

Guide to the DSA/OPO-Specific Reports, v 5.5

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Introduction

There are 9 tables that report statistics for the 59 individual Organ Procurement Organizations (OPOs) and their Donation Service Areas (DSAs). The statistics in these tables are based on data available from the Organ Procurement and Transplant Network (OPTN) as of April 30, 2004. These tables report organ procurement and transplantation activities. Generally, the same conventions that have been used previously by the OPTN to tabulate donors, organs, transplants, and transplant operations were used here. These tables are described individually below.

I. Number of Deceased Donors and Organs Recovered

The “Recovered (n)” columns of Table 1 summarize the number of deceased donors and the number of organs recovered and the number of organs transplanted, by type of organ, between January 2002 and December 2003. The average number of organs per donor is also reported. Only organs with recovery codes indicating recovery for whole organ transplant are included; organs recovered for science, pancreas islets, heart valves, etc. are excluded.

Donor Count

The total number of recovered donors during these years by this DSA/OPO and throughout the U.S. is reported. Recovered donors include any donor from whom at least one solid organ was recovered for the intent of transplantation, regardless of whether the organ was transplanted or not. This table includes donors of all organ types in the deceased donor population.

Donation After Cardiac Death (DCD)

The number of recovered donors that were reported as “donation after cardiac death” is reported for each year. These donors are also included in the total donor count.

Organs Recovered per Donor (average)

The average number of organs per donor is calculated and shown here.

Technical note: pairs of kidneys recovered “en-bloc” and pairs of lungs recovered “en-bloc” are counted as two organs each. Kidney recoveries are counted separately from pancreas recoveries, regardless of whether they were transplanted together. Similarly, other organ combinations (hearts and lungs) were counted individually, regardless of whether they were transplanted together. Pancreas islets and heart valves are not counted as recovered organs. Each liver was counted only once, even if it was split for transplantation.

Organs Recovered

The total number of each organ recovered for each year is reported. This number is calculated as the sum of recovered organs by organ type, i.e., in the case of kidneys recovered, up to two kidneys can be recovered from an individual donor; however, only one heart can be recovered from each donor. See the note above in “Organs Recovered per Donor (average)” for further details on how organs were counted in this table.

Organ Segments Recovered

For organs which can be divided into different segments (i.e. liver, pancreas, and intestine), the total number of organ segments recovered for each year is reported. At most, two segments from each of these organs can be recovered from a given donor. If the entire undivided organ is recovered, only one organ segment is counted.

Organs Transplanted

The percent of organs recovered at this DSA/OPO that resulted in a transplant for each year is shown in the columns labeled "Transplanted (%)" under "This DSA". This percentage includes organs recovered in this DSA/OPO that were exported to another DSA/OPO for transplant. Note that this is based on a count of recovered organs that were transplanted, which differs from the number of transplant operations. Since multiple organs can result in one transplant procedure (i.e. a double lung transplant) and a single organ can result in multiple transplant procedures (i.e. liver segments), the totals in this table may not agree with transplant counts in other tables. For the purposes of comparison, corresponding data for the entire U.S., at each time period, are also reported.

II. Number and Location of Organs Transplanted for Organs Recovered from Deceased Donors within This DSA/OPO

Table 2 summarizes the number, type, and location of deceased donor organs transplanted within this DSA/OPO as well as those exported and transplanted at transplant centers in other DSAs/OPOs between January 2002 and December 2003.

This DSA/OPO

The total number of each organ type that was recovered within this DSA/OPO and that resulted in a transplant (whether at a transplant center in this DSA/OPO service area or the service area of another DSA/OPO) during these years is reported. This includes only organs that were recovered from a deceased donor by this DSA/OPO and is a count of the number of organs transplanted, not the number of transplant procedures. Since multiple organs can result in one transplant procedure (i.e. a double lung transplant) and a single organ can result in multiple transplant procedures (i.e. liver segments), the totals in this table may not agree with transplant counts found in other tables.

