

Experts in Italy, Asia share COVID-19 ICU experience, warnings

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A study published yesterday in *JAMA* of 1,591 COVID-19 patients in the intensive care units (ICUs) of 72 hospitals Lombardy, Italy, has found that 99% required respiratory support with high levels of oxygen, 82% were male, 68% had at least one underlying illness, and 26% died.

Also, yesterday in *The Lancet Respiratory Medicine*, the Asian Critical Care Clinical Trials Group published comprehensive guidelines for ICU treatment of coronavirus patients.

Older age, underlying conditions tied to worse outcomes

In the largest known ICU case series thus far, researchers described the baseline characteristics and outcomes of coronavirus patients from Feb 20 to Mar 18. The researchers analyzed data gathered by the COVID-19 Lombardy ICU Network coordinator center in Milan via daily phone calls with ICU physicians.

Median patient age was 63, and 1,304 (82%) were male. A total of 363 patients (23%) were 71 years and older, while 203 (13%) were younger than 51. Of the 1,043 patients with available data, 709 (68%) had at least one underlying illness, including 509 (49%) with high blood pressure, 223 (21%) with cardiovascular disease, 188 (18%) with high cholesterol, and 42 (4%) with chronic obstructive pulmonary disease.

High blood pressure was 23 percentage points more prevalent in patients who died (63%, 195 of 309 patients) than in those released from the ICU (40%, 84 of 212). All patients older than 80 had at least one underlying illness, as did 496 of 650 patients older than 60 (76%).

The authors noted that, because the median age of the patients admitted to the ICU was the same as the median age of all patients with COVID-19, older age alone may not be a risk factor for ICU admission.

The 786 patients 64 years or older had a 21 percentage point higher death rate than the 795 patients 63 or younger (36% vs 15%).

Overall, 1,287 (99%) of 1,300 patients with available respiratory support data required respiratory support, including 1,150 (88%) needing mechanical ventilation and 137 (11%) needing noninvasive ventilation. Of the 1,581 patients with ICU status available as of Mar 25,

920 (58%) remained in the ICU, 256 (16%) had been released from the ICU, and 405 (26%) had died.

In an [editorial](#) in the same journal, Deborah Cook, MD, MSc, and her coauthors noted the strain that the pandemic placed on ICUs in the study, which described an average of 22 patients per ICU and median ICU stay of 9 days. "This demand far exceeds the capacity of even the best-resourced health care system and points to the potential morbidity and mortality awaiting in less-resourced areas," they said.

As of this afternoon, Italy had reported 135,586 coronavirus cases, behind only the United States and Spain, and 17,127 deaths, more than any other country, according to the Johns Hopkins University coronavirus [tracker](#).

Bracing for an influx amid limited resources

In the [Lancet review](#), the authors use the experience of ICU clinicians in Asia and the literature to describe the challenges of caring for critically ill patients with COVID-19 and offer advice and algorithms for diagnosis, management, infection prevention, triage, and ICU infrastructure and staffing for hospitals awaiting high numbers of admissions.

"The ICU community must brace itself for this potentially overwhelming surge of patients and optimise workflows, in advance, for rapid diagnosis and isolation, clinical management, and infection prevention," they wrote.

Specifically, they advise clinicians to adopt a low threshold for diagnostic testing, if available, and to repeat the sampling from the lower respiratory tract, if necessary.

Because intubation poses a risk of transmission to healthcare workers, the authors said that intubation drills should be performed and the most skilled intubator should perform the procedure with full personal protective equipment and limited bag-mask ventilation.

Regular fit-testing of N95 respirators should be conducted, the authors said, noting that clinicians may need to reuse face masks and respirators between patients and beyond their recommended shelf life because of global shortages.

"Rationing of resources also involves the withholding and withdrawal of life-sustaining treatments for existing ICU patients," they said. "To this end, it is noteworthy that a quarter of patients who died early in the Wuhan outbreak did not receive invasive ventilation."

If airborne infection isolation rooms with negative pressure are unavailable, standard single rooms with adequate ventilation could be used, they said. Multiple patients could share a room if their beds were spaced apart.

Because more than a third of healthcare workers' cell phones could be contaminated with pathogens, the authors recommended regularly sanitizing them or wrapping them with specimen bags that are disposed of after patient contact or at the end of the day.

They also called for research into issues such as short- and long-term patient prognoses, the risk of coronavirus transmission in shared ICU rooms, and the indications for use of corticosteroids.

"Collaboration at the local, regional, national, and international level—with a focus on high-quality research, evidence-based practice, sharing of data and resources, and ethical integrity in the face of unprecedented challenges—will be key to the success of these efforts," they wrote.

In a commentary in the same journal, Jean-Louis Vincent, MD, PhD, and Fabio Taccone, MD, PhD, of Erasme University Hospital in Brussels, Belgium, pointed out that the Asian review raises the question of how to interpret COVID-19 case-fatality rates.

"Ethical issues also have a relevant role in interpreting case fatality rates, especially when the elderly and frail are more at risk and when resources are stretched so that some form of rationing or triage might become necessary," they wrote. "In such a scenario, differentiating whether the cause of death is specifically due to COVID-19 or the result of treatment limitations can be difficult."