

Donor Designation Impact on the Availability of Transplantable Allografts in the United States

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ABSTRACT

Availability of donated eyes, tissue and organs in a volume and timeliness sufficient to meet patient needs has long been a universal challenge. This review of the donor designation data as compiled by Donate Life America, examines the effectiveness of First Person Authorization (Donor Designation or Donor Registration) in increasing the availability of allografts for transplantation and looks at factors that may influence successful gains in the number of registrants. Current reports appear to indicate the program has had the most substantial effect in increases in eye and tissue recovery, with a lesser increase in available organs due perhaps in part to differences in availability and compatibility constraints.

Donor Designation rates in several states are used as an example of the effectiveness of this program, and also point out some areas of deficiency. While overall impact appears positive, there are unexplained factors which warrant further exploration.

The availability of sufficient numbers of donated eyes, tissues and organs in time to meet patient needs has long been a universal challenge and work in progress. First Person Authorization (Donor Designation, Donor Registration, Registered Donor) legislation makes donor designation legally binding with the understanding this authorization cannot be revoked by anyone other than the donor. This review examines the effectiveness of First Person Authorization (Donor Designation) in increasing the availability of allografts for transplantation and examines factors which may influence increased gains in numbers of registrants.

Meeting surgical transplantation needs has long been a challenge for all organizations seeking to provide safe transplantable allografts for patients without substantial waiting engendered by lack of ready availability. While this remains a significant challenge for solid organ transplantation due to availability and compatibility constraints, it has dramatically improved for eye and tissue needs. In fact, there is seldom any waiting list for corneas for U.S. patient demands. This may in part be due to the increased number of individuals listed in the Donor Registries in each state.

Registry efforts were launched in large part due to a 2006 Donor Designation Collaborative sponsored by Donate Life America. Donate Life America is an alliance of national organizations and state teams invested in initiatives to increase donor registration across the United States. Its mission is “driving individuals, organizations and communities to increase the number of designated organ, eye and tissue donors who save and heal lives” (1). Donor registration data as compiled by Donate Life America reports the following increase in donor registry activity in Figure 1.

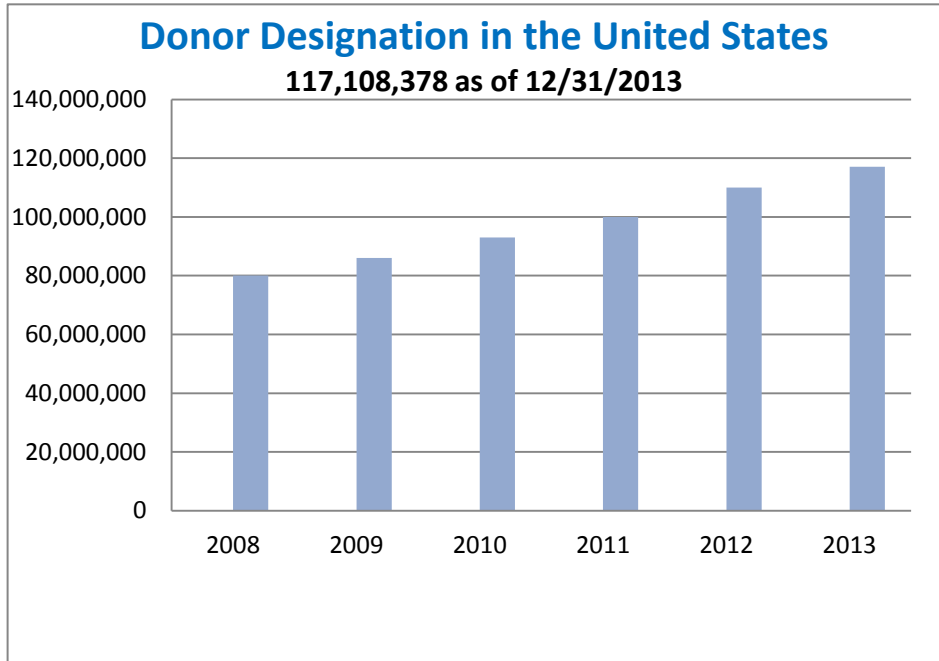


Figure 1
 The Number of Registered Donors Increased Steadily Since 2008
Donate Life America 2014 National Donor Designation Report Card

