

Primacy in Kidney Allocation: Does It Alleviate the Barriers to Transplantation?

John S. Gill,¹ Catherine R. Butler,^{2,3} and Neil R. Powe⁴

¹Division of Nephrology, St. Paul's Hospital, Vancouver, Canada

²Division of Nephrology, University of Washington, the Kidney Research Institute, Seattle, Washington

³Veterans Affairs Health Services Research & Development, Seattle, Washington

⁴Priscilla Chan and Mark Zuckerberg San Francisco General Hospital, University of California, San Francisco

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Receiving a kidney from a deceased organ donor remains the best opportunity for improved quality and length of life for many patients with kidney failure. The transplant journey can be long, especially for minority groups, women, socioeconomically disadvantaged populations, and those with pre-existing comorbidities. The new Kidney Allocation System advanced the estimated post-transplant survival (EPTS) score as a method to identify those, regardless of social characteristics, for whom receiving a transplant would yield the longest survival, for preferential allocation of deceased donor kidneys with the lowest risk of failure, in the hope of providing the most public health good for a scarce resource. However, in this issue of *JASN*, Schold and colleagues¹ report that among patients with the lowest EPTS score (and longest estimated survival), only 18% are waitlisted before starting dialysis, and only 24% of those who initiate dialysis are waitlisted after 3 years of dialysis treatment.

The EPTS score is calculated using the candidate's age, current diabetes diagnosis, previous transplant history, and duration of dialysis treatment. Patients with the lowest EPTS score ($\leq 20\%$) are prioritized to receive deceased donor kidneys with the lowest risk of transplant failure. Because the EPTS score is dynamic, delays in waitlist activation will result in some patients losing their priority to be matched with deceased donor kidneys with the lowest risk of failure. In the analysis by Schold and colleagues, 61% of patients who initiated dialysis lost this transplant priority within 30 months, compared with only 18% of patients who were pre-emptively waitlisted. During the 3-year study follow-up, 26% of patients who were pre-emptively waitlisted, but only 5% of patients who were not pre-emptively waitlisted, received a deceased donor transplant. The consequences of delayed waitlist activation for this group of relatively healthy patients, who are likely to be excellent transplant candidates, is

therefore a “double whammy” of a lower likelihood of transplantation and a loss of priority to receive a kidney with the lowest risk of failure. The study shows the current system needs considerable improvement, in that even patients for whom transplantation should be the first option of renal replacement therapy are, disappointingly, not able to achieve this goal.

Ideally, patients in Schold and colleagues' study¹ would only be treated with chronic dialysis after all opportunities for transplantation had been thoroughly exhausted, including transplantation from a living donor, transplantation of a kidney from a deceased donor at increased risk of infectious disease transmission who is HIV and hepatitis C virus nucleic acid test negative, or transplantation from an hepatitis C virus-positive deceased donor, followed by treatment with direct-acting antiviral medications. Failure to refer and fast-track the activation of these patients to the deceased donor waiting list is not only suboptimal for the patient, but it may also perpetuate the organ shortage and inflate the overall costs of caring for patients with kidney failure. The purpose of prioritizing patients with the longest survival for transplantation with kidneys that have the lowest risk of failure is to reduce the number of years that these patients will need to be treated with dialysis after transplant failure or with repeat transplantation. Pre-emptive transplants consume fewer health care resources than nonpre-emptive transplants, dialysis after transplant failure is more costly than dialysis before transplant failure, and repeat transplantation is more costly than primary transplantation.²

Skeptics may argue that because there are a limited number of deceased donor kidneys, increasing the number of patients with the highest EPTS on the waiting list will simply push patients who are prioritized to receive the best kidneys down the list, and will do little to increase overall patient access to transplantation. Although the number of transplantable kidneys is a rate-limiting factor, ensuring all eligible patients are represented on the waiting list should be a system priority. Failure to waitlist all patients who would benefit from transplantation is a disservice to patients and systematically underestimates the true need for transplantation. The kidney community should be concerned about policies that might limit the number of patients who could benefit from transplantation from being represented on the waiting list. For example, using the mortality of patients on the waiting list as a transplant quality metric might lead to more restrictive waitlisting practices by transplant centers. Falsely minimizing the need for transplantation by limiting the number of patients on the waiting list also diminishes the need for research and system investments to maximize the number of kidneys available for transplantation from deceased and living donors.

