


Will Universal Access to Health Care Mean Equitable Access to Kidney Transplantation?

Meera N. Harhay ^{1,2,3} and Patrick B. Mark^{4,5}

CJASN 15: 752–754, 2020. doi: <https://doi.org/10.2215/CJN.03000320>

The 2019 Advancing American Kidney Health Initiative has called for a substantial increase in preemptive kidney transplantation, with the objective that 80% of those with incident ESKD in the United States be treated with a transplant or home-based dialysis by 2025 (1). A fundamental barrier to achieving such an ambitious goal is the uniquely high cost of health care in the United States, a burden that impedes many younger and lower-income individuals with non-dialysis-dependent CKD from early detection and timely nephrology care. However, even if United States health policy evolves to provide truly universal health care coverage, the nephrology community must remain vigilant about identifying and mitigating many other pervasive factors that prevent our most vulnerable patients from receiving the optimal treatments for ESKD.

In this issue of *CJASN*, Pruthi *et al.* (2) assessed patient- and treatment center–related barriers to kidney transplantation in the United Kingdom. Like the United States, the number of patients on the kidney transplant waiting list in the United Kingdom exceeds the supply of donor organs (3). However, unlike the United States, the United Kingdom provides universal health care access. The National Health Service was established in the United Kingdom in 1948 with the overriding principles that it is free at the point of need and that treatment is on the basis of clinical need and not an individual’s ability to pay. In the United Kingdom, transplant recipients are covered for lifelong immunosuppressive therapy, and there are no differences in physician financial reimbursements associated with ESKD treatment modality. The United Kingdom also provides reimbursement for living donor lost wages, travel expenses, dependent care, and other nonmedical costs related to organ donation. Therefore, the United Kingdom has avoided many of the barriers to kidney transplantation that exist in the United States, not only by minimizing the costs to patients and donors, but also by eliminating financial disincentives for physicians to refer patients on dialysis for transplant (4). However, there is evidence of substantial variability in transplant waitlisting practices between centers in the United Kingdom (5) and racial and ethnic minority transplant candidates in the United Kingdom have lower rates of living donor transplant and longer waiting times to transplant compared with white candidates (3).

To examine potential determinants of transplant inequity in the United Kingdom, Pruthi *et al.* (2) analyzed data from the Access to Transplantation and Transplant Outcome Measures (ATTOM) study, a prospective, national cohort study that recruited 4885 adults age 18–75 years old with incident ESKD across the United Kingdom between November 1, 2011 and March 31, 2013. Among 2676 individuals with incident ESKD (treated with dialysis or transplant), the authors examined whether patient- and center-related factors were associated with differences in preemptive waitlisting for kidney transplantation. Among 1970 individuals who initiated dialysis without preemptive waitlisting, the authors also examined associations between patient- and center-level factors and the outcome of being waitlisted within the first 2 years of starting dialysis.

Approximately 26% of the United Kingdom cohort with ESKD was either preemptively waitlisted or transplanted. Consistent with findings in the United States (6), Pruthi *et al.* (2) found that United Kingdom patients who were racial minorities were far less likely to be preemptively waitlisted than patients who were white. However, these differences in waitlisting were attenuated or even reversed in the case of Asian patients after starting dialysis. In the United States, racial disparities in preemptive transplant may be partially explained by differences in access to private insurance coverage (6). In the United Kingdom, where health care coverage is universal, these findings speak to the many other reasons that underlie racial disparities in kidney transplant access, including differences in the availability of living donors (3) and cultural or systematic barriers that prevent access to or engagement with the health care system.

