

OPTN/SRTR 2019 Annual Data Report: Introduction

1 Introduction to the OPTN/SRTR 2019 Annual Data Report

The OPTN/SRTR 2019 Annual Data Report (ADR) presents the status of the solid organ transplant system in the United States from 2008 to 2019. Organ-specific chapters are presented for kidney, pancreas, liver, intestine, heart, and lung transplant. Each organ-specific chapter is organized to present waitlist information, donor information (both deceased and living, as appropriate), transplant information, and patient outcomes. Data pertaining to pediatric patients are generally presented separately from the adult data. In addition to the organ-specific chapters, you will find chapters dedicated to deceased organ donation and economics.

The data presented in the ADR are descriptive in nature. In other words, most tables and figures present raw data without statistical adjustment for possible confounding or changes over time. Therefore, the reader should keep in mind the observational nature of the data when attempting to draw inferences before trying to ascribe a cause to any observed patterns or trends.

This introduction provides a brief overview of trends in waitlist and transplant activity. More detailed descriptions can be found in the respective organ-specific chapters.

2 Trends in Kidney Transplant

In 2019, 146,574 candidates were on the kidney waitlist at some point (Figure INT 1), an increase of 1.7% from 2018. Notably, however, the size of the kidney waitlist in 2019 was about the same as it was in 2015 (146,229), marking a 5-year period of relatively little change, in stark contrast to the 16.1% growth in the waitlist from the previous 5-year period, 2010 to 2014. Of the 146,574 candidates on the waitlist, only 67.2% (98,447) were in active status at some point during the year, continuing a trend of about one-third of the waitlist being inactive at any given time (Figure INT 3). The number of new candidates added to the kidney waitlist in 2019 rose 6.7% to 43,968, continuing an upturn that

began in 2018 (Figure INT 5). The number of kidney transplants also rose in 2019 to 24,274, 10.3% more than in 2018 and 30.5% more than in 2015 (Figure INT 7). These transplants included 6,867 from living donors and 17,406 from deceased donors (Figure KI 74). This marks a 6.6% increase in living donor transplants and a 11.8% increase in deceased donor transplants from 2018. Despite these advances, the proportion of kidneys from deceased donors recovered for the purpose of transplant but ultimately not transplanted remains at about 20% (Figure INT 9). Among transplant recipients from 2012 to 2014, 1-year patient survival was 97.1%, and 5-year patient survival was 88.5% (Figure INT 10).

3 Trends in Pancreas Transplant

The demand for pancreas transplant has continued to decline, likely due to improvements in the medical treatment of diabetes. Since 2008, numbers of candidates on the waiting list for pancreas alone or pancreas-after-kidney transplant have declined every year, from 2,260 in 2008 to 1,049 in 2019 (Figure INT 2). The number waiting for a combined kidney-pancreas transplant declined from 3,888 in 2008 to 3,141 in 2019, with declines in all but two years, 2012 and 2019. With 2019 marking the first increase since 2012 in total number of candidates on the combined kidney-pancreas waiting list, from 3023 in 2018 to 3141 in 2019. Trends were similar in the number of new additions to the pancreas transplant waiting list (Figure INT 6). The total number of pancreas transplants performed in the United States remained fairly stable in 2019, at 1,015 (Figure INT 8). Most pancreata continue to be transplanted as part of a simultaneous pancreas-kidney transplant. The 1,015 pancreas transplants in 2019 included 99 pancreas-alone, 44 pancreas-after-kidney, and 872 simultaneous pancreas-kidney (Figure PA 48). Patient survival after pancreas transplant is similar to survival after kidney transplant. In the cohort of recipients from 2012 to 2014, 1-year patient survival was 96.4%, and 5-year patient survival was 89.4% (Figure INT 10).

