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# Healthcare Worker Attitudes to Living Donation Prior to Planned Withdrawal of Care

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**Background and Aims:** This study assesses the attitudes of healthcare practitioners toward Living Donation Prior to Planned Withdrawal of Care (LD-PPW): the recovery of a living donor organ before withdrawal of life-sustaining measures in a patient who does not meet criteria for brain death, but for whom medical care toward meaningful recovery is deemed futile.

**Methods:** An electronic survey was administered to 1735 members of the American Society of Transplant Surgeons mailing list with 187 responses (10.8%).

**Results:** Data from this study revealed that 70% of responding practitioners agreed with LD-PPW due to principles of beneficence and autonomy. Also, 65% of participants felt confident in their ability to declare the futility of care and 70% felt that LD-PPW should be added as an option when registering to become an organ donor.

**Conclusion:** Currently, nearly half of all donation after circulatory determination of death do not proceed to donation. LD-PPW has been proposed as an alternative procedure targeted at increasing the quality and quantity of transplantable organs while respecting the donor's right to donate, though its implementation has been hindered by concerns over public and provider perception. This study revealed support for LD-PPW among healthcare practitioners as an alternative procedure to increase the quality and quantity of transplantable organs while respecting the donor's right to donate.

## INTRODUCTION

Organ transplantation remains the most effective treatment to increase life expectancy for patients with end-organ failure. Transplantation is a relatively new field, with the first successful liver transplant in 1967.<sup>1</sup> Since the earliest transplants, physicians have maintained the “dead-donor rule,” which states that organ procurement should not cause the death of a donor. In 1968, a Harvard Medical School committee proposed the concept of “brain-death” in an effort to address the shortage of transplantable organs, which later became widely adopted by most states in 1980 as the Uniform Determination of Death Act.<sup>2</sup> This equated brain death to circulatory death, allowing the procurement of organs

after a legal determination of death despite continued hemodynamic function. However, there still remains a large gap between the number of candidates on the transplant waiting list and the number of donations that take place. In 2019 alone, there were 4925 US patients who died while awaiting transplantation.<sup>3</sup>

Under current protocols, there are 3 ways in which organs can be donated: living organ donation, donation after brain death (DBD), and donation after circulatory determination of death (DCDD). Living organ donation occurs when a donor with decision-making capacity donates an organ that they can live without, most commonly a lobe of the liver or kidney. DBD is organ donation after a person has been pronounced legally dead following the irreversible loss of all brain function, including the brain stem despite still having a beating heart. This is the most common mode of organ donation. Since 1997, due to the continued shortage of transplantable organs, there has been increasing utilization of DCDD.<sup>4</sup> This is organ donation after the cessation of cardiac function following the removal of a patient from life support.<sup>3</sup> Despite the initial controversy surrounding this procedure, clear protocols have aided in the implementation of DCDD as a more widely accepted and standardized practice.<sup>4</sup> Increased utilization of DCDD for liver transplantation was seen starting in 2000 when only 0.9% of all liver transplants were from DCDD donors,<sup>5</sup> to 2021 where 10.5% of liver transplants were from DCDD donors.<sup>6</sup>

While DCDD has allowed for the expansion of transplant availability, it is unfortunately still limited by physiological oxygen delivery mechanisms. Typically, after life support is withdrawn, death is declared after 5 minutes of asystole. Organs from DCDD donors are exposed to a greater duration of hypoxic injury during warm ischemia, which occurs when organ perfusion decreases as cardiac function declines until asystole. This is a process that can take variable amounts of time and about a third of DCDD donors do not pass in time to procure reliable organs for transplantation.<sup>7</sup> Of organs that are able to be recovered by DCDD, 20% to 22% of kidneys<sup>8</sup> and 80% of livers<sup>9</sup> are discarded due to organ injury secondary to hypoxia, hypotension, and ischemia. DCDD also carries potential risks post-transplantation. More than 30 minutes of warm ischemia

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The data that support the findings of this study are available from the corresponding author upon reasonable request.

