

Patients with kidney failure who cannot access dialysis in rural and remote areas of Canada should be prioritized for kidney transplantation

Aaron J. Trachtenberg MD DPhil, Aviva Goldberg MD MA

■ Cite as: *CMAJ* 2021 November 22;193:E1772-3. doi: 10.1503/cmaj.211020

Kidney transplantation costs less than dialysis¹ and is associated with improved survival and quality of life² for patients with kidney failure. In Canada, systems for allocating kidney transplants from deceased donors typically aim to maximize the utility of scarce donor organs, while maintaining equity and justice through fair access to transplantation. Patients reach the top of the list by accruing the most wait time, often many years. Certain groups of candidates, including children, patients with highly sensitized immune systems and those with medical urgency get priority. We argue that patients living in rural or remote regions of Canada who must relocate out of their home community for treatment of kidney failure should also be given priority access to transplantation.

Given the chronic organ shortage, almost all adults with kidney failure in Canada will require dialysis at some point in their medical journey. Ideally, patients have access to all forms of dialysis — in-centre hemodialysis (IHD), peritoneal dialysis and home hemodialysis — and choose the modality that best fits their goals and lifestyle. In reality, many patients' choices are restricted based on where they live. Patients in rural and remote regions of Canada often do not have a local satellite dialysis unit providing IHD or, if such a facility exists, they may face a substantial wait.³⁻⁵ Barriers to the use of home modalities include a lack of formal “assisted” dialysis programs and requirements for infrastructure, housing and water that are not satisfied in some communities, as well as patient preferences or beliefs.⁶ Furthermore, obstacles to pre-emptive kidney transplantation from living donors, including personal cost and travel time related to evaluation, are exacerbated for patients and their potential donors who live outside of large urban centres.⁷

Given these barriers, patients with kidney failure in remote regions of Canada must often relocate to cities for prolonged periods of time, sometimes indefinitely, to receive life-sustaining dialysis.³ Relocation disrupts family structures, leads to job loss and financial stress, and poses a substantial threat to the overall well-being of patients as they experience culture shock, isolation and loneliness.⁸ Indigenous Canadians are especially vulnerable to the harms of relocation given the added layers of historical and ongoing

Key points

- People with kidney failure who live in rural and remote areas of Canada must often relocate for life-sustaining renal replacement therapy.
- Prioritizing the allocation of transplant kidneys from deceased donors to these patients could alleviate the substantial threat to health and well-being associated with relocation.
- Such prioritization is ethically defensible and consistent with equity, utility and distributive justice in the allocation of organs.
- Transplant prioritization does not obviate the need to address barriers to accessing all forms of dialysis and to promote screening and prevention programs, early nephrology care and living donor kidney transplantation for patients in rural and remote regions of Canada.

colonialism, systemic racism and jurisdictional complexities regarding funding of health care off- versus on-reserve.⁵ Some patients with advanced chronic kidney disease choose not to pursue dialysis and instead die in their home communities, although the exact number is unknown because of the paucity of data regarding how many Canadians face relocation for dialysis every year.

Although kidney transplantation is considered the superior treatment option for people with kidney failure, patients can live many years without a transplant if they can access dialysis, an option not available to those with failure of other organs. Equitable allocation of deceased donor kidneys should therefore consider access to dialysis, or lack thereof. This approach is defensible based on the principle of distributive justice and the concept of fair equality of opportunity.⁹ With unequal access to dialysis, even equal access to transplants creates an overall inequitable system, deficient in fair equality of opportunity. Unless rural-urban disparities in access to dialysis can be ameliorated, introducing geographical inequality in the allocation of donor kidneys promotes greater equity in the overall distribution of treatment options for kidney failure.⁹

Kidney allocation schemas in Canada already consider factors outside of wait time to try to optimize outcomes after transplant

across the system. Pediatric patients are given priority in the spirit of “fair innings” and for the extra health benefits that children gain from transplantation. Patients with medical urgency, such as those with no remaining vascular access, often receive overriding priority. Even the incorporation of human leukocyte antigen matching into allocation systems means that recipients with a better immunological match to the donor receive extra points to bump them up the queue. These situations are all examples of attempts to maximize the utility of the intervention, allocating kidneys to patients who may derive greater, longer or more immediate benefit from a kidney transplant. Prioritizing kidney transplantation for a patient who would be required to relocate to receive dialysis also maximizes utility, by allowing them to reap the benefits of staying home. Patients on hemodialysis in Alberta have previously reported they would be willing to give up 6 years of life to remain in their home communities with their current supports.⁴ Since transplantation is associated with a lower likelihood of relocating than any modality of dialysis, it represents the best chance for patients to continue living a valued life in their home environment without having to sacrifice life years.¹⁰

We acknowledge that the practicalities of implementing our proposed framework may be challenging. Each Canadian jurisdiction will have to develop their own criteria, including the definition of “rural and remote,” based on their ability to provide dialysis to the unique geographical catchment area that they serve. It will be important to have a consistent and transparent approach to prioritization that has considered questions related to competing scenarios, such as whether it is justifiable to prioritize a patient without an adequate water supply for home dialysis, but to not prioritize a patient who prefers IHD and lives an inconvenient distance from their satellite unit. Patient and provider engagement, especially with Indigenous communities, will be critical in deciding how eligibility should be determined.

