The Sequential Organ Failure Assessment (SOFA) and revised ventilator triage guidance: since we are still implementing outdated and more inequitable frameworks now, will we learn any lessons longer term?

Posted on October 12, 2021

By Harald Schmidt, Dorothy E Roberts, Amaka D Eneanya

Ventilator triage guidance can reduce, maintain, or exacerbate existing social, racial and ethnic health inequities, raising non-trivial legal issues. Over the last 18 months, there has been an intense reckoning with the fact that traditional rationing frameworks focused on maximizing overall benefits tend to worsen Covid-19's disparate impact on disadvantaged communities of color. Yet, as ICUs filled up again recently, officials implemented outdated, and more inequitable, triage guidelines. This must change. Moreover, there seems to be no effective process for ensuring that earlier versions of influential model frameworks are updated, nor ways of ensuring transparency about the type of Crisis Standards of Care (CSC) rules that are adopted. This, too, must change.

On September 9, 2021, Idaho activated CSC rules in response to rapidly rising Covid-19 hospitalizations in some areas, emphasizing that ventilator rationing should be based on "objective criteria". The state's Patient Care Strategies for Scarce Resource Situations describe the process.

To save the most lives, patients should be ranked on the Sequential Organ Failure Assessment (SOFA) score, a measure to predict the likelihood that a patient survives the ICU. The worse the prognosis, the higher the point score. In addition, to save life years, patients "with major comorbidities with substantial impact on near-term survival" receive further points, doubled for those with severe comorbidities expected to die "in the near-term". The policy also includes adjustments for patients with disabilities, and five types of hierarchical tie-breakers for patients with equal scores. Patients with the lowest overall scores are categorized as High Priority, and all remaining as either Intermediate, or Lowest Priority (to be "reassess[ed] as needed").

To the extent that the process identifies mostly specific and empirically measurable outcomes, it might be viewed as being based on objective criteria.

But these criteria are far from objective in several ways.

First, assessing "near-term survival" differs from, for example, reading oxygen levels: subjective judgements will typically play a role.

Second, in another important sense of objectivity—that of being value-neutral or impartial—the adjective does not apply, as prioritizing saving the most lives and life years are value judgements by themselves.

Third, independently, the empirical measures used to achieve these goals risk exacerbating existing racial inequities.

One main reason is the reliance on SOFA, already deemed unfit for purpose by key experts on scientific grounds. In addition, SOFA is inequitable.

As we outline in our response, drawing on data of more than 100,000 patients, Deepshikha Ashana and colleagues found that a version of Idaho's approach leads to more than 80% of Black patients being included in lower priority categories, and more than 9% being erroneously excluded from receiving the highest prioritization. William Miller and colleagues likewise found that SOFA overestimated Black patients' mortality, and misclassified more than 15% from the highest to the intermediate priority. A study by Sivasubramanium Bhavani, Yuan Luo, and colleagues, published concurrent to our response being copy-edited, simulated ventilation needs of a diverse group of Covid-19 patients in Chicago. Black patients presented with higher average SOFA scores than white patients (9.2 vs. 7.5) and SOFA-only based triage assigned Black patients substantially fewer ventilators than white ones (44% vs 54%). Shireen Roy and colleagues likewise found: "Black COVID patients would have been denied care despite having similar clinical outcomes to white patients."

Process-wise, it is also concerning that the Idaho framework does not reflect that the authors of the model guidance that the state adopted published a substantially revised version in December 2020 in the academic literature, and in June 2021 on the guideline website. These versions drop SOFA, and include changes such as integrating disadvantage indices to mitigate inequitable outcomes (first proposed for ventilator rationing in April 2020).

Unfortunately, the Idaho case is not unique. For example, outdated rules based on the same model guidance are also found in Montana's recently activated CSC framework, and in New Jersey's, as emerged when we had to address a surprising, erroneous and confusing commentary seeking to

undermine our constructive proposal to avoid inequitable outcomes from using the SOFA score (see here and note that Alaska's recently activated, as well as implemented, CSC draw explicitly on SOFA).

It is critical that users of model guidance frameworks review more inequitable outdated versions, not least as the SOFA score not only disadvantage racial/ethnic groups, but also people with disabilities.

More broadly, it is critical to ensure transparency about the types of triage frameworks adopted across the country, and to create incentives for hospitals to establish, share and update frameworks. We make constructive suggestions toward this end in our response, and hope that these will also be of use to ongoing and future efforts to assess CSR standards for equity, as also urged recently in the final recommendations of the White House Health Equity Task Force.

Paper title: Sequential organ failure assessment, ventilator rationing and evolving triage guidance: new evidence underlines the need to recognise and revise, unjust allocation frameworks

Author(s): Harald Schmidt, Dorothy E Roberts, Amaka D Eneanya

Affiliations:

HS: Medical Ethics and Health Policy, University of Pennsylvania Perelman School of Medicine, Philadelphia, Pennsylvania, USA

DER: Penn Law, Departments of Africana Studies and Sociology, School of Arts and Sciences, University of Pennsylvania, Philadelphia, PA, USA

ADE: Renal-Electrolyte and Hypertension Division, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA

Competing interests: None

Social media accounts of post author(s):

@harald_tweets

@DorothyERoberts

@AmakaEMD

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