

Foreigners Traveling to the U.S. for Transplantation May Adversely Affect Organ Donation: A National Survey

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The aims of this study were (1) to determine attitudes among the American public regarding foreigners coming to the United States for the purposes of transplantation, and (2) to investigate the impact this practice might have on the public's willingness to donate organs. A probability-based national sample of adults age ≥ 18 was asked whether people should be allowed to travel to the United States to receive a transplant, and whether this practice would discourage the respondents from becoming an organ donor. Among 1049 participants, 30% (95% CI 25–34%) felt that people should not be allowed to travel to the United States to receive a deceased donor transplant, whereas 28% felt this would be acceptable in some cases. Thirty-eight percent (95% CI 33–42%) indicated that this practice might prevent them from becoming an organ donor. In conclusion, deceased-donor transplantation of foreigners is opposed by many Americans. Media coverage of this practice has the potential to adversely affect organ donation.

Key words: Donation rates, ethics, public policy

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Introduction

American medicine is in the forefront of technology-intensive treatments, and attracts patients from all over the world. Deceased donor transplantation, however, involves a scarce resource and thus must be considered somewhat differently. Recently, media reports have cast the transplant

system in a negative light by portraying wealthy foreigners coming to the United States to receive liver transplants (1,2).

The question of allowing foreign citizens to travel to the United States to receive deceased donor organ transplants has been debated for years (3). There are three principal components to this question: ethical, legal and public perception. An ethical argument can be made in favor of this practice, because physicians have a moral obligation to help any patient in need, regardless of race, gender or country of origin (4). Conversely, others argue that because foreigners are not members of the community that donates the organs, it is not fair for them to be recipients (3,5). Here it is important to make several distinctions. First, the focus of this discussion is on people who live in another country and travel to the United States for the purposes of transplant, not on undocumented aliens. Second, there is a difference between travel for transplantation and 'transplant tourism'. Travel for transplantation becomes transplant tourism only when the organs are being treated as a commodity; whereas distressingly common in underdeveloped countries, there is no evidence of this practice within the United States (6).

Although there are no laws directly addressing the issue of non-U.S. residents traveling to the United States for the purposes of transplant, this practice is indirectly governed by the National Organ Transplantation Act of 1984, which established the Organ Procurement and Transplantation Network (OPTN) to oversee the allocation of deceased donor organs. OPTN policy 6.3 stipulates that any program with more than 5% nonresident alien transplant recipients is subject to audit, thus effectively allowing this practice but limiting its frequency. Furthermore, OPTN policy directive 6.2.5 states that transplant programs that engage in this practice should 'establish a mechanism for community participation and review of its candidate acceptance criteria' (7).

This requirement for community involvement highlights an important concern, namely that negative public perceptions might adversely affect organ donation. In other words, if the general public perceives that organs are going to foreigners, they may be less likely to donate. However, this hypothesis has never been empirically evaluated.

Therefore, the aims of this study were (1) to determine attitudes among the American public regarding domestic transplantation of foreigners and (2) to investigate the impact this practice might have on the public's willingness to donate organs.

Methods

We surveyed a probability-based national sample of adults aged ≥ 18 years participating in the Knowledge Networks panel. Knowledge Networks (Menlo Park, CA, USA) maintains an Internet survey panel designed to be representative of the entire U.S. population. The details and validity of the KnowledgePanel™ methodology have been previously described (8). Briefly, recruitment to the panel is performed using random digit dialing of listed and unlisted numbers, and computers with Internet access are provided to subjects who do not already have access. Panel members are then randomly selected and contacted by e-mail to participate in individual surveys. In this survey, Black Americans were oversampled by three-fold because they are known to view organ donation less favorably than other racial/ethnic groups (9). Otherwise, the sampling frame represented a cross-section of the entire U.S. population. This study was approved by the Institutional Review Board of the University of Michigan.