Shorter durations of nephrology care were also associated with lower odds of preemptive listing in the study by Pruthi *et al.* (2), a finding that may reflect both the importance of early referral to nephrology care and the rate of CKD progression in determining access to preemptive transplant. For example, 54% of patients in the ATTOM study cohort who had polycystic kidney disease as their cause of ESKD were preemptively listed compared with 16% of patients with diabetes. Several prior studies have also found that some racial and ethnic minority groups are at higher risk of rapid CKD progression than whites, even in settings with equal

¹Department of Medicine, Drexel University College of Medicine, Philadelphia, Pennsylvania

²Department of Epidemiology and Biostatistics, Drexel University Dornsife School of Public Health, Philadelphia, Pennsylvania

³Tower Health Transplant Institute, Tower Health System, West Reading, Pennsylvania

⁴Institute of Cardiovascular & Medical Sciences, University of Glasgow, Glasgow, United Kingdom

⁵Glasgow Renal and Transplant Unit, Queen Elizabeth University Hospital, Glasgow, United Kingdom

Correspondence: Dr. Meera N. Harhay, Drexel University College of Medicine, 245 North 15th Street, MS 487, Philadelphia, PA 19102. Email: mnh52@drexel.edu

access to health care. In a study of United States veterans who received health care coverage through the US Department of Veterans Affairs, although black and Hispanic patients with CKD were more likely to receive nephrology care than their white counterparts, they were also more likely to experience CKD progression (7). These findings underscore the need to test strategies, such as expedited transplant workup or earlier transplant referral, to improve access to preemptive transplant for those who are at higher risk of rapid disease progression or more likely to require detailed testing.

The study by Pruthi *et al.* (2) also suggests that, although the financial burdens of kidney transplantation are attenuated by universal health care, financial insecurity is a pervasive barrier to kidney transplantation. The authors found that being unemployed was associated with a 50% lower odds of being preemptively waitlisted than being employed, whereas home ownership and car ownership were associated with nearly double the odds of preemptive waitlisting compared with home rental and lack of car, respectively. These findings align with the evidence that crowdfunding efforts to mitigate patient and caregiver costs related to transplant are increasing, including in countries with universal health care coverage (8). Furthermore, although car ownership may simply be a surrogate for socioeconomic status, lack of transportation might also hinder patients' abilities to travel to clinic appointments or to complete a transplant workup in a timely manner. In a 2010 United States study, Axelrod *et al.* (9) found that living farther from a transplant center was associated with reduced access to transplant, whereas having a greater ability to travel to more than one donation service area for transplant waitlisting was associated with a near doubling in the rate of transplant. In light of these findings, transplant programs that serve large geographic areas could consider implementing strategies, such as satellite clinic sites or telehealth evaluations, to ease the burden of travel before kidney transplantation.

In addition to the insights about patient-related barriers to transplantation, some of the most important knowledge to be gained from the study by Pruthi *et al.* (2) comes from their rigorous examination of center-level variables that might influence access to transplant. They found that patients who received care at kidney centers with more than six nephrologists, where transplant was discussed with all patients, and where transplant was performed at the center had a higher likelihood of preemptive waitlisting. Furthermore, a written waitlisting protocol was independently associated with a lower rate of waitlisting within 2 years of starting dialysis. These center-related factors suggest that inconsistency in systems and processes for determining transplant candidacy have important implications for access to transplantation. For example, centers with fewer nephrologists per patient might have less capacity to engage patients in discussions about transplant. Centers that limit discussions about transplant to only those patients who are deemed to be the best candidates and those that use inflexible waitlisting criteria, such as strict age or body mass index cutoffs, might reduce access for many candidates that could derive substantial benefit from transplantation.

One of the strengths of the study by Pruthi *et al.* (2) is that the ATTOM study investigators collected rich demographic information on study participants, enabling the authors of

the study to examine granular measures of socioeconomic status (*e.g.*, car and home ownership) and social support as potential predictors of transplant access. As such, the study provides insight on the many social determinants of transplant access that typically go unmeasured in studies of registry data. One limitation due to the design of the ATTOM study is that there is no information on individuals who were preemptively waitlisted during the study period but did not start dialysis or receive a transplant. Furthermore, because the ATTOM study did not recruit individuals with non-dialysis-dependent CKD, it does not provide information about the total "denominator" of potentially eligible preemptive transplant candidates in the United Kingdom.

