OPTN/SRTR 2012 Annual Data Report:

intestine

ABSTRACT Advances in the medical and surgical treatments of intestinal failure have led to a decrease in the number of transplants over the past decade. In 2012, 152 candidates were added to the intestinal transplant waiting list, a new low. Of these, 64 were listed for intestine-liver transplant and 88 for intestinal transplant alone or with an organ other than liver. Historically, the most common organ transplanted with the intestine was the liver; this practice decreased substantially from a peak of 52.9% in 2007 to 30.0% in 2012. Short-gut syndrome, which encompasses a large group of diagnoses, is the most common etiology of intestinal failure. The pretransplant mortality rate decreased dramatically over time for all age groups, from 51.0 per 100 wait-list years in 1998-1999 to 6.7 for patients listed in 2010-2012. Numbers of intestinal and intestine-liver transplants steadily decreased from 198 in 2007 to 106 in 2012. By age, intestinal transplant recipients have changed substantially; the number of adult recipients now approximately equals the number of pediatric recipients. Graft survival has improved over the past decade. Graft failure in the first 90 days after transplant occurred in 15.7% of 2011-2012 intestinal transplant recipients, compared with 21% in 2001-2002.

KEY WORDS Intestinal failure, intestinal transplant, liver-intestine transplant, waiting list.

[My husband] would have wanted nothing more than to give life to others even in his last days. We hum softly to the beat of the four organ recipients' hearts, praying that they are healthy and living with a renewed sense of purpose. We sing because we know he is dancing in heaven and he delights in our accompanying songs.

donor wife

Introduction

Advances in the medical and surgical treatments of intestinal failure have led to a decrease in the number of transplants over the past decade. Patient survival has improved, and morbidity associated with parenteral nutrition, including liver failure, has declined. Nevertheless, intestinal transplant still plays an important role in the treatment of intestinal failure. Intestinal transplants may be performed in isolation, with a liver transplant, or as part of a multi-visceral transplant including any combination of liver, stomach, pancreas, colon, spleen, and kidney.

Waiting List

The number of new patients added to the intestinal transplant waiting list continues to decrease, reaching a low of 152 in 2012. Of these patients, 64 were listed for intestine-liver transplant and 88 were listed for intestinal transplant alone or with an organ other than liver (Figure 1.1). Since 2008, prevalent wait-listed candidates for intestinal transplant outnumber those listed for intestine-liver transplant. Seventy-eight percent of the wait-listed candidates were active in 2012. Over the past decade, the age distribution of wait-listed candidates has shifted from being primarily pediatric to equal proportions of candidates aged less than 6 years (40.6%) and 18 years or older (39.2%) (Figure 1.2). The ethnicity distribution of candidates for intestinal transplant has not changed, nor has the cause-of-disease distribution. The most common etiology of intestinal failure remains short-gut syndrome (SGS), which encompasses a large group of diagnoses. In 2012, 47.8% of candidates were status 1; this proportion has steadily declined from a peak of 71.6% in 2002. Less than 10% of intestinal wait-listed candidates have previously undergone transplant. In 2012, 37.0% of candidates were on the waiting list for less than 1 year, 21.1% for 1 to less than 2 years, and 41.9% for 2 or more years (Figure 1.2). The causes of intestinal failure are similar among candidates listed for intestinal and intestine-liver transplant, though those listed for intestine-liver transplant are more likely to have more congenital SGS and less likely to have "other SGS" (Figure 1.4). Rates of intestinal transplant and their trends vary by candidate age and dual intestine-liver listing. Among adults actively listed for intestine-liver transplant, transplant rates peaked in 2007 at 188 transplants per 100 wait-list years and declined to 44 by 2012 (Figure 1.5). Rates among adults waiting for intestinal transplant peaked in 2009 at 430 transplants per 100 wait-list years and fell to 157 by 2012. Rates for pediatric intestine-liver transplant have remained the most steady, ranging from 59 to 117 transplants per 100 wait-list years in 1998 to 2012. Transplant rates are lowest in pediatric intestinal candidates, with a rate of 32 transplants per 100 wait-list years in 2012 (Figure 1.5).

Among wait-listed candidates removed from the list in 2012, 60.7% were removed because they underwent deceased donor transplant, 15.6% were removed because their condition improved, and 11.6% died (Figure 1.6). Almost 70% of patients newly listed in 2009 underwent transplant within 3 years, 11.6% were removed from the list, 9.2% died and 12.4% were still waiting (Figure 1.7). For patients listed in 2011, median time to transplant has increased for pediatric candidates to 15.1 months (Figure 1.8). For the adult candidates, the median time to transplant was 4.0 months.

The pretransplant mortality rate has decreased dramatically over time for all age groups, from 51.0 per 100 wait-list years in 1998-1999 to 6.7 per 100 wait-list years for patients listed in 2010-2012 (Figure 1.9). However, pretransplant mortality is notably higher for intestine-liver transplant candidates than for intestinal transplant candidates (respectively, 14.2 vs. 1.5 deaths per 100 wait-list years in 2012) (Figure 1.9).

Donation

The highest rate of deceased donor intestine donations has been from donors aged 5 to 14 years (Figure 2.1). The overall discard rate for donor intestines was 7.0% in 2012 (Figure 2.2). The most common cause of death among deceased intestine donors has been head trauma, 55.7% in 2012 (Figure 2.3).

Transplant

Numbers of intestinal and intestine-liver transplants steadily decreased from 198 in 2007 to 106 in 2012 (Figure 3.1). By age, intestinal transplant recipients have changed substantially; the number of adult recipients now approximately equals the number of pediatric recipients (Figure 3.2). Male recipients outnumber female recipients, and 64.2% of recipients in 2012 were white. Forty-four percent of deceased donor intestines were transplanted with another organ in 2012 (Figure 3.3). Historically, the most common organ transplanted with the intestine was the liver; this practice decreased substantially from a peak of 52.9% in 2007 to 30.0% in 2012.