4 Trends in Liver Transplant

The number of patients on the liver waiting list has remained fairly constant since 2008, ranging from a high of 28,625 in 2011 to a low of 27,081 in 2019 (Figure INT 1). The year 2019 marked the third consecutive year of declines in the liver waitlist. Although the total number of patients on the liver waiting list has been slowly declining in recent years, the number of additions to it has been slowly increasing (Figure INT 5). In 2019, 13,453 patients were added to the waiting list, a 2.3% increase over the previous year. The number of transplants increased to 8,897 in 2019, an increase of 7.8% (Figure INT 7). This increase reflects a 6.7% increase in deceased donor transplants, from 7,849 to 8,372, and a 30.7% increase in living donor transplants, from 401 to 524 (Figure LI 62). Both were record numbers in 2019. Liver-alone transplants made

up 90.6% of the adult liver transplants performed in 2019, with 8.4% being simultaneous liver-kidney transplants and the remaining 1% consisting of other multi-organ combinations (Table LI 10). The proportion of livers recovered for transplant but not transplanted was 9.5% in 2019 (Figure INT 9). Recipient survival from 2012 to 2014 was 90.7% at 1 year and 79.6% at 5 years (Figure INT 10).

5 Trends in Intestine Transplant

In 2019, 349 patients were on the waitlist for an intestine transplant for at least 1 day (Figure INT 2), and 103 new candidates were added to the intestine waiting list (Figure INT 6). Of the 349 candidates, only 260 (74.5%) had at least 1 active day on the waitlist during the year. The number of intestine transplants remains small, with 81 performed in 2019 (Figure INT 8). This represents a 56% decline in yearly intestine transplants since 2008. Among intestine recipients from 2012 to 2014, 1-year survival was 80.0%, and 5-year survival was 61.6% (Figure INT 10).

6 Trends in Heart Transplant

The first full year of the new heart allocation system that incorporates 6 medical urgency statuses rather than the previous 3-tier system was 2019. That year, 8,649 patients were on the heart waiting list for at least 1 day (Figure INT 2), with 7,617 (88.1%) of these having at least 1 active day on the waitlist (Figure INT 4). Of these patients, 4,782 were newly added to the list in 2019 (Figure INT 6). The number of heart transplants performed in 2019 reached a record high of 3,597, a 4.6% increase over 2018 (Figure INT 8). Among the cohort of recipients from 2012 to 2014, 1-year patient survival was 90.2%, and 5-year survival was 80.1% (Figure INT 10).

7 Trends in Lung Transplant

The year 2019 saw 2,759 lung transplants performed (Figure INT 8) among 4,809 patients on the waiting list at some point (Figure INT 2), 4,503 of whom were active at least 1 day (Figure INT 4). New listings in 2019 accounted for 3,316 of the 4,809 candidates on the list (Figure INT 6). The 2,759 lung transplants performed in 2019 represent a record high and a 7.7% increase over 2018. Among recipients from 2012 to 2014, 1-year survival was 86.3%, and 5-year survival was 58.1% (Figure INT 10).

8 Summary

In 2019, nearly solid organ transplants were performed in the United States. Since 2010, we have witnessed a 37% growth in the number of kidney transplants, 41% growth in liver transplants, and 52% growth in both heart and lung

transplants. Both pancreas and intestine transplants have seen a decline of 14% and 46%, respectively, over the same period. Demand for transplants continues to rise. Newly listed candidates for kidney transplant in 2019 had increased 21% since 2010, while liver listings increased 12%, heart listings increased 33%, and lung listings increased 31%. New listings for pancreas-alone transplant decreased 46%, kidney-pancreas decreased 4%, and intestine decreased 57%. The waitlist continues to outpace the number of transplants performed. The kidney waitlist is about 6 times longer than the number of transplants performed, the liver list is 3 times the number of liver transplants performed, and the heart and lung lists are each about double the number of transplants performed. Each organ-specific chapter of this ADR presents a much more detailed look at the status of organ donation and transplant in the United States.

The publication was produced for the U.S. Department of Health and Human Services, Health Resources and Services Administration, by the Hennepin Healthcare Research Institute (HHRI) and by the United Network for Organ Sharing (UNOS) under former SRTR contract HSH250201500009C, current SRTR contract 75R60220C00011, and OPTN contract 234-2005-37011C.

