontológica em um período de dois meses enquanto se usava este protocolo.	Esse fluxo de trabalho parece uma solução promissora e eficaz para gerenciar procedimentos odontológicos durante a epidemia de COVID-19 e pode ser implementado em práticas públicas e privadas até que a emergência seja contida.

5	Medo e modificações na prática entre dentistas para combater o surto do novo coronavírus (COVID-19)	Ahmed MA, et al.	Avaliar a ansiedade e medo de se infectar entre os dentistas no trabalho durante o surto do novo coronavírus (COVID-19). Assim como, o conhecimento dos dentistas sobre as várias modificações práticas para combate da COVID-19.	78% dos clínicos gerais participantes, estavam ansiosos e assustados com os efeitos devastadores da COVID-19. 90% dos dentistas estavam cientes das mudanças recentes nos protocolos de tratamento.	Os dentistas estão em um estado de ansiedade e medo enquanto trabalham em seus respectivos campos devido ao impacto pandêmico da COVID-19 na humanidade. Várias práticas odontológicas foram modificadas de acordo com as diretrizes, sendo recomendados apenas tratamento de emergência ou o encerramento das práticas por um período incerto.
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Source: Research data, 2020.

## DISCUSSION

When learning about the emergence of a new disease, the first challenge for professionals is the quality of the information they access. Not only with regard to preventive measures, but also to know how to correctly inform your patients. In Duruk et al.<sup>8</sup>, the main source of information for the dental surgeons participating in the survey were websites and social media accounts, only 26.65% of the participating professionals attended informational meetings on COVID-19.

In Quadri et al.<sup>9</sup>, despite survey participants who claimed to have received prior guidance on COVID-19, they report using reliable sources. There were still mistakes in the information, the same errors were found in the group that said it had not received prior guidance. In the latter group, it was observed after the intervention, that the number of participants with correct answers to most questions of knowledge increased significantly.

In this context, it is also important to pay attention to the mental health of professionals. In Ahmed et al.<sup>10</sup>, most professionals who participated in the research were afraid of becoming infected with COVID-19 from a patient or co-worker, were anxious when treating a patient who had a cough or who was suspected of having a COVID-19 infection, and also felt nervous when talking to patients closely.

This reinforces the importance of

**One of the main measures presented was remote management. The unit was able to manage up to 20 patients remotely and 12 patients in person using the proposed workflow per business day, from 8 am to 2 pm.**

management and representatives of the category to listen and assist professionals with their doubts, anxieties and fears, to create protocols and on-line courses, to train the entire oral health team, guide employees and patients, among other relevant and viable strategies.

While using the workflow presented in Peditto et al.<sup>11</sup>, no new COVID-19 cases were detected among patients and staff at the Dentistry Unit of the Hospital Universitário de Messina. One of the main measures presented was remote management. The unit was able to manage up to 20 patients remotely and 12 patients in person using the proposed workflow per business day, from 8 am to 2 pm.

In Cagetti et al.<sup>12</sup>, dentists who worked during the pandemic adopted several preventive measures before the patient's arrival (such as space between appointments to not saturate the waiting room and telephone screening), in the waiting room (frequent ventilation and checking the current health status patient) and in the operating room (washing hands before and after each procedure, removing disposable protective equipment and disinfecting equipment, ventilating the operating area for at least 10 minutes after each patient).

Some of these measures reduce the amount of dental procedures performed on the day, as it creates more time for adjustments, but it is worth it to attend in a safer environment for pro-

professionals and patients. Other practices mentioned should already be applied on a routine basis, as it is not only during the pandemic that dentists are exposed to biological risks in their work environment. Despite the challenges imposed, it is expected that after this period, professionals will continue to pay more attention to biosafety standards.

## CONCLUSION

It is concluded that, like other health professionals, dentists needed to adapt their actions during the pandemic, highlighting the fact that they are constantly exposed to aerosols from their clinical practice, which gi-

## Challenges include the quality of information about the disease...

ves them a high risk of contamination. Challenges include the quality of information about the disease, adaptations related to biosafety, generation of protocols, the fear and anxiety generated by a recently emerged disease that has gained great proportions. Governments, professional bodies and other supranational health authorities must reinforce the production of content about the new coronavirus, being aware of communication strategies capable of reaching the target audience, the dental team. Providing them with a higher level of personal security for decision making and for the performance of their professional activities in the current health context. ■