In 2012, 11.3% of intestinal transplant recipients had previously undergone transplant (Figure 3.5). The highest proportion of retransplants in 2009-2012 was 29.8% in recipients aged 6 to 17 years (Figure 3.4). Over the past decade, the primary cause of intestinal failure has changed. The proportion of patients hospitalized in the intensive care unit before transplant has decreased, from 13.1% in 2002 to 2.8% in 2012; almost 90% of intestinal transplant recipients were not hospitalized before transplant in 2012, reflecting the improved general health of this population and the decreased number who require intestine-liver transplant (Figure 3.5).

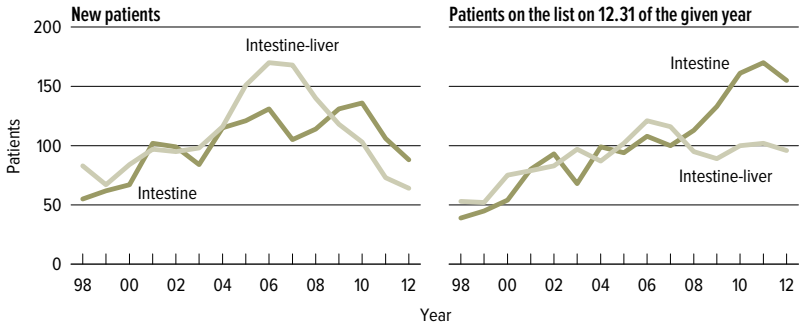
Immunosuppression

Among intestinal transplant recipients, the initial immunosuppression agents used most commonly in 2012 were tacrolimus (99.0%), steroids (66.0%), and mycophenolate (47.6%) (Figure 3.6). Initial use of mammalian target of rapamycin (mTOR) inhibitors were more rare (8.7%) (Figure 3.6). Steroids were used in 80.6% of recipients 1 year after transplant. For induction therapy, 52.4% received T-cell depleting agents, 14.6% received interleukin-2 receptor antagonists, and 33.0% received no induction.

Outcomes

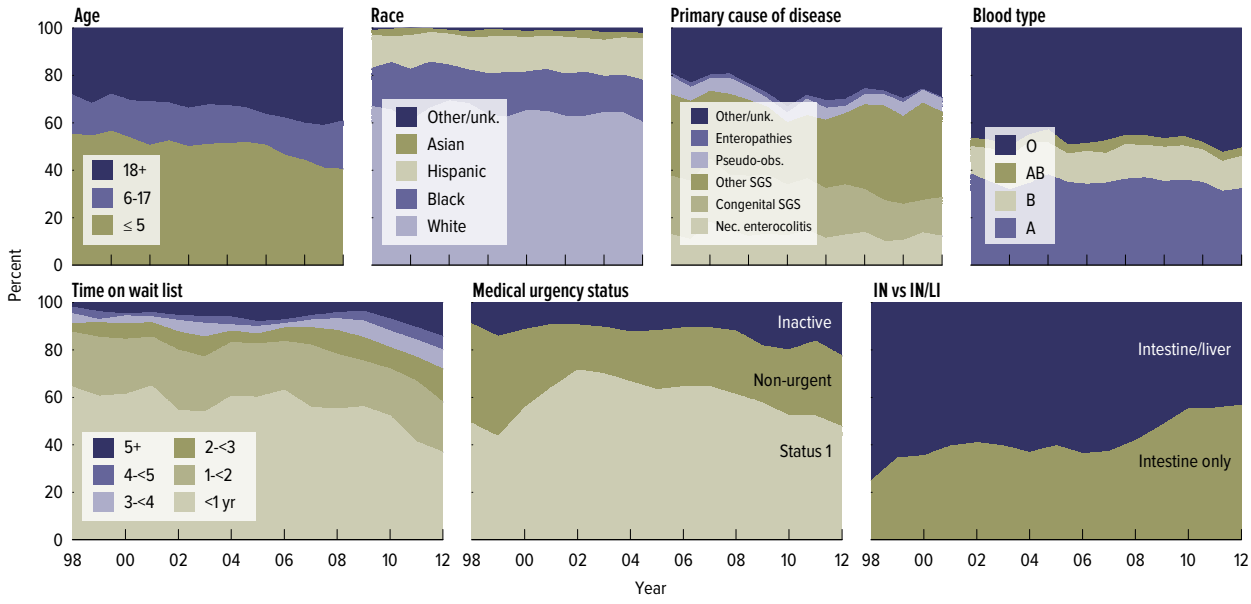
Graft survival has improved over the past decade. Graft failure in the first 90 days after transplant occurred in 15.7% of 2011-2012 intestinal transplant recipients, compared with 21% in 2001-2002 (Figure 4.1). For transplants in 2012, the graft failure rate was 6.2% at 30 days; in 2010-2011, 26.4% at 1 year; in 2008-2009, 49.9% at 3 years; in 2006-2007, 50.5% at 5 years; and in 2002-2003, 64.8% at 10 years (Figure 4.2). These numbers should be interpreted with caution, as they represent graft survival for two separate populations: recipients of intestine-liver transplants and recipients of intestinal transplants. Figure 4.3 shows graft survival by recipient age and organ transplanted. For patients undergoing intestinal transplant in 2007, 1- and 5-year graft survival was 69.2% and 53.8%, respectively, for recipients aged less than 18 years, and 74.2% and 48.3%, respectively, for recipients aged 18 years or older. One- and 5-year graft survival was 74.6% and 48.0%, respectively, among intestinal transplant recipients, and 68.6% and 53.7%, respectively, among intestine-liver recipients. Considering both recipient age and organ transplanted, adult recipients of intestinal transplants have the best 1-year graft survival (79.6%), and pediatric recipients of intestine-liver transplants have the best 5-year graft survival (56.3%). The number of recipients alive with a functioning intestinal graft has steadily increased since 1998, to 1004 in 2012 (Figure 4.4). For intestinal transplant recipients in 2005-2007, the 1-, 3-, and 5-year patient survival was 77.8%, 65.6%, and 63.4%, respectively (Figure 4.8). The incidence of first acute rejection increased over time after transplant; among recipients in 2006-2010, 39% experienced rejection in the first 12 months and 44% by 24 months (Figure 4.5). Rehospitalization is very common among intestinal transplant recipients, having occurred in 86.1% of 2007-2012 recipients by 6 months after transplant, and in almost all by 1 year after transplant (Figure 4.6). For patients who underwent transplant in 2006-2010, the incidence of posttransplant lymphoproliferative disorder among Epstein-Barr virus-negative recipients was 5.6% at 1 year, 7.6% at 2 years, 9.1% at 3 years, and 11.1% at 5 years (Figure 4.7).

wait list



IN 1.1 Patients waiting for an intestinal transplant

Patients waiting for a transplant. A "new patient" is one who first joins the list during the given year, without having listed in a previous year. However, if a patient has previously been on the list, has been removed for a transplant, and has relisted since that transplant, the patient is considered a "new patient." Patients concurrently listed at multiple centers are counted only once. Those with concurrent listings and active at any program are considered active; those inactive at all programs at which they are listed are considered inactive.



