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Collaborative Approach to Organ Donation in a Level II Trauma Center

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ABSTRACT

Background: Although a shortage of organ donors is a continuing global problem in health care, obtaining authorization for donation after an individual experiences a traumatic nonsurvivable event can be difficult.
Objective: To improve organ donation practices at a level II trauma center.
Methods: After reviewing trauma mortality cases and performance improvement metrics with their organ procurement organization's hospital liaison, leaders at the trauma center implemented a multidisciplinary performance improvement initiative to engage the facility's donation advisory committee, provide education for staff members, and increase program visibility to create a more donation-friendly culture for the facility.
Results: The initiative led to an improved donation conversion rate and a greater number of organs procured. Continued education increased staff and provider awareness of organ donation, contributing to the positive outcomes.
Conclusion: A multidisciplinary initiative that includes continuing staff education can improve organ donation practices and program visibility, ultimately benefiting patients in need of organ transplantation.
Key words: donation, education, organ procurement, trauma center

According to the United Network for Organ Sharing, in the United States there are consistently more than 100 000 people in need of a lifesaving organ transplant at any given time.[1] In 2021, although more than 13 800 deceased donors and 6500 living donors provided organs for transplant, an average of 17 people died every day while waiting for an organ transplant.[1,2] According to the US Centers for Disease Control and Prevention, more than 278 000 individuals in the United States die as a result of injuries each year; however, a meta-analysis of donor conversion rates for trauma patients from 2018 indicated that only an average of 48.1% of potential trauma donors progressed to procurement and transplant.[3,4]

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Evidence-based guidelines have been developed that describe not just how to best care for potential donors but also the appropriate personnel to manage each step of the donation process. Such guidelines include recommendations on identification of potential cases, donor management protocols tailored to maintain physiological stability, and best practices for organ procurement and transplant.[5-9] Staff members of organ procurement organizations (OPOs) are experts in this process, and early contact with OPO hospital liaisons as part of a standardized donation request process has been proven to improve authorization rates.[10] However, medical staff members caring for trauma patients are the first individuals to identify potential organ donors even as they attempt to provide lifesaving medical care. The care team's professional knowledge and skill are crucial in the identification and subsequent care of potential donors as well as offering needed assistance to affected families.[11] Trauma staff members can clarify the significance of the patient's injuries or medical condition and anticipate the needs of the family. They often develop relationships with the patient's loved ones, who may look to them for help in understanding the organ donation and procurement process as part of their decision-making. Therefore, collaboration between OPO hospital liaisons and trauma staff members is important.[10,12]

A systematic review of previous studies by Witjes et al[13] indicated that increasing training and support for health care providers could lead to improvements in donor identification, consent rates, and number of organs recovered. Oczkowski et al[14] conducted a multidisciplinary study in 2019 in which they surveyed 108 intensive care unit (ICU) staff members to determine factors that facilitated or created barriers to successful organ donation in the ICU. The ICU staff identified multiple facilitating factors, including the presence of the OPO liaison, explicit institutional support, and an opportunity for the bedside nurse to be involved in discussions regarding donation. Barriers included inadequate physician communication skills and inaccurate exclusion from consideration for donation by ICU staff members before communication with the OPO liaison.

Our facility is an American College of Surgeons–verified adult level II trauma center serving 18 counties in a predominantly rural setting in the northeast Georgia corridor. With more than 580 inpatient beds, this facility is the hub of a 4-hospital health system. The center serves more than 2600 trauma patients annually, with 95% of patients having blunt trauma and 5% having penetrating trauma. Trauma care providers are involved in potential donor cases from the onset of care. As primary providers of both trauma care and critical care, they frequently identify potential donors and discuss their prognosis with family members. The trauma program is required to review all deaths for potential opportunities for improvement, including in facilitating palliative and end-of-life care, as part of the verification process.[15]

From 2015 to 2017, various metrics used to evaluate the organ donation process were lower than expected, leading OPO and trauma care leaders to implement a performance improvement project to address these concerns. These metrics were the appropriate requestor rate, or the number of potential donors initially approached by a trained requestor; the conversion rate, or the total number of donors divided by deaths meeting eligibility criteria[16]; and organs transplanted per donor, or the number of organs procured and transplanted divided by the number of organ donors.

Objective

The objective of this performance improvement project was to increase the organ donation rate. To accomplish this goal, members of the project team implemented interventions to engage with the facility's donation advisory committee (DAC), educate physicians and other staff members about best practices related to organ donation, and improve the visibility of the organ donation program (Table 1).

