

# Most H1N1 patients with respiratory failure treated with oxygenating system survive illness

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Despite the severity of disease and the intensity of treatment, most patients in Australia and New Zealand who experienced respiratory failure as a result of 2009 influenza A(H1N1) and were treated with a system that adds oxygen to the patient's blood survived the disease, according to a study to appear in the November 4 issue of *JAMA*. This study is being published early online because of its public health importance.

The influenza A(H1N1) pandemic affected Australia and New Zealand during the 2009 southern hemisphere winter, causing an epidemic of critical illness. Some patients developed severe [acute respiratory distress syndrome](#) (ARDS) and were treated with extracorporeal membrane oxygenation (ECMO), according to background information in the article.

ARDS is a lung condition that leads to [respiratory failure](#) due to the rapid accumulation of fluid in the lungs. ECMO is a type of life support that circulates blood through a system that adds oxygen. ECMO was used for the patients in this study because they developed very low blood oxygen levels that developed rapidly despite standard ventilator (or respirator) settings. ECMO is generally used for a limited time because of the risks of bleeding, clotting, infection, and [organ failure](#).

The Australia and New Zealand Extracorporeal Membrane Oxygenation (ANZ ECMO) Influenza Investigators in collaboration with the Australian and New Zealand Intensive Care Research Centre at Monash University in Melbourne, conducted an observational study of patients with 2009 influenza A(H1N1)-associated ARDS treated with ECMO in 15 intensive care units (ICUs) in Australia and New Zealand between June 1 and August 31, 2009. The researchers looked at incidence, clinical features, the degree of lung dysfunction, technical

characteristics, the duration of ECMO, complications, and survival.

The study found that 68 patients with severe influenza-associated ARDS were treated with ECMO, including 53 with confirmed 2009 influenza A(H1N1). An additional 133 patients with [influenza A](#) received mechanical ventilation, but not ECMO, in the same ICUs. The 68 patients who received ECMO had a median (midpoint) age of 34.4 years and half were men.

"Affected patients were often young adults, pregnant or postpartum, obese, had severe respiratory failure before ECMO, and received prolonged mechanical ventilation and ECMO support," the authors write.

The median duration of ECMO support was ten days. At the time of reporting, 54 of the 68 patients had survived and 14 (21 percent) had died. Six patients remained in ICU, including two who were still receiving ECMO. Sixteen patients were still hospitalized, but out of ICU, and 32 had been discharged from the hospital.

"Despite their illness severity and the prolonged use of life support, most of these patients survived," the authors conclude. "This information should facilitate health care planning and clinical management for these complex patients during the ongoing pandemic."

[More information:](#) *JAMA*. 2009;302(17)  
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