

Letter to the Editor**Coronavirus Disease 2019 (COVID-19):
Emerging and Future Challenges
for Dental and Oral Medicine****R. Bescos¹ , P. Casas-Agustench¹, L. Belfield², Z. Brookes²,
and T. Gabaldón^{3,4,5} **

We read with great interest the article by Meng et al. (2020) on the dental challenges raised by the current pandemic of coronavirus disease 2019 (COVID-19). They recommended the use of preoperative antimicrobial mouthrinse since the oral cavity is a high-risk route for COVID-19 infection. Following this, 2 recent reports by Kirk-Bayley et al. (2020) and Carrouel et al. (2020) also supported the use of antimicrobial mouthrinse to reduce the risk of COVID-19 infection. However, we believe that a word of caution is currently needed before recommending the use of generic antimicrobial products because they can induce a detrimental shift on the oral ecosystem (Willis and Gabaldón 2020). For instance, it is now recognized that the use of antimicrobial mouthrinse (chlorhexidine) inhibits bacterial species that are essential to promote vasodilation and to reduce blood pressure through an oral nitrate/nitrite/nitric oxide pathway (Bryan et al. 2017; Bescos et al. 2020). This is relevant in the current pandemic since people with hypertension, which is commonly associated with impaired nitric oxide availability, have the greatest risk of developing severe COVID-19 infection (Zhou et al. 2020). Furthermore, oral bacterial nitrite synthesis may be essential to improve the first line of immunologic response against viral infections (Rimmelzwaan et al. 1999). Research examining oral health and the oral microbiome is urgently needed as it may help to enhance our knowledge on the course of COVID-19 infection. We encourage researchers and dentists treating patients with COVID-19 to contact us to develop collaborative research in this area.

Acknowledgments

The authors received no financial support and declare no potential conflicts of interest with respect to the authorship and/or publication of this article.

ORCID iDsR. Bescos  <https://orcid.org/0000-0002-3939-4743>T. Gabaldón  <https://orcid.org/0000-0003-0019-1735>

Journal of Dental Research

|

© International & American Associations
for Dental Research 2020

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/0022034520932149

journals.sagepub.com/home/jdr**References**

- Bescos R, Ashworth A, Cutler C, Brookes ZL, Belfield L, Rodiles A, Casas-Agustench P, Farnham G, Liddle L, Burleigh M, et al. 2020. Effects of chlorhexidine mouthwash on the oral microbiome. *Sci Rep.* 10(1):5254.
- Bryan NS, Tribble G, Angelov N. 2017. Oral microbiome and nitric oxide: the missing link in the management of blood pressure. *Curr Hypertens Rep.* 19(4):33.
- Carrouel F, Conte MP, Fisher J, Gonçalves LS, Dussart C, Llodra JC, Bourgeois D. 2020. COVID-19: a recommendation to examine the effect of mouth-rinses with β -cyclodextrin combined with citrox in preventing infection and progression. *J Clin Med.* 9(4):E1126.
- Kirk-Bayley J, Challacombe S, Sunkaraneni S, Combes J. 2020. The use of povidone iodine nasal spray and mouthwash during the current COVID-19 pandemic may protect healthcare workers and reduce cross infection. *SSRN* [accessed 2020 Apr 23]. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3563092
- Meng L, Hua F, Bian Z. 2020. Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. *J Dent Res.* 99(5):481–487.
- Rimmelzwaan GF, Baars MMJW, de Lijster P, Fouchier RAM, Osterhaus ADME. 1999. Inhibition of influenza virus replication by nitric oxide. *J Virol.* 73(10):8880–8883.
- Willis JR, Gabaldón T. 2020. The human oral microbiome in health and disease: from sequences to ecosystems. *Microorganisms.* 8(2):308.
- Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, Xiang J, Wang Y, Song B, Gu X, et al. 2020. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *Lancet.* 395(10229):1054–1062.

¹Institute of Health and Community, University of Plymouth, Plymouth, UK²Peninsula Dental School, University of Plymouth, Plymouth, UK³Institute for Research in Biomedicine, Barcelona, Spain⁴Barcelona Supercomputing Centre, Barcelona, Spain⁵Catalan Institution for Research and Advanced Studies, Barcelona, Spain**Corresponding Authors:**

R. Bescos, Nutrition, Exercise and Health Laboratory, Institute of Health and Community, University of Plymouth, Link Building (Ground Floor), Plymouth, PL4 8AA, UK.

Email: Raul.Bescos@plymouth.ac.uk

T. Gabaldón, Institute for Research in Biomedicine and Barcelona Supercomputing Centre, C/Jordi Girona 29, Barcelona 08034, Spain.

Email: toni.gabaldon@irbbarcelona.org