



ANALYSIS

Ethics of reallocating ventilators in the covid-19 pandemic

Andrew Peterson and colleagues explore ways to protect vulnerable populations when making ethically fraught decisions about use of scarce resources

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The moral fortitude of clinicians and health systems has been tested as the number of patients with covid-19 has grown. Experts initially warned that patients requiring ventilatory support could outpace ventilator supply.^{1,2} Increased ventilator production seems to have averted predicted shortfalls in some countries, including the UK and US, but anxiety remains that there will not be enough ventilators to meet demand, if not across health systems then at least in infection hotspots. This situation raises the question of whether and, if so, how to withdraw ventilators from patients with poorer prognoses to reallocate them to others with better prognoses.

During a pandemic, health systems have a duty to steward scarce resources.³ This principle, broadly endorsed in the US⁴ and the UK,⁵ requires that resources be allocated to “maximize the number of patients that survive treatment with reasonable life expectancy.”³ However, achieving this can lead to ethically fraught decisions. Experts state that, “because maximizing benefits is paramount ... removing a patient from a ventilator or an ICU bed to provide it to others in need is ... justifiable.”³ Similarly, the British Medical Association states that ventilators should be reallocated to “patients who are reasonably believed to have the capacity to benefit quickly.”²

Privileging the duty of stewardship implies that reallocation of scarce resources is ethically permissible. If resource constraints became dire, it may even be ethically required. In all cases, the prospect of reallocating ventilators to maximise the number of patients who survive is ethically charged. Yet, the potential for this to disproportionately affect vulnerable populations—including older adults, people from minority communities, or people with disabilities—is a particular concern.

Some countries are still expecting an increase in cases and others risk a potential resurgence of covid-19 as physical distancing eases. We need to take stock and analyse difficult ethical

questions in light of what we now know about covid-19 to help health systems prepare if the situation worsens again. Although we focus on the withdrawal and reallocation of ventilators, our analysis is also relevant to the allocation of other scarce resources, such as personal protective equipment, a challenge that will emerge in different guises throughout the pandemic.

Saving the most lives

Stewarding scarce resources requires health systems to use resources to save the most lives. This does not mean saving the most patients who previously enjoyed or are expected to enjoy a good quality of life. Broadly endorsed allocation frameworks make no assumptions about quality of life. Quality of life is difficult to assess, and assessment could be biased; it is therefore a poor guide for resource allocation in pandemics.³ An individual's subjective assessment of their quality of life may inform decisions about their care (eg, in advance directives). But third person assessments for resource allocation are explicitly prohibited.

In theory, maximising the number of lives saved without taking account of quality of life can increase fairness for vulnerable populations. Practice is more difficult. Pernicious biases about the quality of life of vulnerable people (or the value of their lives) might still turn critical care into a life raft: the vulnerable are thrown overboard to keep the ship afloat.⁶ To avoid this, health systems are encouraged to adopt transparent, evidence based triage protocols that classify patients according to priority levels.^{4,7} Such protocols use physiologically based variables to assess which patients will benefit most from scarce resources, allowing for purportedly objective prognostication.

For these protocols to work effectively, however, health systems and clinicians need to know what allocation decisions will actually save the most lives. Early in the trajectory of covid-19, there was little evidence on what affected prognosis. Ventilation

of patients with covid-19 was rightly thought to facilitate positive outcomes. But emerging mortality data paint a more negative picture. A February 2020 study reported mortality above 80% for patients requiring mechanical ventilation.⁸ More recent studies reported lower mortality, yet death rates still remain remarkably high.⁹⁻¹¹ Adaptive triage protocols, which actively incorporate new prognostic information about the progression of a disease, may help address crucial gaps in evidence.⁷ Looking ahead, there is an urgent need to assess available evidence to create practical, broadly endorsed allocation frameworks that account for updated prognostic information.