Transplant Centers Served by this DSA/OPO

The transplant centers that are served by this DSA/OPO are listed. The total number of each organ type transplanted in each transplant center using organs recovered within this DSA/OPO during these years is reported. Again, this is the number of organs transplanted by each center within the DSA/OPO, not the number of transplant procedures that occurred at each transplant center.

Other Centers

The number of organs recovered by this DSA/OPO that were exported to a transplant center covered by another DSA/OPO and transplanted is reported.

III. Measures of Donor Procurement Rates

The nation's Organ Procurement and Transplantation Network (OPTN) consists of 59 separate Donation Service Areas (DSAs). A DSA consists of an Organ Procurement Organization (OPO), at least one transplant center, and two or more hospitals. Table 3 provides measures of donation rates and the basic components that determine these rates for each of the DSAs. In addition, the table provides the national distribution of select observed measures as a reference for each DSA.

The first section of table 3 presents observed donor recovery and referral data reported to the OPTN/SRTR from January 2003 to December 2003.

Deceased Donors (All)

All deceased donors recovered in this DSA.

Deceased Donors Meeting Eligibility Criteria

Deceased donors aged 0-70 meeting death by neurological criteria.

Additional Donors

Deceased donors age greater than 70 or Donation after Cardiac Death (DCD) donors.

Eligible Deaths

These potential donors include any heart-beating individuals meeting, or imminently meeting, death by neurological criteria; aged 70 or under; who have not been diagnosed with exclusionary medical conditions such as HIV, leukemia, etc.

Observed (Crude) Donation Rate

The number of Deceased Donors Meeting Eligibility Criteria per 100 Eligible Deaths.

Notifiable Death Count

A subset of all in-hospital deaths age 0-70 with no exclusionary medical diagnoses for possible donation. The number of Notifiable Deaths is based on methodology to determine the relevant subset of deaths in a geographic area, described in Ojo et al, Transplantation, 1999.

Observed (Crude) Notification Rate

The number of Eligible Deaths per 100 Notifiable Deaths.

The second section of the table provides several expected measures of donation.

Expected Notification Rate

The Expected Notification Rate is the rate expected for an OPO based on national experience for OPOs serving similar Donation Service Areas. The Expected Notification Rate accounts for the distribution of Age, Sex, Race and Cause of Death among Notifiable Deaths within each DSA.

Expected Donation Rate (Hospital Characteristics)

The Expected Donation Rate is the rate expected for an OPO based on the national experience for OPOs serving similar hospitals and donation service areas. The Expected Donation Rate is adjusted for the following hospital characteristics: Level 1 or 2 trauma center, Metropolitan Statistical Area size, CMS Case Mix Index, total bed size, number of ICU beds, primary service and hospital control/ownership.

Expected Donation Rate (Hospital Characteristics, Notification Rate)

This Expected Donation Rate is an estimate of the donation rate for an OPO based on the hospital characteristics listed above plus an additional adjustment of the Expected Notification Rate.

The Standardized Ratios provided in this section are calculated as the ratio of observed to the expected where 1.0 is equal to the reference. A ratio above 1.0 indicates that the observed measure for an OPO is greater than the expected, while ratios below 1.0 indicate that the observed measure is less than what would be expected given the national experience. The 95% confidence intervals of these ratios are provided to describe the uncertainty of the estimated expected measures.¹ The width of the confidence interval varies by DSA, depending on the amount of data available and the variability within the data. The p-values given test for statistical significance between the observed and expected measures. A p-value less than or equal to 0.05 indicates that the difference between the ratio indicated and 1 (also the difference between observed and expected) is most likely real and not due to random chance. A p-value greater than 0.05 indicates that the difference could possibly be due to random chance.

IIIa. Measures of Donor Procurement Rates by Hospital

This table provides the observed measures of donation rates by hospital for each Donation Service Area. Within each DSA, these aggregate to the DSA-level donation statistics in Table 3.

IV. Characteristics of Recovered Donors

Table 4 summarizes the characteristics of donors recovered during two time periods by this DSA/OPO. The two time periods are January 2002 through December 2002 and January 2003 through December 2003. For the purposes of comparison, corresponding data for the entire U.S., at each time period, are also reported.

