

# Oral medicine, oral pathology and coronavirus (2019-nCoV): current challenges

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## Letter to the Editor

In late December 2019, a cluster of unexplained pneumonia cases was diagnosed in Wuhan, China, and few days later, the causative agent of this mysterious pneumonia was identified as a novel coronavirus. This causative virus has been temporarily named as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the relevant infected disease has been named as coronavirus disease 2019 (COVID-19) by the World Health Organization respectively. The COVID-19 epidemic is spreading in China and all over the world now.

As of March 1<sup>st</sup>, 2020, outside China, another 58 countries had confirmed COVID-19 cases. Now, on March 21<sup>h</sup>, there are already 170 countries, in addition to China. In the world we have already 292,142 confirmed cases and 12,784 deaths ([https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200322-sitrep-62-covid-19.pdf?sfvrsn=f7764c46\\_2](https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200322-sitrep-62-covid-19.pdf?sfvrsn=f7764c46_2)). In Brazil, by March 22<sup>th</sup>, 2020, the Ministry of Health has already confirmed 1546 cases of COVID-19 infection and 25 deaths (<https://saude.gov.br/>).

Coronaviruses are enveloped, single-stranded, positive-sense RNA viruses that are phenotypically and genotypically diverse, and widespread in bats around



the world. Coronaviruses can also be found in many other species as well, including humans, other mammals, and birds. They may cause respiratory, enteric, hepatic, or neurologic diseases. Zhu et al. (2020)<sup>1</sup> have isolated a novel coronavirus from human airway epithelial cells, which was named 2019-nCoV5. After, Zhou et al. (2020)<sup>2</sup> demonstrated that the angiotensin-converting enzyme II (ACE2) is likely its cell receptor as well as the receptor for SARS-CoV and HCoV-NL63.

To assess the potential routes of 2019-nCoV infection on the oral cavity mucosa, Xu et al. (2020)<sup>3</sup> showed that ACE2 highly expressed in epithelial cells, and among different oral sites, ACE2 expression was higher in tongue than buccal mucosa and gingival tissues. These findings indicate that the mucosa of oral cavity may be a potentially high risk route of 2019-nCoV infection.

Dental patients and professionals can be exposed to pathogenic microorganisms, including viruses and bacteria that infect the oral cavity and respiratory tract. Dental care settings invariably carry the risk of 2019-nCoV infection due to the specificity of its procedures, which involves face-to-face communication with patients, frequent exposure to saliva, and blood, and the handling of sharp instruments. The pathogenic microorganisms can be transmitted in dental settings through inhalation of airborne microorganisms that can also remain suspended in the air for long periods<sup>4</sup>.

Scully et al. (2016)<sup>5</sup> in an extensive paper evaluating the growth and performance of oral medicine, highlight the importance of the specialist in handle viral infections including those involving enterovirus, herpesvirus human immunodeficiency virus and human papillomavirus. However, in recent years we have observed the important participation of dentistry, particularly oral medicine and oral pathology, in infections caused by Zika virus, Chikungunya, and now with the COVID-19.

In the current scenario of outbreaks, epidemics, endemics and pandemics, the idea of multiprofessional, interdisciplinary and transdisciplinary action is reinforced. The participation of oral medicine and pathology are essential for the better understanding, diagnosis and management of these patients.

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## Conflict of interest

The authors declare that they have no conflict of interest.

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## References

1. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med.* 2020;382:727-33. doi: 10.1056/NEJMoa2001017.
2. Zhou P, Yang XL, Wang XG, Hu B, Zhang L, Si HR, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature.* 2020;579:270-3. doi: 10.1038/s41586-020-2012-7.

3. Xu H, Zhong L, Deng J, Peng J, Dan H, Zeng X, et al. High expression of ACE2 receptor of 2019CoV on the epithelial cells of oral mucosa. *Int J Oral Sci.* 2020;24:1-8. doi: 10.1038/s41368-020-0074-x.
4. Kampf G, Todt D, Pfaender S, Steinmann E. Persistence of coronaviruses on inanimate surfaces and its inactivation with biocidal agents. *J Hosp Infect.* 2020;104:246-51. doi: 10.1016/j.jhin.2020.01.022.
5. Scully C, Miller CS, Aguirre Urizar JM, Alajbeg I, Almeida OP, Bagan JV, et al. Oral medicine (stomatology) across the globe: birth, growth, and future. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2016;121:149-57. doi: 10.1016/j.oooo.2015.10.009.