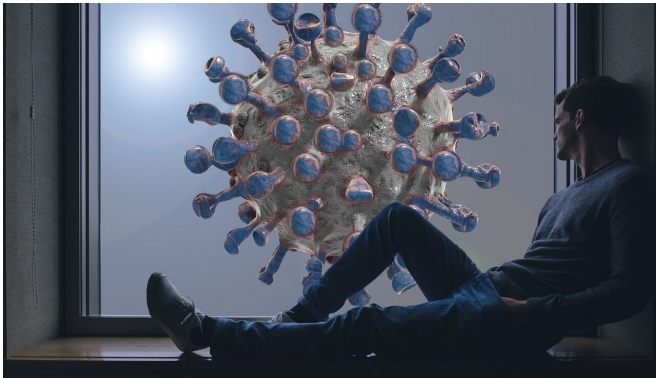


Loss of smell associated with milder clinical course in COVID-19

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Following an earlier study that validated the loss of smell and taste as indicators of SARS-CoV-2 infection, researchers at UC San Diego Health report in newly published findings that olfactory impairment suggests the resulting COVID-19 disease is more likely to be mild to moderate, a potential early indicator that could help health care providers determine which patients may require hospitalization.

The findings were published online April 24, 2020 in the journal *International Forum of Allergy & Rhinology*.

"One of the immediate challenges for [health care providers](#) is to determine how to best treat persons infected by the novel coronavirus," said first author Carol Yan, MD, a rhinologist and head and neck surgeon at UC San Diego Health. "If they display no or [mild symptoms](#), can they return home to self-quarantine or will they likely require hospitalization? These are crucial questions for hospitals trying to efficiently and effectively allocate finite medical resources."

Yan's latest study, conducted with colleagues

Farhoud Faraji, MD, Ph.D.; Benjamin T. Ostrander, MD, and Adam S. DeConde, MD, all physicians in the Department of Surgery at UC San Diego Health, and Divya P. Prajapati, a student in the UC San Diego School of Medicine, suggests [loss of smell](#) may be predictive of a milder clinical course of COVID-19.

"Normosmia or the normal sense of smell is an independent predictor of admission in COVID-19 cases," said Yan. "In [previous research](#), we found that loss of olfactory function is a common early symptom, following fever and fatigue.

"What's notable in the new findings is that it appears that loss of smell may be a predictor that a SARS-CoV-2 infection will not be as severe, and less likely to require hospitalization. If an infected person loses that sense, it seems more likely they will experience milder symptoms, barring other underlying risk factors."

Those risk factors previously reported by other studies, include age (older persons are more at-risk for [severe illness](#)) and underlying medical conditions, such as chronic lung disease, serious heart conditions, diabetes and obesity.

The researchers' latest study was a retrospective analysis between March 3 and April 8 of this year and included 169 patients who tested positive for COVID-19 at UC San Diego Health. Olfactory and gustatory data were obtained for 128 of the 169 patients; 26 of whom required hospitalization.

Patients who were hospitalized for COVID-19 treatment were significantly less likely to report anosmia or loss of smell (26.9 percent compared to 66.7 percent for COVID-19-infected persons treated as outpatients). Similar percentages were found for loss of taste, known as dysgeusia.

"Patients who reported loss of smell were 10 times less likely to be admitted for COVID-19 compared

to those without loss of smell," said senior author DeConde, also a rhinologist and head and neck surgeon. "Moreover, anosmia was not associated with any other measures typically related to the decision to admit, suggesting that it's truly an independent factor and may serve as a marker for milder manifestations of Covid-19."

The researchers said that the findings possibly hint at some of the pathophysiological characteristics of the infection. "The site and dosage of the initial viral burden, along with the effectiveness of the host immune response, are all potentially important variables in determining the spread of the virus within a person and, ultimately, the clinical course of the infection," said DeConde.

In other words, if the SARS-CoV-2 virus initially concentrates in the nose and upper airway, where it impacts olfactory function, that may result in an infection that is less severe and sudden in onset, decreasing the risk of overwhelming the host immune response, respiratory failure and hospitalization.

"This is a hypothesis, but it's also similar to the concept underlying live vaccinations," DeConde said. "At low dosage and at a distant site of inoculation, the host can generate an immune response without severe infection."

Loss of smell, he said, might also indicate a robust [immune response](#) which has been localized to the nasal passages, limiting effects elsewhere in the body.

The researchers noted their study was limited in scope and by its nature: relying upon self-reporting of anosmia and a greater chance of recall bias among patients once they had been diagnosed with COVID-19, and that patients with more severe respiratory disease requiring hospitalization may not be as likely to recognize or recall the loss of [smell](#).

Additional, more expansive studies are needed for validation, they said, but that the findings have important immediate practical applications for health care systems and patients.

More information: Carol H. Yan et al, Self-reported olfactory loss associates with outpatient clinical course in Covid-19, *International Forum of Allergy & Rhinology* (2020). [DOI: 10.1002/alr.22592](#)

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