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Suggested Citations Full citation: Organ Procurement and Transplantation Network (OPTN) and Scientific Registry of Transplant Recipients (SRTR). OPTN/SRTR 2019 Annual Data Report. Rockville, MD: Department of Health and Human Services, Health Resources and Services Administration; 2021. Abbreviated citation: OPTN/SRTR 2019 Annual Data Report. HHS/HRSA.

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This report is available at srtr.transplant.hrsa.gov. Individual chapters, as well as the report as a whole, may be downloaded.

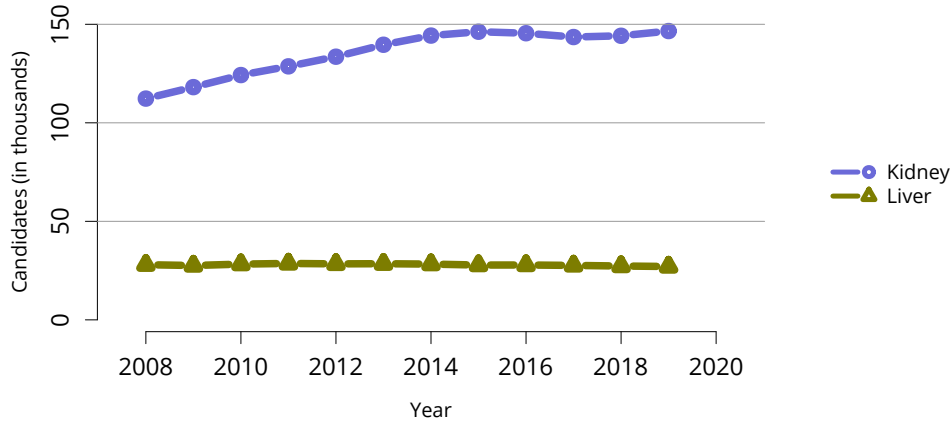


Figure INT 1. All candidates on the kidney or liver waiting list . Candidates listed at multiple centers are counted once per listing. Includes active and inactive candidates on the list any time during the year.

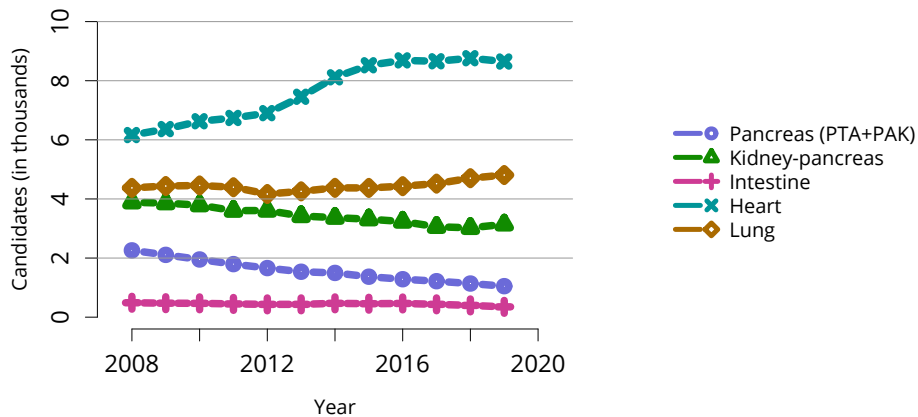


Figure INT 2. All candidates on the waiting list for organs other than isolated kidney or liver . Candidates listed at multiple centers are counted once per listing. Includes active and inactive candidates on the list any time during the year. PAK, pancreas after kidney; PTA, pancreas transplant alone.

