

# Leading Efforts to Increase Organ Donation Through Professionalization of Organ Procurement Organizations and Establishment of Organ and Tissue Donor Registries

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## ABSTRACT

**Objective.** The influence of new donor registrations through the California Organ and Tissue Donor Registry on the local OneLegacy Organ Procurement Organization (OPO) was examined during a 6-year period.

**Methods.** Publicly available data from Donate Life America for California were examined for the 6 calendar years of 2009–2014. Performance data from OneLegacy for the same 6 years for organ donors and number of transplants were also examined. The donor designation rate (DDR) was defined as the rate at which new individuals joined the state donor registry as a percentage of all driver licenses and ID cards issued within a calendar year. The total donor designation (TDD) was defined as the sum of the new and existing people who were registered organ donors. Donor designation share (DDS) was the total number of designated donors as a percentage of all residents of the state who were  $\geq 18$  years old. The business practices and educational efforts of the OneLegacy OPO were examined as well.

**Results.** In California, from 2009 through 2014, the DDR was 25.5%–28%. When added to the existing donor registrations, the TDD and DDS increased each year from 2009 through 2014. With the current level of growth, it is projected that California will be able to reach a DDS of 50% by 2017. For the OneLegacy OPO, designated donors from the California Organ and Tissue Donor Registry made up 15% of the total donations in 2009, and 39% of the total donations in 2014, increasing by  $\sim 5\%$  each year since 2009. By increasing professionalization and transparency, and widening its educational and training efforts, OneLegacy was able to take advantage of an increasing percentage of donors who were designated donors and to increase the overall number of donors and organs transplanted, becoming one of the largest OPOs in the nation.

**Conclusions.** This can be a model for OPOs in other donor service areas, and it may set the stage for the United States to serve as an example to the global community in the practice of organ donation.

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**T**RANSPLANTATION plays a vital role in preserving and extending life for patients with end-stage diseases of the heart, lungs, liver, kidney, and other vital organs, but it is limited by the number of organs available for transplantation. As a consequence of the limited supply of organs, the demand for organs exceeds the supply, and patients must be placed on a waiting list.

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Organ donation systems have been established in the United States to allocate organs to patients on a waiting list in a fair and equitable manner according to a limited number of matching criteria. These efforts are coordinated at a national level by the Organ Procurement and Transplant Network (OPTN) [1] and the United Network for Organ Sharing (UNOS) [2], which administratively divide the country into a number of regions, further designate several donor service areas (DSAs) within a region, and a local Organ Procurement Organization (OPO) in each DSA. For Los Angeles and several surrounding counties in California, the local OPO is OneLegacy [3–5].

Despite a highly developed infrastructure for the allocation of organs in the United States, demand for organs exceeds the supply [6–8]. Advancements in medical technologies such as ventricular assist devices and dialysis have given many potential recipients the ability to survive for years while awaiting an organ. Such interventions have increased the numbers of potential recipients in need, which has rendered waiting lists so lengthy that no realistic supply can meet demand [6,9,10]. Therefore, the focus has shifted toward increasing the supply of donor organs.

In the United States, efforts to increase the number of organ donors through educational programs and heightened public awareness have met with limited success. More recently, efforts in several states, including California, between the Department of Motor Vehicles (DMV) and Donate Life America have given people the ability to register online as a potential organ donor with relative ease when renewing or applying for a driver license. Donate Life California [11] has been the authorized organization responsible for managing the online Organ, Eye, and Tissue Donor Registry in California since it was launched in April 2005 and partnered with the DMV in July 2006. The effects of the new donor registrations through the California Organ and Tissue Donor Registry on the local OneLegacy OPO were examined annually from 2009 to 2014. Performance data, business practices, and educational efforts of the OneLegacy OPO were also examined.

## METHODS

Publicly available data from Donate Life America for California were examined for the 6 calendar years of 2009–2014 [12–17]. The donor designation rate (DDR) was defined as the rate at which new

individuals joined the state donor registry as a percentage of all driver licenses and ID cards issued within a calendar year. The total donor designation (TDD) was defined as the sum of the new and existing number of people who were registered organ donors. Donor designation share (DDS) was the total number of designated donors as a percentage of all residents of the state who were  $\geq 18$  years old. Data from OneLegacy for the 6 calendar years of 2009–2014 for organ donors and number of transplants were also examined [4,5,18,19]. The yearly performance data for OneLegacy are shown in Table 1.

## RESULTS

Figure 1 and Table 2 show the TDD and the DDR by calendar year from 2009 through 2014. The TDD rose each year.

Figure 2 shows the yearly DDS from 2009 through 2014 and the projected DDS beyond 2014. The DDS rose each year from 2009 through 2014 and is projected to rise each year subsequently, reaching 50% by 2017.

Figure 3 shows the yearly percentage of donor designations from the Organ and Tissue Donor Registry in California as a percentage of all donors in the OneLegacy DSA yearly from 2009 through 2014. In 2009, designated donors made up 15% of the total donations in OneLegacy's service area, and in 2014 they made up 39% of the total donations. The percentage of donors with a pink dot designation has increased  $\sim 5\%$  each year since 2009.

## DISCUSSION

In California, the TDD has been on the rise since early 2009 (Fig 1; Table 2). Although varying slightly each year, an average of 6 million people received newly issued or renewed driver licenses and IDs from the DMV each year from 2009 to 2014. With a DDR of 25.5%–28% each year (Table 2), when added to the existing registrations the California Organ and Tissue Donor Registry was able to register  $>11$  million people and reach a new benchmark for the TDD in 2014 [12–17].

With the TDD rising with each year, it is projected that California will soon be able to reach a 50% DDS, the total number of designated donors, as a percentage of all residents of the state  $\geq 18$  years old (Fig 2). The DDS can be anticipated to reach 50% by 2017 if the state maintains registration growth at a similar rate (Fig 2).

**Table 1. OneLegacy Performance Activity 2009–2014**

Activity	2009	2010	2011	2012	2013	2014
Referrals	4393	5150	5515	5799	5916	6319
Referrals on CA Registry	216	456	583	632	803	966
Referred not suitable	3260	2882	3812	3882	3872	4084
Eligible deaths	513	485	538	509	538	528
Eligible donation rate	62%	67%	71%	69%	71%	67%
Conversion rate	71%	68%	73%	72%	73%	71%
Organ donors	382	349	417	391	422	418
Transplanted organs	1182	1101	1262	1239	1374	1288
Organs transplanted per donor	3.09	3.15	3.03	3.17	3.26	3.07

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