## REFERENCES

- Zhang XH, Ling JQ. Guidelines on the prevention and control of disease in dental practice during the coronavirus outbreak. *Chin J Dent Res*. [Internet]. 2020 [acesso em 12 jul 2020]; 23 (2): 89-94. Disponível em: <https://www.doi.org/10.3290/j.cjdr.a44743>
- Pereira LJ, Pereira CV, Murata RM, Pardi V, Pereira-Dourado SM. Biological and social aspects of Coronavirus Disease 2019 (COVID-19) related to oral health. *Braz Oral Res*. [Internet]. 2020 [acesso em 12 jul 2020]; 34: 1-11. Disponível em: [https://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1806-83242020000100600](https://www.scielo.br/scielo.php?script=sci_arttext&pid=S1806-83242020000100600)
- Franco JB, Camargo AR, Peres MPSM. Cuidados Odontológicos na era do COVID-19: recomendações para procedimentos odontológicos e profissionais. *Rev assoc paul cir dent*. [Internet]. 2020 [acesso em 12 jul 2020]; 74 (1): 18-21. Disponível em: <http://www.crosp.org.br/uploads/arquivo/8b9e5bd8d0d5fd-9cf5f79f81e6cb0e56.pdf>
- World Health Organization. Coronavirus disease (COVID-19) Situation Dashboard. [Internet]. 2020 [acesso em 12 jul 2020]. Disponível em: <https://covid19.who.int/region/amro/country/br>
- Meng L, Hua F, Bian Z. Coronavirus Disease 2019 (COVID-19): Emerging and Future Challenges for Dental and Oral Medicine. *J Dent Res*. [Internet]. 2020 [acesso em 12 jul 2020]; 95 (5): 481-487. Disponível em: <https://pubmed.ncbi.nlm.nih.gov/32162995/>
- Botta SB, Teixeira FS, Hanashiro FS, Araújo WWR, Cassoni A, Salvadori MCBS. Ultraviolet-C decontamination of a dental clinic setting: required dose and time of UVC light. *Braz Dent Sci*. [Internet]. 2020 [acesso em 12 jul 2020]; 23 (2): 1-10. Disponível em: <https://ojs.ict.unesp.br/index.php/cob/article/view/2275>
- Oliveira JJM, Soares KM, Andrade KS, Farias MF, Romão TCM, Pinheiro RCQ, et al. O impacto do coronavírus (covid-19) na prática odontológica: desafios e métodos de prevenção. *Rev Elet Acer Saúde*. [Internet]. 2020 [acesso em 12 jul 2020]; 46: 1-12. Disponível em: <https://acervomais.com.br/index.php/saude/article/view/3487>
- Duruk G, Gümüşboğa ZS, Çolak C. Investigation of Turkish dentists' clinical attitudes and behaviors towards the COVID-19 pandemic: a survey study. *Braz Oral Res*. [Internet]. 2020 [acesso em 12 jul 2020]; 34: 1-12. Disponível em: <https://www.scielo.br/pdf/bor/v34/1807-3107-bor-34-e054.pdf>
- Quadri MFA, Jafer MA, Alqahtani AS, Mutahar SABA, Odabi NI, Daghhiri AA, et al. Novel corona virus disease (COVID-19) awareness among the dental interns, dental auxiliaries and dental specialists in Saudi Arabia: A nationwide study. *J Infect Public Health*. [Internet]. 2020 [acesso em 12 jul 2020]; 13(6): 856-864. Disponível em: <https://www.sciencedirect.com/science/article/pii/S1876034120304767>
- Ahmed MA, Jouhar R, Ahmed N, Adnan S, Aftab M, Zafar MS, et al. Fear and Practice Modifications among Dentists to Combat Novel Coronavirus Disease (COVID-19) Outbreak. *Int J Environ Res Public Health*. [Internet]. 2020 [acesso em 12 jul 2020]; 17:1-11. Disponível em: <https://www.mdpi.com/1660-4601/17/8/2821>
- Peditto M, Scapellato S, Marciandò A, Costa P, Oteri G. Dentistry during the COVID-19 Epidemic: An Italian Workflow for the Management of Dental Practice. *Int J Environ Res Public Health*. [Internet]. 2020 [acesso em 12 jul 2020]; 17:1-15. Disponível em: <https://pubmed.ncbi.nlm.nih.gov/32403248/>
- Cagetti MG, Cairolì JL, Senna A, Campus G. COVID-19 Outbreak in North Italy: An Overview on Dentistry. A Questionnaire Survey. *Int J Environ Res Public Health*. [Internet]. 2020 [acesso em 12 jul 2020]; 17 (11): 1-12. Disponível em: <https://pubmed.ncbi.nlm.nih.gov/32481672/>