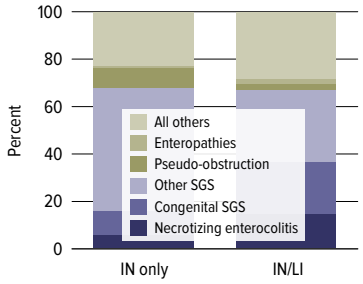
IN 1.2 Distribution of patients waiting for an intestinal transplant

Patients waiting for a transplant any time in the given year. Age determined on the earliest of listing date or December 31 of the given year. Concurrently listed patients are counted once. Medical urgency status is the first known in the given year.

	Level	2002 N	2002 %	2012 N	2012 %
Age	<6	92	52.3	107	42.5
	6-17	38	21.6	50	19.8
	18-34	15	8.5	20	7.9
	35-49	25	14.2	30	11.9
	50-64	5	2.8	40	15.9
	65+	1	0.6	5	2.0
Sex	Female	108	61.4	134	53.2
	Male	68	38.6	118	46.8
Race	White	126	71.6	150	59.5
	Black	26	14.8	46	18.3
	Hispanic	19	10.8	42	16.7
	Asian	4	2.3	8	3.2
	Other/unk.	1	0.6	6	2.4
Primary cause of disease	Necrotizing enterocolitis	24	13.6	30	11.9
	Congenital SGS	46	26.1	39	15.5
	Other SGS	49	27.8	86	34.1
	Pseudo-obstruction	9	5.1	15	6.0
	Entero-pathies	1	0.6	2	0.8
	Other/unk.	47	26.7	80	31.8
Transplant history	Listed for for first tx	164	93.2	230	91.3
	Listed for subseq tx	12	6.8	22	8.7
Blood type	A	61	34.7	78	31.0
	B	23	13.1	34	13.5
	AB	8	4.6	8	3.2
	O	84	47.7	132	52.4
Time on wait list	<1 yr	93	52.8	80	31.8
	1-<2	31	17.6	45	17.9
	2-<3	19	10.8	46	18.3
	3-<4	11	6.3	25	9.9
	4-<5	6	3.4	18	7.1
	5+	16	9.1	38	15.1
Medical urgency status	Status 1	100	56.8	100	39.7
	Non-urgent	40	22.7	77	30.6
	Inactive	36	20.5	75	29.8
IN vs LI/IN	LI/IN	83	47.2	96	38.1
	IN alone	93	52.8	156	61.9
Total		176	100.0	252	100.0

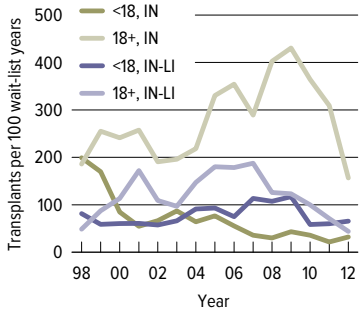
IN 1.3 Characteristics of patients on the intestinal transplant waiting list on December 31, 2002 & December 31, 2012

Patients waiting for a transplant on December 31, 2002 and December 31, 2012, regardless of first listing date; active/inactive status is on this date, and multiple listings are not counted.



IN 1.4 Cause of disease among patients on the intestinal transplant waiting list, 2008–2012, by IN vs. IN-LI

All candidates on the intestinal transplant waiting list.



IN 1.5 Intestinal transplant rates among active waiting list candidates, by age

Transplant rates are computed as the number of deceased donor transplants per 100 patient-years of active waiting time in a given year. Age is calculated on the first active listing date in a given year.

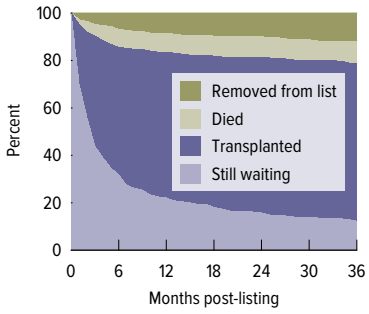
data behind the figures can be downloaded from our website, at srtr.transplant.hrsa.gov

wait list

	2010	2011	2012
Patients at start of year	222	260	272
Patients added during year	239	179	152
Pts removed during year	200	167	173
Patients at end of year	261	272	251
Removal reason			
Deceased donor transplant	149	124	105
Living donor transplant	1	-	-
Patient died	18	24	20
Patient refused transplant	1	2	2
Improved, tx not needed	21	8	27
Too sick to transplant	5	3	3
Other	5	6	16

IN 1.6 Intestinal transplant waiting list activity

Patients with concurrent listings at more than one center are counted once, from the time of earliest listing to the time of latest removal. Patients listed, transplanted, and re-listed are counted more than once. Patients are not considered "on the list" on the day they are removed. Thus, patient counts on January 1 may be different from patient counts on December 31 of the prior year. Patients listed for multi-organ transplants are included. Known deaths following removal for being too ill are counted as deaths.