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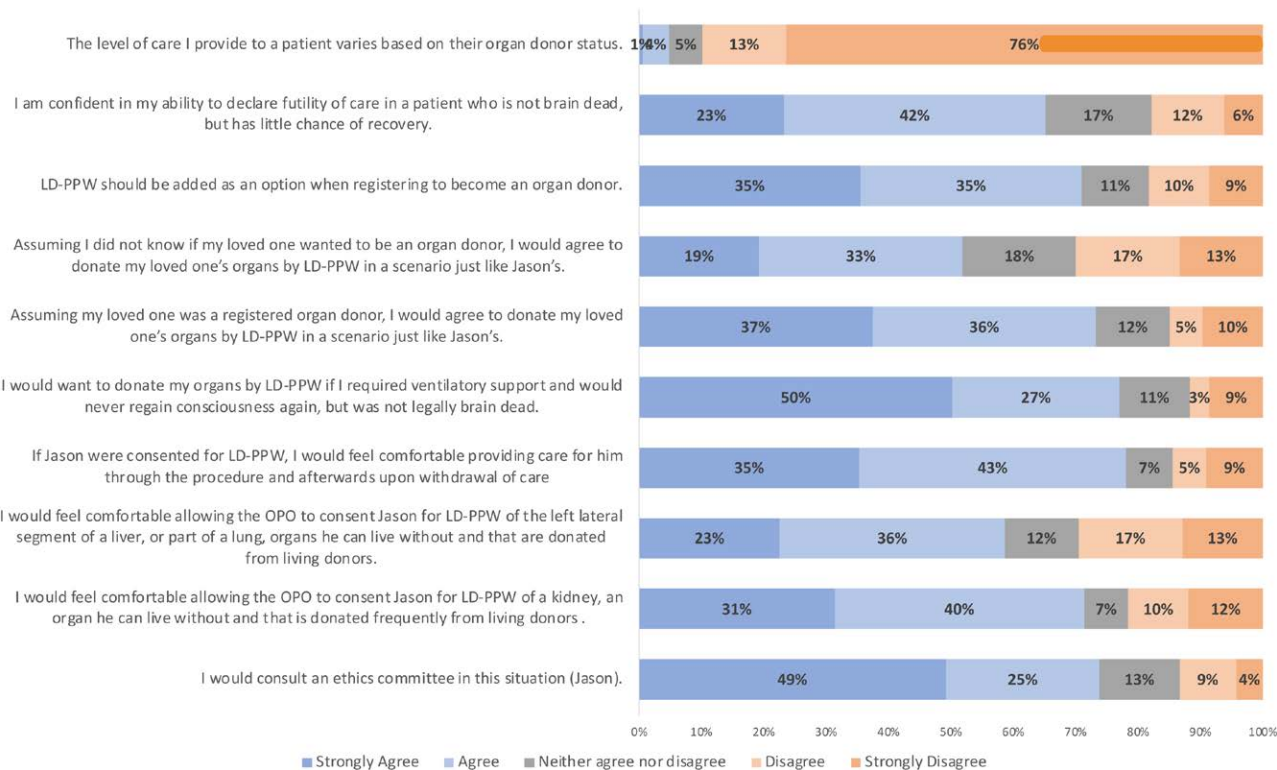
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**FIGURE 1.** Descriptive statistics of healthcare provider responses towards LD-PPW. Participants (n = 187) rated their agreement with statements about implementation of LD-PPW on a 5-point Likert scale. “Jason” refers to the patient in the case scenario.

is associated with increased post-transplant biliary stricture in DCDD liver transplants as well as increased risk of graft failure.<sup>5</sup> Living Donation Prior to Planned Withdrawal of Care (LD-PPW), also known as Imminent Death Donation, has been proposed as an alternative option when a person is unlikely to pass in time to donate via DCDD. LD-PPW is a term that describes the recovery of an organ not necessary for sustaining life before the planned withdrawal of life-sustaining measures in a neurologically devastated (but not brain-dead) patient. This withdrawal of life support is expected to result in the patient's death, and in the case of LD-PPW, would take place after organ donation.

Starting in 2014, the Ethics Committee of the United Network for Organ Sharing (UNOS) created a committee to propose the practice of LD-PPW to members of the general public and other UNOS committees.<sup>10</sup> The committee did determine that there were circumstances in which LD-PPW may be ethically justified. These justifications include benefit to the donor and donor families by honoring their wishes, as well as benefit to recipients based on an increased quantity and quality of organs available for transplantation. Ultimately, their work was discontinued due to a lack of data regarding LD-PPW and a lack of known support from the general public and healthcare community. The perceived lack of support and lack of protocols for implementation continue to serve as oft-referred-to barriers to ongoing discussions surrounding LD-PPW.<sup>10</sup>

In an effort to address concerns regarding public perception, our group previously studied public attitudes toward LD-PPW. This study found that the majority (68%–74%) of public participants supported LD-PPW for an incapacitated patient and that only 9% of participants would be less likely to trust the organ donation process should LD-PPW be implemented.<sup>11</sup> In this current study, we aim to assess the attitudes of American Society of Transplant Surgeons (ASTS) members toward LD-PPW to evaluate their sentiments regarding perceived barriers to LD-PPW

