

Vaccination, Transplantation, and a Social Contract

Olivia S. Kates ¹, Ajit P. Limaye,² and Bruce Kaplan³

¹Division of Infectious Diseases, Department of Medicine, Johns Hopkins University, Baltimore, Maryland

²Division of Allergy and Infectious Diseases, Department of Medicine, University of Washington, Seattle, Washington

³Department of Medicine, University of Colorado School of Medicine, Aurora, Colorado

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The effect of coronavirus disease 2019 (COVID-19) in transplantation has triggered a debate over pretransplant vaccination requirements, which has several layers. First, is vaccination right, in the sense that it is supported by persuasive evidence? This question is accessible to most clinicians and health systems that, despite the ever-growing complexity of COVID-19 vaccination data, have expertise in interpreting this research and making clinical recommendations. Second, is vaccination right, in the sense that it is ethical

centers should impose vaccination requirements for transplant listing, we must consider a third, and deeper layer: what rights can be claimed or enforced for vaccination and transplantation?

Social contract theory is an approach to moral and political philosophy that uses the metaphorical device of negotiation among parties to establish a rational justification for some proposed system or norm. This approach can illuminate fair and reasonable compromises to individual liberty for the sake of broader responsibilities, and thus is a use-

evaluate a proposed principle within this framework, such as a vaccination requirement for transplant candidates, we ask whether any affected individual could reasonably object to it. Although all social contract theory presupposes some sacrifices of autonomy for the good of society, Scanlon's theory is attentive to individual perspectives, rather than acquiescing to any overriding majority. Clearly, there are rare transplant candidates who do object to vaccination, but Scanlon gives criteria to determine whether such objections are reasonable. We will use two such criteria here: genericness and the greater burden principle. An objection is generic if any person, had they experienced the same circumstances as the objector, would be expected to raise the same objection. The greater burden principle is used to compare possible objections among individuals. In Scanlon's words, "It would be unreasonable... to reject a principle because it imposed a burden on you when every alternative principle would impose much greater burdens on others."

A principle of requiring COVID-19 vaccination as a condition of solid organ transplant listing is proposed for a society of transplant candidates. We will consider four objections: (1) harm from vaccination; (2) overriding personal philosophy; (3) perpetuating racial injustice; and (4)

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according to any of several moral theories, whether on the basis of harms and benefits, duties, virtues, or compassion? This question can be approached using the practical ethical toolkit with which most clinicians are familiar: the principles of beneficence, nonmaleficence, autonomy, and justice. Many also have a moral intuition about the importance of vaccination. The previous literature explores these principles in depth, citing the devastating effect of COVID-19 after immunosuppression, the relative benefits of pretransplant compared with post-transplant vaccination, the duty to responsibly distribute donor organs, and potentially competing duties to care for patients.^{1,2} These arguments establish the importance of vaccination and the role of transplant centers in promoting both vaccination and transplantation. But to best answer the question of whether transplant

ful new approach to the question of vaccine requirements. A social contract is already invoked in calls for vaccination and supported in behavioral research.^{3,4} Familiar appeals to cooperation for mutual benefit, such as ending the pandemic, harken back to the theory of John Locke. Calls to consider the least well off, such as protecting the immunocompromised, have parallels in the theories of John Rawls and T. M. Scanlon.

We apply the social contract theory of T. M. Scanlon to the question of vaccination requirements for transplant candidates, because we find Scanlon's theory to be approachable yet nuanced. In his book, *What We Owe To Each Other*, Scanlon asserts that the reason for moral actions is the need to justify oneself to others.⁵ "What we owe to each other," then, is to act in ways that are justifiable, or not objectionable, to others. To

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Correspondence: Dr. Olivia Kates, Johns Hopkins University, 601 North Wolfe Street, Baltimore, MD, 21218-2625. Email: olivia@jhu.edu

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harm from denial of transplantation. When evaluating objections, we will consider whether they are generic and whether they satisfy the greater burden principle.

To do this, we must understand the burdens imposed on individuals by the alternative principle: not requiring vaccination. Concerns begin with the risk that nonvaccinated transplant recipients might experience preventable COVID-19 infections. These infections can, in turn, lead to strain on transplant center resources, where these patients will likely be treated, and COVID-19 transmission to patients who are vulnerable or to the health care team. Such events might be rare, but the affected individuals have an equal position at the negotiating table in Scanlon's theory, which rejects aggregation. Burdens need not be physical or material; offense to common-sense morality, or disregard for the equal moral worth of others can also be considered.