Methods

Building the Team and Engaging the Donation Advisory Committee

The performance improvement project was initiated by the OPO hospital development liaison, trauma care leaders, and nursing administrators who identified a need for additional education regarding organ donation practices in the facility's ICUs and emergency department. The initial project team included the trauma medical director and program director, the nursing director of critical care, and the OPO hospital development liaison. Building on the existing infrastructure of the facility's DAC, they identified administrative and physician champions and developed education and process

Table 1: Opportunities for Improvement in Organ Donation Processes

Type of Intervention	Example Interventions
Administrative engagement	Identify administrative and physician champions for organ donation within the institution Increase feedback for providers through data presentation at multidisciplinary trauma and institutional committee meetings
Staff education	Enlist an organ procurement organization liaison who can identify misconceptions among staff regarding organ donation and provide education in the intensive care unit and the emergency department regarding process Start a journal club with a focus on critically injured patients and best practices for potential donor referrals and management
Program visibility	Change grant to obtain a Donate Life flag and flagpole Create an "Honor Walk" for donors and staff Do a donation remembrance celebration

changes designed to increase the numbers of organ donors and organs transplanted. The DAC helped clarify and revise the institution's "end of life: brain death" policy and standardize processes involved in donation after cardiac death. Clear language was added regarding conditions that had to be met before the clinical examination and declaration of brain death. In particular, the prerequisite "central nervous system depressant drug effect must be absent" was expanded to include that the serum barbiturate level must be less than 10 mg/mL in patients who had received barbiturates. Additionally, the prerequisite requiring a urine toxicology screen was revised to exclude anuric patients. The institution's "end of life: organ, eye, and tissue donation" policy was enhanced to include details of the medication administration process and the operating room process for donation after the cardiac death of patients. Finally, educational activities were developed that were tailored to identified needs in each area of the facility.

Education

Initial review of cardiac care and cardiovascular ICU deaths revealed significant deviations from best practice, including missed organ referrals, inappropriate initial discussion with families regarding donation, and misconceptions about the organ donation process. Staff members expressed the belief that the death of a patient under their care was considered a failure, and they hesitated to contact the OPO when a patient met clinical criteria for potential organ donation.

While performing routine reviews of medical records for all patients who died in critical care areas of the hospital while undergoing mechanical ventilation, the OPO hospital development liaison identified several missed and untimely organ referrals. She established a collaborative relationship with the director of critical care, presenting organ and tissue data at nursing staff meetings, asking nursing leaders to follow up with staff members involved in missed and late organ referrals, and ensuring consistent communication with the relevant departments.

The OPO hospital development liaison identified that critical care medicine providers were often initiating family discussion about organ donation, prior to the OPO's involvement. Standards exist to ensure the family is first approached by a trained requestor. The deviation in this process negatively affected potential donations. The OPO liaison initially focused on physician education in this area, engaging physicians and advanced practice providers at the bedside and providing a transitional language guide to assist them in their initial discussions with families. The presence of the OPO liaison and her provision of real-time education also improved nurses' understanding of organ and tissue donation and their role in the procurement process. As a result of these interactions, the OPO liaison and facility leaders implemented a series of organ donation presentations as part of the facility's existing journal club.

In 2018 and 2019, trauma center physician leaders and the OPO team jointly facilitated 6 presentations with the objective of educating staff members and encouraging dialogue about the organ donation process. The OPO arranged for speakers to discuss topics specifically related to organ and tissue donation

Table 2: Organ Donation Trends by Year

Calendar Year	Organ Referrals, No.	Timely Organ Referral Rate, %	Organ Donors, No.	Donation After Cardiac Death, No.	Total Organs Transplanted, No.	Conversion Rate, %	Appropriate Requestor Rate, %	Organs Transplanted Per Donor, No.	Tissue Donors, No.
2021	320	95.6	31	10	102	86.1	90.1	3.29	31
2020	274	98.9	16	6	41	84.2	88.8	2.56	21
2019	277	98.5	24	3	69	88.8	78.9	2.88	21
2018	221	99.0	18	5	57	85.7	78.3	3.17	15
2017	174	95.4	8	1	31	66.6	75.8	3.88	19
2016	139	92.0	8	0	29	100	46.1	3.63	12
2015	169	94.6	6	0	16	75.0	52	2.67	16

that had been addressed in journal articles. During these hour-long sessions, the OPO liaison shared the facility's quarterly organ and tissue data, Centers for Medicare and Medicaid Services metrics, and expectations. Discussion topics included guidelines for treating patients who had sustained catastrophic brain injury; managing multiorgan failure; identifying potential organ donors; strategies for maximizing donations of lungs, liver, and kidneys; and organ donation referral. These presentations were attended by physicians, advanced practice providers, program managers, nursing leaders, educators, residents, fellows, and ICU and emergency department personnel. Staff members were encouraged to ask questions during these sessions.