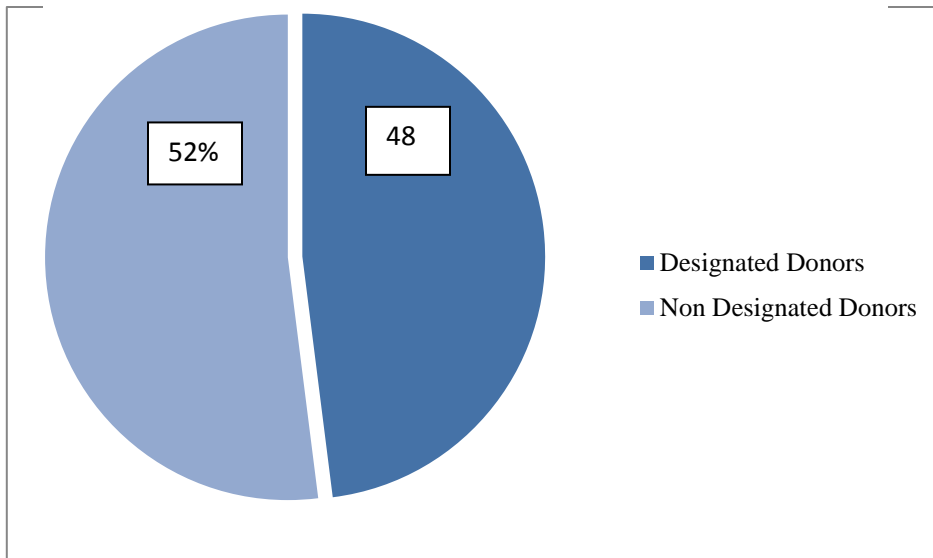


Figure 2
 US Population 18+: 245,343,985
 Compiled by Donate Life America, 2014 National Donor Designation Report Card from U.S. Census as of 7/12/13

Figure 2 above illustrates that almost half of US population (48%), 18 years and older, are registered donors as of July 2013. This figure represents the donor designation share (DDS) in all 50 states, as well as Puerto Rico and the District of Columbia. Donate Life America's goal is to have each state reach a minimum of 50% DDS.

The percent of designated donors among recovered eye donors has increased from 38% to 52% since the launch of the Donor Designation Collaborative as seen in Figure 3 below.

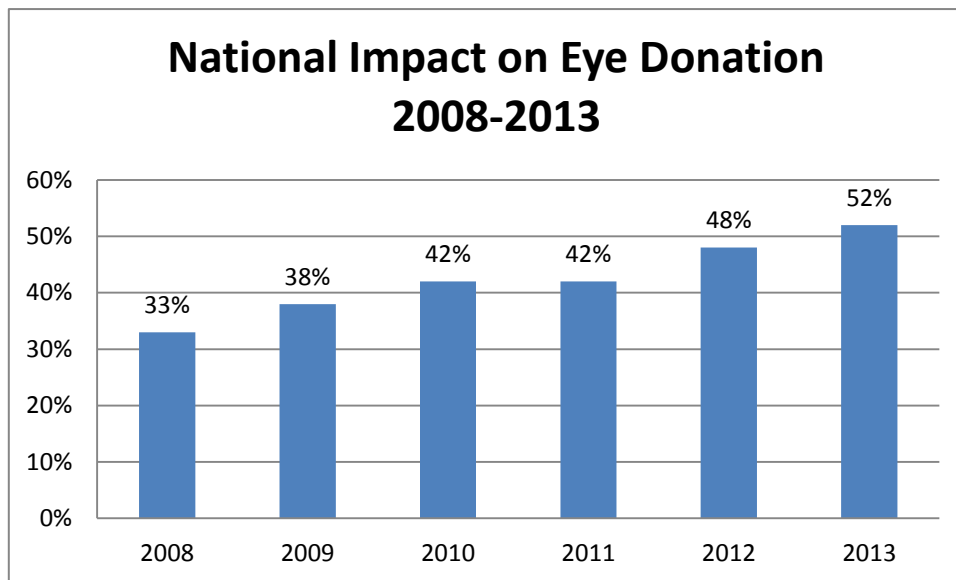


Figure 3
Compiled by Donate Life America, 2014 National Donor Designation Report Card
from U.S. Census as of 7/12/13

Reviewing data for one state, Texas, the Registry effect is compared in a three point analysis. These points are registration by year, by county and by population. The number of registered donors increased from 2% of the state's adult population (18+ years) in 2009 to 32% in 2013 (2) (3). One eye bank in Texas had a greater than 30% increase in cornea recovery from registered

donors from 2010-2014, as can be seen in Figure 4 (which as local data was available for an additional calendar year).