INDIVIDUAL HARM FROM VACCINATION

For most individuals, the harm from vaccination will be a sore arm or other mild side effects, clearly not meeting the greater burden standard.⁶ Individuals with known serious medical contraindications to vaccination, such as life-threatening anaphylaxis, have a more persuasive objection to vaccination requirements on the basis of the burden of harm from vaccination. Many vaccination policies offer exemptions for medical contraindications to vaccination, such that the proposed policy does not impose this particular burden.⁷ Whereas an analysis on the basis entirely of maximizing the benefits of transplantation might conclude that individuals who cannot be vaccinated and those who will not be vaccinated should be considered equivalent (because they have comparable risks for COVID-19), a social contract analysis helps to explain this intuitive distinction in terms of the burdens imposed by vaccination.

OVERRIDING PERSONAL PHILOSOPHY

Candidates who have declined vaccination may object to vaccination requirements as disregarding or overriding their personal philosophy. These are the objections foremost in many transplant professionals' minds. Some of these objections may fall into the realm of "eccentric" personal beliefs that others, even those with the same experiences or circumstances, do not share. In extreme cases, individuals who have only ever received vaccine information from unreliable and manipulative sources do have a generic objection, because others exposed to the same limited information might come to hold to same beliefs. Transplant centers weighing vaccination requirements should consider the nature of the vaccination information and counseling available to their candidates, and provide patient vaccine education to ensure all candidates have the opportunity to critically examine beliefs based in misinformation.

PERPETUATING RACIAL INJUSTICE

For some transplant candidates, the circumstances leading to vaccine hesitancy are not simply unbalanced misinformation but personal, community, and historical experiences of racism, exclusion, and exploitation in the health care context.⁸ Objections grounded in these experiences are generic. Furthermore, these objections are on the basis of considerable burdens, including that of having these traumatic histories disregarded and perpetuated by the very institutions that caused them. Transplant programs considering vaccination requirements should reflect on the communities they have served historically and those they can serve better. All transplant centers should recognize and acknowledge injustices that affect transplant patients of color and should take steps to reduce these burdens. Steps can include developing strategies

to promote vaccine uptake and transplantation specifically for candidates of color, monitoring the effect of vaccination policies on racial equity, and correcting other candidate criteria or transplant practices that may exacerbate racial injustice.

HARM FROM DENIAL OF TRANSPLANTATION

The final and most basic objection is that vaccination requirements will result in some individuals being excluded from transplantation, facing continued and progressive illness, or death. Such exclusion imposes a great burden, but it can never be the greater burden. Because organs for transplant are scarce, if we do not exclude candidate A for not meeting a vaccination requirement, we will instead exclude some unknown candidate B by unfortunate chance. It does not matter that, when averaged across all of the candidates, the probability that any one candidate will be the one whose status decreases to the point that they do not receive a transplant is low; Scanlon's procedure considers this candidate's objection individually. Thus, because of organ scarcity, no individual can raise a reasonable objection on the basis that they do not receive a transplant, because this does not satisfy the greater burden principle. Instead, all reasonable objections must be on the basis of the burdens imposed by the requirement itself, in this example by vaccination.

The social contract theory of T.M. Scanlon provides a novel but well-suited framework for examining vaccination requirements for transplant candidates. This approach focuses on the burdens of vaccination, and considers them at the individual level, such that no perspective is overridden by a competing majority. It also considers these burdens in the context of organ scarcity, where all candidates have an equal objection to being denied transplantation. This analysis reveals important differences among

candidates with various objections to vaccination requirements, such as those who have medical contraindications to vaccination, those who refuse vaccines on the basis of eccentric beliefs, and those who refuse vaccines as a result of histories of racial injustice. It is our hope that understanding these objections in terms of burdens will aid transplant centers in determining whether a vaccination requirement is appropriate for the communities they serve, and in developing the nuances of such policies.

DISCLOSURES

A. Limaye reports having consultancy agreements with AlloVir, Amlyx, Astellas, Gilead, GSK, J&J, Merck, MedPace, Novartis, and NovoNordisk; reports receiving research funding from Merck; and reports receiving honoraria from AlloVir, Amlyx, Astellas, Gilead, GSK, J&J,

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AUTHOR CONTRIBUTIONS

O.S. Kates was responsible for the formal analysis; B. Kaplan, O.S. Kates wrote the original draft; B. Kaplan, O.S. Kates, A.P. Limaye reviewed and edited the manuscript.

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