The OPO hospital development liaison provided additional education during quarterly staff meetings of critical care physicians, meetings with critical care nursing leaders, and roundtable sessions with emergency department staff members. In addition, the liaison was invited to participate in monthly multidisciplinary trauma systems operations committee meetings, offering the opportunity to meet with and educate additional department leaders who would otherwise not be accessible. These meetings allowed the OPO liaison to present data on case reviews and critical process improvements, share engagement initiatives, and gather valuable feedback from key stakeholders.

Improving Program Visibility

After implementing the educational interventions described above, the DAC and the project team shifted their focus to improving the donation program's visibility, providing regular reminders of the program's processes and impact throughout the organization. New practices were implemented, including raising a "Donate Life" flag on the main campus during organ procurement cases. The flagpole was acquired through a facility change grant. Security officers raise the flag each time a family gives authorization for organ donation.

The DAC and project team also implemented an "honor walk" to recognize the donor and family as donors are transported from the inpatient area to the operating room for organ procurement. Staff members are encouraged to line up in the hallways during the honor walk to show respect and support for the donor and family and acknowledge the care that staff members have provided during the patient's stay.

In 2019, the project team coordinated an inaugural donation remembrance celebration. Families of organ donors were invited to join the staff members who cared for their loved ones, including prehospital personnel, nurses, physicians, respiratory therapists, and ancillary team members. The event proved to be a pivotal experience for both clinical staff members and families; the celebration was attended by 27 organ and tissue donor family members and friends who expressed their gratitude for the care they and their loved ones received.

Results

The performance improvement project was initiated at the end of 2017, with journal club presentations held in 2018 and 2019. The numbers of organ referrals, donors, and organs transplanted have increased each year, except for a slight dip in 2020 during the early phase of the COVID-19 pandemic (Table 2). Although

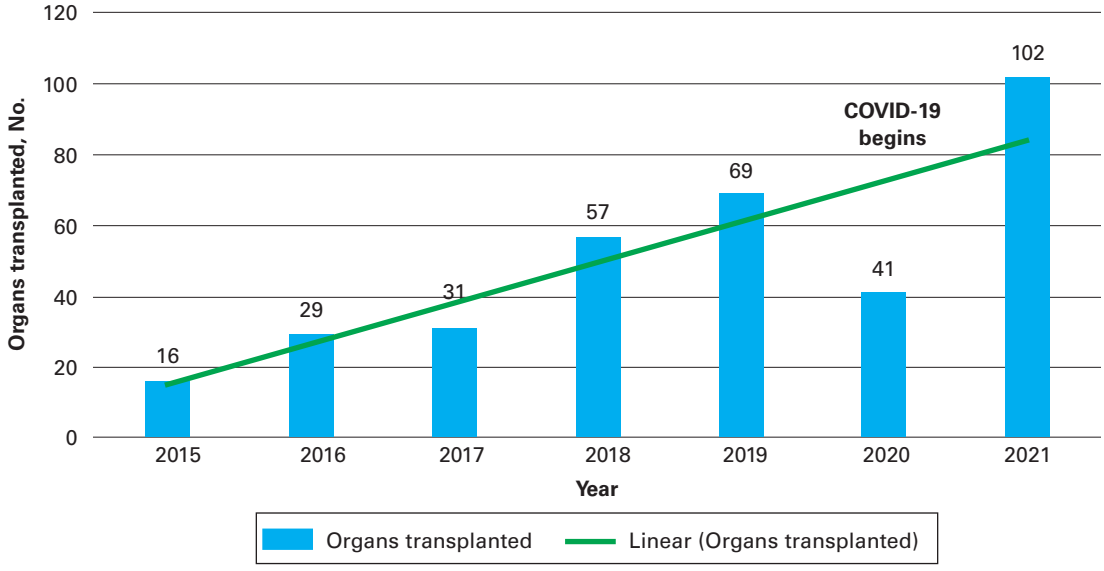

Figure 1: Organs transplanted, 2015 to 2021.

