

INVITED COMMENTARY

# “Upstream medicine”: targeting social determinants of health in transplant care

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Social determinants of health are “economic and social conditions that influence individual and group differences in health status” [1]. Increasing evidence shows that such determinants play a significant role in transplant outcomes [2–4]. This challenges the view that the vast majority of transplant outcomes result primarily from patient characteristics, the treatment regimen, and/or transplant center practice patterns. As a result, social deprivation is receiving growing attention regarding the variability of transplant outcomes [5,6].

Although it lacks a unified definition, social deprivation has been described as reduced access to the social world and resources, often due to low socio-economic status or poor education, both of which function as social determinants of health [7]. The European Deprivation Index allows measurement of deprivation among healthcare systems [8].

In this month’s Journal, Chatelet *et al.* [5] report on how they used that index to assess social deprivation in renal transplantation. Their study included 94% of all

renal transplant recipients in France who received first transplants between 2010 and 2014. Comparing patients scoring in the lowest quintile (33% of the sample) with those scoring in the highest indicates that the most socially deprived patients have an increased mortality risk. Subanalysis by donor type confirmed this finding for cadaveric donors but not for living-related donors. In contrast to previous studies elsewhere, social deprivation was not a risk factor for graft loss in France [6]. Considering that the French healthcare system provides excellent health insurance coverage regarding end-stage renal disease and renal transplantation, this finding suggests that policy measures linked to extensive healthcare coverage contribute to favorable outcomes in at-risk groups [5].

Supporting previous studies linking social deprivation and other social determinants of health (e.g., race, low education) with poor health outcomes in transplantation, this study points to two connected domains relevant to the improvement of transplant care. The first

relates to the identification, as early as possible after referral, of socially deprived transplantation patients to target them for intervention. The second involves intervention strategies to improve social determinants of health by applying the principles of “upstream medicine” quality improvement [9].

Regarding the dimension of early identification of socially deprived patients, while researchers and clinicians increasingly use structured psychosocial and behavioral evaluations as standard elements of pretransplant assessments [10,11], many still overlook social determinants of health. Crucially, the inclusion of such factors is not a tool to reduce poor patients’ eligibility for transplantation. Such a use would exacerbate existing health disparities in transplantation, as with the lower access and increased transplant waiting periods observed for black patients [2–4]. Instead, by contributing to optimal risk stratification, identification of high-risk patients with consideration for social determinants of health could support tailored early interventions targeting the most socially deprived patients.

This brings us to the second domain to consider in light of what Chatelet *et al.* [5] and others have suggested [2–4,6], namely the development of innovative care models focused specifically on socially at-risk populations. Quality improvement based on principles of “Upstream Medicine” [9], referring to interventions targeting social determinants of health themselves, can help to guide these efforts.

The thinking behind upstream medicine can be explained using the analogy of rescuing people who have fallen into a river close to a waterfall. Instead of devoting all available resources to saving those persons already falling down the waterfall, attention should focus on understanding why they fell into the river and what could prevent others from doing the same. Thus, upstream medicine goes beyond typical medical care models: It demands looking into communities, seeking

out the root causes, and subsequently addressing them. Examples could be as simple as contacting an employer to request changes in working conditions, or as complex as initiating political action to improve community living circumstances.

Therefore, upstream medicine benefits from the active involvement of community healthcare workers. As a proof of the concept, using an RCT design, Kangovi *et al.* [12] studied an innovative community health worker program in which, after a short training program, community members supported general medical inpatients who were low-income, uninsured, or on Medicaid. Consisting of individualized action plans tailored to patient goals, the intervention lasted for a minimum of 2 weeks.

The results were mixed, but encouraging. Test subjects showed a decrease in multiple 30-day admissions, improved patient activation, and improved mental health. Other outcomes, including satisfaction with care, physical health, or medication adherence, showed no improvement.

To our knowledge, “Upstream Medicine” has not yet been tested in transplant settings. Given the growing base of evidence regarding social determinants of health and their impacts on transplant outcomes—including that provided this month by Chatelet *et al.* [2–6]—it would be worthwhile to “think system” and join forces with upstream medicine experts to develop, implement, and test a workable care model for socially deprived transplant recipients.

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## REFERENCES

1. Braveman P, Gottlieb L. The social determinants of health: it’s time to consider the causes of the causes. *Public Health Rep* 2014; **29**(1\_suppl2): 19.
2. Patzer RE, Perryman JP, Schragger JD, *et al.* The role of race and poverty on steps to kidney transplantation in the Southeastern United States. *Am J Transplant* 2012; **12**: 358.
3. Tjaden LA, Noordzij M, van Stralen KJ, *et al.* Racial disparities in access to and outcomes of kidney transplantation in children, adolescents, and young adults: results from the ESPN/ERA-EDTA (European Society of Pediatric Nephrology/European Renal Association-European Dialysis and Transplant Association) Registry. *Am J Kidney Dis* 2016; **67**: 293.
4. Monson RS, Kemerley P, Walczak D, Benedetti E, Oberholzer J, Danielson KK. Disparities in completion rates of the medical prerenal transplant evaluation by race or ethnicity and gender. *Transplantation* 2015; **99**: 236.
5. Châtelet V, Bayat-Makoei S, Vigneau C, Launoy G, Lobbedez T. Renal transplantation outcome and social deprivation in the French healthcare system: a cohort study using the European Deprivation Index. *Transpl Int* 2018; **31**: 1089.
6. Asderakis A, Khalid U, Madden S, Dayan C. The influence of socioeconomic

- deprivation on outcomes in pancreas transplantation in England: registry data analysis. *Am J Transplant* 2018; **18**: 1380.
7. Bassouk EL, Donelan B. Social deprivation. In Green BL, ed., *Trauma Intervention in War and Peace*. New York City, NY: Kluwer Academic Publishers, 2003: 33–42.
  8. Guillaume E, Pornet C, Dejardin O, *et al*. Development of a cross-cultural deprivation index in five European countries. *J Epidemiol Community Health* 2016; **70**: 493.
  9. Alter HJ. Social determinants of health: from bench to bedside. *JAMA Intern Med* 2014; **174**: 543.
  10. Presberg BA, Levenson JL, Olbrisch ME, Best AM. Rating scales for the psychosocial evaluation of organ transplant candidates. Comparison of the PACT and TERS with bone marrow transplant patients. *Psychosomatics* 1995; **36**: 458.
  11. Twillman RK, Manetto C, Wellisch DK, Wolcott DL. The Transplant Evaluation Rating Scale. A revision of the psychosocial levels system for evaluating organ transplant candidates. *Psychosomatics* 1993; **34**: 144.
  12. Kangovi S, Mitra N, Grande D, *et al*. Patient-centered community health worker intervention to improve posthospital outcomes: a randomized clinical trial. *JAMA Intern Med* 2014; **174**: 535.