



## Perspective

### The Toughest Triage — Allocating Ventilators in a Pandemic

Robert D. Truog, M.D., Christine Mitchell, R.N., and George Q. Daley, M.D., Ph.D.

**T**he Covid-19 pandemic has led to severe shortages of many essential goods and services, from hand sanitizers and N-95 masks to ICU beds and ventilators. Although rationing is

not unprecedented, never before has the American public been faced with the prospect of having to ration medical goods and services on this scale.

Of all the medical care that will have to be rationed, the most problematic will be mechanical ventilation. Several countries, but not the United States, have already experienced a shortage of ventilators. Acute care hospitals in the United States currently have about 62,000 full-function ventilators and about 98,000 basic ventilators, with an additional 8900 in the Centers for Disease Control and Prevention (CDC) Strategic National Stockpile.<sup>1</sup> The CDC estimates that 2.4 million to 21 million Americans will require hospitalization during the pandemic, and the experience in Italy has been that about 10 to 25% of hospital-

ized patients will require ventilation, in some cases for several weeks.<sup>2</sup> On the basis of these estimates, the number of patients needing ventilation could range between 1.4 and 31 patients per ventilator. Whether it will be necessary to ration ventilators will depend on the pace of the pandemic and how many patients need ventilation at the same time, but many analysts warn that the risk is high.<sup>3</sup>

Although shortages of other goods and services may lead to deaths, in most cases it will be the combined effects of a variety of shortages that will result in worse outcomes. Mechanical ventilation is different. When patients' breathing deteriorates to the point that they need a ventilator, there is typically only a limited window during which they can be saved.

And when the machine is withdrawn from patients who are fully ventilator-dependent, they will usually die within minutes. Unlike decisions regarding other forms of life-sustaining treatment, the decision about initiating or terminating mechanical ventilation is often truly a life-or-death choice.

Many states have developed strategies for rationing during pandemics. The New York Guidelines target saving the most lives, as defined by the patient's short-term likelihood of surviving the acute medical episode.<sup>4</sup> Rationing is performed by a triage officer or a triage committee composed of people who have no clinical responsibilities for the care of the patient. Triage proceeds in three steps: application of exclusion criteria, such as irreversible shock; assessment of mortality risk using the Sequential Organ Failure Assessment (SOFA) score, to determine priority for initiating ventilation; and repeat assessments over time, such that patients

whose condition is not improving are removed from the ventilator to make it available for another patient.

Anticipating the need to allocate ventilators to the patients who are most likely to benefit, clinicians should proactively engage in discussions with patients and families regarding do-not-intubate orders for high-risk subgroups of patients before their health deteriorates. Once patients have already been placed on mechanical ventilation, decisions to withdraw it are especially fraught. Less than 50 years ago, physicians argued that withdrawing a ventilator was an act of killing, prohibited by both law and ethics. Today, withdrawal of ventilatory support is the most common proximate cause of death in ICU patients, and withdrawal of this support at the request of a patient or surrogate is considered an ethical and legal obligation. Withdrawal of a ventilator against the wishes of the patient or surrogate, however, is primarily done only in states and hospitals that permit physicians to unilaterally withdraw life support when treatment is determined to be futile.

Decisions to withdraw ventilators during a pandemic in order to make the resource available to another patient cannot be justified in either of these ways: it is not being done at the request of the patient or surrogate, nor can it be claimed that the treatment is futile. Even though the chances of survival may be low, in the absence of the pandemic the treatment would be continued. Whereas this type of rationing may not be unusual in countries that tragically have a chronic shortage of essential ICU care, it is unprecedented for most physicians who

practice in well-resourced countries. Reports from Italy describe physicians “weeping in the hospital hallways because of the choices they were going to have to make.”<sup>5</sup>

The angst that clinicians may experience when asked to withdraw ventilators for reasons not related to the welfare of their patients should not be underestimated — it may lead to debilitating and disabling distress for some clinicians. One strategy for avoiding this tragic outcome is to use a triage committee to buffer clinicians from this potential harm. We believe that such a committee should be composed of volunteers who are respected clinicians and leaders among their peers and the medical community.

Advantages of this approach are that it allows the physicians and nurses caring for the patients to maintain their traditional roles as fiduciary advocates, including the opportunity to appeal the initial decision of the committee when appropriate. While working together to ensure consistent and unbiased decisions across patient groups, the committee also has the flexibility to consider factors that may be unique to a given situation. As circumstances change and the availability of ventilators increases or decreases, the committee can adjust its rationing criteria to produce the best outcomes. Finally, when a hospital is placed in the unavoidable but tragic role of making decisions that may harm some patients, the use of a committee removes the weight of these choices from any one individual, spreading the burden among all members of the committee, whose broader responsibility is to save the most lives.

In addition to removing the responsibility for triage decisions

from the bedside clinicians, committee members should also take on the task of communicating the decision to the family. The treating clinicians may be motivated to try to comfort the family by telling them that mechanical ventilation is not being provided because it would be futile and by reassuring them that everything possible has been done. Though well intentioned, such inaccurate representations could ultimately undermine public trust and confidence. Having the committee members communicate these decisions would ensure that the message is clear and accurate, helping to prevent confusion or misunderstandings.

Similarly, the physicians, nurses, or respiratory therapists who are caring for the patient should not be required to carry out the process of withdrawing mechanical ventilation; they should be supported by a team that is willing to serve in this role and that has skills and expertise in palliative care and emotional support of patients and families. Pain and suffering at the end of life can be controlled, and these patients deserve the best that palliative care can provide.

In the weeks ahead, physicians in the United States may be asked to make decisions that they have never before had to face, and for which many of them will not be prepared. Though some people may denounce triage committees as “death panels,” in fact they would be just the opposite — their goal would be to save the most lives possible in a time of unprecedented crisis. Creation and use of triage committees, informed by experience in the current pandemic<sup>2</sup> and prior written recommendations,<sup>4</sup> can help mitigate

the enormous emotional, spiritual, and existential burden to which caregivers may be exposed.

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From the Center for Bioethics (R.D.T., C.M.), the Department of Global Health and Social Medicine (R.D.T., C.M.), the Office of the Dean of the Faculty of Medicine (G.Q.D.), Harvard Medical School, and the Department of Anesthesiology, Critical Care, and Pain Medicine, Boston Children's Hospital (R.D.T.) — both in Boston.

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