



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

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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).

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### 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).

### 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).

### 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.

### 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.

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#### Author Contributions

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

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