Emerging data also suggest—counterintuitively perhaps—that, although mechanical ventilation for patients with covid-19 is far from futile, it may sometimes be appropriate to withdraw ventilators from patients with covid-19 to reallocate them to patients with other conditions who require ventilatory support. Indeed, the BMA strongly urges that, “by itself, infection with covid-19 should not guarantee priority.”² As health systems resume routine care with a more diverse case mix, there is an additional need to consider how to navigate trade-offs in the reallocation of lifesaving resources between patients with and without covid-19. A systems level approach that considers how reallocation affects different aspects of an entire health system could mitigate unintended negative consequences of these trade-offs (box 1).

Box 1: Prioritising one group of patients at the expense of another

Overemphasis on reallocation of lifesaving resources to patients with covid-19 without sufficient evidence could have unintended negative consequences for vulnerable populations. In the race to save lives, many governments focused on surge capacity in acute care hospitals while subacute care facilities, which often house older adults and people with disabilities, remained largely overlooked.¹²⁻¹³ As a result, vulnerable groups were not adequately protected. Nursing homes became hotspots for covid-19 transmission and deaths.¹⁴

Looking forward, we must broaden our conception of reallocation decisions beyond trading one patient on a ventilator for another. Instead, reallocation decisions should take a systems level approach so that attention to bolstering care for some patients does not come at the expense of caring for others.

Triage and discrimination

Poorly designed triage protocols that treat disability as a contraindication to receiving scarce resources—or that prioritise categories of people for withdrawal—could open health systems to legal and ethical claims of unjust discrimination. Triage protocols that categorically exclude all patients with cognitive disabilities from receiving mechanical ventilation for covid-19, for example, commit “but for” exclusions: these patients would have received a ventilator “but for” their disability.

In response to these concerns, leading advocacy and governmental organisations have taken steps to mitigate discriminatory triage policies. In the UK, the National Institute for Health and Care Excellence (NICE) modified triage guidelines to prevent unfair disadvantages for people with disabilities admitted to intensive care.¹⁵ Alzheimer Europe urged health systems to recognise that people with dementia “can live many years ... with a high quality of life” and therefore should not be “refuse[d] access to treatment” because of their diagnosis.¹⁶ Finally, the US Department of Health and Human Services has resolved several complaints against health systems for adopting triage protocols that do not comply with the Americans with Disabilities Act, Rehabilitation Act, or Affordable Care Act.¹⁷

Health systems can mitigate discriminatory triage policies by ensuring that each patient is assessed individually and the results

used to make a transparent, evidence based prognosis.^{3 4 7 15 18 19} Pre-existing disabilities might be relevant to withdrawal and reallocation of ventilators, but only if they follow from an individualised assessment. Additionally, triage decisions should be made by independent triage teams that include relevant medical experts, legal counsel, and health system administrators.^{4 7 19} These teams are responsible for repeatedly assessing patients’ priority. This practice is recommended in triage protocols broadly adopted in the US. Deferring ventilator withdrawal and reallocation decisions to triage teams aims to increase prognostic objectivity and minimise the harmful effects of discriminatory bias or conflicts of commitment.

Even if health systems make efforts to mitigate direct discrimination, health disparities can still result in indirect discrimination because of the effect of pre-existing conditions on prognosis. A concern in the covid-19 pandemic is that pre-existing health disparities, fuelled by unjust social conditions, unfairly disadvantage certain vulnerable populations.²⁰ In the US, people of colour have a higher burden of disease (eg, hypertension and diabetes) than other populations. Such comorbidities can contribute to poor prognoses in covid-19 and thus limit priority for lifesaving resources.

The BMA acknowledges this problem, but advises that indirect discrimination might still be legally justified: “Although a ‘capacity to benefit quickly’ test would be indirect discrimination, in our view it would be lawful in the circumstances of a serious pandemic because it would [fulfill] the requirement to use limited NHS resources to their best effect.”² Rather than concede that indirect discrimination is inevitable, we think advocacy and governmental organisations should act to mitigate longstanding injustices that contribute to health disparities. No consensus exists on how to address indirect discrimination in triage, but several candidate mechanisms could be used, including weighting triage scores with an area deprivation index that accounts for social determinants of health, including patient advocates from disadvantaged communities in triage teams, or periodic auditing of triage decisions to quickly detect and ameliorate indirect discrimination.