Data collection began on December 18, 2008, and continued through January 13, 2009. Participants were provided a brief introduction to the topic of organ donation and deceased donor transplantation. They were then asked a series of questions about whether they would be willing to donate organs after their death, and their views on various topics related to transplant travel (Appendix). The order of questions about travel *to* and *from* the United States for a transplant was randomly varied, to control for any bias from the 'norm of even-handedness' (10). All reported questionnaire results and between-participant comparisons were adjusted for both panel sampling weights and study-specific sampling weights, including the oversampling of Black Americans. Questionnaire items with continuous measures were heavily skewed towards both ends of the scale in a bimodal distribution, so these measures were dichotomized at the midpoint for the purpose of analysis. Participants skipped $\leq 1\%$ of questions, and missing data were treated as negative responses. Within-participant comparisons were performed using McNemar's test for paired data (11). Finally, demographic differences were investigated using multivariable logistic regression. The following variables were included in these analyses: participant age, gender, race/ethnicity, education level, household income and region of the country (Northeast, Midwest, South, West).

Results

The survey was sent to a total of 1631 panelists, and 1049 completed the survey for a response rate of 64%. Participant demographics are listed in Table 1. In the overall sample, 75% [95% confidence interval (CI) 71–79%] responded that they were more willing than not to donate their organs. This willingness varied by demographics, as shown in Table 2. In multivariable analysis, characteristics negatively associated with willingness to donate included Black race [odds ratio (OR) 0.35, 95% CI 0.23–0.53], Other race (OR 0.25, 95% CI 0.09–0.67), lower education (OR for bachelors degree or higher 3.35 vs. less than high school, 95% CI 1.66–6.76) and living in the South (OR 1.83 relative to Northeast, 95% CI 1.08–3.11).

Table 1: Subject demographics (n = 1049)

Age, median (range)	51 (18–92)
Gender, male	48%
Race or ethnicity, number (%)	
White, non-Hispanic	570 (54%)
Black, non-Hispanic	367 (35%)
Hispanic	65 (6%)
Other, non-Hispanic	47 (5%)
Education	
Less than high school	12%
High school	33%
Some college	28%
Bachelor's or higher	27%
Household income, median	\$40,000–\$49,999
Region	
Northeast	19%
Midwest	23%
South	41%
West	17%

By comparison, the U.S. Census estimates median household income for 2007 to be \$50,000, 49% of the population to be male, and 27% of the population age 25 or higher to have a Bachelor's degree or higher (25).

Regarding travel for transplantation, 30% of participants (95% CI 26–34%) felt that people should not be allowed to travel *to* the United States to receive a transplant, whereas 28% felt that this would be acceptable in some cases. The most common conditions participants volunteered were 'children only', 'if no American needs the organ', 'as long as they pay for it' and 'emergency only'. Conversely, 24% of participants felt that people should not be allowed to travel *from* the United States to another country to receive a transplant ($p < 0.001$ compared to travel *to* the United States). The disparity between allowing travel *from* the United States more than *to* the United States was present regardless whether the participant received the *from* question first or not, indicating that these opinions were not swayed by the norm of even-handedness. Interestingly, participants seemed less concerned about sharing organs within the United States. Only 10% (95% CI 7–13%) felt that regional sharing of organs should not be allowed, whereas 11% (95% CI 8–14%) were opposed to multiple listing. Multivariable analysis of demographic characteristics associated with these responses is shown in Table 3. Black, participants were more likely to be opposed to regional sharing of organs, while participants with Bachelors degree or higher were more in favor of regional sharing. Only Male gender was associated with opposition to multiple listing.

Thirty-eight percent (95% CI 33–42%) of participants responded that they would be or might be discouraged from becoming an organ donor if they knew people were coming from other countries to receive a transplant in their area. This finding remained consistent when focusing only on those subjects who would be willing to donate in the first place, among whom 33% (95% CI 30–37%) would be or

Table 2: Responses by demographic category (95% confidence interval)

