Scarce Health Care Resources and Equity during COVID-19: Lessons from the History of Kidney Failure Treatment

Catherine R. Butler and Aaron G. Wightman

The coronavirus disease 2019 (COVID-19) pandemic has raised ethically challenging questions about the allocation of scarce health care resources, in the context of a glaringly disproportionate effect of the pandemic on racial and ethnic minority groups and other underserved populations (1). The nephrology community has >50 years of experience grappling with resource limitation in the treatment of patients with kidney failure. This history offers valuable lessons that illuminate opportunities to support health equity in a range of clinical settings affected by resource limitation during the COVID-19 pandemic and beyond.

Lesson 1: Established Approaches for Allocating Health Care Resources Tend to Focus on Optimizing Aggregate Benefit, often at the Expense of Equity

Health care rationing entails forgoing beneficial and wished-for treatment on the basis of scarcity (2). Multiple ethics goals are weighed in developing explicit approaches to health care rationing, including the need to maximize the overall benefit conferred by a limited resource and an obligation to support equity among all people in need. The medical community has often focused on optimizing aggregate benefit (e.g., number of lives or life-years saved), especially in planning for health care emergencies (3,4). However, this approach can disproportionately affect underserved groups with poorer baseline health. Both historic and recent experiences suggest the public may place substantial weight on preserving equity in allocating health care resources.

Unacceptability of Early Hemodialysis Rationing by Social Worth

In the 1960s, when maintenance hemodialysis first became a feasible therapeutic option for kidney failure, the number of people in need far exceeded available dialysis resources. The new kidney center in Seattle took a novel approach to allocation by appointing a panel of community members to select among eligible candidates. The committee settled on a strategy prioritizing candidates with sufficient “social worth” (e.g., considering occupation, religiosity, dependents), who could “give back” to the community that was supporting their treatment (5). Public dissemination of this approach in Life Magazine (6) precipitated a national outcry over the unacceptability of biased and arbitrary judgments of social value as a strategy for allocating a life-saving medical treatment (5). As memorably articulated by one critic, “The Pacific Northwest is no place for a Henry David Thoreau with bad kidneys.” (5)

The National Kidney Transplant Allocation System and Concern over Prioritizing Aggregate Benefit at the Expense of Equity

Similar to the status of dialysis machines in the 1960s, the need for deceased donor kidneys for transplant outstrips available organs. Recipients are selected from a national waitlist of eligible candidates by criteria including waiting time and immunologic match with a donor. “Longevity matching” has been proposed as an opportunity to maximize the aggregate “kidney years” conferred by a limited number of donor organs. An early formulation of this strategy preferentially matched younger recipients with younger donors, and older recipients with older donors. However, during public review, this approach was met with accusations of age discrimination, because chronological age alone is limited in predicting life expectancy, and policies that disadvantage older adults may be shaped by negative societal biases (7). Deliberation among the medical community, bioethicists, and the public ultimately resulted in a more nuanced version of longevity matching that better represents considerations of equity. The strategy is now guided by an index of prognostic factors (including age), and only applies to candidates and donor kidneys within the top 20% of expected longevity (8).
Triage Algorithms during the COVID-19 Pandemic

Early in the COVID-19 pandemic, planned algorithms for rationing scarce intensive care resources were adapted from existing guidelines and aimed to prioritize those critically ill patients who were and most likely to survive their hospitalization (9). However, expected survival is strongly affected by baseline health, which is itself shaped by social determinants and structural racism. For this reason, an approach to triage focused primarily on maximizing aggregate benefit systematically disadvantages socially disadvantaged populations (10) and those with specific health conditions, such as advanced kidney disease (11). Advocacy groups also criticized triage approaches intended to maximize long-term survival, which could effectively disadvantage older and disabled people. This public deliberation resulted in adapted algorithms that attempt to balance multiple ethical principles (1,10).

