Blueprint Labs

Improving Organ Procurement Operations

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Summary

Organ transplantation is a critical, life-saving intervention, but the US currently faces a shortage of organ donors. Understanding inefficiencies in the transplantation process could help address this shortage. While substantial research has tackled aspects of this topic, relatively little has focused on the organ procurement portion of the transplantation process. Nonprofits called organ procurement organizations (OPOs) play a central role in coordinating organ recovery from potential donors.

How do OPOs make key decisions, and could OPO process changes lead to a greater number of successful organ donations? In a recent working paper, Blueprint Co-Director Nikhil Agarwal and co-authors Hammaad Adam and Marzyeh Ghassemi use a unique dataset from four OPOs to examine the effects of OPOs' decision-making. In particular, the authors evaluate a key decision point: whether or not to approach potential donors' families to request authorization for organ donation.

The authors first model OPOs' decisions, which depend on OPOs' beliefs and preferences about the likelihood of family consent and successful transplantation. The authors then assess the accuracy of the OPOs' actual predictions of family consent and transplant outcomes.

Their results suggest that, despite ranking potential donors' transplant likelihood relative to other donors accurately, OPOs underestimate transplant likelihood overall and therefore miss donation opportunities. By simulating several hypothetical policy

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scenarios, the authors determine that if OPOs were to increase the rate at which they approached families, they would recover 43% more organs from donors and create more than 67,000 additional life-years.

Source

Adam, H., Agarwal, N., and Ghassemi, M. (2026): "Improving Organ Procurement Operations." *Blueprint Labs Working Paper #2026.04*.

Background

Despite the benefit of organ transplantation, the US faces a severe shortage of viable organ donors. In 2024, over 70,000 patients were added to a national organ transplant waiting list, but fewer than 50,000 received a transplant.

Previous research has examined the organ transplantation system, but much of that work has focused more on how organs are allocated to waitlisted patients than on how organs are procured. In the US, 56 OPOs manage the organ procurement process. Potential donors are referred to OPOs, and OPOs must decide whether to approach the patient's family to obtain consent for organ donation. This study focuses on OPOs' decision-making process, illuminating a central step in the organ transplantation process.

Setting and Methods

The authors first model OPOs' decision-making. An OPO's decision whether to approach the family of a potential organ donor depends on the OPO's beliefs about the likelihood that 1) the potential donor's organs would be successfully transplanted and 2) the family would consent to donation if approached. An OPO's final decision combines those beliefs with the OPO's preferences about whether or not to approach, which they determine by weighing the potential benefits of approach against the costs.

The authors apply this model using OPO data that spans every patient referred to one of four OPOs from 2016–2021. This dataset stems from a partnership with the four OPOs that allows for unique, detailed observation of OPOs' inner workings. Their analysis estimates the number of eligible donors referred to an OPO but not procured and the accuracy of OPOs' predictions. They then simulate hypothetical scenarios to determine how many transplants would have occurred under various policy interventions. Like all empirical research, these methods face limitations—for example, the model of OPO decision-making relies on simplifying assumptions about OPOs' beliefs.

Key Findings

Key Finding #1: OPOs miss some transplant opportunities.

If OPOs approached every potential donor's family and obtained consent in every instance, they would have recovered more than 2.5 times as many potential donors. While recovering all of these missed opportunities is infeasible due to resource limitations and family preferences, it is important to distinguish the extent to which these missed

opportunities may stem from OPO beliefs or preferences.

Key Finding #2: Despite fairly accurate predictions, OPOs underestimate transplant probability for high-quality donors.

Overall, OPOs rank individual donors' transplant likelihood relative to other donors accurately. However, they tend to underestimate the true likelihood of transplantation for high-quality donors. If OPOs' beliefs were perfectly accurate, OPOs would have made 21% more approaches, leading to 18% more transplanted donors.

Key Finding #3: A policy increasing approaches would lead to substantial gains.

Approaching all donors without absolute contraindications (i.e., clear reasons a patient could not donate an organ, like active cancer) would lead to a 43% gain in transplanted donors. This policy would significantly increase operating costs, posing a key challenge for implementation. However, the policy would save taxpayers an estimated $608 million in Medicare spending, 1.6 times the estimated cost of the intervention, $378 million.

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