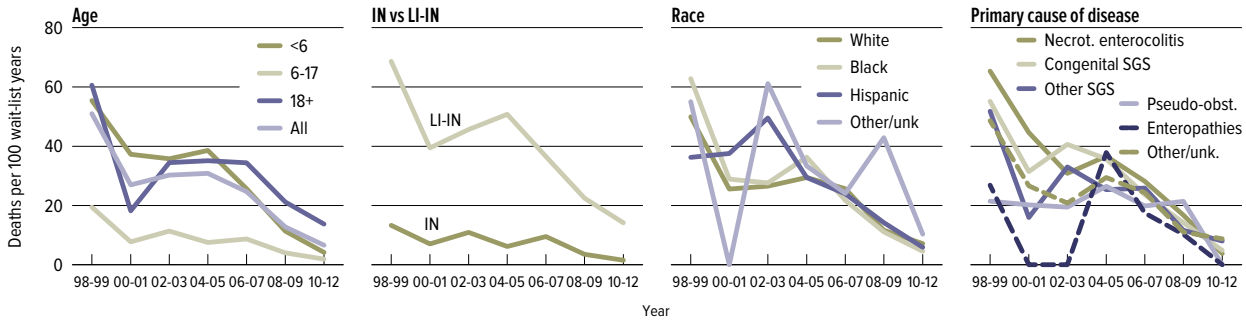


IN 1.7 Three-year outcomes for patients waiting for an intestinal transplant among new listings in 2009

All patients waiting for a transplant and first listed in 2009. Patients with concurrent listings at more than one center are counted once, from the time of the earliest listing to the time of latest removal.

IN 1.8 Median months to intestinal transplant for wait-listed patients, by age

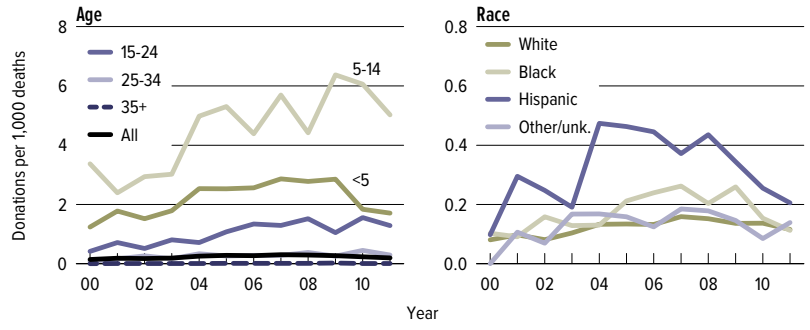
Patients waiting for a transplant, with observations censored at December 31, 2012; Kaplan-Meier method used to estimate time to transplant. If an estimate is not plotted, 50% of the cohort listed in that year had not been transplanted at the censoring date. Only the first transplant is counted.



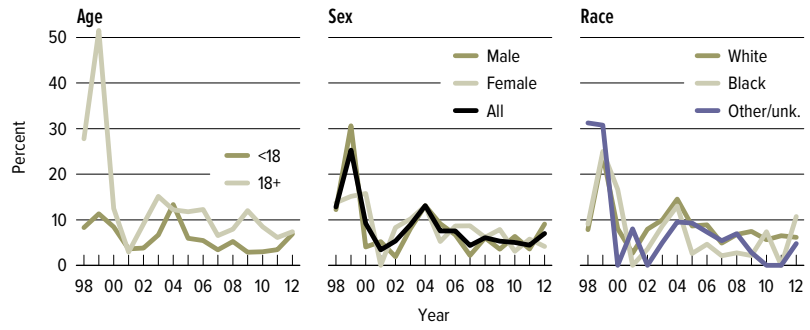
IN 1.9 Pre-transplant mortality rates among patients wait-listed for an intestinal transplant

Patients waiting for a transplant. Mortality rates are computed as the number of deaths per 100 patient-years of waiting time in the given interval. For rates shown by different characteristics, waiting time is calculated as the total waiting time in the interval for patients in that group. Only deaths that occur prior to removal from the waiting list are counted. Age is calculated on the latest of listing date or January 1 of the given interval. Other patient characteristics come from the OPTN Transplant Candidate Registration form.

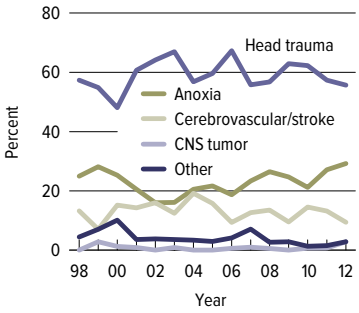
deceased donation



IN 2.1 Deceased donor intestinal donation rates
Numerator: Deceased donors age less than 75 with intestine recovered for transplant. Denominator: US deaths per year, age less than 75. (Death data available at http://www.cdc.gov/nchs/products/nvsr.htm.) Death data were available only through 2011.



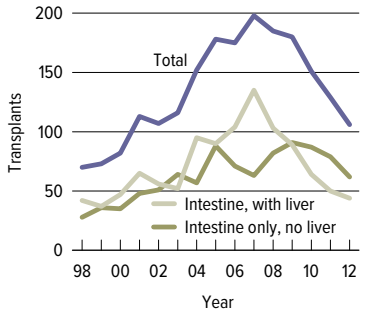
IN 2.2 Discard rates for intestines recovered for transplant
Percent of intestines discarded out of all intestines recovered for transplant.



IN 2.3 Cause of death among deceased intestinal donors
Deceased donors whose intestine was transplanted. CNS = central nervous system.