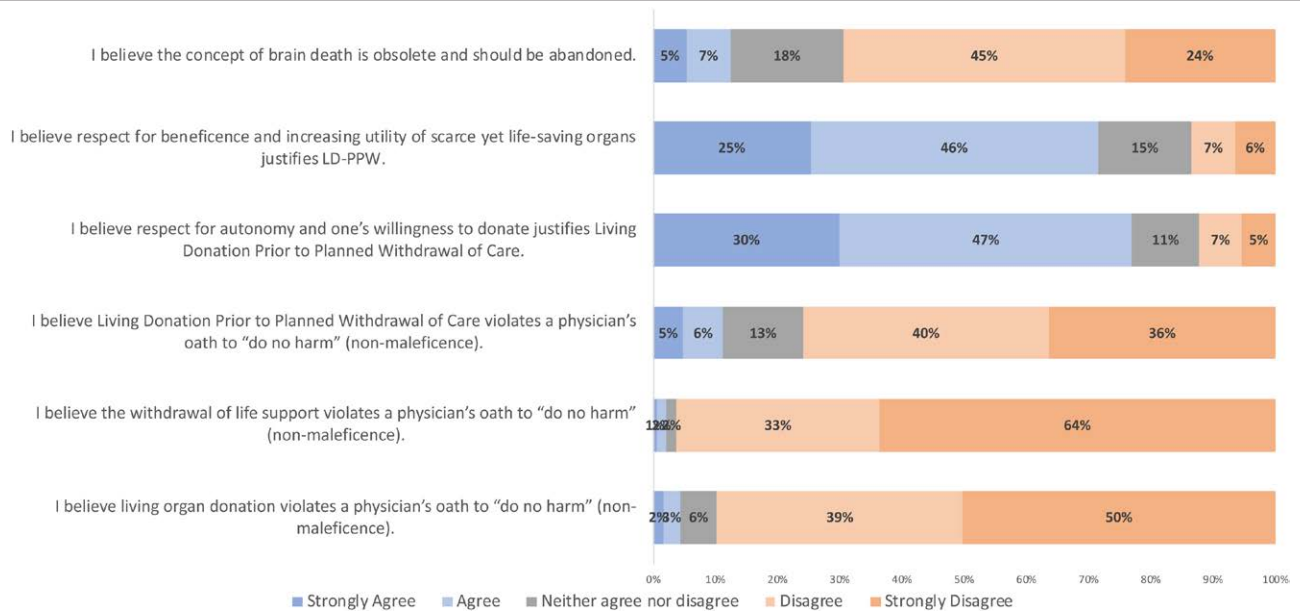
and their own attitudes toward this proposal. We aim to address some of the concerns that arose in the survey of the general public using this data from the healthcare field.

**METHODS**

A cross-sectional survey was constructed with guidance and input from ethicists, social-behavioral scientists, donor specialists from the region's Organ Procurement Organization, transplant surgeons, and organ donor families to ascertain their attitudes toward a novel method of organ donation, LD-PPW. An initial survey was first piloted through focus groups with families who had experienced organ donation of a loved one. After this survey was refined, it was distributed to the general public with results now published.<sup>11</sup> For the purpose of assessing healthcare worker views, this survey was then modified to be applicable to healthcare workers in the field of transplantation. The survey underwent review by a team of transplant surgeons, ethicists, and social behavioral scientists before distribution. The survey included 5 sections: a case scenario, 5 comprehension questions, questions about LD-PPW (Fig. 1), ethical questions about organ donation (Fig. 2), and demographic information (Table 1).

Participants were identified through the ASTS mailing list and the survey was distributed through the Qualtrics Survey Platform. A total of 1735 individuals successfully received an electronic invitation to complete the survey. Those who opened the survey were directed to an informed consent page before initiating the survey. Three resends were conducted following the initial survey distribution to those who had not completed the survey. Incomplete surveys were excluded in the final analysis. One hundred and eighty-seven participants completed the survey, reflecting a 10.8% response rate.

The case scenario described a hypothetical scenario of a patient, “Jason,” with a devastating brain injury who was not legally brain dead. An initial set of comprehension questions



**FIGURE 2.** Descriptive statistics of healthcare provider responses towards ethical principles as they relate to LD-PPW. Participants (n = 187) rated their agreement with statements about LD-PPW on a 5-point Likert scale.