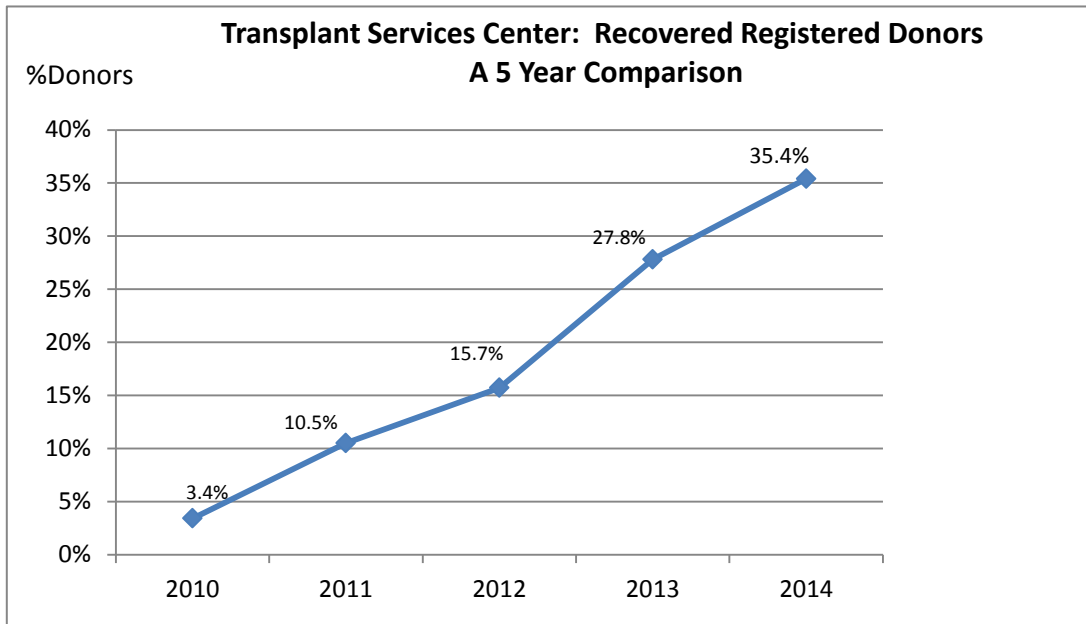


Figure 4
Data compiled by Transplant Services Center, UT Southwestern Medical Center

In an effort to compare those areas with the highest donor designation rates with those with the lowest donor designation rates, the state of Texas was compared by county. Figure 5 below shows the breakdown of 254 Texas counties by the percent of the adult population who are registered donors.

Number of Texas Counties by % Donor Registrants

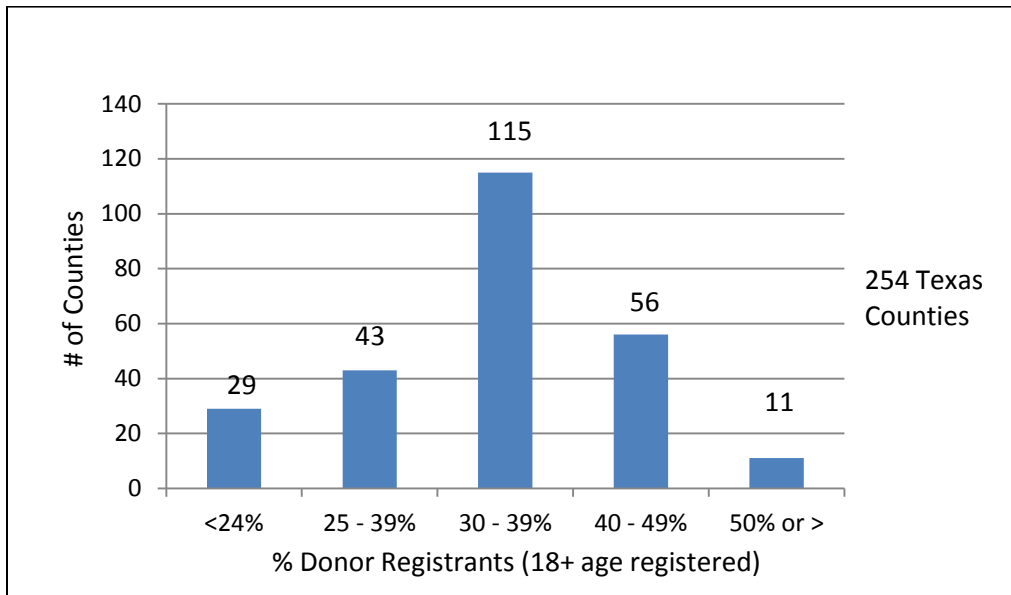


Figure 5
Data compiled by Transplant Services Center, UT Southwestern Medical Center

Population compared to donor registration did not show urban dominated counties to have greater donor designation rates than rural counties. In fact, some of the least populated counties have some of the highest percentage of registrants. An example of the wide disparity in this review is that of the rural county of Borden with a donor designation rate of 54% in a population of 203 people 18+, contrasted with the urban county of Dallas with a donor designation rate of 25.4% and a population of 1,772,673 people 18+ (4).