Donor Count

The total number of recovered donors during this period by this DSA/OPO and throughout the U.S. is reported. Recovered donors include any donor from whom at least one organ was recovered, regardless of whether the organ was transplanted or not. This

¹ The Confidence Interval provided for the measure estimated from Hospital Characteristics and the Notification Rate gives a range of values for the observed donation rate.

table identifies all donor types in the donor population. The summaries of the donor characteristics in Table 4 are based on these donor population counts.

Race

The percentage of recovered donors in each of five race categories is reported. These categories are: Asian/Pacific Islander, Black, White, a combined group for Other races, and Unknown is shown. Missing values were reported in the Unknown category.

Ethnicity

The percentage of Hispanic and non-Hispanic donors is reported. Missing values were reported in the Unknown category.

Age

Age was determined at the date of death/recovery of organs for each donor. The percentage of donors in each of several age ranges is reported. Missing values were reported in the Unknown category.

Gender

The percentage of male and female donors is reported. Missing values were reported in the Unknown category.

Blood Type

The percentage of donors by ABO type (O, A, B, AB) is reported. Donors with ABO type A, A1, or A2 were classified as A. Donors with ABO type AB, A1B, or A2B were classified as AB. Missing values were reported in the Unknown category.

Cause of Death

The percentage of recovered donors in each of the major cause of death categories is reported. The categories for cause of death are: anoxia, stroke, CNS tumor, head trauma, other and unknown. Any missing values were reported in the Unknown category.

Donation After Cardiac Death (DCD)

The percentage of recovered donors for which cardiac death had occurred is reported.

V. Characteristics of Recovered Donors, by organ

Table 5 summarizes the characteristics of kidney, liver, and heart donors recovered from January 2002 through December 2003 by this DSA/OPO.

Donor Count by Organ

The total number of kidney, liver, and heart donors who were recovered during this period by this DSA/OPO is reported. Recovered donors include any donor from whom an organ was recovered, regardless of whether the organ was transplanted or not. This table identifies only donors from whom a liver, heart, or at least one kidney was recovered. The summaries of the donor characteristics in Table 5 are based on these donor population counts.

Race

The percentage of recovered donors in each of five race categories is reported. These categories are: Asian/Pacific Islander, Black, White, a combined group for Other race, and Unknown is shown. Missing values were reported in the Unknown category.

Ethnicity

The percentage of Hispanic and non-Hispanic donors is reported. Missing values were reported in the Unknown category.

Age

Age was determined at the date of death/recovery of organs for each donor. The percentage of donors in each of several age ranges is reported. Missing values were reported in the Unknown category.

Gender

The percentage of male and female donors is reported. Missing values were reported in the Unknown category.

Blood Type

The percentage of donors by ABO type (O, A, B, AB) is reported. Donors with ABO type A, A1, or A2 were classified as A. Donors with ABO type AB, A1B, or A2B were classified as AB. Missing values were reported in the Unknown category.

Cause of Death

The percentage of recovered donors in each of the major cause of death categories is reported. The categories for cause of death are: anoxia, stroke, CNS tumor, head trauma, other and unknown. Any missing values were reported in the Unknown category.

Donation After Cardiac Death (DCD)

The percentage of recovered donors for which cardiac death had occurred is reported for each of the three organ types--kidney, liver, and heart.

Expanded Criteria Donors

The percentage of donors who met the expanded donor criteria is reported only for kidneys. Donors that meet the expanded criteria are those over 60 years of age and those between 50 and 59 years of age who either died of a stroke, had a history of hypertension, or had a serum creatinine of greater than 1.5.

VI. Percent Transplanted (Excludes Living Donor Recipients) for Waitlist Patients at this Center

Table 6 gives the percentages of patients who received a transplant at the specified times (1 month, 1 year, 2 years, and 3 years after waitlisting) among those who were placed on the kidney waitlist at centers served by the given DSA/OPO from Jan 1, 1998 - Dec 31, 2000. This information is given for the DSA/OPO and, for purposes of comparison, for the U.S. as a whole. The data exclude patients who were removed from the waitlist with a removal code indicating transplant from a living donor.