**TABLE 1.**  
**Demographic Data of Survey Participants (n = 187)**

Demographics	N	%	Demographics	N	%
Sex			Field of work		
Female	75	40.11	Critical care—anesthesia	1	0.53
Male	109	58.29	Critical care—surgery	3	1.60
Blank	3	1.60	Transplant—surgery	157	83.96
Age			Transplant—medicine	11	5.88
18–24	2	1.07	Other	13	6.95
25–34	28	14.97	Blank	2	1.07
35–44	68	36.36	Degree		
45–54	32	17.11	MD, DO, or MBBS	148	79.14
55–64	35	18.72	RN, NP, or DNP	18	9.63
>64	19	10.16	PA	9	4.81
Blank	3	1.60	Other	11	5.88
Race			Blank	1	0.53
Caucasian or White	126	67.38	Years in practice		
American Indian or Alaska Native	1	0.53	1–10	70	37.43
Asian	29	15.51	11–20	38	20.32
Black or African American	4	2.14	21+	56	29.95
Hispanic or Latino	11	5.88	Not in practice yet	22	11.76
Multiracial	3	1.60%	Blank	1	0.53
Other	2	1.07	Organ donor status		
Prefer not to say	9	4.81	Not registered	15	8.02
Blank	2	1.07	Registered donor	171	91.44
Religion			Blank	1	0.53
Atheist or agnostic	24	12.83	Frequency working with organ donors		
Christian	54	28.88	Daily	83	44.39
Jewish	21	11.23	Weekly	56	29.95
Hindu	9	4.81	Monthly	20	10.70
Muslim	1	0.53	Yearly	8	4.28
Other	11	5.88	Never	19	10.16
Roman Catholic	31	16.58	Blank	1	0.53
Spiritual but not religious	32	17.11	Frequency working with organ transplant recipients		
Blank	4	2.14	Daily	149	79.68
Highest level of education			Weekly	13	6.95
Associates	1	0.53	Monthly	9	4.81
Bachelors	7	3.74	Yearly	2	1.07
Masters	28	14.97	Never	13	6.95
Doctorate	124	66.31	Blank	1	0.53
Professional	26	13.90			
Blank	1	0.53			

were posed following the scenario with “Yes/No” responses. For questions about LD-PPW and ethical questions about organ donation, participants were given options rating their agreement with statements on a 5-point Likert scale with options being: strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree. Participants were also given options from which they could choose what they viewed as benefits and concerns with LD-PPW.

## ANALYSIS

Survey responses were collected and analyzed using Qualtrics and a standard statistical software package, Stata 12.1 (Stata Corp, College Station, TX, USA). Results were considered significant at a  $P < 0.05$ . All reported  $P$  values were 2-sided. Respondent demographic data were the independent variables. The dependent variable was support for LD-PPW. Support for LD-PPW was defined as a response of “agree” or “strongly agree” to a question regarding the level of agreement with LD-PPW of a kidney, the left lateral liver segment, and/or lung in a neurologically devastated patient. Factors with a  $P$  value  $< 0.1$  were included in the multivariate logistic regression analysis.

## RESULTS

Results were analyzed from the 187 completed survey responses from ASTS members. The survey participants were primarily healthcare workers in the field of transplant surgery (83.96%) and the majority were male (58.29%) (Table 1). The ages of participants ranged from 18 to over 64, with the largest group being in the 35 to 44 age range (36.36%) (Table 1). Almost 74.35% of participants work with organ donors on a daily to weekly basis and 86.63% of participants work with organ transplant recipients on a daily to weekly basis (Table 1).

Participants initially responded to 6 comprehension questions regarding a hypothetical scenario of a patient being considered for donation by LD-PPW. Over 90% of participants were able to answer at least 5 of the 6 questions accurately. A lower proportion of participants (83.33%) answered the comprehension question “Was Jason able to breathe without the ventilator machine?” correctly, suggesting a higher degree of interpretation regarding the need for ventilation in the scenario. There was no significant difference in support for LD-PPW between participants who answered all questions correctly *versus* those who answered 1 question incorrectly.

Statements were then posed exploring various aspects of LD-PPW related to the case scenario (Fig. 1). Over 70% of respondents agreed or strongly agreed that they would pursue LD-PPW for either a loved one or themselves in a scenario like the one provided (Fig. 1). Notably, this percentage decreases to 52% if the wishes of the loved one to be an organ donor were unknown (Fig. 1). Also, 59% of respondents felt comfortable with the donation of the left lateral segment of a liver or part of a lung through LD-PPW (Fig. 1). This percentage increases to 71% with regards to the donation of 1 kidney through LD-PPW (Fig. 1).