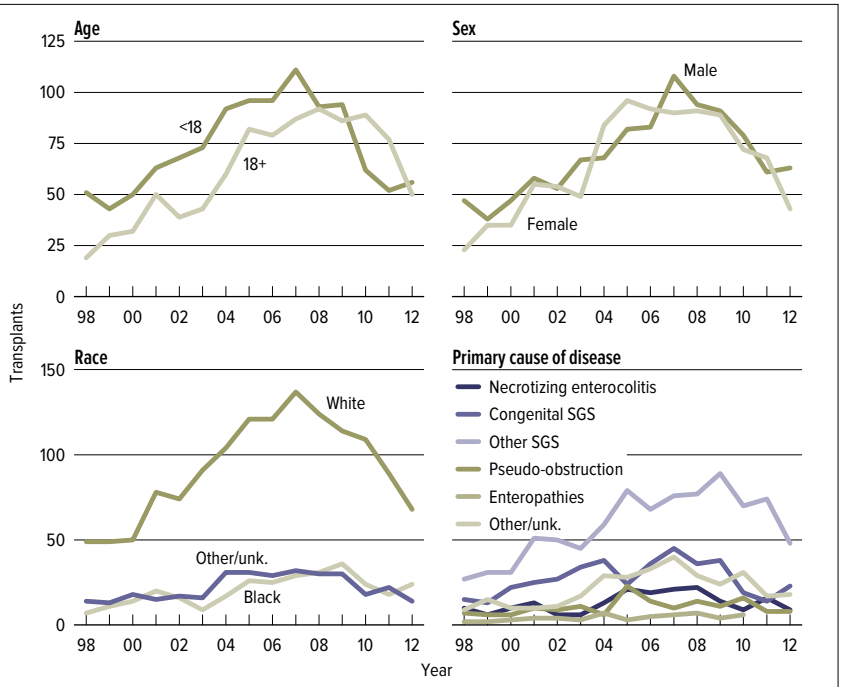
data behind the figures can be downloaded from our website, at srtr.transplant.hrsa.gov

transplant



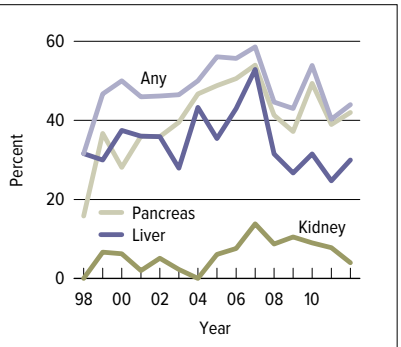
IN 3.1 Total intestinal transplants

Patients receiving a transplant, including multi-organ transplants and pediatric patients. Retransplants are counted.



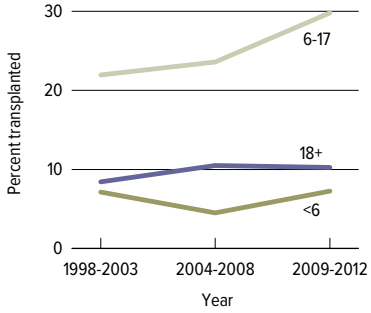
IN 3.2 Intestinal transplants

Patients receiving a transplant, including multi-organ transplants and pediatric patients. Retransplants are counted.



IN 3.3 Intestinal transplants that were part of a multi-organ transplant

All adult patients receiving a deceased donor intestinal transplant with at least one additional organ. A multi-organ transplant may include more than two different organs in total; if so, each non-intestinal organ will be considered separately. Kidney transplants include living donor transplants.

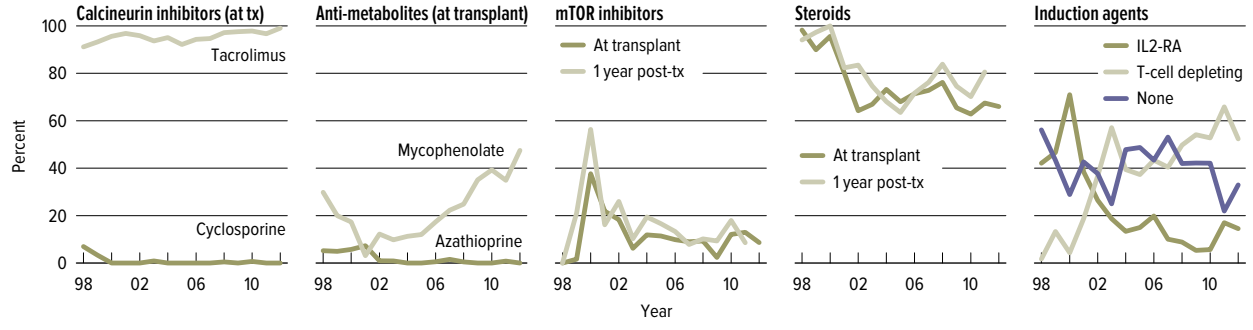


IN 3.4 Retransplants among intestinal transplant recipients

Patients receiving an intestinal retransplant in the given year.

	Level	2002 N	2002 %	2012 N	2012 %
Age	<18	68	63.6	56	52.8
	18-34	14	13.1	18	17.0
	35-49	15	14.0	12	11.3
	50-64	10	9.3	19	17.9
	65+	0	0.0	1	0.9
Sex	Female	54	50.5	43	40.6
	Male	53	49.5	63	59.4
Race	White	74	69.2	68	64.2
	Black	16	15.0	24	22.6
	Hispanic	16	15.0	12	11.3
	Asian	0	0.0	1	0.9
	Other/unknown	1	0.9	1	0.9
Primary cause of disease	Necrotizing enterocolitis	6	5.6	9	8.5
	Congenital SGS	27	25.2	23	21.7
	Other SGS	50	46.7	48	45.3
	Pseudo-obstruction	9	8.4	8	7.5
	Enteropathies	4	3.7	0	0.0
	Other/unk	11	10.3	18	17.0
Blood type	A	51	47.7	35	33.0
	B	11	10.3	13	12.3
	AB	9	8.4	6	5.7
	O	36	33.6	52	49.1
Time on waiting list	<30 days	21	19.6	22	20.8
	31-60 days	25	23.4	11	10.4
	61-90 days	6	5.6	12	11.3
	3-<6 months	27	25.2	22	20.8
	6-<12 months	15	14.0	16	15.1
	1-<2 years	8	7.5	13	12.3
	2-<3 years	3	2.8	6	5.7
	3+ years	2	1.9	4	3.8
Medical condition	Hospitalized: ICU	14	13.1	3	2.8
	Hospitalized: not ICU	30	28.0	9	8.5
	Not hospitalized	63	58.9	93	87.7
	Unknown	0	0.0	1	0.9
Primary payer	Private	54	50.5	44	41.5
	Medicaid	39	36.4	42	39.6
	Other	14	13.1	20	18.9
Donor type	Deceased	106	99.1	106	100.0
	Living	1	0.9	0	0.0
Intestine transplant history	First transplant	95	88.8	94	88.7
	Retransplant	12	11.2	12	11.3
Patient on life support	Yes	18	16.8	13	12.3
Total		107	100.0	106	100.0

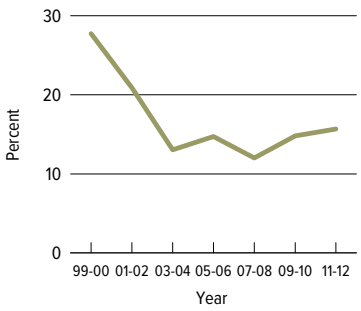
IN 3.5 Characteristics of intestinal transplant recipients, 2002 & 2012
Patients receiving a transplant. Retransplants are counted.