This analysis includes patients whose waitlist status was temporarily inactive and patients who spent periods of time in temporarily inactive status. The statistics are calculated as simple fractions and the analysis does not censor patients if they were removed for reasons other than receiving a transplant. Thus, patients who die before receiving a transplant are counted at all times as not having received a transplant. Each percentage is

calculated among all patients and separately for different classifications of: race, ethnicity, age, gender, blood type, previous transplant, primary disease, and peak PRA.

The percentage shown is calculated as: $100 \times (\text{number of patients placed on the waitlist between 1/1/1998 12:00:00 AM and 12/31/2000 12:00:00 AM who received a transplant prior to a specified number of months after waitlisting}) / (\text{total number of patients placed on the waitlist between 1/1/1998 12:00:00 AM and 12/31/2000 12:00:00 AM})$.

VII. Time to Transplant for Waitlist Candidates

Table 7 gives the median (50th percentile) waiting time until transplant (both cadaveric and living related transplants) for patients who were placed on the waitlist for a kidney, liver, or heart between January 1, 1998 and June 30, 2003, as well as the 5th, 10th, 25th and 75th percentile waiting times. All percentiles are shown only when applicable. The information in this table is for all patients placed on the waitlist at a center in the given DSA/OPO during the applicable time period. For purposes of comparison, corresponding times to transplant at each percentile for the U.S. as a whole are also reported. Patients with multiple waitlistings are counted multiple times in this analysis.

Waiting time until transplant is calculated as the time (in months) after a candidate is placed on the waitlist, by which the corresponding percent of all patients initially waitlisted had been removed from the waitlist for receiving a transplant. A Kaplan-Meier model was used with censoring on a) December 31, 2003 for those registrations still waiting on that date; and b) the date of removal from the waiting list for recovery, or c) the date of removal from the waiting list for a transfer. If a cell is blank then less than that percentage of patients placed had received a transplant by the end of follow-up.

VIII. Summaries for Characteristics of Deceased Donor Transplant Recipients by Organ Transplanted

Table 8 summarizes the characteristics of deceased donor transplant recipients who received a transplant between January 2002 and December 2002 or between January 2003 and December 2003 at transplant centers within the service area of this DSA/OPO, with corresponding average values among recipients in this region and the U.S. Only transplants resulting from locally procured donors or from organs imported from another DSA/OPO to a transplant center in the service area of this DSA/OPO are included. Transplants resulting from organs exported from this DSA/OPO to a transplant center in the service area of another DSA/OPO are excluded. Separate tables are provided for kidney, kidney/pancreas, pancreas, liver, heart, heart-lung, and lung transplants.

Total Number of Transplants

The total number of patients who received locally procured organ transplants during this period at transplant centers within the service area of this DSA/OPO is reported. The summaries of the patient characteristics in Table 6 are based on the patient population count.

Race

The percentage of recipients in each of five race categories: Asian/Pacific Islander, Black, White, a combined group for other race, and unknown is shown. Missing values were reported in the Unknown category.

Ethnicity

The percentage of Hispanic and non-Hispanic recipients is reported. Missing values were reported in the Unknown category.

Age

Age was determined at the date of transplant for each patient. The percentage of recipients in each of several age ranges is reported. Missing values were reported in the Unknown category.

Gender

The percentage of male and female recipients is reported. Missing values were reported in the Unknown category.

Blood Type

The percentage of recipients by ABO type (O, A, B, AB) is reported. Recipients with ABO type A, A1, or A2 were classified as A. Recipients with ABO type AB, A1B, or A2B were classified as AB. Missing values were reported in the Unknown category.

Peak Panel Reactive Antibody (Kidney, Pancreas and Kidney/Pancreas Programs Only)

The recipients' highest panel reactive antibody (PRA) on the waitlist is shown for recipients who received a kidney, pancreas, or kidney/pancreas. The percentage of recipients in each of several PRA ranges (0-9, 10-79, 80+) is reported. Missing values were reported in the Unknown category.

