

Prone positioning improves survival in hospitalized COVID patients, study confirms

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Placing hospitalized COVID-19 patients who are on oxygen in a facedown position significantly improves their chance of survival, a

large-scale review has found.

The study of non-intubated patients, published in the peer-reviewed journal *Respiratory Care*, provides important validation of a practice that has become widespread in COVID units as a way to improve [oxygen uptake](#) and clinical outcomes.

"Prone positioning is a noninvasive way of trying to improve patients' [oxygen](#) levels while reducing the need for high-concentration oxygen therapy," said Dr. Azizullah Beran, an internal medicine resident at The University of Toledo College of Medicine and Life Sciences and lead author of the paper. "Many hospitals are encouraging their patients to do it, but its impact on non-intubated patients has not been deeply evaluated."

While patients can tolerate 100 percent oxygen for brief periods, pure oxygen can cause lung damage if used for an extended length of time. Prone positioning, or laying facedown on your stomach, helps keep the lungs open and can assist in reducing the concentration of oxygen necessary to sustain bodily function.

Beran and a team of UToledo researchers analyzed 14 separate studies that compared the clinical outcomes of non-intubated COVID-19 patients who were put in a [prone position](#) against those who remained on their backs while undergoing oxygen therapy.

They found a mortality rate of 17.9 percent in patients who were put in a prone position, compared to a 25.7 percent mortality rate in patients who were not.

"We know that prone positioning improves oxygenation," Beran said. "This analysis—by far the largest of its kind—shows that it also translates into fewer deaths in hospitalized COVID-19 patients."

The research also found that prone positioning while on oxygen therapy may potentially reduce the need for much more invasive mechanical ventilation.

The analysis of all 14 studies together did not find a statistically significant difference in the number of patients who were eventually intubated. However, when looking only at the five studies that were randomized controlled trials, researchers noted a significant reduction in intubation for patients who were placed in a prone position while undergoing oxygen therapy.

Among those five studies, researchers found 30.2 percent of patients whose care employed prone positioning ultimately required intubation, versus 36.9 percent of patients who were not placed in a prone position.

Dr. Ragheb Assaly, professor of medicine, director of the Internal Medicine Residency Program and the paper's senior author, said research of this kind is crucial as COVID-19 continues to spread and cause serious illness and death.

Assaly, who also serves as chief of division for pulmonary critical care and sleep medicine, said this paper is particularly timely, as many medical centers are exploring the idea of creating "proning teams" that can assist nursing staff in moving patients in and out of prone positions.

"Some scientists are discussing the possibility of COVID-19 becoming endemic, so we need better answers to standardize the care of COVID patients," he said. "Our hope is this research stimulates more large, randomized control studies to answer the question in a much more confident way."

Beran, who is in his third year of residency at UToledo, also sees the work as something to be built upon, but said in the meantime the

evidence laid out in the paper can serve to guide physicians treating COVID-19 about the benefits of using prone positioning in patients who are not intubated.

"We're lucky that we have a supportive faculty here," Beran said. "I have worked on many research projects with many faculty here at UToledo. We always get the encouragement and support to continue doing scholarly activities. I think that helps us to grow as residents and helps us to become better doctors."

More information: Azizullah Beran et al, Effect of Prone Positioning on Clinical Outcomes of Non-Intubated Subjects with COVID-19: A Comparative Systematic Review and Meta-Analysis, *Respiratory Care* (2021). [DOI: 10.4187/respcare.09362](https://doi.org/10.4187/respcare.09362)

Provided by University of Toledo

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