IN 3.6 Immunosuppression use in intestinal transplant recipients
One-year post-transplant data limited to patients alive with graft function one year post-transplant. Mycophenolate group includes mycophenolate mofetil and mycophenolate sodium.

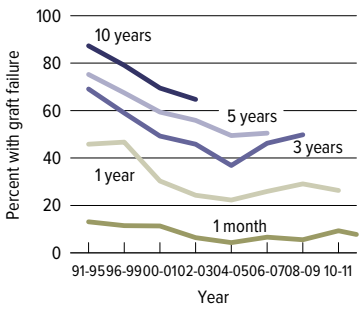
data behind the figures can be downloaded from our website, at srtr.transplant.hrsa.gov

outcomes



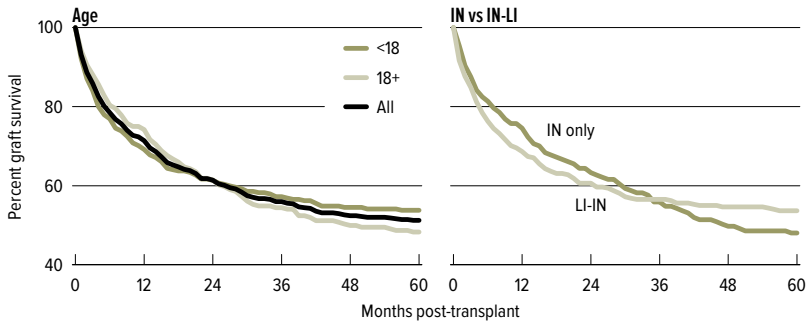
IN 4.1 Graft failure within the first 90 days among intestinal transplant recipients

All-cause graft failure is identified from multiple data sources, including the OPTN Transplant Recipient Registration form and the OPTN Transplant Recipient Follow-up form, as well as death dates from the Social Security Administration. Transplants through September 30, 2012 are included to allow for sufficient follow-up.



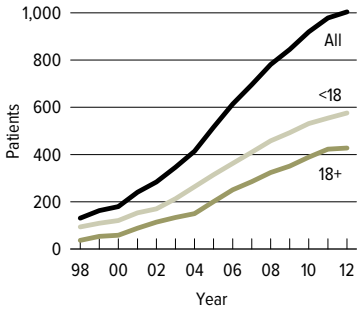
IN 4.2 Graft failure among intestinal transplant recipients: deceased donor

Cox proportional hazards models reporting probability, adjusting for age, sex, and race.



IN 4.3 Graft survival among intestinal transplant recipients transplanted in 2007, by age: deceased donors

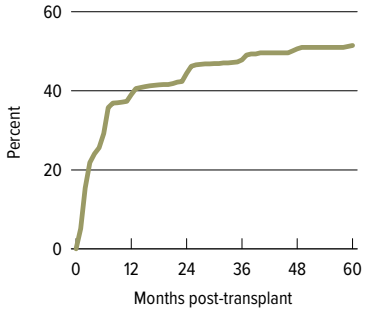
Graft survival estimated using unadjusted Kaplan-Meier methods.



IN 4.4 Recipients alive & with a functioning intestinal transplant on June 30 of the year

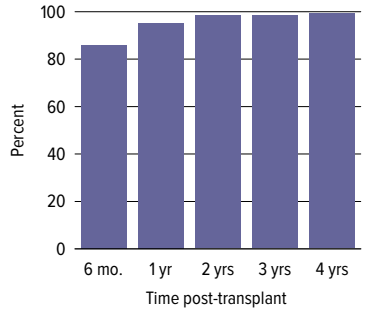
Transplants before June 30 of the year that are still functioning. Patients are assumed alive with function unless a death or graft failure is recorded. A recipient can experience a graft failure and drop from the cohort, then be retransplanted and re-enter the cohort. Age cut is based on age at transplant.

outcomes



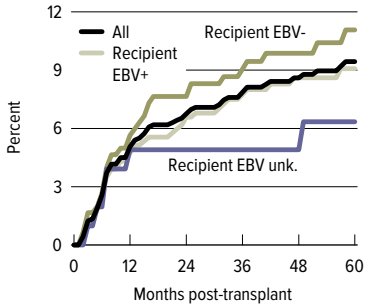
IN 4.5 Incidence of first acute rejection among patients receiving an intestinal transplant in 2006–2010

Acute rejection defined as a record of acute or hyperacute rejection, or a record of an anti-rejection drug being administered on either the Transplant Recipient Registration form or the Transplant Recipient Follow-up form. Only the first rejection event is counted. Cumulative incidence, defined as the probability of acute rejection at any time prior to the given time, is estimated using Kaplan-Meier competing risk methods.



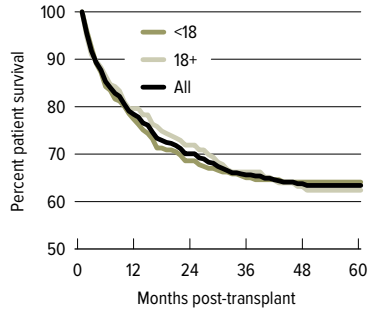
IN 4.6 Reported cumulative rehospitalizations among patients receiving an intestinal transplant in 2007–2012

Cumulative rate of rehospitalization; hospitalization identified from follow-up form. Patients required to be alive with graft function at each time period, so denominators reduce over time.