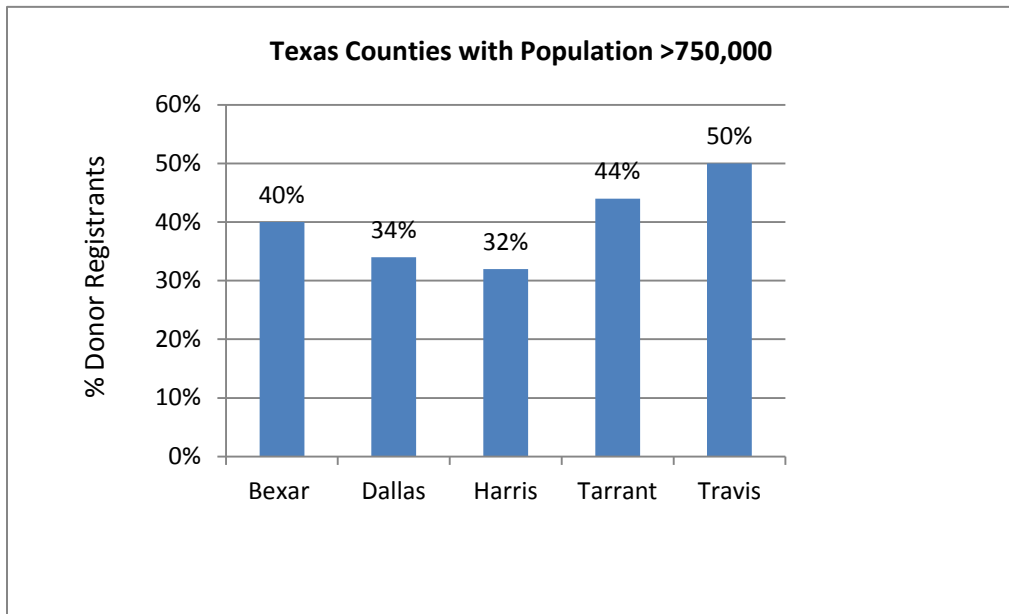


Figure 6
Data compiled by Transplant Services Center, UT Southwestern Medical Center

Texas counties with populations greater than 750,000 with donor designation rates between 32 and 50% as can be seen in Figure 6 above.

State donor designation percentage rates vary significantly as reported by Donate Life America. Some states have higher designation rates than others. California, New York, Texas and South Carolina are on the low end of the spectrum with 22-37% of their state's adult population registered. This is in stark contrast to states such as Montana, Alaska, Washington and Colorado with registration rates from 74% to 84% (5). See figure 7 below.



Figure 7
States in green are among the highest Donor Designation Rates (>70%)
States in blue are among the lowest Donor Designation Rates (<40%)

Some factors that may contribute to the differences in donor designation rate include, but are not necessarily limited to population differences in educational levels and ethnicity (6). Cultural barriers, religious beliefs and misperceptions or lack of knowledge concerning donation and transplantation may also play a role in an individual's decision to be a registered donor (7). One study examined the effects of donor designation on the organ donation process and found families of registered donors were likely to be white and to hold more years of education than other families sampled; they were also more willing to donate their own organs and to be a registered organ donor (8). These findings, that donor race was strongly associated with the donation decision is in accord with that of other researchers studying organ donation (9). These studies did not specifically deal with eye and tissue donation, however these finding may also

represent factors influencing eye and tissue donation, as ocular tissue and organs may frequently occur together. TSC statistics for 2012-2014 of the number of ocular donors that were also organ donors appears to indicate at least 35% of ocular donors in this population were also organ donors. Bearing in mind the criteria of brain death restricts far more organ donation than the criteria for eye and tissue donation, the 35% relationship suggests a similarity in population characteristics for consent. This may warrant more detailed evaluation.

In summary, donor designation has resulted in steadily increasing transplantable allografts; however, sustaining these increases may require more in-depth study of the factors relating to donor designation decisions. Continuing public education and awareness should not be overlooked in maintaining the valuable gains in donations achieved by Donor Designation Legislation and should vigorously be pursued by the transplant community.

REFERENCES

- (1) Donate Life America. “2014 National Donor Designation Report Card.” June 2014. Web. 7 April 2014; <http://organdonor.gov/whydonate/index.html>
- (2) Ibid.
- (3) Donate Life America. “2010 National Donor Designation Report Card.” <http://blog.chron.com/medblog/files/legacy/archives/donorreportcard.pdf>
- (4) Donate Life Texas.org
- (5) Supra 1 above
- (6) Traino H, Siminoff L. “Attitudes and acceptance of First Person Authorization: A National Comparison of Donor and Nondonor Families.” *J Trauma Acute Care Surg.* 2013;74 (1):294-300
- (7) Aguilar J. “Organ Donations Lag in South Texas and Culture is a Factor.” <http://www.nytimes.com/2011/03/06/us/06ttddonation.html>
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