



American Society of Nephrology
1401 H St NW, Suite 900
Washington, DC 20005
Phone: 202-640-4660 | Fax 202-637-9793
vramsey@kidney360.org

How to Cite this article: Catherine Butler and Aaron Wightman, Scarce healthcare resources and equity during COVID-19: Lessons from the history of kidney failure treatment, *Kidney360*, Publish Ahead of Print, 10.34067/KID.0005292021

Article Type: Perspective

Scarce healthcare resources and equity during COVID-19: Lessons from the history of kidney failure treatment

DOI: 10.34067/KID.0005292021

Catherine Butler and Aaron Wightman

Key Points:

*

*

*

Abstract:

Disclosures: The authors have nothing to disclose.

Funding:

Author Contributions: Catherine Butler: Conceptualization; Writing - original draft; Writing - review and editing Aaron Wightman: Conceptualization; Writing - review and editing

Data Sharing Statement:

Clinical Trials Registration:

Registration Number:

Registration Date:

The information on this cover page is based on the most recent submission data from the authors. It may vary from the final published article. Any fields remaining blank are not applicable for this manuscript.

Scarce healthcare resources and equity during COVID-19: Lessons from the history of kidney failure treatment

Catherine R. Butler^{1,2} and Aaron G. Wightman^{3,4}

¹Division of Nephrology, Department of Medicine and the Kidney Research Institute, University of Washington, Seattle, WA

²Nephrology Section, Hospital and Specialty Medicine and Seattle-Denver Health Services Research and Development Center of Innovation, Veterans Affairs Puget Sound Health Care System, Seattle, WA

³Department of Pediatrics, University of Washington School of Medicine, Seattle, WA

⁴Treuman Katz Center for Pediatric Bioethics, Seattle Children's Hospital, Seattle, WA

Corresponding author:

Catherine R Butler, MD MA

Division of Nephrology, Department of Medicine

1959 NE Pacific St, Campus Box 356521, Seattle, WA 98195

cathb@nephrology.washington.edu

The Coronavirus Disease 2019 (COVID-19) pandemic has raised ethically challenging questions about allocation of scarce healthcare resources in the context of a glaringly disproportionate impact of the pandemic on racial and ethnic minority groups and other underserved populations.¹ The nephrology community has more than 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 impacted by resource limitation during the COVID-19 pandemic and beyond.

Lesson 1: Established approaches for allocating healthcare resources tend to focus on optimizing aggregate benefit, often at the expense of equity

Healthcare rationing entails the forgoing of beneficial and wished-for treatment on the basis of scarcity.² Multiple ethical goals are weighed in developing explicit approaches to healthcare rationing, including the need to maximize the overall benefit conferred by a limited resource and also 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 healthcare emergencies.^{3,4} However, this approach can disproportionately impact underserved groups with poorer baseline health. Both historic and recent experiences suggest that the public may place substantial weight on preserving equity in allocating healthcare 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 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 as 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 most likely to survive their hospitalization.⁹ However, expected survival is strongly impacted 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 populations¹⁰ as well as 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}

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 which may disrupt equitable distribution, such as implicit biases and social determinants of health. Implicit rationing may be especially common when the impact 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, 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 impact 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 US experience with dialysis rationing led to a 1972 Medicare entitlement ensuring coverage for dialysis or kidney transplant for all US 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 healthcare 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

Implicit rationing during the COVID-19 pandemic

Approaches to rationing life-saving healthcare 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 based on urgency of need (e.g., prioritizing treatments based on 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 impact of these types of relative resource limitations for individual patients and for populations is difficult to quantify, but very likely impact outcomes.²² Further, susceptibility of these types of in-the-moment allocation decisions to implicit biases raise concerns about equitability of this approach.

Opportunities to support equity in settings of healthcare resource limitation

Hard-learned lessons in the care of patients with kidney failure across a range of resource-limited healthcare settings force a difficult but necessary appraisal of how approaches to resource allocation in the US may impact health equity.²³ Indeed, these examples are likely symptomatic of a broader challenge for US healthcare.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 which may be uniformly applied.¹¹ During the 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 strategies²⁶ including clinician education and open acknowledgement of multiple conflicting duties related to scarce healthcare resources²¹ as well as standardized approaches to developing institutional, state, and national policy.^{11,27} While such change will be difficult, a default to the status quo only perpetuates inequities. The kidney and broader healthcare communities are obligated to improve our response to and preparation for a range of resource-limited healthcare settings both now and in the future.

Disclosures: The authors have nothing to disclose.