Implicit Rationing during the COVID-19 Pandemic

Approaches to rationing life-saving health care resources during the COVID-19 pandemic were designed to avoid implicit bedside rationing by instituting standardized and transparent triage algorithms (3). Clinicians have nonetheless faced a range of unexpected resource shortages, including in staff and supplies needed to provide dialysis (19). Adapted practices—such as shortened dialysis treatment times—allowed nephrologists to provide therapy for more patients but may not be considered standard of care. In more extreme situations, nephrologists were forced to rank patients for treatment on the basis of urgency of need (e.g., prioritizing treatments on the basis of degree of hyperkalemia or volume overload) (19). Lack of guidance and uncertainty about if and how these changes to usual practice constituted rationing left clinicians to grapple with conflicting obligations and duties at the bedside (19–21). The ultimate effect of these types of relative resource limitations for individual patients and for populations is difficult to quantify, but very likely shape outcomes (22). Further, susceptibility of these types of in-the-moment allocation decisions to implicit biases raise concerns about equitability of this approach.

Lesson 2: Implicit Rationing Can Be Shaped by Biases and Social Determinants and Undermine Equity

Implicit rationing occurs when resources are distributed ad hoc without a defined process and is highly susceptible to insidious contextual factors that may disrupt equitable distribution, such as implicit biases and social determinants of health. Implicit rationing may be especially common when the effect of resource limitation on decision making is difficult to characterize or unrecognized.

Implicit Rationing in the Kidney Transplant Evaluation

Risks Exacerbating Inequities

In contrast with the explicit and standardized process of selection among patients waitlisted for kidney transplant, the upstream process for determining whether a patient will be added to this waitlist can lack transparency and varies between transplant centers. The transplant evaluation process (e.g., referral, physical and psychosocial evaluation, and selection by a transplant committee) is not typically framed as a rationing process, but nonetheless, a substantial number of patients who could potentially benefit from transplant are never added to the national waitlist (12). Psychosocial factors that may be considered contraindications to transplant candidacy—such as lack of social support and history of drug use—are vulnerable to implicit biases and disproportionately affect underserved groups (13,14). Indeed, the existing evaluation process results in concerning racial and socioeconomic disparities in access to the transplant waitlist, but the often-implicit nature of whether and how these factors shape candidate selection makes it difficult to elucidate and address problems (15).

Differential Access to Preventive Kidney Care

The fraught early United States experience with dialysis rationing led to a 1972 Medicare entitlement ensuring coverage for dialysis or kidney transplant for all United States citizens. However, many criticized this legislative action as an example of an American impulse to “maintain the myth” of unlimited fiscal healthcare resources (16). A focus on highly visible life-saving treatments, such as dialysis, may bely needs such as preventive kidney care, which remain out of reach for people with poor health care access or limited insurance coverage (17). Absent any formalized system of allocation, distribution of preventive care resources may be shaped implicitly by social determinants of health. Indeed, the seeming fairness of guaranteeing treatment for kidney failure is tempered by the tragic reality that a strikingly disproportionate number of people from racial and ethnic minority group backgrounds and other underserved groups will develop kidney failure and go on to require this treatment in the first place (18).

Opportunities to Support Equity in Settings of Health Care Resource Limitation

Hard-learned lessons in the care of patients with kidney failure across a range of resource-limited health care settings force a difficult, but necessary, appraisal of how approaches to resource allocation in the United States may affect health equity (23). Indeed, these examples are likely symptomatic of a broader challenge for United States health care (24). First, transparency and community engagement are critical components of developing approaches to resource allocation that respect pluralistic public values, including both maximizing aggregate benefit and supporting equity. The kidney transplant allocation process offers an example of how public input may be integrated to develop and iteratively refine explicit, standardized policies that may be uniformly applied (11). During a pandemic, community stakeholders and/or advocates should serve on committees developing, critiquing, and revising real-time policy (25). Second, policy makers, ethicists, and clinicians must seek to expose hidden instances of implicit rationing and replace them with explicit allocation processes that are open to iterative improvement. This complex task likely requires layered strategies (26), including clinician education and open acknowledgment of multiple conflicting duties related to scarce health care resources (21) and standardized approaches to developing...
institutional, state, and national policy (11,27). Although such change will be difficult, a default to the status quo only perpetuates inequities. The kidney and broader health care communities are obligated to improve our response to and preparation for a range of resource-limited health care settings both now and in the future.

