

# Rural COVID patients in ICUs at higher risk of dying than urban counterparts

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The earliest wave of COVID-19 spared much of rural America, striking people who live in urban areas with far more frequency. The latest surge was different, however. Nonmetropolitan COVID cases outpaced

metropolitan ones. So did overall COVID mortality rates.

According to new research led by Sunil Sharma—the chief of West Virginia University's pulmonary, [critical care](#) and sleep medicine section—rural COVID patients who end up in an intensive care unit face a greater risk of dying than their urban counterparts.

"This is the first study coming out of Appalachia," said Sharma, a professor in the School of Medicine. "We were surprised that nobody had made that effort to look at what our community needs are. And if you don't work in a [hospital](#), I think sometimes there's this sense of comfort in thinking, 'Maybe things are not as bad in rural areas,' but they are. They're worse than in [urban areas](#)."

He and his colleagues' findings appeared in *Critical Care Explorations*.

The researchers considered 81 patients who were transferred from critical access hospitals and rural facilities to an ICU at a larger hospital that offers more specialized care.

To receive a CAH designation, a hospital must have 25 or fewer acute care beds, be more than 35 miles from another hospital and maintain an average length of stay that's less than 4 days.

Of those 81 patients, 50 were mechanically ventilated due to [acute respiratory distress syndrome](#) from COVID.

The [control group](#) included 31 patients who were also ventilated due to ARDS but for non-COVID reasons.

"We were so overwhelmed with COVID-19 that we had no cases of ARDS other than COVID-19," Sharma said. "So, we took ARDS patients from a pre-COVID era as a control group with very similar

amount of lung damage from ARDS."

The team found that, overall, 54 percent of the rural COVID patients in their sample died within 30 days of being admitted to the ICU.

"In comparison, only 30 percent in urban centers were reported to have died," Sharma said.

The researchers also discovered that rural patients with COVID-linked ARDS were more likely to die than their pre-COVID counterparts.

This held true even when the researchers controlled for the patients' degree of organ failure.

"The COVID group with ARDS had a much higher mortality rate," Sharma said. "Sixty-eight percent of those people died within 30 days. In the control group, only 42 percent did, even though that group wasn't any less sick than the COVID group."

The results of Sharma's study also indicate that if rural COVID patients are intubated, their risk of death spikes if they are over 70 years of age or if they are intubated for more than five days.

Insights like these can help [healthcare providers](#) allocate scarce hospital resources.

They can also "give people some grounding in a completely disorienting environment," Sharma said.

"It is very, very difficult because the patients' family members are just grasping for any kind of information, and in the absence of that, they're just flailing," he said. "With this kind of robust information, they're able to make decisions for their loved one and feel at peace with themselves."

But why do rural COVID patients tend to fare worse than others in the first place?

Sharma suggests that health conditions prominent in rural areas—such as diabetes, obesity and COPD—may play a role in worsening their outcomes.

He added that CAHs have "very basic infrastructure."

"We realized that because of this crunch in resources, these critical access hospitals were taking the burden of these patients, which they were totally ill-equipped to do," he said. "This wasn't the fault of the hospitals. They just were not designed to handle this kind of pandemic. You're talking about the worst type of respiratory failure that you encounter. These are things that we see in tertiary care hospitals, but these critical access hospitals don't see that. For them, it was very overwhelming to manage those patients."

Sharma said that the relatively poorer mortality rates among rural COVID patients—in comparison to urban ones—highlights why it's important for people who live in [rural areas](#) to get the COVID vaccine

"We're not talking about New York City or Atlanta, Georgia," he said. "This is us—West Virginia. So, get vaccinated because this is terrible news. Our mortality is much higher than in other areas. If you're vaccinated and you do get COVID, then, yes, you might have some bad days—you might feel like you have a bad flu—but you're going to live."

**More information:** Sunil Sharma et al, ICU Mortality in Patients With Coronavirus Disease 2019 Infection: Highlighting Healthcare Disparities in Rural Appalachia, *Critical Care Explorations* (2021). [DOI: 10.1097/CCE.0000000000000547](https://doi.org/10.1097/CCE.0000000000000547)

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