For questions about the implementation of LD-PPW, 74% would consult an ethics committee in a situation like the case scenario (Fig. 1). Over 70% felt that they would feel comfortable either transplanting organs procured by LD-PPW or participating in organ procurement from an LD-PPW donor. Notably, 90% of participants disagreed that the level of care they provide to patients varies based on their organ status (Fig. 1). Almost 65% of participants felt confident in their ability to declare the futility of care in a patient who is not yet brain dead but has little chance of neurologic recovery.

Several key ethical principles were explored as they relate to LD-PPW. Only 11% of participants supported the statement that the concept of brain death is obsolete, suggesting that there

continues to remain a key association between the concept of death and loss of basic brainstem reflexes (Fig. 2). About 77% felt that the principle of autonomy justifies LD-PPW (Fig. 2). When asked about the principle of nonmaleficence, 89% disagreed that living organ donation violates the principle of nonmaleficence, 97% disagreed that withdrawal of life support violates nonmaleficence, and a smaller proportion, 76%, disagreed that LD-PPW violates nonmaleficence (Fig. 2).

Univariate and multivariate analyses were performed to assess the impact of demographic variables on support for LD-PPW (Table 2). Support for LD-PPW was determined based on responses of “agree” and “strongly agree” to the statement, “I would support the option of organ donation of a kidney, left lateral liver segment, and/or a lung from such a patient before the withdrawal of life-sustaining care”. Upon univariate analysis, Caucasian participants were significantly more likely to support LD-PPW (OR = 2.00) and participants ages 55 to 64 were significantly less likely to support LD-PPW (OR = 0.45) (Table 2). Upon multivariate analysis, only Caucasian race was an independent predictor of support for LD-PPW (OR = 2.34) (Table 2). No other significant trends were identified for demographic variables.

## DISCUSSION

These results provide important information indicating support for LD-PPW among respondents as an ethically justifiable proposal to fulfill the wishes of incapacitated patients and their families who wish to pursue organ donation but may not be able to do so by DCDD. The majority of respondents were transplant surgeons, who are key personnel in the process of both procurement and transplantation and have an extensive understanding of the risks and benefits that different modes of procurement pose. The majority of participants felt that they would want to donate nonvital organs by LD-PPW for either themselves or family members if incapacitated and the decision has been made to remove life support (Fig. 1). There was less support for LD-PPW if the wishes of the loved one to be an organ donor were not known beforehand or when considering donation of part of a liver or lung. This data gives us insight into how LD-PPW implementation can be introduced to reduce public and healthcare worker concerns, including the incorporation of an ethics committee during these scenarios and obtaining prior knowledge of patient organ donation wishes. This data further reinforced support for LD-PPW seen from the public at large, where the majority of respondents agreed with a donation through LD-PPW for their loved ones or themselves if neurologically devastated but not yet brain dead.<sup>11</sup>

The prior survey our group conducted on public perception revealed concerns regarding provider intent that this study was able to address in turn. This research revealed that 11% of those surveyed felt that physicians would not try as hard to save their life depending on organ donor status at baseline.<sup>11</sup> These responses reflected a distrust in the organ donation process and served as an independent predictor of opposition to LD-PPW.<sup>11</sup> Contrary to those concerns, survey responses from healthcare workers in our study revealed that 90% of respondents disagreed or strongly disagreed with the statement, “the level of care I provide to a patient varies based on their organ donor status” (Fig. 1). About 78% felt that they would feel comfortable taking care of a patient who was consented for LD-PPW through the process of organ procurement and withdrawal from life support (Fig. 1). This demonstrates a level of mistrust from the public toward organ donation and transplantation as a whole that is inconsistent with the intentions of healthcare workers. Overcoming this mistrust remains an ongoing process in the field of organ donation and should not remain a barrier to discussions surrounding LD-PPW.