IN 4.7 Incidence of PTLD among patients receiving an intestinal transplant in 2006–2010, by recipient Epstein-Barr virus (EBV) status at transplant

The cumulative incidence is estimated using Kaplan-Meier competing risks methods. PTLD is identified as either a reported complication or cause of death on the Transplant Recipient Follow-up form or on the Post-transplant Malignancy form as polymorphic PTLD, monomorphic PTLD, or Hodgkin's Disease. Only the earliest date of PTLD diagnosis is considered.

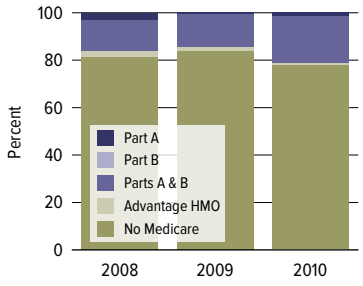


IN 4.8 Patient survival among intestinal transplant recipients, 2005–2007, by age: deceased donors

Percent patient survival using unadjusted Kaplan-Meier methods. For patients with more than one transplant during the period, only their first transplant is considered.

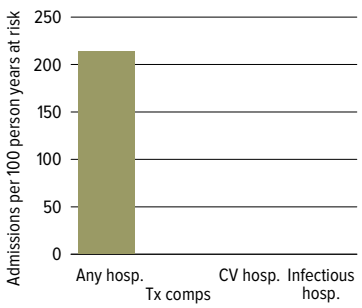
data behind the figures can be downloaded from our website, at srtr.transplant.hrsa.gov

Medicare data



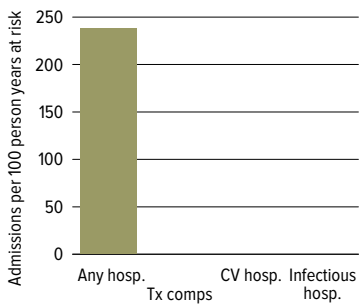
IN 5.1 Medicare coverage among intestinal transplant recipients

Coverage at the time of transplant as identified by the Medicare Beneficiary Annual Summary supplied by CMS.



IN 5.2 Rehospitalization rates among intestinal transplant recipients in the first post-transplant year

Transplant recipients, 2008, with Medicare as the primary payer at transplant. Rehospitalizations and reasons for rehospitalization determined from Medicare claims. First year rates are based on rehospitalizations occuring from initial discharge to one year later.



IN 5.3 Rehospitalization rates among intestinal transplant recipients in the second post-transplant year

Transplant recipients, 2008, with Medicare as the primary payer at transplant. Rehospitalizations and reasons for rehospitalization determined from Medicare claims. Second year rates are based on hospitalizations occuring from initial discharge+1 year to initial discharge+2 years.

Year 1 Cause of hospitalization	Percent of hospitalizations
Other	28.9
Transplant complication	26.7
Other infection	*
Respiratory infection	*
Gastro-intestinal	*
Hypertensive heart & renal disease w/o CHF	*
Electrolyte, acid-base & volume depletion	*
Immune and hematologic	*
Bacteremia, viremia and septicemia	*
Respiratory	*

Year 2 Cause of hospitalization	Percent of hospitalizations
Genito-urinary and breast	*
Respiratory infection	*
Electrolyte, acid-base & vol. depletion	*
Gastro-intestinal	*
Other	*
Urinary tract infection	*
Transplant complication	*
Hypertensive heart & renal disease w/o CHF	*
Respiratory	*

IN 5.4 Top ten causes of rehospitalization among intestinal transplant recipients transplanted in 2008 with Medicare primary coverage

Transplant recipients, 2008, with Medicare as the primary payer at transplant. Reasons for rehospitalization determined from Medicare claims, denominator for percentages includes only those re-hospitalized. Values for cells with 9 or fewer patients are suppressed.

		Total costs		PPPY costs	
	# patients	Part A	Part B	Part A	Part B
All patients	24	5,645,764	768,237	292,963	39,864

IN 5.5 Total and per-person per-year (PPPY) Medicare costs ($) among intestinal transplant recipients in the first post-transplant year

Costs among recipients transplanted in 2008 and 2009 who had Medicare as the primary payer at the time of transplant. First year costs include the transplant hospitalization. Costs incurred after a transplant failure are excluded. Values for cells with 9 or fewer patients are suppressed. Costs in the second post-transplant year are not shown due to insufficient patient counts.

Medicare data

Total costs

		2008 total costs # patients	2008 total costs Part A	2008 total costs Part B	2009 total costs # patients	2009 total costs Part A	2009 total costs Part B	2010 total costs # patients	2010 total costs Part A	2010 total costs Part B
	All patients	189	9,507,663	1,756,216	200	8,159,269	1,945,800	217	11,335,882	2,655,498
Age	0-11	*	*	*	*	*	*	*	*	*
	12-17	*	*	*	*	*	*	*	*	*
	18-34	56	2,589,729	483,994	59	2,506,970	675,234	61	2,641,061	831,997
	35-49	70	2,553,095	489,399	77	2,188,642	573,875	85	3,687,220	1,004,537
	50-64	47	2,759,115	557,459	51	2,793,397	526,127	56	4,063,672	589,529
	65+	*	*	*	*	*	*	*	*	*
Sex	Male	85	4,855,016	704,795	82	3,458,542	730,380	92	4,825,299	972,760
	Female	104	4,652,647	1,051,421	118	4,700,728	1,215,420	125	6,510,583	1,682,739
Race	White	163	8,286,315	1,488,216	177	7,324,922	1,672,931	182	10,043,215	2,228,540
	Black	14	625,887	159,662	14	366,025	184,039	22	753,267	310,023
	Hispanic	10	593,652	102,281	*	*	*	*	*	*
	Asian/Pacific Islander	*	*	*	*	*	*	*	*	*
	Other/unk.	*	*	*	*	t*	*	*	*	*
Primary cause of disease	Necrotiz. enterocolitis	2	242,029	6,568	1	23,782	3,146	1	11,283	1,918
	Congenital SGS	3	200,987	31,346	2	32,430	40,300	3	184,833	43,623
	Other SGS	125	6,130,260	1,090,498	147	5,814,896	1,295,245	155	7,251,454	1,647,058
	Pseudo-obstruction	19	726,083	179,769	17	837,496	234,147	21	1,378,043	408,396
	Enteropathies	1	0	59,840	1	6,259	2,900	1	6,722	2,246
	Other/unk.	39	2,208,304	388,196	32	1,444,405	370,062	36	2,503,546	552,258

