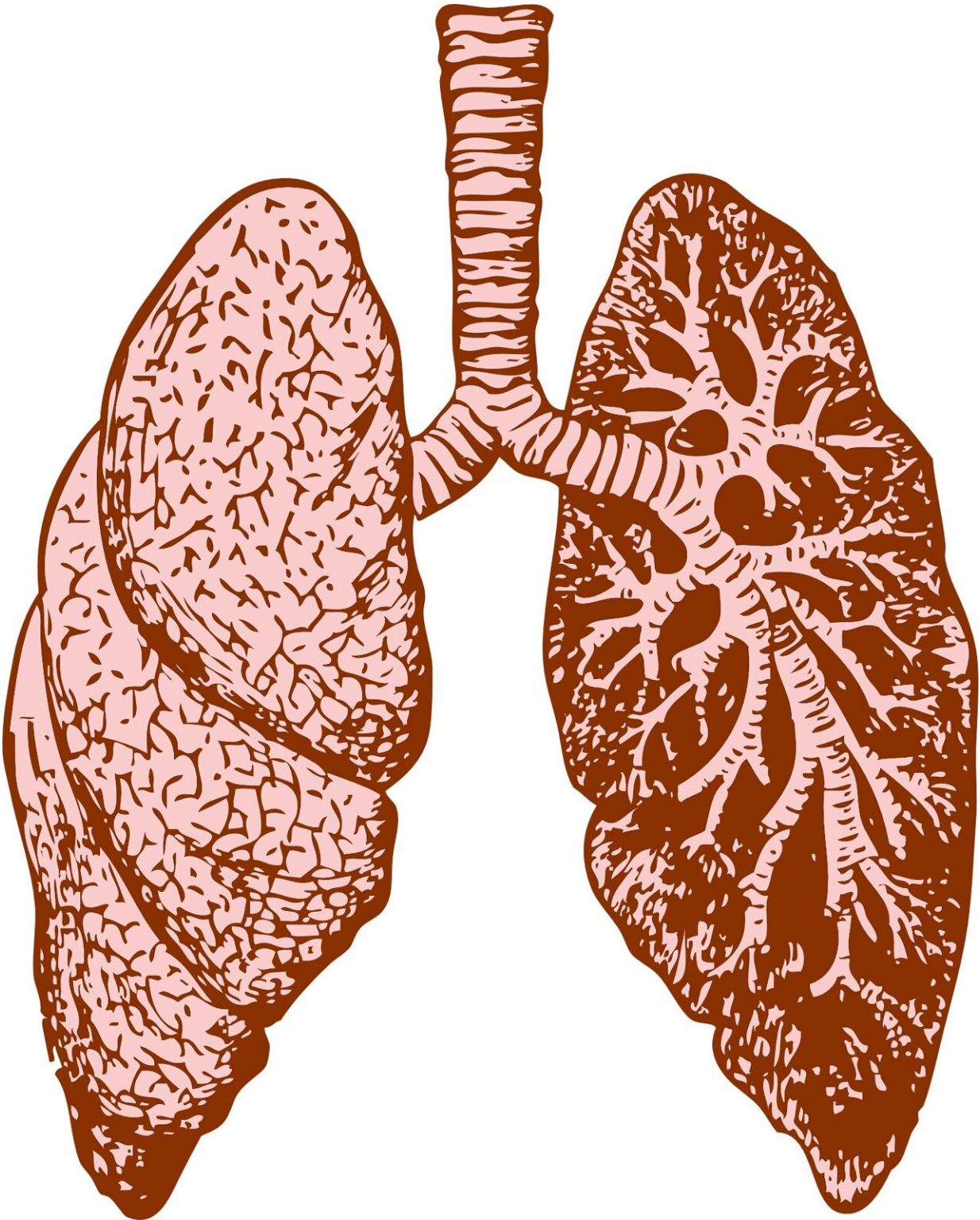


# **Disparities identified among patients receiving advanced pulmonary support**

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Some adults with severe respiratory illness, including women, those with public insurance, and people with fewer financial resources, may be less likely to receive an advanced form of life support known as extracorporeal membrane oxygenation (ECMO).