Primary Cause of Disease (Not Shown for Pancreas and Kidney/Pancreas)

The percentage of patients in each of the major categories of primary cause of organ failure is reported. The major categories for each organ are shown below. Primary diagnosis group is not shown for pancreas and kidney/pancreas because virtually all such patients received a transplant for diabetes mellitus.

Kidney

Glomerular diseases
Tubular and interstitial disease
Polycystic kidney disease
Congenital, familial, metabolic renal diseases
Diabetes mellitus
Renovascular & vascular diseases
Neoplasms
Hypertensive nephrosclerosis
Retransplant/graft failure
Other kidney diseases
Missing

Liver

Acute hepatic necrosis
Non-cholestatic cirrhosis
Cholestatic liver disease/cirrhosis
Biliary atresia
Metabolic diseases
Malignant neoplasms
Other
Missing

Intestine

Short gut syndrome
Functional bowel problem
Retransplant/graft failure
Other
Missing

Heart

Cardiomyopathy
Coronary artery disease
Retransplant/graft failure
Valvular heart disease
Congenital heart disease
Other
Missing

Lung

Congenital disease
Retransplant/graft failure
Primary pulmonary hypertension
Cystic fibrosis
Idiopathic pulmonary fibrosis
Alpha-1-antitrypsin deficiency
Emphysema/Chronic obstructive pulmonary disease (COPD)
Other
Missing

Heart-Lung

Congenital disease
Retransplant/graft failure
Primary pulmonary hypertension
Cystic fibrosis
Idiopathic pulmonary fibrosis
Alpha-1-antitrypsin deficiency
Emphysema/Chronic obstructive pulmonary disease (COPD)
Other
Missing

Recipient Medical Urgency Status at Transplant (Shown for Recipients of Deceased Donor Liver and Heart Donors Only)

The recipients' medical urgency status at the time of transplant is shown for deceased donor livers and hearts only. The percentage of recipients in each of status type (Livers: Status 1, 2A, 2B, 3, Temporarily Inactive; Hearts: Status 1, 1A, 1B, 2, Temporarily Inactive) is reported.

Beginning on February 27, 2002 candidates for liver transplants were classified by MELD or PELD score rather than medical urgency status. However, Status 1 and "temporarily inactive" candidates were still grouped by their respective statuses. MELD and PELD scores were computed based on the candidates' laboratory measures at the time of transplant. The following groups appear for liver recipients after February 27, 2002: Status 1, MELD 6-10, MELD 11-20, MELD 21-30, MELD 31-40, PELD 10 or less, PELD 11-20, PELD 21-30, PELD greater than 30, and Temporarily Inactive.

Expanded Criteria Donors (Kidney Only)

The percentage of donors who met the expanded donor criteria is shown. Donors that meet the expanded criteria are those over 60 years of age and those between 50 and 59 years of age who either died of a stroke, had a history of hypertension, or had a serum creatinine of greater than 1.5.

IX. Counties Assigned to This DSA/OPO by HCFA by Year

Table 9 displays the HCFA-designated service area covered by each DSA/OPO. Service areas are mapped by county borders and are re-assigned by HCFA on a routine basis. Service areas are open for competition every 2 years. Any DSA/OPO can request more or less service area during the "open season" every two years. After the year 2000, these designations will last for a period of 4 years. HCFA negotiates with the DSA/OPOs to reach the final assignment. This table shows the changes in service area by county for this DSA/OPO during the years for which data were available.

DSA/OPO Directories have been produced by HCFA during the years 2000-2002. These directories document the designation of service areas by county. There is no overlap of service areas in recent years. Beginning in 2003, assignments reflect actual referral (from each hospital to each OPO) data reported by the OPO/DSA. For counties with no referring hospitals, CMS service area data are used.

Table 9 depicts a full listing of the counties served by any particular DSA/OPO during each year listed. The information is shown by county with the corresponding Federal Information Processing (FIPs) code, the county name, and the state in which it resides. There is an "X" in the column for the year(s) for which this county was served by this DSA/OPO, a blank space for the year(s) that this county was not served by this DSA/OPO, and counties covered by more than one DSA/OPO during a particular time period are designated in the table with an "S" for "Split" counties.