**TABLE 2.**  
**Univariate and Multivariate Analysis of Support for Imminent Death Donation**

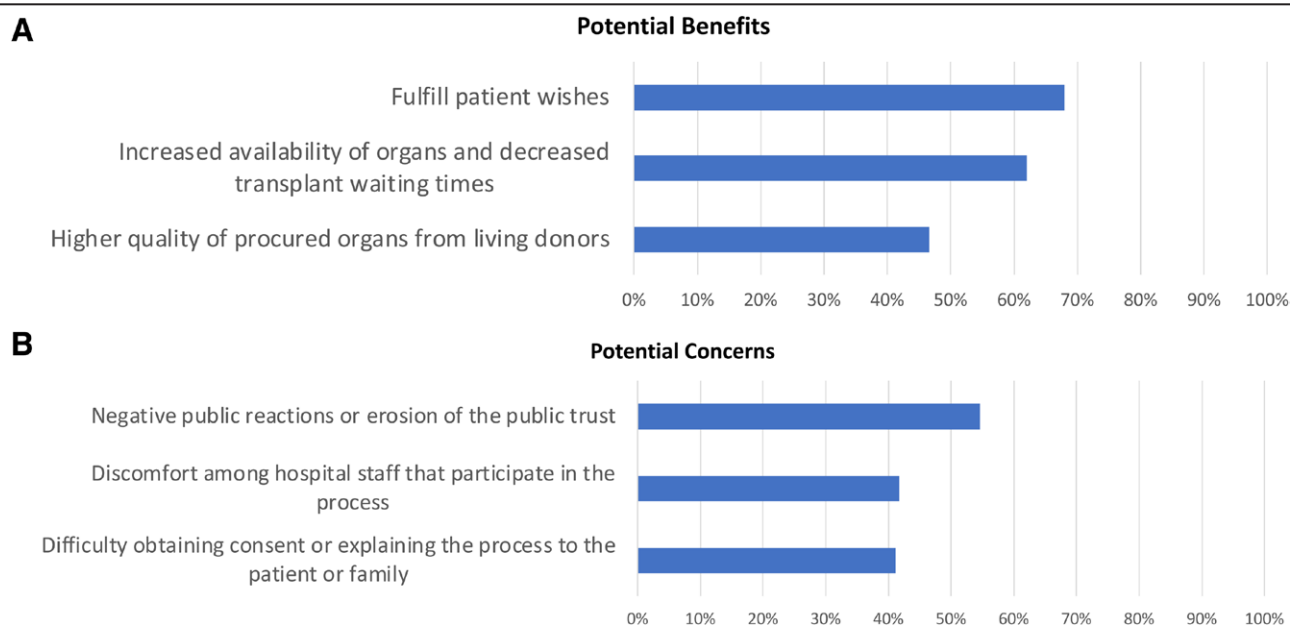
Demographic Characteristic	Univariate		Multivariate	
	OR (95% CI)	P value	OR (95% CI)	P value
Sex				
Female	1.92 (0.95–3.89)	0.07	0.97 (0.09–10.34)	0.98
Male	0.53 (0.26–1.05)	0.07	0.58 (0.06–5.99)	0.65
Age				
35–44	1.61 (0.79–3.26)	0.19		
45–54	0.89 (0.38–2.08)	0.79		
55–64	0.45 (0.21–0.97)	0.04	0.53 (0.23–1.20)	0.13
18–24; 25–34; >64	Omitted: collinearity			
Race				
Caucasian or White	2.00 (1.02–3.91)	0.04	2.34 (1.15–4.75)	0.02
American Indian or Alaska Native	Omitted: single observation			
Asian	0.52 (0.23–1.19)	0.12		
Black or African American	1.07 (0.11–10.50)	0.96		
Hispanic or Latino	0.94 (0.24–3.71)	0.93		
Multiracial	0.71 (0.06–7.96)	0.78		
Religion				
Atheist or agnostic	2.75 (0.78–9.67)	0.11		
Christian	1.13 (0.54–2.35)	0.74		
Jewish	1.15 (0.40–3.34)	0.79		
Hindu	0.42 (0.11–1.64)	0.21		
Muslim	Omitted: single observation			
Roman Catholic	0.59 (0.26–1.33)	0.2		
Spiritual but not religious	1.08 (0.45–2.59)	0.87		
Highest level of education				
Associates	Omitted: predicts success perfectly			
Bachelors	2.18 (0.26–18.59)	0.48		
Masters	1.36 (0.52–3.58)	0.53		
Doctorate	0.94 (0.47–1.88)	0.86		
Professional	0.72 (0.29–1.79)	0.48		
Field of work				
Critical care—anesthesia	Omitted: predicts success perfectly			
Critical care—surgery	0.17 (0.02–1.94)	0.15		
Transplant—surgery	0.83 (0.33–2.08)	0.7		
Transplant—medicine	0.82 (0.20–3.30)	0.78		
Degree				
MD, DO, or MBBS	0.55 (0.23–1.35)	0.19		
RN, NP, or DNP	Omitted: predicts success perfectly			
PA	0.70 (0.17–2.90)	0.62		
Years in practice				
1–10	1.33 (0.67–2.64)	0.42		
11–20	0.61 (0.28–1.32)	0.21		
21+	0.81 (0.40–1.64)	0.56		
Not in practice yet	2.45 (0.69–8.67)	0.17		
Frequency working with organ donors				
Daily	0.87 (0.45–1.67)	0.68		
Weekly	1.25 (0.60–2.60)	0.54		
Monthly	0.62 (0.23–1.67)	0.35		
Yearly	0.34 (0.08–1.40)	0.13		
Never	6.74 (0.87–52.09)	0.07	7.26 (0.91–58.14)	0.06
Frequency working with transplant recipients				
Daily	0.85 (0.37–1.94)	0.69		
Weekly	2.04 (0.43–9.53)	0.37		
Monthly	1.26 (0.25–6.26)	0.78		
Yearly	0.35 (0.02–5.71)	0.46		
Never	1.07 (0.28–4.12)	0.92		