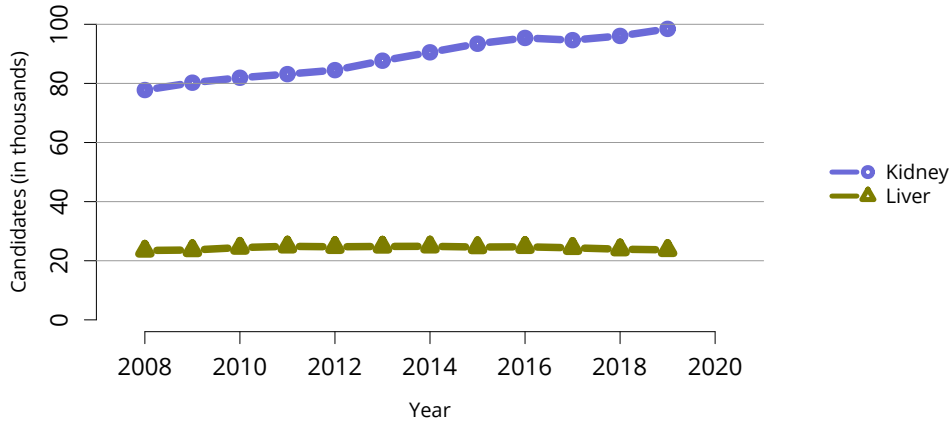


Figure INT 3. Candidates active on the kidney or liver waiting list . Candidates listed at multiple centers are counted once per listing. Includes candidates active on the list any time during the year.

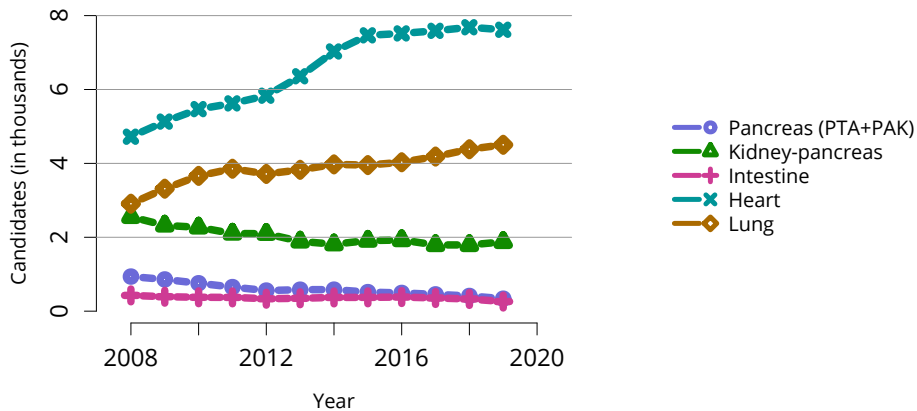


Figure INT 4. Candidates active on the waiting list for organs other than isolated kidney or liver . Candidates listed at multiple centers are counted once per listing. Includes candidates active on the list any time during the year. PAK, pancreas after kidney; PTA, pancreas transplant alone.

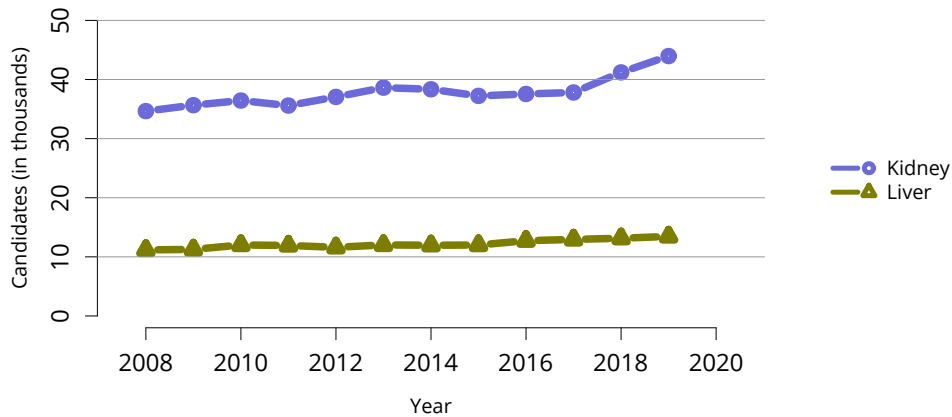


Figure INT 5. New candidates added to the kidney or liver waiting list during the year. A new candidate is one who first joined the list during the given year, without having been listed in a previous year. Previously listed candidates who underwent transplant and subsequently relisted are considered new. Active and inactive patients are included.

