

Saving More Lives Through Increased Organ Usage

Innovation and Collaboration Benefit Patients and Reduce Non-Use

Overview

Any organ not ultimately transplanted represents a profound loss, both for the selfless donor's family and the patient waiting. That is why the United Network for Organ Sharing (UNOS), working in collaboration with members of the organ donation and transplantation community, is pursuing a variety of innovative strategies to improve organ acceptance rates at hospitals, get to more "yeses" on organ offers, and save more lives.

In honoring that gift of life and the wishes of donors and their families, UNOS references the percentage of organs that are recovered but not ultimately transplanted as the "non-use" rate rather than the outdated and incorrect term "discard."

Congress directed^[1] the Health Resources and Services Administration (HRSA) to issue a report addressing how the removal of certain geographical considerations – donor service areas or DSAs – from organ allocation policies affects organ non-use. UNOS acknowledges the problem of organ non-use and is working with the Organ Procurement and Transplantation Network (OPTN) and the organ donation and transplant community to implement solutions that benefit patients and reduce non-use.

The OPTN Organ Allocation Process

In July 2018, HRSA directed^[2] the OPTN to remove the use of DSAs in organ allocation policies. Based on feedback from the organ donation and transplant community, the OPTN developed and finalized changes to allocation policies that would eliminate the use of DSAs.

In 2018, the OPTN approved a "continuous distribution" framework for use in developing future allocation policies.^[3] This framework aims to increase fairness and save more of the sickest patients' lives. Continuous distribution was first implemented in March 2023 for donor lungs. Continuous distribution for kidney and pancreas, liver and intestine, heart, and vascularized composite allograft will follow. This holistic approach determines the order of who receives an offer for a specific donor organ, ensuring that no single factor decides which patient receives an organ.

Organ non-use is one of several metrics that the OPTN uses to evaluate the impact of organ allocation policies. Allocation policies are also evaluated based on the number of transplants performed and waitlist mortality. The OPTN contractor monitors and reports on the effect of allocation policy changes and publishes this information on the OPTN website, typically at 3-, 6-, 12-, and 24-month intervals.

^[1] Consolidated Appropriations Act, 2023 (P.L. 117-328).

^[2] Letter from HRSA Administrator to Sue Dunn, RN, BSN, MBA, President of the OPTN, July 31, 2018.

^[3] As a bridge to "continuous distribution" for liver and intestine, the OPTN adopted an Acuity Circles policy using distance between donor hospital and transplant hospital in allocation. The [OPTN two year monitoring report](#) of liver and intestine acuity circle allocation changes show that many of the intended outcomes of the policy change, reduced pre-transplant deaths, increased pediatric transplantation and reduced geographic variation in medical urgency scores at the time of transplant, were realized.

The Factors Contributing to Non-Use

The primary issue for non-use reported to the OPTN is that the waitlist has been exhausted. An organ may have been offered to all matching patients on the waitlist, but because too much time elapses while other hospitals consider accepting it, there is insufficient time to transport the organ while it remains viable, and so other potential transplant hospitals decline the organ. On average, transplant candidates who die on the waitlist had 16 offers for kidneys, which were transplanted into other patients.^[4] These offers represent viable organs that transplant hospitals declined for their patients. A hospital may have declined such an organ due to the candidate's health status at the time of offer.

Because livers and kidneys are viable outside of the body longer than hearts and lungs, an organ may be recovered before a recipient is identified or biopsy results of the donor are known, both in the interest of the patients in need and to best honor deceased donors. Sometimes, post-recovery biopsy findings may determine that an organ is not suitable for transplant. As a result, livers and kidneys that were initially recovered for transplant but were ultimately determined to not be medically suitable are likely to have a higher rate of non-use.

Between 2011 and 2020, the annual non-use rate for kidneys was 18-20 percent. The non-use rate for kidneys increased following a change in allocation policy and was approximately 25 percent as of March 2022. Liver non-use since 2011 has been 8-10 percent.

Congress, HRSA and the OPTN contractor have all endorsed the use of more medically complex organs, including kidneys recovered from donation after cardiac death (DCD) donors and those with a moderate to high KDPI. ***This increase in the number of medically complex organs that are recovered and offered to transplant hospitals corresponds to an increase in the non-use of organs as well as the number of transplants performed and lives saved.*** In many cases, declining an organ offer could be due to concerns regarding compatibility with the potential recipient or with the intent to wait for a higher performing, less medically complex organ that may soon be made available to a patient.

Solutions Adopted to Improve Offer Acceptance

Increases in organ non-use require immediate attention and action. Collaboration among the organ donation and transplant community in partnership with government stakeholders is essential. Adoption of innovative solutions, such as new technology, will enable the community to maximize the gift of life. The OPTN and UNOS are working to improve acceptance through: kidney offer filters, predictive analytics, an offer acceptance collaborative, performance metrics, and improvements in organ transportation.

The Kidney Offer Filters Tool to Accelerate Offer Acceptance

The offer filters tool was piloted beginning in 2019 and made available free of charge to all kidney transplant programs nationally in January 2022. The OPTN, informed by public comment and feedback from kidney transplant programs, adopted a policy in June 2023 that would automatically apply effective, model-identified offer filters to adult kidney transplant programs. This policy is expected to be implemented in the Fall of 2024.

