of evidence-based protocol implementation and multidisciplinary care is associated with improved outcomes and reduced length of stay for mechanically ventilated patients.[13,14] The application of such measures might allow early discharge of patients with COVID-19 and admission of new patients without the investment required to provide additional ICU beds. Optimising the use of scarce resources is even more challenging, but vital, in developing countries, where adherence to low V_T and other process-of-care measures can be suboptimal.[15]

Considering the severity and unparalleled number of cases of COVID-19 pneumonia in ICUs, we must ensure the delivery of high-quality care for mechanically ventilated patients (figure). More than adjunctive treatments or expensive immune therapies, for which evidence of efficacy is lacking, the focus should be on the careful application of evidence-based approaches associated with improved outcomes in ARDS over the past three decades.

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Health equity and distributive justice considerations in critical care resource allocation

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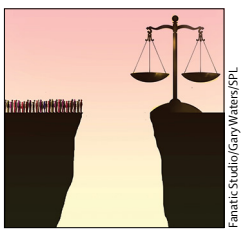
Amid the possibility of resource shortages in health care during a public health crisis, guiding principles established by several groups advocate for allocating life-sustaining treatments on the basis of a patient's chances of survival, resulting in an approach of saving the most lives possible.[1] To assist in this approach, many triage frameworks use acute illness scores to predict short-term mortality.[1] The sequential organ failure assessment (SOFA)[2] score has received attention as a mortality prediction tool during the COVID-19 pandemic and is likely to be used by hospitals in some manner as a triage tool. Although the SOFA score's use has been validated for a variety of purposes in studies done in dozens of countries,[2] two clear limitations exist. First, there are insufficient data on how the SOFA score performs as a predictor of COVID-19 outcomes and on outcomes in specific populations based on features such as race and ethnicity. Second, even if the SOFA score predicts outcomes reliably, it is far from clear that using it as a tool for allocating critical care resources is fair. For example,

in the context of sepsis, a syndrome caused by infections such as COVID-19,[3] African Americans, compared with white people, have disproportionately greater incidence of sepsis[4] and worse physiological effects upon sepsis presentation;[4] therefore, SOFA scores might be unfavourably higher in African Americans during this pandemic.

COVID-19's impact on the US population is resulting in a range of disparate health outcomes for minority communities, with African Americans accounting for the majority of COVID-19-attributable deaths in large urban cities and substantial portions in states overall.[5-7] Shortages of critical care resources will therefore fall hardest on these populations. In this context, how can hospitals and state governments allocate scarce resources during the pandemic using triage scores (such as the SOFA score) in ways that will avoid reinforcing or multiplying the effects of existing systemic inequities? How should racial and social disparities be factored into triage approaches to resource allocation for critical resources during the COVID-19 pandemic? If they are not, then triage scores, as objective as they might seem, will perpetuate disparities in the worst way: allocating resources away from marginalised populations in the USA.[8]

We propose applying established health equity and distributive justice principles for triaging scarce resources during the COVID-19 pandemic. First, triage teams should undergo unconscious bias training designed to recognise and attenuate implicit prejudice.[9] Such training should be implemented by each institution, overseen by faculty experts, and encompass self-evaluations as well as simulations provided several times throughout the year. Second, abiding by health equity principles will result in establishing frequent checkpoints to assess current trends in resource allocation and clinical outcomes, allowing both identification of resulting health disparities and clarification of whether allocation strategies are increasing disparities. Third, resources provided for and outcomes of patients with COVID-19 should be reviewed on the basis of sociodemographic variables—eg, race, ethnicity, gender, language spoken, insurance and access to health care, health literacy, census tract, and ability status. In the UK, there is a legal duty to make reasonable adjustments for people with disabilities when allocating critical care resources.[10] In the USA, a similar legal duty applies but to a narrower range of situations. Fourth, such reviews should be done by an established multidisciplinary team within the hospital, separate from those making the triage decisions. The review team should be comprised of experts from various fields and sectors that have a role in advancing health equity, as well as people from the local community that a hospital serves who can provide insight into accessing those most at risk.


Fanatic Studio/Gary Waters/SPL

An important consideration in the review process would be how or whether to adjust for competing priorities—saving the most lives versus health equity principles and distributive justice. If disparities in the allocation of scarce resources determined by a SOFA-based triage algorithm are discovered, then the protocol should be adapted by the multidisciplinary health equity team to account for resulting disparities. An adaptation to consider is a health equity adjustment factor in allocation frameworks and scoring systems that would create more equity for access to scarce life-saving resources. For example, using a correction factor based on (1) racial differences in patient outcomes; (2) the demographic characteristics of those who are allocated the scarce resources because of a hospital or health system's triage process; or (3) racial differences in comorbidities at the population level. Another approach that merits consideration is a reserve system, in which a specific number of resources are set aside for individuals from marginalised populations and the remaining resources are allocated via the traditional scoring system.[11] Alternatively, disadvantaged patients might be guaranteed a longer time with the resource, because a previous study showed that African Americans have a longer duration of stay in intensive care, but similar mortality rate to white people.[12] We must consider that allocating resources using a health equity adjustment factor might mean that patients with more severe disease who are receiving resources might not survive—justice might entail that saving the most lives possible should not be the primary priority. Regardless of the approach chosen, the health equity review team must meet with community leaders, especially those who serve an area's most under-resourced populations, to establish and maintain transparency at all times for all stakeholders. Community leaders would be chosen to reflect the demographics of a hospital catchment area.[13] A pandemic is not the time to ignore the decades of work assuring that health equity has a rightly seated place among the priorities of medicine and science.

Objective scores for organ dysfunction that might be used to triage scarce critical care resources must be reviewed in the context of health equity. The SOFA score was not designed to consider or account for the complexity of historical socioeconomic marginalisation and injustice experienced by various racial, ethnic, and other marginalised groups. Objective scores such as SOFA can ostensibly be viewed as a way to reduce individual bias and are reasonable for prognostication if allocation teams are assessing populations with similar lived experiences. But many communities in the USA do not have similar lived experiences and exhibit health disparities resulting from structural racism and injustice. Using assessments such as the SOFA score without incorporating appropriate health equity principles might have the unintended consequence of reinforcing health disparities and further undermining trust in health care and health-care institutions at a critical moment in history.[14] Medicine is a public trust, and must remain so by reaffirming its principles of justice at all times.

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