	Willing to donate organs after death ¹	Less willing to donate if organ may go to non-U.S. resident ¹
Overall	75% (71–79%)	38% (33–42%)
By age		
≤50	75% (69–81%)	35% (29–41%)
>50	75% (69–80%)	41% (35–47%)
By gender		
Male	73% (67–80%)	39% (32–46%)
Female	76% (71–82%)	36% (30–42%)
By race/ethnicity		
White, non-Hispanic	81% (77–86%)	40% (35–45%)
Black, non-Hispanic	59% (52–65%)	32% (26–38%)
Hispanic	63% (48–78%)	36% (21–51%)
Other, non-Hispanic	58% (34–82%)	23% (6–40%)
By education		
Less than high school	59% (45–72%)	36% (25–50%)
High school	70% (63–77%)	43% (36–50%)
Some college	76% (67–84%)	40% (31–49%)
Bachelor's or higher	88% (81–94%)	29% (21–37%)
By household income		
<50K	70% (64–76%)	38% (32–44%)
≥50K	80% (75–86%)	37% (30–43%)
By region		
Northeast	69% (58–80%)	35% (24–45%)
Midwest	77% (69–85%)	41% (31–50%)
South	80% (75–86%)	34% (27–41%)
West	69% (59–79%)	42% (32–53%)

¹Categories in bold were statistically significant in multivariable analysis; see text.

might be less likely to donate. Responses to this item are displayed by demographic categories in Table 2. In multivariable analysis, only participant race had a significant association with the response to this item: compared to Whites, Black participants were less likely to indicate that nonresident transplantation would affect their decision to donate (OR 0.73, 95% CI 0.54–0.98).

Discussion

This study found that approximately one third of the American public are opposed to foreigners traveling to the United States to receive deceased donor organs, whereas another one quarter feel this would be acceptable only in certain circumstances. Furthermore, public perceptions regarding receipt of transplants by foreigners could adversely affect willingness to donate among one third of Americans who would otherwise consent for donation.

People tend to have strong opinions about allocation of scarce organs (12), and perceived transparency and fairness in the allocation system can influence rates of organ

Table 3: Characteristics associated with opposition to regional sharing and multiple listing within the U.S.

	Opposed to regional sharing Odds ratio (95% CI)	Opposed to multiple listing Odds ratio (95% CI)
Age		
≤50	Ref	Ref
>50	1.16 (0.77–1.75)	1.16 (0.79–1.71)
Gender		
Male	1.13 (0.75–1.70)	1.77 (1.20–2.61)
Female	Ref	Ref
Race/ethnicity		
White, non-Hispanic	Ref	Ref
Black, non-Hispanic	1.68 (1.08–1.62)	1.13 (0.73–1.76)
Hispanic	1.70 (0.76–3.01)	1.63 (0.76–3.48)
Other, non-Hispanic	0.24 (0.03–1.82)	0.63 (0.22–1.84)
Education		
Less than high school	Ref	Ref
High school	0.90 (0.50–1.64)	0.98 (0.49–1.97)
Some college	0.61 (0.32–1.17)	1.35 (0.67–2.71)
Bachelor's or higher	0.37 (0.18–0.77)	1.30 (0.63–2.66)
Household income		
<50K	Ref	Ref
≥50K	1.05 (0.68–1.63)	1.08 (0.71–1.62)
Region		
Northeast	Ref	Ref
Midwest	0.79 (0.44–1.74)	0.35 (0.78–2.35)
South	0.69 (0.41–1.18)	0.66 (0.38–1.32)
West	0.50 (0.24–1.02)	0.98 (0.53–1.81)

Categories in bold were statistically significant in multivariable analysis; see text.

donation (13). Therefore, media reports portraying wealthy foreigners who come to the United States to receive transplants (1,2) should be taken seriously by the transplant community. Our survey results suggest that it may be wise to be proactive about educating the general public on this topic, rather than waiting for future negative media attention. Another possible method for dealing with this potential public-relations problem would be to change OPTN policy so that transplantation of non-U.S. residents is prohibited except in cases of 'emergency'. Such cases could be submitted to the regional review boards for permission, as is currently done for Model for End-stage Liver Disease (MELD) exceptions in liver transplantation. However, most physicians feel obligated to treat all patients under their care equally. In addition, it would be difficult to differentiate foreigners traveling to the United States for the purposes of transplant from undocumented aliens, many of whom contribute to the donor pool (14). Transplantation policies should reflect what is fair and equitable, not necessarily what is popular (15). For these reasons, we contend that public perceptions might be better managed by education efforts, without resorting to changes in policy.