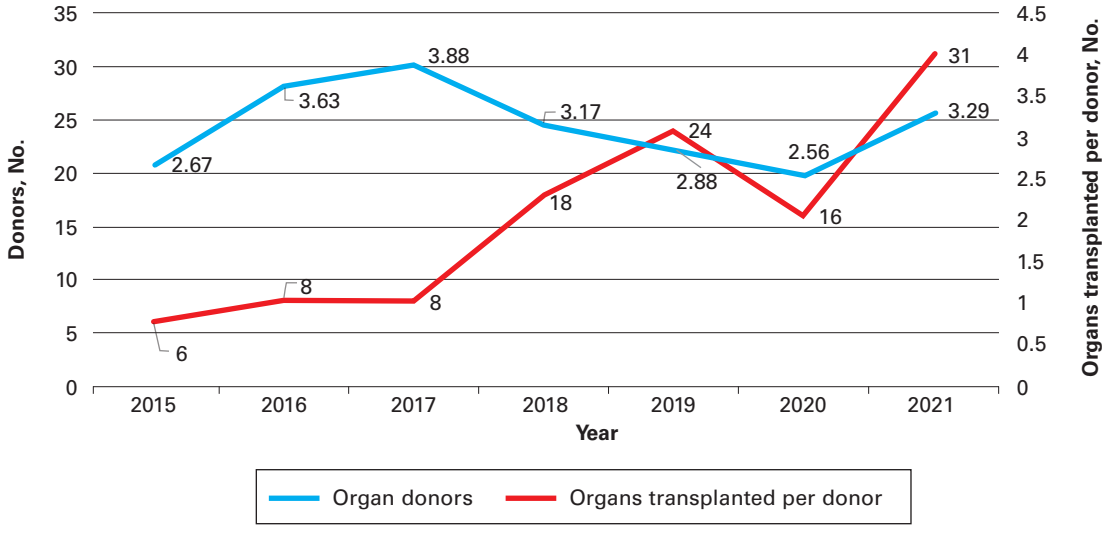

Figure 2: Organ donor trends, 2015 to 2021.

the number of organs transplanted per donor has fluctuated over the past few years, there has been a positive trend, with an average of 3.29 organs per donor in 2021, resulting in a total of 102 organs donated that year (Figure 1). Following journal club presentations in 2018, 2019, and 2021 and education on transitional language for physicians in 2019, appropriate requestor rates steadily increased to 90.1%. The donor conversion rate improved from 66.6% in 2017 to 86.1% in 2021. Clinical triggers for organ donation referral became more globally recognized, as evidenced by a consistent improvement in timely referrals to the OPO (Table 2).

Discussion

Although it is difficult to measure organizational culture, donation metrics indicate that a consistent focus on improving staff understanding and awareness of the organ donation process has changed referral and compliance patterns at our facility (Figure 2). These

improvements would not have been possible without considerable effort from the project team and DAC, the OPO hospital development liaison, and trauma care and nursing leaders who were involved in creating and maintaining this program. Organizations seeking to facilitate the organ donation process and improve staff understanding of it can follow a similar path; however, it is important to identify physician and nursing leaders who will be able to initiate necessary changes, evaluate current staff knowledge and beliefs regarding organ donation, and coordinate with the facility's OPO liaison to create a program that aligns with the facility's culture and values.

Organizations considering implementing similar projects should budget accordingly. Our improvements were attained at minimal financial cost to the institution or the OPO. The flagpole for the "Donate Life" flag was funded by a grant established through an employee giving program at the facility. Lunch for journal club sessions was provided by the OPO, and no additional costs were incurred. The hospital provided lunches for the DAC meetings. The largest financial investment was the donor remembrance celebration to honor donors and their families, which was funded by the hospital's nursing administration and critical care departments.

Finally, sustainable change requires continued evaluation and communication. The journal club and opportunities for bedside interaction and education were briefly waylaid by the COVID-19 pandemic, and new staff members and physicians have been hired since that time. The project team and DAC continue to meet quarterly to review donation metrics, identify opportunities for process improvement, and plan future visibility initiatives and education for new staff members.

Conclusion

After implementation of a collaborative performance improvement project focused on education related to organ donation processes and improved visibility of the donation program, our facility experienced a significant improvement in organ donation rates. By investing in staff members and partnering with bedside providers, our facility improved the organ donation experience for nurses, physicians, donors, and families. The outcome of that investment has been a hospital culture that values and celebrates organ donation as a standard of care for patients and families and an important part of honoring end-of-life wishes.

All performance improvement projects are ultimately designed to enhance patient care, and the organ donation process has a major positive impact on patients' families. For family members, organ donation is almost always unexpected. As one family member stated, "We didn't know that [our son] was signed up to be an organ donor. I really argued with the doctor when he called.... I believed that [my son] was going to live. And he did—he just didn't live the way I planned." This patient gave the gift of life to more than 70 individuals through organ and tissue donation, facilitated by physicians and staff members who understood the organ donation process. The parents credited the OPO and hospital staff for their support and heartfelt compassion as they made difficult decisions on one of the worst days of their lives, and they still remember the names of the nurses, physicians, and OPO staff members who cared for their son. Helping the family and staff find meaning and closure in the midst of unexpected loss is the silver lining of an effective organ donation process.

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