

## Achieving Equity through Reducing Variability in Accepting Deceased Donor Kidney Offers

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In this issue of the *Clinical Journal of the American Society of Nephrology*, Huml *et al.* (1) report an important analysis of the outcomes for all offers of deceased donor kidneys to transplant centers in the United States over a 5-year period. From May of 2007 to July of 2012, over 7 million organ offers that occurred for 31,230 kidneys were identified—an average of 229 offers for each kidney included in the study. Their analysis sheds light on an important part of the organ allocation system that is rarely studied—the ability of transplant centers and providers at these centers to decline organ offers for their patients on the waitlist with no oversight and without the shared decision making and involvement of the affected patients (1,2).

The evaluation of organ quality is a complex medical decision that involves the assessment of clinical characteristics of the donor and a biopsy of the kidney being offered (3). One third of all refusals in the analysis were related to concerns about organ quality, and yet, a majority of these organs were eventually transplanted by other centers (1). The initial refusal but eventual acceptance of the majority of deceased donor kidneys suggests that (1) underestimating the quality of an organ is a common and recurring problem and that (2) there are external factors that influence clinician behavior, such as center philosophy/culture and risk aversion that occurs in response to the current regulatory monitoring/reporting of transplant outcomes (4–6).

However, the decision to accept or decline an offer is not on the basis of an assessment of the donor or the organ quality alone. It requires the context of the intended recipient, and it is influenced by the likelihood of another better organ offer for that recipient in the near future. All transplantable organs are not suitable for all potential donors; an organ that might be appropriate for a 65-year-old patient with ESRD, diabetes, and coronary artery disease may not be appropriate for the 25-year-old patient with ESRD secondary to a congenital anomaly who has no other comorbidities. There are also implicit biases that seem to inform organ acceptance, many of which are not supported by the evidence. For example, kidneys obtained from donors with a history of diabetes or an elevated creatinine have been repeatedly shown to have excellent outcomes post-transplant, and yet, these characteristics continue to be associated with high rates of refusals and eventual

discard (7–10). These implicit biases and other risk-averse behavior are perpetuated by the absence of feedback on these decisions. Informing providers who decline an organ that it was successfully used by another center would potentially lead to a course correction. Closing the feedback loop would encourage providers to re-examine their decisions and by extension, their biases and preferences.

The geographic disparities inherent in the organ procurement and allocation system also influence the decision to accept or decline an organ offer (11–13). Median wait times in the 58 organ procurement organization donor service areas across the country vary widely (0.61–4.57 years)—and this disparity seems to be worsening (12). As a result, centers in regions with short wait times may be more likely to pass on organs in the hopes of getting a better organ offer in the near future—despite the fact that longer dialysis duration has its own significant effect on post-transplant outcomes (14). This may be especially true for patients prioritized by the allocation system (such as those who are highly sensitized), have hepatitis C, or have blood group AB.

Despite the complexity of the decision making, with over 100,000 potential recipients on the waitlist for kidney transplants in the United States, the fact that nearly 15% of organs are discarded because of the waitlist being exhausted (*i.e.*, no recipient could be located) is further evidence that organs are frequently being declined because of a reluctance on the part of transplant centers to use these kidneys (2,15). As a result, it should come as no surprise that organ discards in the United States are at all-time high (and rising), with nearly one in five deceased donor kidneys being discarded annually (15).

The large practice variation that exists across centers in the willingness to accept an organ offer works to the detriment of key principles of the kidney allocation system—objectivity and equity. Prior studies have shown that disparities arise from allowing organ offers to be declined for patients in a nonrandom manner. For example, patients who are obese and on the waitlist are significantly more likely to be bypassed when an organ becomes available for them (16). Similarly, organ discards and thus, presumably declined organ offers increase over the weekend, raising questions about the allocation system (17).

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Similar practice variations in organ acceptance have been shown in liver transplantation, and they have been shown to be associated with higher patient waitlist mortality (18). With the high mortality rate on dialysis, this is likely to be similar in kidney transplantation, with perhaps one difference. Kidney transplant providers, unlike their liver transplant counterparts, are not directly involved in the care of patients on dialysis on the waitlist, and thus, they may fail to directly see the detrimental effect that declining an organ has on the waitlist.

Clinicians are given relatively short time intervals in which to determine if they are willing to accept an organ offer for a given patient. Given the time-sensitive nature of these decisions, patients are not currently made aware that they have a potential organ offer that is being passed up for them while they await a transplant. Although shared decision making may not be feasible or even appropriate at the time of an organ offer, patients deserve to know how aggressive their transplant center will be in accepting kidneys for transplantation. Patients should be informed if their wait times are likely to be inflated because of a conservative transplant program philosophy or if there are regulatory pressures or concerns that will impede their ability to get transplanted in a timely manner or at all. Patients who have the ability to choose between transplant centers may find this a more meaningful decision point than other metrics currently being provided.

Although the authors should be congratulated for an important analysis of organ offer data, there are some important caveats to consider. First, the analysis uses data that predate the introduction of current US Kidney Allocation System (KAS), introduced in December of 2014, and thus does not account for this change (19). Although the KAS has been shown to improve racial disparities, it is unclear if the introduction of the Kidney Donor Profile Index (KDPI) has helped overcome the implicit biases of clinicians for isolated donor characteristics, such as diabetes or elevated creatinine (20). Preliminary data suggest an increased reliance on the KDPI, and its labeling effect is leading to higher discard rates, which would suggest an increased organ decline rate (21). Second, this analysis includes all organ offers, and a subcohort evaluating what would be considered true offers (*i.e.*, organs that would be considered appropriate for the intended recipient) was not evaluated. Thus, the number of appropriate offers per kidney is perhaps smaller than described.

Now that the between-center variation for accepting organs is evident and the sheer volume of organ offer declines is defined, what is next? Eliminating all center practice variation in transplantation may not be possible or even appropriate. Certain centers may have greater expertise and better outcomes with certain types of organs (*e.g.*, those with prolonged cold ischemia or those with predonation AKI). In light of this, perhaps the goal should be not to eliminate practice variation completely and stifle innovation but rather, to reduce it enough to limit disparities while allowing continued innovation in the field. This would leverage the unique skills of centers while also helping ensure that patients are not disadvantaged by transplant center choices. Examples of permissible variation within organ allocation systems that are transparent and predictable, such as the Eurotransplant rescue allocation system

or the United Kingdom Fast Track system, should be considered as we attempt to improve organ utilization for the benefit of our patients (22,23).

If the current regulatory metrics are creating an environment that makes transplant centers risk averse to the detriment of patients, they need to be reconsidered and not be re-emphasized (24). Replacing the 1-year allograft outcomes with metrics that would be more patient centered would be one such approach to consider. Patients should be better informed about how aggressive a transplant center is in their acceptance of both potential recipients and deceased donor organ offers. This would also require the development of metrics for transplant centers that encourage innovation while improving outcomes for all referred patients—not just the lucky few who get listed and eventually transplanted. Examples of such metrics could include (1) the percentage of patients who received an offer at a center in the preceding year and are still waitlisted, (2) the number of kidneys that the center declined that were successfully transplanted by other centers, (3) the number of patients on the waitlist who died after an organ offer for them was declined by their center, and (4) the proportion of kidneys that are transplanted on the weekend versus weekdays at a center. Improvement on these measures will benefit patients and improve equity but only if they are measured, monitored, and used to provide centers feedback in a manner that would encourage the practice pattern being sought.

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#### Disclosures

None.

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See related article, “Outcomes of Deceased Donor Kidney Offers to Patients at the Top of the Waiting List,” on pages 1311–1320.