Disclosures
All authors have nothing to disclose.

Funding
None.

Acknowledgments
The content of this article reflects the personal experience and views of the author(s) and should not be considered medical advice or recommendation. The content does not reflect the views or opinions of the American Society of Nephrology (ASN) or Kidney360. Responsibility for the information and views expressed herein lies entirely with the author(s).

Author Contributions
C. Butler wrote the original draft; C. Butler and A. Wightman conceptualized the study and reviewed and edited the manuscript.

References
1. Sonmez T, Pathak PA, Unver MU, Persad G, Truong RD, White DB: Categorized priority systems: A new tool for fairly allocating scarce medical resources in the face of profound social inequities. Chest 159: 1294–1299, 2020 https://doi.org/10.1016/j.chest.2020.12.019
2. Ubel PA, Goold SD: ‘Rationing’ health care. Not all definitions are created equal. Arch Intern Med 158: 209–214, 1998 https://doi.org/10.1001/archinte.158.3.209
3. Committee on Guidance for Establishing Crisis Standards of Care for Use in Disaster S; Institute of M. Crisis standards of care: A systems framework for catastrophic disaster response. Washington, DC, National Academies Press, 2012
4. White DB, Katz MH, Luce JM, Lo B: Who should receive life support during a public health emergency? Using ethical principles to improve allocation decisions. Ann Intern Med 150: 132–138, 2009 https://doi.org/10.7326/0003-4819-150-2-200901200-00011
5. Sanders D, Dukerminier J: Medical advance and legal lag: Hemodialysis and kidney transplantation. UCLA Law Rev 15: 357–413, 1968
6. Alexander S: They decide who lives, who dies: Medical miracle puts a moral burden on a small committee. Life 53: 102–125, 1962
7. Eidelson B: Kidney allocation and the limits of the age discrimination act. Yale Law J 122: 1635–1652, 2013
8. Israni AK, Salkowski N, Gustafson S, Snyder Jj, Friedewald Jj, Formica Rn, Wang X, Sheteyn E, Cherikh W, Stewart D, Samana Cj, Chung A, Hart A, Kasiske Bl: New national allocation policy for deceased donor kidneys in the United States and possible effect on patient outcomes. J Am Soc Nephrol 25: 1842–1848, 2014 https://doi.org/10.1681/ASN.2013070784
9. White DB, Lo B: A framework for rationing ventilators and critical care beds during the COVID-19 pandemic. JAMA 323: 1773–1774, 2020 https://doi.org/10.1001/jama.2020.5046
10. White DB, Lo B: Mitigating inequities and saving lives with ICU triage during the COVID-19 pandemic. Am J Respir Crit Care Med 203: 287–295, 2021 https://doi.org/10.1164/rcrm.202010-3809CP
11. Silberzweig J, Ikizler TA, Kramer H, Palevsky PM, Vassalotti J, Kliger AS: Rationing scarce resources: The potential impact of COVID-19 on patients with chronic kidney disease. J Am Soc Nephrol 31: 1926–1928, 2020 https://doi.org/10.1681/ASN.2020050704
12. Grams ME, Kucirka LM, Hanrahan CF, Montgomery RA, Massie AB, Segev DL: Candidacy for kidney transplantation of older adults. J Am Geriatr Soc 60: 1–7, 2012 https://doi.org/10.1111/j.1532-5415.2011.03652.x
13. Berry RN, Daniels N, Ladin K: Should lack of social support prevent access to organ transplantation? Am J Bioeth 19: 13–24, 2019 https://doi.org/10.1080/15265161.2019.1665728