Although the study of Schold and colleagues focused on patients with longest expected survival, the consequences of delayed waitlisting for older patients and others who tolerate dialysis poorly are potentially greater. Transplantation is associated with greater survival, better quality of life, and lower treatment costs compared with dialysis.³ Delaying access to transplantation in elderly patients negates the survival benefit

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Correspondence: Prof. John S. Gill, UBC Division of Nephrology, St. Paul's Hospital, Providence Building Ward 6a, 1081 Burrard Street, Vancouver, British Columbia, V6Z 1Y6, Canada. Email: jjill@providencehealth.bc.ca

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of transplantation such that transplantation in a patient aged ≥ 65 years after 4 years of dialysis treatment is not expected to significantly increase survival compared with treatment with dialysis.⁴ After this time, the main anticipated benefit of transplantation in elderly patients is likely to be improved quality of life. The use of high Kidney Donor Profile Index (KDPI) kidneys for older adults has been advocated as a strategy to both expedite transplantation for this group and avoid discard of kidneys that can nonetheless offer substantial health benefits for appropriate patients. High KDPI kidneys have a higher risk of failure after transplantation but would provide most patients ≥ 65 years old with a lifetime of allograft function.⁵ For older patients, the likelihood of being alive with a functioning allograft 5 years after the onset of kidney failure is greater with transplantation from a high KDPI kidney in the first year after starting dialysis compared with waiting ≥ 3 years for a lower KDPI kidney.⁵ However, this strategy relies on older adults being added to the waitlist as early as possible. When waitlisting is delayed, the benefit of more rapid transplantation with a higher KDPI kidney is negated.

The findings of Schold and colleagues show that even among the most desirable candidates for waitlisting and transplantation, variability in waitlisting still exists by sex, race, insurance, employment, and neighborhood income status. Transplantation is almost always better when done sooner, but for some patients there are especially significant consequences for delaying waitlist activation. Strategies to fast-track the waitlisting of patients for whom the benefits of transplantation are particularly time sensitive and specifically address disadvantaged populations should be implemented. Of importance, transplant centers have developed strategies to help patients identify living donors and effectively counsel patients about their transplant options, including acceptance of higher KDPI kidneys and kidneys from donors at increased risk of infectious disease transmission. Therefore, even patients with seemingly slim prospects for transplantation may receive a transplant if patients and their families receive optimal counseling regarding transplant options.

The study of Schold and colleagues highlights the consequences of delayed waitlist activation for patients with the longest EPTS. The study also suggests the relevance of care processes before patients are added to the waitlist for both patient outcomes and the fair and effective allocation of kidneys. However, to support process improvement, there is first a need for systematic collection of data on referral, center selection, and longitudinal monitoring of the transplant process as a whole.^{6,7} As shown by Schold and colleagues, policies that do not engage all of the stakeholders involved in the continuum of chronic kidney disease care may have a limited effect. A current study of the National Academies of Sciences, Engineering, and Medicine will examine optimization of the deceased organ donation system in the United States from a multistakeholder perspective.⁸ For the time being, even when the prospect of transplantation is remote, patients may be able

to surmount barriers to achieve transplantation if appropriately counseled, engaged, and made aware of the impediments. The answer to the question of the best time for transplantation is “as soon as possible” and for patients with high expected post-transplant survival, before the need for dialysis.

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See related article, “Patients with High Priority for Kidney Transplant Who Are Not Given Expedited Placement on the Transplant Waiting List Represent Lost Opportunities,” on pages 1733–1746.