^[4] Husain, S. A., K. L. King, S. Pastan, R. E. Patzer, D. J. Cohen, J. Radhakrishnan, and S. Mohan. 2019. Association between declined offers of deceased donor kidney allograft and outcomes in kidney transplant candidates. JAMA Network Open 2(8):e1910312.

The filters for each transplant program reflect their acceptance practices across the most recent two years of their offer data. The model creates filters based on donor organs the hospital declined, helping hospitals bypass offers that they have historically not accepted.

Offers can then reach programs more willing to accept them sooner, creating a more efficient offer process and reducing the risk of non-use. Getting the offer to the right candidate in a more targeted manner can lead to an increase in organ utilization and the number of candidates receiving a transplant.

More than half of kidney transplant programs have elected to use the tool, resulting in an average 49 percent decrease in offers made that a transplant program would have typically declined and assisting transplant professionals to match the right organ to the right patient faster and more efficiently.

Predictive Analytics to Enable Patient-Centered Decisions About Acceptance

In 2023, the OPTN launched the predictive analytics [tool](#), which is available to all adult kidney programs, with the aim of increasing organ use rates by providing information about the impact accepting or declining an offer could have on a patient.

At the time of an organ offer, the tool uses statistical models to display: (1) the time-to-next offer, which predicts the length of time the candidate could wait for another high-quality organ offer; and (2) a mortality prediction, which offers a visualization of the candidate's likelihood of survival over the next three years without a transplant. During a pilot, participating programs showed a 2.9 percentage point increase in offer acceptance compared to the previous period, while control centers did not show an increase.

OPTN Offer Acceptance Collaborative to Improve Offer Acceptance Practices and Processes

In 2023, UNOS brought together [83 transplant hospitals](#) to participate in the OPTN Offer Acceptance Collaborative. The 6-month project supported OPTN members as they developed improvements within their transplant program's offer acceptance practices and made the broader system more efficient. The collaborative improvement platform provided an opportunity to test changes, engage in transparent peer-to-peer discussions, and share effective practices and resources.

The transplant community and other stakeholders have access to recorded sessions from the kickoff conference and webinars on the OPTN Learning Management System as well as the Improvement Guide and [Executive Report](#) on the OPTN website.

Evaluation of Offer Acceptance Rates to Inform Future Initiatives to Reduce Non-Use

In December 2021, the OPTN Board of Directors approved [new metrics](#) for monitoring the performance of transplant programs. The OPTN began to evaluate transplant programs' offer acceptance rates in July 2023. The collection of this data can help inform future initiatives to reduce non-use.

Improved Efficiencies in Transportation of Donor Organs by Commercial Airlines

Consistent with its [Action Agenda](#), UNOS successfully advocated for a provision to the *Securing Growth and Robust Leadership in American Aviation Act (HR. 3935)* that convenes a working group to identify best practices and hindrances for the transportation of donated organs, primarily kidneys and livers, in the passenger cabin instead of in the cargo hold of an airplane. Transporting organs through cargo involves more logistical planning, which does not lend itself to the nature of organ transplantation, where organs are viable outside of the body

for a limited amount of time and must be transported at all hours of the day and night. **The bill, including the organ transportation provision, passed Congress on May 15, 2024, and was signed into law on May 16, 2024.**

UNOS also developed a [travel application](#) to support organ procurement organizations (OPOs) in selecting the most efficient option to ship organs on commercial flights. It aggregates real-time flight schedules, driving directions, and critical logistics data like cargo hours to give users a comprehensive understanding of an organ's projected travel time and path. The tool is being piloted by a limited number of OPOs. It is expected to be available to all OPOs later this year.

Expeditious: The Task Force on Organ Usage through Placement Efficiency

In September 2023, the OPTN Board of Directors approved the creation of Expeditious: The Task Force on Organ Usage through Placement Efficiency ^[5]. Expeditious aims to save more patient lives by increasing the rates of deceased organ donor transplantation, honor the gift of life from donor families through increasing organ utilization, and help transplant professionals get the right organs to the right patients faster, easier, and more cost effectively through enhancing the process by which medically complex organs are allocated. The task force has identified several bold aims including 60,000 deceased donor transplants annually by 2026 and 100,000 deceased donor transplants annually by 2030.

About UNOS

United Network for Organ Sharing (UNOS) is the mission-driven non-profit serving as the nation's transplant system under contract with the federal government. We lead the network of transplant hospitals, organ procurement organizations, and thousands of volunteers who are dedicated to honoring the gifts of life entrusted to us and to making lifesaving transplants possible for patients in need. Working together, we leverage data and advances in science and technology to continuously strengthen the system, increase the number of organs recovered and the number of transplants performed, and ensure patients across the nation have equitable access to transplant.

^[5] HRSA, Improving Organ Usage and Placement Efficiency, The Expeditious Task Force, <https://optn.transplant.hrsa.gov/professionals/improvement/improving-organ-usage-and-placement-efficiency/>.