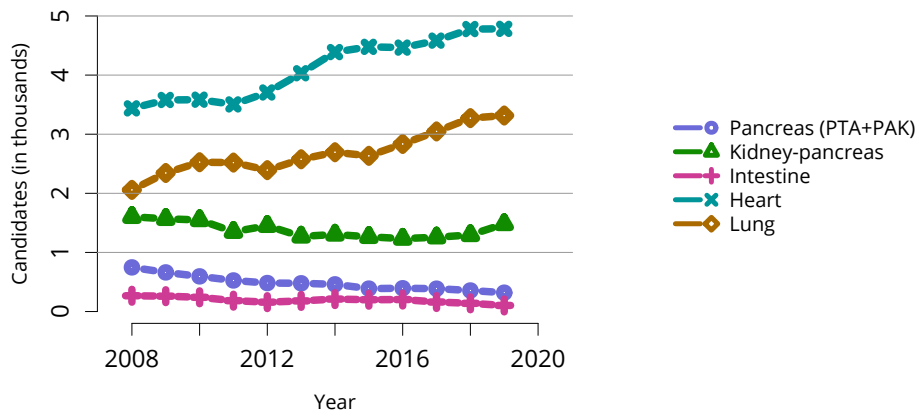


Figure INT 6. New candidates added to the waiting list during the year for organs other than isolated kidney or liver. A new candidate is one who first joined the list during the given year, without having been listed in a previous year. Previously listed candidates who underwent transplant and subsequently relisted are considered new. Active and inactive patients are included.

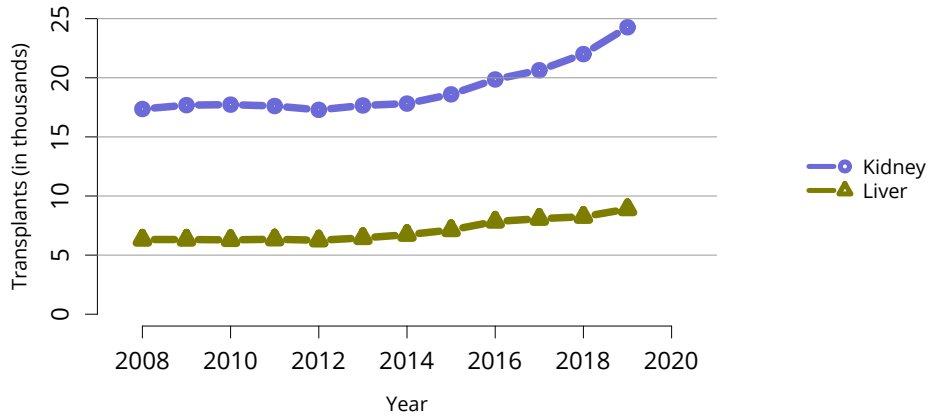


Figure INT 7. Total counts of kidney or liver transplants. Kidney: patients undergoing kidney or SPK transplant. Retransplants and multi-organ transplants are included. SPK, simultaneous pancreas-kidney.