Funding: None

Acknowledgements: 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: Catherine Butler: Conceptualization; Writing - original draft; Writing - review and editing. Aaron Wightman: Conceptualization; Writing - review and editing.

References

1. Sonmez T, Pathak PA, Unver MU, Persad G, Truog RD, White DB. Categorized Priority Systems: A New Tool for Fairly Allocating Scarce Medical Resources in the Face of Profound Social Inequities. *Chest*. Dec 26 2020;doi:10.1016/j.chest.2020.12.019
2. Ubel PA, Goold SD. 'Rationing' health care. Not all definitions are created equal. *Arch Intern Med*. Feb 9 1998;158(3):209-14. doi: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*. National Academies Press (US) Copyright 2012 by the National Academy of Sciences; 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*. Jan 20 2009;150(2):132-8. doi: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*. 1968;15:357-413.
6. Alexander S. They decide who lives, who dies: medical miracle puts a moral burden on a small committee. *Life*; 1962. p. 102-4, 106, 108, 110, 115, 117-8, 123-24.
7. Eidelson B. Kidney allocation and the limits of the age discrimination act. *Yale Law Journal*. 2013;122(6):1635-1652.
8. Israni AK, Salkowski N, Gustafson S, et al. New national allocation policy for deceased donor kidneys in the United States and possible effect on patient outcomes. *J Am Soc Nephrol*. Aug 2014;25(8):1842-8. doi:10.1681/asn.2013070784
9. White DB, Lo B. A Framework for Rationing Ventilators and Critical Care Beds During the COVID-19 Pandemic. *JAMA*. Mar 27 2020;doi: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*. Feb 1 2021;203(3):287-295. doi:10.1164/rccm.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*. Sep 2020;31(9):1926-1928. doi: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*. Jan 2012;60(1):1-7. doi:10.1111/j.1532-5415.2011.03652.x
13. Berry KN, Daniels N, Ladin K. Should Lack of Social Support Prevent Access to Organ Transplantation? *Am J Bioeth*. Nov 2019;19(11):13-24. doi:10.1080/15265161.2019.1665728
14. Butler CR, Wightman A, Richards CA, et al. Thematic Analysis of the Health Records of a National Sample of US Veterans With Advanced Kidney Disease Evaluated for Transplant. *JAMA Internal Medicine*. 2020;doi:10.1001/jamainternmed.2020.6388
15. Harding JL, Perez A, Snow K, et al. Non-medical barriers in access to early steps of kidney transplantation in the United States - A scoping review. *Transplant Rev (Orlando)*. Dec 2021;35(4):100654. doi:10.1016/j.trre.2021.100654
16. Zeckhauser R. Procedures for valuing lives. *Public Policy*. 1975;23(4)

17. Rettig RA. The policy debate on patient care financing for victims of end-stage renal disease. *Law Contemp Probl.* Autumn 1976;40(4):196-230.
18. Patzer RE, McClellan WM. Influence of race, ethnicity and socioeconomic status on kidney disease. *Nat Rev Nephrol.* Sep 2012;8(9):533-41. doi:10.1038/nrneph.2012.117
19. Butler CR, Wong SPY, Wightman AG, O'Hare AM. US Clinicians' Experiences and Perspectives on Resource Limitation and Patient Care During the COVID-19 Pandemic. *JAMA Netw Open.* 2020;3(11):e2027315. doi:10.1001/jamanetworkopen.2020.27315
20. Toner E, Mukherjee V, Handling D, et al. Crisis standards of care: lessons from New York City hospitals' COVID-19 experience. A meeting report. 2020.
21. Martin DE, Parsons JA, Caskey FJ, Harris DCH, Jha V. Ethics of kidney care in the era of COVID-19. *Kidney Int.* Dec 2020;98(6):1424-1433. doi:10.1016/j.kint.2020.09.014
22. Bravata DM, Perkins AJ, Myers LJ, et al. 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.* Jan 4 2021;4(1):e2034266. doi:10.1001/jamanetworkopen.2020.34266
23. Fuchs VR. Health Care Policy After the COVID-19 Pandemic. *Jama.* Jul 21 2020;324(3):233-234. doi:10.1001/jama.2020.10777
24. Ubel PA. *Pricing life: Why it's time for health care rationing.* The MIT Press; 2001.
25. Carson RC, Forzley B, Thomas S, et al. 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.* Jul 2021;16(7):1122-1130. doi: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.* Aug 2021;21(8):25-27. doi:10.1080/15265161.2021.1940359
27. Alfandre D, Sharpe V, Geppert C, et al. Between usual and crisis phases of a public health emergency: The role of contingency measures. *American Journal of Bioethics.* 2021