Support determined by agreement with the corresponding survey question. Blank and "other" responses were omitted. Bold value indicates that the variables with a P value of ≤ 0.1 were included in multivariate analysis and significance = P < 0.05. CI, confidence interval; OR, odds ratio.

Responses from ASTS members demonstrate support for LD-PPW but also highlight some of the work still to be done in its implementation. Our data demonstrates that although only 5% felt that living organ donation violates the principle of non-maleficence and only 3% believed that the withdrawal of life support violates the principle of nonmaleficence, 11% believed that LD-PPW violates the principle of nonmaleficence (Fig. 2).

This discrepancy deserves further review and suggests there are reservations not expressed, likely attached to the idea and definition of death, and the healthcare worker's relationship with the Dead Donor Rule.

Results from these ethical questions clearly reveal how the changing landscape of medicine affects viewpoints. In fact, several decades ago, the withdrawal of mechanical ventilation from



**FIGURE 3.** Descriptive statistics of healthcare provider responses regarding potential benefits and concerns with LD-PPW. Participants ( $n = 187$ ) chose statements that they agreed with from a list of potential benefits and concerns with LD-PPW. The top 3 most frequently chosen statements in each category are presented here.

a patient in the intensive care unit would be considered harm to the patient.<sup>12</sup> However, withdrawal of life support is now viewed as an end to suffering and is the most common mode of death in the majority of intensive care units.<sup>12</sup> Although living organ donation does not provide medical benefit for the donor, it has been justified based on respecting the autonomy of the donor and benefit to society at large. This perspective could be applied to LD-PPW as well. In fact, we see that the majority of respondents felt that respect for autonomy, beneficence, and increasing utility of scarce, life-saving organs justifies LD-PPW (Fig. 2).

Additionally, there is also harm associated with unsuccessful DCDD donations. It is estimated that about 30% to 40% of patients fail to donate after circulatory death.<sup>13–15</sup> When patients do not pass in time for DCDD donation, family members experience emotional distress due to interrupted bereavement, waste of precious life-saving organs for a potential recipient, and an inability to honor the donor's wishes and derive some good from tragedy.<sup>13–15</sup> With regards to LD-PPW, family members who experienced unsuccessful DCDD were actually more likely to agree with multiple organ donation by LD-PPW, whereas healthcare professionals were more comfortable with only the donation of a kidney.<sup>14</sup> This suggests that families placed a greater emphasis on organ donation when it was clear that their loved one would not have a chance of recovering any meaningful quality of life. This finding reinforces the idea that LD-PPW also fulfills the bioethical principle of nonmalificence. Furthermore, unlike DCDD, an LD-PPW patient would go through the donation of a lobe of their liver or kidney, for example, and subsequently would be removed from life support in the presence of their family.

We asked participants to choose potential positives of LD-PPW (Fig. 3). The most selected positives were related to respecting the autonomy of donors and distributive justice of organs as a scarce resource. We then asked them to select potential concerns of LD-PPW, and the most frequently picked options were related to issues outside of the organ donation process itself, particularly related to the public, hospital staff, and patient families (Fig. 3).

