

COVID-19 mortality associated with 2 signs easily measured at home

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A study of 1,095 patients hospitalized with COVID-19 discovered that two easily measurable signs of health—respiration rate and blood-oxygen saturation—are distinctly predictive of higher mortality. Notably, the authors said, anyone who receives a positive COVID-19 screening test can easily monitor for these two signs at home.

This context is lacking in [current guidance from the Centers for Disease Control and Prevention](#), which tells people with COVID-19 to seek [medical attention](#) when they experience overt symptoms such as "trouble breathing" and "persistent pain or pressure in the chest"—indications that may be absent even when respiration and blood [oxygen](#) have reached dangerous levels, the authors say.

"These findings apply to the lived experience of the majority of [patients](#) with COVID-19: being at home, feeling anxious, wondering how to know whether their illness will progress and wondering when it makes sense to go to the hospital," said Dr. Neal Chatterjee of the University of Washington School of Medicine.

Chatterjee and fellow cardiologist Dr. Nona Sotoodehnia were co-lead authors of the paper, which was to be published May 24 in the journal *Influenza and Other Respiratory Viruses*.

They said the findings suggest that, for some people with COVID-19, by the time they feel bad enough to come to the hospital, a window for early medical intervention might have passed.

"Initially, most patients with COVID don't have difficulty breathing. They can have quite low oxygen saturation and still be asymptomatic," said Sotoodehnia. "If patients follow the current guidance, because they may not get short of breath until their blood oxygen is quite low, then we are missing a chance to intervene early with life-saving treatment."

The researchers examined the cases of 1,095 patients age 18 and older who were admitted with COVID-19 to UW Medicine hospitals in Seattle or to Rush University Medical Center in Chicago. The study span was March 1 to June 8, 2020. The lone exclusions were people who chose "comfort measures only" at time of their admission.

While patients frequently had hypoxemia (low blood-oxygen saturation; 91% or below for this study) or tachypnea (fast, shallow breathing; 23 breaths per minute for this study), few reported feeling short of breath or coughing regardless of blood oxygen.

The study's primary measure was all-cause in-hospital mortality. Overall, 197 patients died in the hospital. Compared to those admitted with normal blood oxygen, hypoxemic patients had a mortality risk 1.8 to 4.0 times greater, depending on the patient's blood oxygen levels. Similarly, compared to patients admitted with normal respiratory rates, those with tachypnea had a mortality risk 1.9 to 3.2 times greater. By contrast, other [clinical signs](#) at admission, including temperature, heart rate and blood pressure, were not associated with mortality.

Nearly all patients with hypoxemia and tachypnea required [supplemental oxygen](#), which, when paired with inflammation-reducing glucocorticoids, [can effectively treat](#) acute cases of COVID-19. Provided by University of Washington School of Medicine

"We give supplemental oxygen to patients to maintain blood oxygen saturation of 92% to 96%. It's important to note that only patients on supplemental oxygen benefit from the life-saving effects of glucocorticoids," Sotoodehnia said. "On average our hypoxemic patients had an oxygen saturation of 91% when they came into the hospital, so a huge number of them were already well below where we would've administered life-saving measures. For them, that care was delayed."

The findings have relevance for family-medicine practitioners and virtual-care providers, who typically are first-line clinical contacts for people who have received a positive COVID-19 test result and want to monitor meaningful symptoms.

"We recommend that the CDC and [World Health Organization] consider recasting their guidelines to account for this population of asymptomatic people who actually merit hospital admission and care," Chatterjee said. "But people don't walk around knowing WHO and CDC guidelines; we get this guidance from our physicians and [news stories](#)."

Sotoodehnia recommended that people with positive COVID-19 test results, particularly those at higher risk of adverse outcomes due to advanced age or obesity, buy or borrow a pulse oximeter and monitor for [blood-oxygen](#) below 92%. The clip-like devices fit over a fingertip and can be purchased for under \$20.

"An even simpler measure is respiratory rate—how many breaths you take in a minute. Ask a friend or family member to monitor you for a minute while you're not paying attention to your breathing, and if you hit 23 breaths per minute, you should contact your physician," she said.

More information: *Influenza and Other Respiratory Viruses*, [DOI: 10.1111/irv.12869](https://doi.org/10.1111/irv.12869)

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