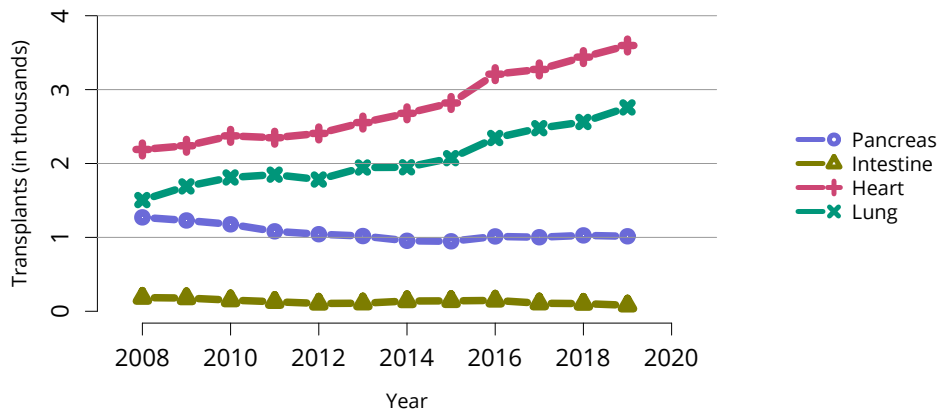


Figure INT 8. Total counts of transplants for organs other than isolated kidney or liver. Pancreas: patients undergoing pancreas or SPK transplant. Heart: patients undergoing heart or heart-lung transplant. Lung: patients undergoing lung or heart-lung transplant. Retransplants and multi-organ transplants are included. SPK, simultaneous pancreas-kidney.

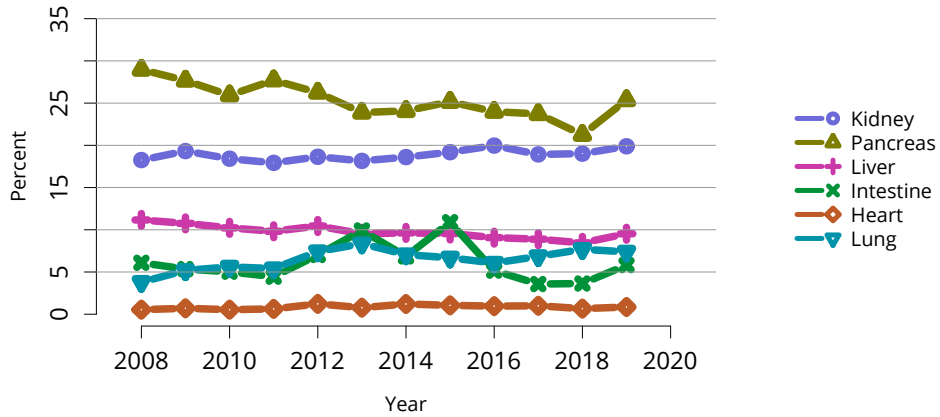


Figure INT 9. Rates of organs recovered for transplant and not transplanted. Percentage of organs not transplanted out of all organs recovered for transplant. Kidneys and lungs recovered en-bloc are counted once, and those recovered separately are counted twice.

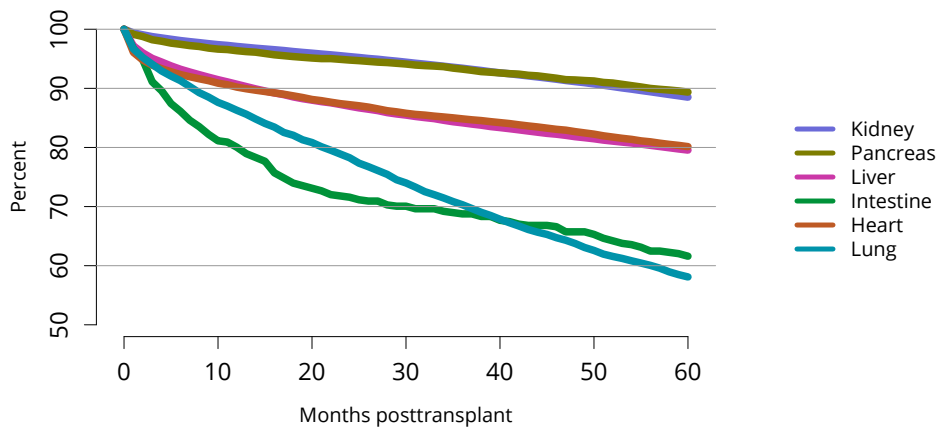


Figure INT 10. Patient survival among all transplant recipients, 2012-2014, by organ. Patient survival estimated using unadjusted Kaplan-Meier methods. Similar overall survival rates for kidney and pancreas recipient may obscure one organ's line on the graph.