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## Commentary: Cannulate, extubate, ambulate, but not so easy to replicate

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In this issue of the *Journal*, Hayanga and colleagues<sup>1</sup> report on outcomes for venovenous extracorporeal membrane oxygenation (ECMO) in patients presenting with severe acute respiratory distress syndrome with coronavirus disease 2019 (COVID-19) compared with those without COVID-19 during the same study period. The authors employed a strategy with an emphasis on early extubation and ambulation after ECMO cannulation. From January 2017 through May 2021, 128 patients (COVID-19, n = 50) underwent venovenous ECMO and met inclusion criteria for this study, and propensity score analysis demonstrated that patients with COVID-19 had better rates of survival to extubation than patients without COVID-19. In addition, sicker patients, as represented by Sequential Organ Failure Assessment (SOFA) score >10, Acute Physiology and Chronic Health Evaluation (APACHE) score >23, Prediction of Survival on ECMO Therapy (PRESET) score >5, and Murray score >3, were less likely to survive to decannulation, as were patients >60 years old. The authors reported a survival rate of 70% for COVID-19 ECMO, which was favorable compared with the Extracorporeal Life Support Organization (ELSO) benchmark of 52% in this same population.<sup>2</sup>

The authors are to be highly commended on their work for 2 main reasons. First, the authors used clear and precise criteria for ECMO candidacy during the COVID-19 pandemic and adjusted these criteria as clinical evidence became available throughout the course of the pandemic.

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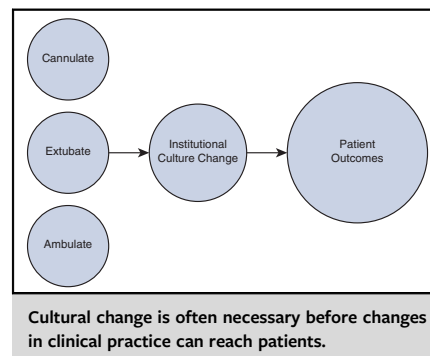
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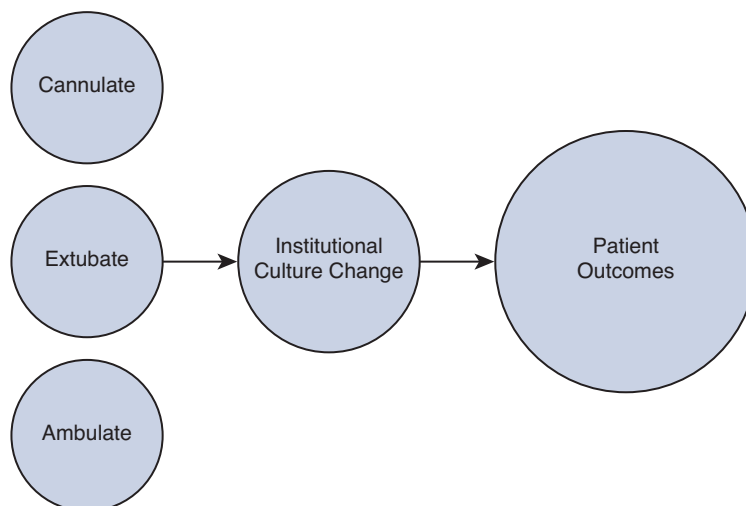


### CENTRAL MESSAGE

Extubation and ambulation after venovenous cannulation can be applied to patients with COVID-19, but the adoption and implementation of this strategy may be the limiting factor.

With the pattern of discrete surges in clinical volume of patients with COVID-19, such discrete criteria were crucial for preserving limited resources and ensuring that these limited resources were being used in the most beneficial way and thus in line with the prevailing ethical principles.<sup>3</sup> As an example, the poor outcomes for patients requiring venoarterial ECMO led the group to make such a requirement an exclusion criterion for ECMO eligibility. The use of specific and concrete criteria is also crucial in an era of increasing distrust of the medical establishment.<sup>4</sup> Demonstrating that medical decision-making is not being guided by mere individual whim but rather by the most up-to-date clinical and scientific evidence is important to comfort patients and their families and help maintain trust of the medical community.

Second, it is clear that patients in this single center benefitted from an institutional culture and philosophy surrounding ECMO care that preceded the pandemic. While the authors did employ a unique set of criteria for ECMO eligibility during the COVID-19 pandemic, the philosophy of early extubation and ambulation was not unique to the pandemic, rather as the authors state, “it has been our practice cultivated over several years and which proffered the very experience that permitted extrapolation to the COVID-19 population.” Clearly, the adoption and application of such a philosophy does not happen overnight and



**FIGURE 1.** Cultural change is often necessary before changes in clinical practice can reach patients.

requires the buy-in from the entire clinical team, including surgeons, critical care specialists, and physical therapists, to name just a few. Attempting to employ such a strategy, with the requisite cultural change, would take serious time and effort.<sup>5</sup> Attempting to do so in the midst of a pandemic where both physical resources and personnel are limited would be a great challenge. While the authors should once again be commended on the efforts to establish such a culture in their institution, to change the culture in any institution takes a commitment, buy-in at many different levels, and persistence. This process toward culture change would be different at each institution; however, it can probably best be undertaken under the auspice of improving patient care and outcomes (Figure 1).

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