Lastly, health systems should refrain from forcibly withdrawing and reallocating ventilators from patients cared for in subacute facilities who receive long term ventilation.²¹ Such reallocation of ventilators might save more lives, but it would conflict “with the societal norm of defending vulnerable individuals and communities”⁴ and may quickly devolve into ruthless utilitarianism. In our view, constraining reallocation decisions to the acute care setting helps to balance competing ethical duties and further protects vulnerable populations from discrimination.

Emotions and reallocation

Because resource constraints may force difficult decisions about withdrawal and reallocation of ventilators, health systems must prepare for the emotions elicited by these decisions. Experts argue that, in a pandemic, “the decision to withdraw a scarce resource to save others is not an act of killing.”³ But even if this is true in theory, it might not feel true in practice. Families will reasonably feel grief, anger, and confusion; families of patients with disabilities might additionally suspect discrimination. Clinicians will feel grief and powerlessness in the face of decisions that conflict with their ethos to care. And patients who receive a ventilator may experience survivor’s guilt if they suspect that they lived at the expense of another’s life. Clearly, withdrawal and reallocation of ventilators could add to the already substantial psychological burden of covid-19.

Best practices should be identified to lessen these emotional burdens. Experts recommend that patients, families, and clinicians be notified on admission (or when a triage policy is implemented) that withdrawal and reallocation might occur.³ This would allow time to psychologically prepare, seek out alternative medical support if available, or forgo mechanical ventilation altogether, as withholding is sometimes perceived as easier than withdrawing. Encouraging clinicians to seek psychological support early could also mitigate downstream emotional consequences. Independent triage teams could be effective here as well⁴⁷ because they could insulate frontline clinicians from the anguish of deciding who lives and who dies.¹⁹ Attention must be paid, however, to the psychological burden placed on triage teams if they assume responsibility for these decisions.

To promote clear communication of medically complex and ethically challenging messages, we suggest that health systems develop covid-19 “talking points,” such as those offered by VitalTalk,²² a National Institutes of Health funded organisation dedicated to improving physician-patient communication. Social workers and medical interpreters, as well as the vulnerable populations affected by triage decisions, should be central in this process.

When withdrawal does occur, experts advise it should be respectful and dignified, with the provision of adequate palliation. Restrictions on hospital visitors to reduce spread of covid-19 may lead to some patients dying alone.²³ Health systems should consider whether allowing visitors for dying patients is possible or if technology can be used to achieve death with dignity.²⁴ This may include remote access to spiritual support or follow-up with family unable to be at their loved one's bedside. These approaches might even be adapted from models of interacting with families during organ donation, which emphasise transparent and compassionate communication.²⁵

Health systems should also prepare for the long term psychological effects on clinicians and families.²⁶ In non-pandemic situations, moral distress is common among clinicians.²⁷ However, this distress is likely to be exacerbated under pandemic conditions, particularly if ventilator withdrawal and reallocation is required. Guidance for managing these psychological effects might be adapted from therapeutic approaches for the care of those who experience trauma in natural disasters or war.²⁸ Families will likewise have longlasting negative emotions, which could lead to distrust of clinicians or health systems generally. Health systems should implement evidence based practices to deal with this. Public scrutiny of recommendations for the withdrawal and reallocation of scarce lifesaving resources is also vital. Vigorous debate can enhance transparency and trust in triage policies and ensure that the most vulnerable among us are treated fairly.

Key messages

The covid-19 pandemic will require clinicians and health systems to make ethically fraught life-and-death decisions

Criteria to allocate scarce lifesaving resources may make older adults, people from minority communities, or people with disabilities vulnerable

Frameworks for withdrawing and reallocating ventilators must be transparent and based on continually updated prognostic information and physiological profiles

Triage teams should be set up to implement criteria for prioritisation to minimise bias and avoid unintended negative consequences

Ongoing scrutiny of triage policies increases transparency and trust, and ensures that the most vulnerable among us are treated fairly

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