14. Butler CR, Wightman A, Richards CA, Laundry RS, Taylor JS, Hebert PL, Liu CF, O’Hare AM: Thematic analysis of the health records of a national sample of US veterans with advanced kidney disease evaluated for transplant. JAMA Intern Med 181: 212–219, 2020 https://doi.org/10.1001/jamainternmed.2020.6388
15. Harding JL, Perez A, Snow K, Retzlaff S, Urbanski M, White MS, Patzer RE: Non-medical barriers in access to early steps of kidney transplantation in the United States: A scoping review. Transplant Rev (Orlando) 35: 100654, 2021 https://doi.org/10.1016/j.trre.2021.100654
16. Zeckhauser R: Procedures for valuing lives. Public Policy 23: 419–464, 1975
17. Rettig RA: The policy debate on patient care financing for victims of end-stage renal disease. Law Contemp Probl 40: 196–230, 1976 https://doi.org/10.2307/1191314
18. Patzer RE, McClellan WM: Influence of race, ethnicity and socioeconomic status on kidney disease. Nat Rev Nephrol 8: 533–541, 2012 https://doi.org/10.1038/nrneph.2012.117
19. Butler CR, Wong SPY, Wightman AG, O’Hare AMUS: US clinicians’ experiences and perspectives on resource limitation and patient care during the COVID-19 pandemic. JAMA Netw Open 3: e2027315, 2020 https://doi.org/10.1001/jamanetworkopen.2020.27315
20. Toner E, Mukherjee V, Hanfling D, Hick J, Daughtery Biddison L, Adalja A, Watson M, Evans L: Crisis standards of care: Lessons from New York City hospitals’ COVID-19 experience. A meeting report. Baltimore, MD, Johns Hopkins Center for Health Security, 2020.
21. Martin DE, Parsons JA, Caskey FJ, Harris DCH, Jha V: Ethics of kidney care in the era of COVID-19. Kidney Int 98: 1424–1433, 2020 https://doi.org/10.1016/j.kint.2020.09.014
22. Bravata DM, Perkins AJ, Myers LJ, Arling G, Zhang Y, Zillich AJ, Reese L, Dysangco A, Agarwal R, Myers J, Austin C, Sexson A, Leonard SJ, Dev S, Keyhani S: Association of intensive care unit patient load and demand with mortality rates in US Department of Veterans Affairs hospitals during the COVID-19 pandemic. JAMA Netw Open 4: e2034266, 2021 https://doi.org/10.1001/jamanetworkopen.2020.34266
23. Fuchs VR: Health care policy after the COVID-19 pandemic. JAMA 324: 233–234, 2020 https://doi.org/10.1001/jama.2020.10777
24. Ubel PA: Pricing life: Why it’s time for health care rationing. Cambridge, MA, The MIT Press, 2001
25. Carson RC, Forzley B, Thomas S, Preto N, Hargrove G, Virani A, Antonsen J, Brown M, Copland M, Michaud M, Singh A, Levin A: Balancing the needs of acute and maintenance dialysis patients during the COVID-19 pandemic: A proposed ethical framework for dialysis allocation. Clin J Am Soc Nephrol 16: 1122–1130, 2021 https://doi.org/10.2215/CJN.07460520
26. Butler CR, Tonelli MR: Supporting real-time ethical deliberation in contingency capacity during the COVID-19 pandemic. Am J Bioeth 21: 25–27, 2021 https://doi.org/10.1080/15265161.2021.1940359
27. Alfandre D, Sharpe VA, Geppert C, Foglia MB, Berkowitz K, Chanko B, Schonfeld T: Between usual and crisis phases of a public health emergency: The role of contingency measures. Am J Bioeth 21: 4–16, 2021 https://doi.org/10.1080/15265161.2021.1925778

Received: August 12, 2021 Accepted: October 22, 2021