Scarce Resource Allocation in a Pandemic: A Protocol to Promote Equity, Timeliness, and Transparency

ABSTRACT: Shortages of equipment, medication, and staff under coronavirus disease 2019 may force hospitals to make wrenching decisions. Although bioethical guidance is available, published procedures for decision-making processes to resolve the time-sensitive conflicts are rare. Failure to establish decision-making procedures before scarcities arise exposes clinicians to moral distress and potential legal liability, entrenches existing systemic biases, and leaves hospitals without processes to guarantee transparency and consistency in the application of ethical guidelines. Formal institutional processes can reduce the panic, inequity, and irresolution that arise from confronting ethical conflicts under duress. Drawing on expertise in critical care medicine, bioethics, and political science, we propose a decision-making protocol to ensure fairness in the resolution of conflict, timely decision-making, and accountability to improve system response.

KEY WORDS: ethics, medical; healthcare rationing; organizational decision-making; organizational efficiency; practice guidelines; resource allocation

THE PROBLEM

Shortages of equipment, medication, and staff under COVID-19 may force hospital personnel to make wrenching decisions. Although bioethical guidance is available (1–5), published procedures for decision-making processes to resolve the time-sensitive conflicts are rare. Failure to establish decision-making procedures before scarcities arise exposes clinicians to moral distress and potential legal liability, entrenches existing systemic biases, and leaves hospitals without processes to guarantee transparency and consistency in the application of ethical guidelines (6).

Formal institutional processes can reduce the panic, inequity, and irresolution that arise from confronting ethical conflicts under duress. The guidelines we propose are designed to ensure fairness and equity in the resolution of conflict, timely decision-making, and accountability to improve system response.

Julia F. Lynch, PhD
Isabel M. Perera, PhD
Theodore J. Iwashyna, MD, PhD

Copyright © 2021 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of the Society of Critical Care Medicine. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

DOI: 10.1097/CCE.0000000000000466
Furthermore, conflicts between bioethical principles or stakeholders often arise when allocating scarce resources in a hospital setting. Consider if half of the critical care night shift staff were to contract COVID-19. Their 14-day self-isolation could justify different responses: An intensivist might prioritize transferring nursing staff from the emergency department, preserving ICU patients already under care. The emergency department representative might argue that would leave far more patients languishing and undertriaged. Meanwhile, a nurse manager might question aggressive attempts to reskill staff or summon those in other areas, as this might endanger nurses’ health or contradict licensing regulations. An administrator might express concern about the ability to adequately onboard and certify the safety of any of these changes. Nonetheless, a decision must be made before the night shift begins.

A PROCEDURAL PROPOSAL

In response to a request from hospital clinicians, we developed a protocol for scarce resource allocation teams (SRATs) that promotes fair, timely, and transparent decision-making (7). Although the triggers for activating an SRAT and the associated protocols will vary from site to site, the general principle is that an SRAT should be invoked when the usual hospital ethics consult service and administrative decision-makers are overwhelmed. Pragmatically, hospitals should invoke this protocol only after an incident command structure is in place. Here, we present the core components of the protocol, which are illustrated in the decision (Fig. 1).

Fairness

To promote fairness, decision-making processes should both adhere to bioethical principles and incorporate input from the people who are affected. Well-designed deliberative processes can identify and articulate conflicts between different bioethical principles and different stakeholders, and help guide decision-making to resolve those conflicts.

The composition of our proposed SRAT helps to restrain the default influence of the hospital hierarchy. It meets daily and includes physician and nonphysician clinicians drawn from intensive care, emergency medicine, and other specialties; and nonclinicians representing patients, hospital administration, social work, ethics, and chaplaincy. Full-committee deliberations require that every member of the team speaks, ensuring that less powerful stakeholders have a voice.

For emergent situations, the SRAT's “Trichair” leadership makes decisions. The composition of this group is also balanced, as it includes the SRAT Team Leader (a senior physician with a broad overview of the hospital functioning), a nurse representative, and a nonclinical representative. (This third, nonclinical member of the Trichair ensures that risks to the entire hospital community, such as janitorial, housekeeping, and maintenance services, are considered.) The SRAT Trichair has important responsibilities, especially the Team Leader. Incident command should ensure that members can make the SRAT a priority. These responsibilities, however, should not be considered routine. The SRAT supplements and cannot replace a generally well-functioning emergency response system. Alternates for each member of the Trichair should be identified in advance and drawn into decision-making when one of the Trichairs cannot be present.

Timeliness

The protocol outlines efficient plans for immediate and nonimmediate decisions. When regular clinical practices or already-in-place triage procedures cannot resolve an emergent scarcity, the Trichair solicits feedback from available SRAT team members and convenes to render an immediate decision. During this meeting, the Trichair team leader establishes the time available for discussion and divides it equally among the three members. Each member then voices an interpretation of key problems, ethical dilemmas, and potential solutions. To produce a clear and legitimate solution, the agreement of at least two of three of the Trichairs constitutes the voting rule. In slightly less urgent situations that nonetheless cannot wait until next full meeting, the Trichair team leader identifies the available SRAT members with relevant perspectives. Note that this scenario (and the following ones) allows for more extensive consultation with the SRAT members and/or other representatives of the impacted group. The agreement of a 50% + 1 majority of the group convened for consultation constitutes the voting rule.