The important study by Pruthi *et al.* (2) has underscored some of the challenges that persist in kidney transplantation, even when health care access is universal. Of course, the United States remains a long way from achieving that goal. In 2016, approximately 20% of younger adults who initiated dialysis in states that did not expand Medicaid were uninsured (10), and the number of uninsured Americans has grown larger still in more recent years. Yet, findings from the United Kingdom make it apparent that barriers to transplantation are not limited to the availability of health care coverage. This knowledge should motivate the nephrology community to examine the equity implications of our processes to educate, evaluate, and select kidney transplant candidates. Although only health policy can ensure that the door to kidney transplantation is open for all patients who could benefit, equity in transplantation will only be achievable if we are also ready to clear the path beyond the door.

Disclosures

Dr. Mark reports personal fees and nonfinancial support from Vifor, personal fees from Astrazeneca, grants from Boehringer Ingelheim, personal fees and nonfinancial support from Pharmacosmos, personal fees from Janssen, personal fees from Novartis, personal fees from Pfizer, personal fees from Bristol Myers Squibb, and personal fees and nonfinancial support from Napp outside the submitted work. Dr. Harhay has nothing to disclose.

Funding

Dr. Harhay is supported by National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases grant K23DK105207 and Pennsylvania Commonwealth Universal Research Enhancement grant PA CURE 4100079710.

References

- Mehrotra R: Advancing American kidney health: An introduction. *Clin J Am Soc Nephrol* 14: 1788, 2019
- Pruthi R, Robb M, Oniscu G, Tomson C, Bradley J: Inequity in access to transplantation in the UK: A prospective observational cohort study. *Clin J Am Soc Nephrol* 15: 830–842, 2020
- National Health Service Blood and Transplant: Annual report on kidney transplantation: National health service, 2019. Available at: <https://nhsbt.dbe.blob.core.windows.net/umbraco-assets-corp/17289/kidney-annual-report-2018-19-november19.pdf>. Accessed February 27, 2020
- Patzer RE, Plantinga LC, Paul S, Gander J, Krisher J, Sauls L, Gibney EM, Mulloy L, Pastan SO: Variation in dialysis facility referral for kidney transplantation among patients with end-stage renal disease in Georgia. *JAMA* 314: 582–594, 2015
- Pruthi R, Tonkin-Crime S, Calestani M, Leydon G, Eyles C, Oniscu GC, Tomson C, Bradley A, Forsythe JL, Bradley C, Cairns J, Dudley C, Watson C, Draper H, Johnson R, Metcalfe W, Fogarty D, Ravanan R, Roderick PJ; ATTOM Investigators: Variation in

- practice patterns for listing patients for renal transplantation in the United Kingdom: A national survey. *Transplantation* 102: 961–968, 2018
6. King KL, Husain SA, Jin Z, Brennan C, Mohan S: Trends in disparities in preemptive kidney transplantation in the United States. *Clin J Am Soc Nephrol* 14: 1500–1511, 2019
 7. Suarez J, Cohen JB, Potluri V, Yang W, Kaplan DE, Serper M, Shah SP, Reese PP: Racial disparities in nephrology consultation and disease progression among Veterans with CKD: An observational cohort study. *J Am Soc Nephrol* 29: 2563–2573, 2018
 8. Pol SJ, Snyder J, Anthony SJ: “Tremendous financial burden”: Crowdfunding for organ transplantation costs in Canada. *PLoS One* 14: e0226686, 2019
 9. Axelrod DA, Dzebisashvili N, Schnitzler MA, Salvalaggio PR, Segev DL, Gentry SE, Tuttle-Newhall J, Lentine KL: The interplay of socioeconomic status, distance to center, and interdonor service area travel on kidney transplant access and outcomes. *Clin J Am Soc Nephrol* 5: 2276–2288, 2010
 10. Swaminathan S, Sommers BD, Thorsness R, Mehrotra R, Lee Y, Trivedi AN: Association of medicaid expansion with 1-year mortality among patients with end-stage renal disease. *JAMA* 320: 2242–2250, 2018

Published online ahead of print. Publication date available at www.cjasn.org.

See related article, “Inequity in Access to Transplantation in the United Kingdom,” on pages 830–842.