Prioritizing people living in rural and remote areas of Canada should not result in a substantial disadvantage to urban dwellers in terms of overall transplant wait times. The number of patients who will achieve prioritization on account of relocation is likely to be low, according to our assessment of unpublished program data, but the benefit to these select patients could be immense.

Awarding priority points toward transplantation will not replace the need for dialysis in rural and remote communities, as patients deemed ineligible for kidney transplantation will not benefit and it does nothing to address the barriers to accessing dialysis. Programs to facilitate the use of home modalities should be expanded,⁶ as should kidney disease screening and prevention programs.¹¹ Health policy-makers should also seek to address disparities in early nephrology care. Furthermore, efforts to promote and facilitate living donor kidney transplantation in Canada for people with kidney failure should be a top priority, with improved education and outreach in rural and remote areas.¹²

The goal should be that fewer people in Canada progress to kidney failure. For those who do, however, health care systems

should be able adapt to deliver equitable access to all forms of dialysis and transplantation, regardless of where patients live. Until then, the prioritization of patients living in rural and remote areas in Canada for deceased donor kidney transplantation is ethically defensible.

References

1. Klarenbach SW, Tonelli M, Chui B, et al. Economic evaluation of dialysis therapies. *Nat Rev Nephrol* 2014;10:644-52.
2. Tonelli M, Wiebe N, Knoll G, et al. Systematic review: kidney transplantation compared with dialysis in clinically relevant outcomes. *Am J Transplant* 2011; 11:2093-109.
3. Wilson R, Krefting L, Sutcliffe P, et al. Native Canadians relocating for renal dialysis. Psychosocial and cultural issues. *Can Fam Physician* 1994;40:1934-41.
4. Tonelli M, Molzahn AE, Wiebe N, et al. Relocation of remote dwellers living with hemodialysis: a time trade-off survey. *Nephrol Dial Transplant* 2015;30:1767-73.
5. Lavoie JG, Kaufert J, Browne AJ, et al. Negotiating barriers, navigating the maze: First Nation peoples' experience of medical relocation. *Can Public Adm* 2015;58:295-314.
6. Lavoie JG, Zacharias J, Kaufert J, et al. Is assisted peritoneal dialysis a solution for Northern Manitoba? *Healthc Policy* 2019;14:52-65.
7. Gourlay W. Preemptive kidney transplantation. *Transplantation* 2018;102:1035-6.
8. Scholes-Robertson NJ, Howell M, Gutman T, et al. Patients' and caregivers' perspectives on access to kidney replacement therapy in rural communities: systematic review of qualitative studies. *BMJ Open* 2020;10:e037529.
9. Rawls J. *A theory of justice*. Cambridge (MA): Harvard University Press; 1971.
10. Cheikh Hassan HI, Chen JH, Murali K. Incidence and factors associated with geographical relocation in patients receiving renal replacement therapy. *BMC Nephrol* 2020;21:249.
11. Ferguson TW, Tangri N, Tan Z, et al. Screening for chronic kidney disease in Canadian Indigenous Peoples is cost-effective. *Kidney Int* 2017;92:192-200.
12. Waterman AD, Morgjevich M, Cohen DJ, et al. Living donor kidney transplantation: improving education outside of transplant centers about live donor transplantation — recommendations from a consensus conference. *Clin J Am Soc Nephrol* 2015;10:1659-69.

Competing interests: Aviva Goldberg reports participation on committees with the Canadian Society of Transplantation, the American Society of Transplantation and Transplant Manitoba. No other competing interests were declared.

This article has been peer reviewed.

Affiliations: Department of Medicine (Trachtenberg) and of Pediatrics and Child Health (Goldberg), University of Manitoba, Winnipeg, Man.

Contributors: Aaron Trachtenberg conceived the work. Both authors designed the work, drafted the manuscript, revised it critically for important intellectual content, gave final approval of the version to be published and agreed to be accountable for all aspects of the work.

Content licence: This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY-NC-ND 4.0) licence, which permits use, distribution and reproduction in any medium, provided that the original publication is properly cited, the use is noncommercial (i.e., research or educational use), and no modifications or adaptations are made. See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Correspondence to: Aaron Trachtenberg, trachte@myumanitoba.ca