The decision to resort to an expedited decision process, as opposed to the fuller SRAT deliberative process outlined below, should be made based on
norms established during initial simulated training exercises within the SRAT, which can help the team better understand and recognize the conditions under which it should deploy this option, and on communication between the SRAT and Incident Command Center.

When a scarcity does not require immediate response, its resolution is referred to the next scheduled daily meeting of the full SRAT. A designated SRAT member collects information in advance of the meeting and proposes initial solutions. After initial clarifying questions and a quick reframing in terms of the ethical values at stake, a full committee vote determines whether there is unanimity about the best solution. If so, it is accepted. Although this unanimity check may seem like a high bar, it also protects the fairness principle in two ways. First, unanimity demonstrates a clear and uncontentious way forward. Second, a brief vote at the beginning of the SRAT meeting ensures that more sensitive issues gain the full attention they deserve—and that all voices will be heard.

If the issue does not pass the unanimity check, a time-delimited structured discussion ensues, followed by a second stage of voting that permits the identification and simultaneous evaluation of multiple

---

**Figure 1.** Decision tree for scarce resource allocation team (SRAT) protocol. TL = team leader.
alternative solutions. Each SRAT member articulates a position and/or offers a solution during a fixed period of time (e.g., 5 min). Once deliberations have concluded, ranked choice voting is used to generate the SRAT’s recommendation. Ranked choice voting, used for determining the outcome of elections in many countries as well as some U.S. states and municipalities, ensures that the solution with the most support wins by taking into account the ranked preferences of voters over a full set of proposed options. Instead of voting for a single solution, voters order their preferences for a slate of proposed solutions. If no solution receives a majority of first-place votes, the option receiving the smallest number of first-place votes is eliminated, and its vote reallocated to the second-choice option on each ballot. This process is repeated until one option receives a majority of first-choice votes plus reallocated votes. Ranked choice voting eliminates the risk of elections resulting in a suboptimal decision that is acceptable to all parties, but preferred by none; eliminates the time delays that are incurred in otherwise-similar runoff systems; and has been found to encourage frank disclosure of honest best assessments (8). Free, online tallying tools for ranked-choice voting are readily available.

Transparency

For every SRAT action, key information about the decision process and outcome is recorded and maintained in a searchable database. To reduce the paperwork burden, SRATs should establish simple, mobile-phone-compatible input systems for decision-makers to communicate core information: the nature of the decision, who was present, and a brief (one to three sentence) summary of the rationale for the decision. When urgent decisions that cannot await a full meeting of the SRAT are made, the decision is disseminated immediately to the full team and placed on the agenda of the next regularly scheduled SRAT meeting for review. Rapid-response decision-making by the Trichair, combined with reporting and subsequent deliberation, provides transparency and allows the SRAT to learn and improve decision-making capacity over time.

The transparency principle also rests on an assumption of good system functioning at the level of the hospital as a whole. Team members must not fear retribution for voicing their opinions and preferences, and SRAT leaders should proactively discuss and address fears of retributions. However, the broader task of ensuring that SRATs can function in a system of generalized trust falls under the scope of incident command and leadership, not the SRAT.

CONCLUSIONS

When the need to allocate scarce resources arises, ethical principles and stakeholder values may come into conflict. If these conflicts are to be resolved fairly and in a timely fashion by people operating in highly stressed environments, practical approaches to structure decision-making are needed. The procedures we have outlined here, which are already in use in one hospital, may assist others in making the best possible decisions and avoiding placing undue moral distress on clinicians during the COVID-19 pandemic.

ACKNOWLEDGMENT

We thank Hallie C. Prescott for her input.

REFERENCES

1. Berlinger N, Wynia M, Powell T, et al; The Hastings Center: Ethical Framework for Health Care Institutions Responding to Novel Coronavirus SARS-CoV-2 (COVID-19). 2020. Available at: https://www.thehastingscenter.org/ethicalframeworkcovid19/. Accessed October 10, 2020
2. Emanuel EJ, Persad G, Upshur R, et al: Fair allocation of scarce medical resources in the time of Covid-19. N Engl J Med 2020; 382:2049–2055
3. Truog RD, Mitchell C, Daley GQ: The toughest triage — allocating ventilators in a pandemic. N Engl J Med 2020; 382:1973–1975
4. White DB, Halpern S, Katz M, et al: Allocation of Scarce Critical Care Resources During a Public Health Emergency. 2020. University of Pittsburgh Department of Critical Care Medicine. Available at: https://ccm.pitt.edu/node/1107. Accessed October 10, 2020

5. National Academies of Sciences, Engineering, and Medicine: Rapid Expert Consultation on Crisis Standards of Care for the COVID-19 Pandemic. National Academies Press, 2020

6. Cohen IG, Crespo AM, White DB: Potential legal liability for withdrawing or withholding ventilators during COVID-19: Assessing the risks and identifying needed reforms. JAMA 2020; 323:1901–1902

7. Lynch J, Perera IM, Iwashyna TJ: “A Practical Approach to Running a Scarce Resource Allocation Team (SRAT)” Life in the Fast Lane. 2020. Available at: https://litfl.com/a-practical-approach-to-running-a-scarce-resource-allocation-team-srat/. Accessed October 10, 2020

8. Bowler S, Farrell DM, Pettitt R: Expert opinion on electoral systems: So which electoral system is ‘best’? J Elect Public Opin Parties 2003;15:3–19