Contrary to the most frequently chosen concern of negative public reactions, our group recently published data demonstrating that 68% to 74% of public respondents ( $n = 2644$ ) supported

LD-PPW.<sup>11</sup> Zimmerman et al<sup>14</sup> performed focus groups with family members of patients who had been unsuccessful with DCDD donation to assess their views toward LD-PPW. Family members typically supported the idea of LD-PPW and were certain that if given the option for LD-PPW at the time of their loved one's death, they would have chosen that route.<sup>14</sup> Family members valued the act of organ donation and felt that current rules regarding DCDD and DBD denied the opportunity for beneficence during their tragedy.<sup>14</sup> While concern for public reactions is expected, healthcare workers may be overestimating the public criticism and underestimating the cultural value that organ donation holds as an admirable, honorable last act.<sup>14,15</sup> Given data from the public, the majority of the public would actually agree to LD-PPW for a loved one, and concerns may be addressed through strict protocols and clear explanations for family members.

Participants in our survey were also concerned about discomfort among hospital staff if LD-PPW were performed. Many of these concerns were also seen at the time that DCDD was increasingly implemented. Mandell et al<sup>16</sup> performed focus groups exploring viewpoints on DCDD and found that nurses were concerned with poor quality of organs, uncertainty around the determination of cardiac death, and lack of standard protocols.<sup>16</sup> Transplant surgeons in this study also expressed concerns with poor organ quality and lack of consistent protocols. Despite these concerns with DCDD, its implementation has increased over the past decade.<sup>17</sup> LD-PPW may actually address many of these concerns, including increased quality of organs procured. LD-PPW would have a separation between the act of donation and the care at the end of life, including the removal from life support, as for all dead donors. This is true for current modalities of organ donation and likely would not change after implementation of LD-PPW. Though newer technologies and donation techniques emerge in the US, such as normothermic regional perfusion and ex-vivo normothermic perfusion, they still rely on the passing of the DCDD donor in a timely manner. This is an important distinction for LD-PPW, in that the donation process precedes the care at end of life and doesn't rely on the passing of the donor, expanding the definition of who can be a donor and widening the pool. What is consistent between all the modalities employed is that there needs to be continued effort on our part as transplant professionals to emphasize

and educate on the separation of care teams between a person's life-saving care and end-of-life donation care.

The third concern regarding difficulty with explaining the process to family is not just a concern for LD-PPW but also a concern with complex medical procedures as a whole. Studies have shown that there is a large discrepancy between physicians and patients with regard to information delivered and understood during the informed consent process.<sup>18,19</sup> Public survey data revealed that participants with a greater understanding of organ donation and LD-PPW were more likely to support the implementation of LD-PPW.<sup>11</sup> The onus falls on healthcare practitioners to develop informed consent discussions that adequately convey the information necessary for families to make decisions regarding organ donation and LD-PPW. One strategy for doing so includes standardized measures of assessing health literacy and tailoring conversations and documentation appropriately to ensure understanding of this complex procedure.

We acknowledge the limitations of this study. The greatest weakness of this article is the nonresponse rate and selection bias of those who chose to participate. The study population was selected based on ASTS membership. Notwithstanding, we felt it essential to attempt to elucidate all the barriers that would face the implementation of this donation strategy, and characterization of the transplant surgeon and healthcare provider is paramount. They are major stakeholders. The ASTS represents an organization of transplant physicians and surgeons who are involved in clinical care, research, and policy work pertinent to the focus of our study and the implementation of LD-PPW. The nonresponse rate detracts from the ability to make broad statements, and we also acknowledge that the majority of participants in our survey are transplant surgeons, and we cannot draw conclusions regarding the views of nurses or physician associates, who are also critical to the care of organ donors and transplant patients.

Nonetheless, this study represents the largest sample size of data regarding this topic. The results of this study provide valuable, albeit preliminary, data that can help further conversations regarding the implementation of LD-PPW. There is little data in the literature regarding healthcare workers' views toward LD-PPW.<sup>14</sup> This study is clear in its demonstration of support for LD-PPW among ASTS member respondents and elucidates key ideas that would be helpful in moving forward with its implementation, including the incorporation of an ethics committee, clear delineation of the donor's prior wishes regarding donation, and the need for clear protocols and consents. Future research will garner data regarding more viewpoints on LD-PPW, especially given the rapidly changing landscape of transplant medicine. It will be necessary to develop medical algorithms and protocols for its implementation to increase resiliency in the system.

## CONCLUSIONS

These results demonstrate support for LD-PPW from ASTS members that reinforces the strong support seen from the public at large. Information from participant responses also addressed misconceptions held by the public towards the process of LD-PPW. Based on our data and literature review, we strongly recommend policy changes allowing the option of LD-PPW for donor families that would likely change the landscape of transplant medicine. There has been nearly 2 decades of research on the topic, which is overwhelming and supportive. There is a

point when the fear of doing no harm is keeping us from doing the good we are capable of doing.

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