A research team supported by the National Institutes of Health found that adults who received ECMO appeared to skew toward men, people with [private health insurance](#), and those who came from areas with higher median incomes. ECMO helps patients with life-threatening illness or injury breathe by simulating the function of the heart and/or lungs, while giving those organs a chance to rest.

The study published in the *Annals of the American Thoracic Society*.

In ECMO, a machine pumps blood out of the body, sends it through devices that feed it oxygen, and then returns it to the body. It is typically a treatment of last resort and provided to patients who first receive mechanical ventilation, a standard type of breathing assistance used in [critical care](#).

Researchers reviewed [health](#) insurance data from more than 2 million adults with severe respiratory illness between 2016 and 2019, using the Nationwide Readmissions Database. All patients first received mechanical ventilation, which in this case was defined as having a breathing tube inserted into the airways to help their bodies receive enough oxygen.

Supplemental oxygen can also be provided through a face mask or breathing tubes inserted into the nostrils, but this review only looked at advanced breathing assistance. Among adults who received mechanical ventilation, 18,725 also received ECMO.

After conducting multiple analyses, the researchers found that men

received ECMO more often than women, even if they had the same type of insurance and income level. Men accounted for 64% of patients receiving ECMO compared to 36% of women. In addition, men made up 55% of those who just received mechanical ventilation, compared to 45% of women.

When looking at ECMO based on insurance types, 38% of patients had private insurance and 37% had Medicare. However, 18% had Medicaid and 7% had other insurance, which could include being uninsured. Among patients who only received mechanical ventilation, 58% used Medicare, 17% used Medicaid, 17% used private insurance, and 8% had other insurance.

Patients from higher income areas accounted for 25% of those who received ECMO, as did 25% of patients from lower-income areas. Still, just 17% of patients who only received [mechanical ventilation](#) came from high-income areas, compared to 33% of patients from lower-income areas.

"The goal is to really get people thinking about where some disparities within critical care might live," said Anuj B. Mehta, M.D., the first study author and an assistant professor of medicine within the Division of Pulmonary Sciences and Critical Care Medicine at Denver Health and Hospital Authority and the University of Colorado School of Medicine. "The next step is to think about how we can investigate those disparities with better data and better sources, which supports the long-term goal of ensuring equitable care."

Mehta, a pulmonologist and critical care medicine doctor, stressed these findings are associations and do not necessarily mean that doctors intentionally refer some patients over others for advanced care. He and the authors note multiple factors could explain these variations. Implicit bias among health care providers could be one. Patient preferences could

be another.

Neither one of these factors could be controlled for in this retrospective review, the researchers said. Living near or being more likely to be referred to an advanced medical center that provides ECMO could be a third. Since ECMO is not available at all medical centers and can be limited where it is offered, about half of all eligible patients receive it. However, even after controlling for access to ECMO, such as looking at patients who received care at the same hospital, the researchers still found disparities.

In addition to controlling for gender, health insurance, and income, the researchers assessed other factors to allow for similar comparisons among patients. This included age, severity of illness, reasons for seeking care, regions where they sought care, and other health conditions.

"These findings add to existing research that shows more work is needed to both understand and alleviate disparities in advanced pulmonary care," said James P. Kiley, Ph.D., the director of the Division of Lung Diseases at the National Heart, Lung, and Blood Institute (NHLBI). ECMO was created about 50 years ago. Despite its [mixed outcomes](#) in prolonging life compared to other types of respiratory care, its use continues to [expand](#).

There are two types of ECMO: veno-venous (VV), which provides breathing support by taking over for the lungs, and veno-arterial (VA), which assumes the role of both the heart and lungs. VA ECMO is often used to help patients recovering from major heart surgery. VV ECMO may provide temporary breathing assistance to patients waiting for a lung transplant, or to assist patients recovering from severe respiratory failure.

**More information:** Anuj B. Mehta et al, Disparities in adult patient selection for extracorporeal membrane oxygenation in the United States: A population-level study, *Annals of the American Thoracic Society* (2023). [DOI: 10.1513/AnnalsATS.202212-1029OC](https://doi.org/10.1513/AnnalsATS.202212-1029OC)

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