Contrary to the moderate concern over sharing of organs across national boundaries, the general public seems quite

willing to share organs within the United States. Only 10% of participants indicated that organs should stay in the community where they are donated, whereas the remainder of participants supported sharing of organs between communities. These results suggest that the public tends to draw community lines at national rather than local boundaries. This finding has implications for the current discussions about broader regional and national sharing of organs. Some of the opposition to these proposals has stemmed from concerns that people donate in part out of loyalty to their community (16). Our results suggest that broader organ sharing and/or reorganization of transplant boundaries would not measurably affect rates of organ donation. One exception to this conclusion was among Black non-Hispanic participants, who expressed less willingness to donate and were less in favor of broader organ sharing within the United States. These findings are consistent with prior studies indicating that Black Americans view organ transplantation less favorably than other racial and ethnic groups, and those who do choose to donate tend to do so out of a desire to help their community (9,17).

The primary limitation of this study was that we did not ascertain whether the participants currently perceive transplantation of non-U.S. residents as being a major problem. Questions regarding current perceptions were not included in the survey because of concern that simply raising the issue would create a "focusing illusion" which would bias the responses (18). Therefore, although we can conclude that the practice of allowing non-U.S. residents to receive transplants has the potential to adversely affect donation rates, we cannot determine whether it is actually affecting them at the present time. Another limitation is that no sample is perfectly representative of the American public. The Knowledge Networks panel excludes people without a fixed address or telephone number, and it is possible that people who agreed to participate in the survey panel are different in unmeasured ways from other Americans. In addition, although the 64% response rate was reasonably good, the possibility of nonresponse bias still exists. Despite these limitations, demographics of the participants in our study compare similarly to data from the U.S. Census Bureau, as shown in Table 1. In the field of public opinion research the Knowledge Networks panel is recognized as state-of-the-art (19,20), and surveys using the Knowledge Networks panel have been published in major peer-reviewed journals (8,21,22). In fact, several studies have demonstrated that estimates from the Knowledge Networks panel compare favorably to estimates from telephone and large national face-to-face surveys such as the General Social Survey (23,24).

In conclusion, deceased donor transplantation of foreigners is opposed by many Americans, and has the potential to adversely affect donation rates. Further studies are needed to determine whether public perceptions

about organ donation could be managed by educational interventions.

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Conflicts of Interest.

The authors declare no conflicts of interest to report.

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Appendix: Survey questionnaire

An organ transplant involves taking an organ in good condition from someone who has died, and placing it into a person whose own organ is failing. Unfortunately, the need for organs is greater than the number of organs available for transplantation. Everyone has their own personal views about organ donation. We are interested in learning more about why some people choose to donate their organs, while others choose not to donate. The purpose of this survey is to better understand your beliefs and opinions about organ donation.

(1) How willing would you be to donate your organs after your death?

1	2	3	4	5	6
Not willing at all					Very willing

(2) In your opinion, should people be allowed to travel to the United States from other countries to get an organ transplant?

- (a) yes
- (b) no
- (c) in some cases _____

(3) In your opinion, should people be allowed to travel from the United States to other countries to get an organ transplant?

- (a) yes
- (b) no
- (c) in some cases _____

(4) If you knew that people were coming from other countries to receive a transplant in your area, would this discourage you from being an organ donor?

- (a) yes
- (b) no
- (c) maybe

(5) In the United States, the supply of organs for transplantation varies by community. Because of this, some people believe that organs from communities with a large supply should be shared with communities with a smaller supply. Other people believe that organs should stay in the community where they were donated. Which do you believe?

- (a) Organs should stay in the community where they are donated
- (b) Organs should be shared between communities

(6) In some cases, patients can get on the transplant waiting list at many hospitals in different states to raise their chances of getting a transplant. Do you think this should be allowed?

- (a) yes
- (b) no