Per person per year costs

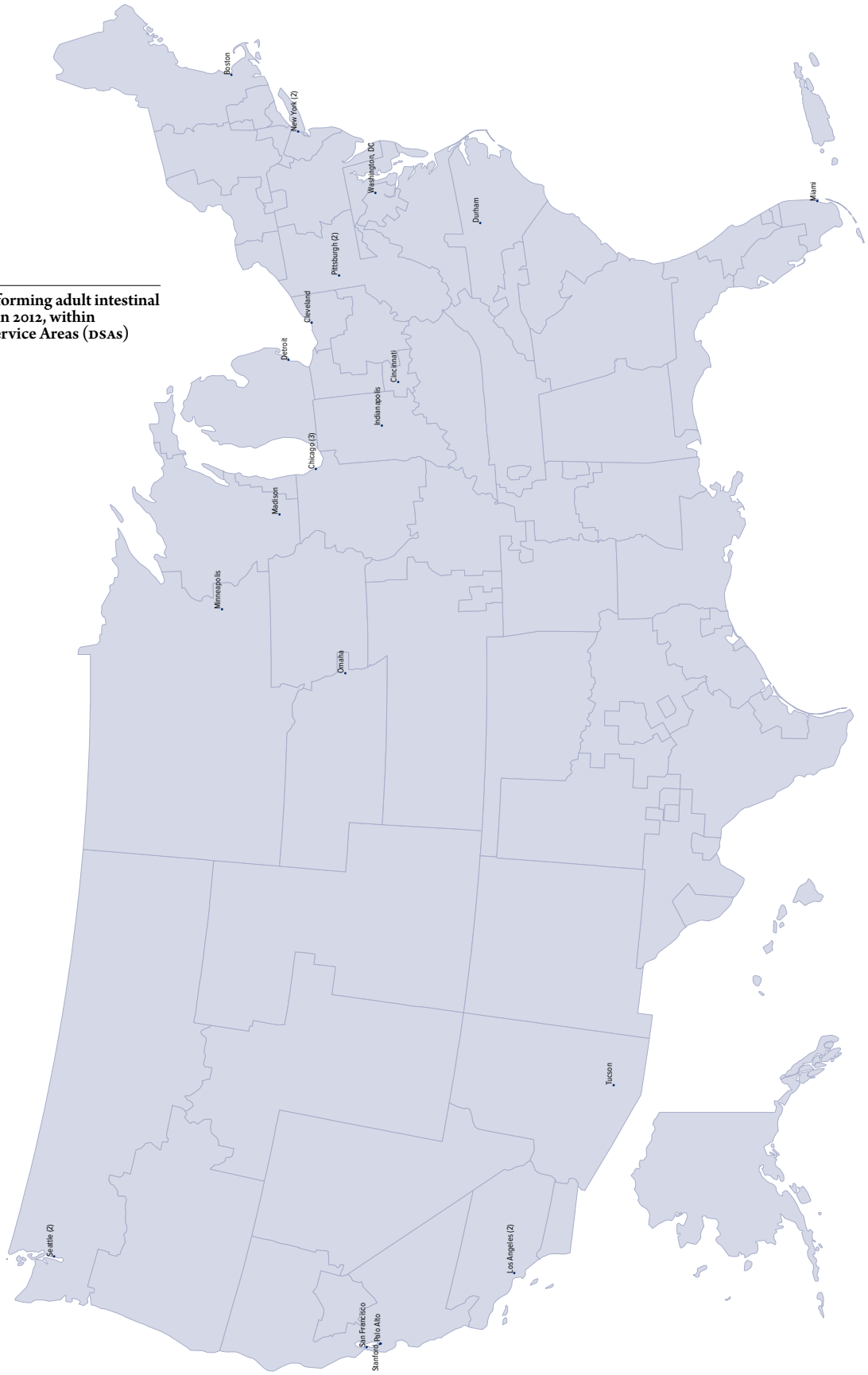
		2008 PPPY costs # patients	2008 PPPY costs Part A	2008 PPPY costs Part B	2009 PPPY costs # patients	2009 PPPY costs Part A	2009 PPPY costs Part B	2010 PPPY costs # patients	2010 PPPY costs Part A	2010 PPPY costs Part B
	All patients	189	58,697	10,842	200	47,303	11,281	217	59,533	13,946
Age	0-11	*	*	*	*	*	*	*	*	*
	12-17	*	*	*	*	*	*	*	*	*
	18-34	56	49,216	9,198	59	47,338	12,750	61	46,793	14,741
	35-49	70	41,877	8,027	77	31,854	8,352	85	48,863	13,312
	50-64	47	76,236	15,403	51	72,168	13,593	56	87,745	12,729
	65+	*	*	*	*	*	*	*	*	*
Sex	Male	85	70,567	10,244	82	48,895	10,326	92	62,417	12,583
	Female	104	49,933	11,284	118	46,196	11,944	125	57,561	14,877
Race	White	163	59,623	10,708	177	48,520	11,081	182	62,151	13,791
	Black	14	52,217	13,320	14	27,666	13,911	22	37,622	15,484
	Hispanic	10	65,861	11,347	*	*	*	*	*	*
	Asian/Pacific Islander	*	*	*	*	*	*	*	*	*
	Other/unk.	*	*	*	*	*	*	*	*	*
Primary cause of disease	Necrotiz. enterocolitis	2	121,014	3,284	1	23,848	3,154	1	11,314	1,924
	Congenital SGS	3	67,241	10,487	2	16,260	20,205	3	79,370	18,732
	Other SGS	125	57,875	10,295	147	46,646	10,390	155	53,803	12,221
	Pseudo-obstruction	19	38,420	9,512	17	51,987	14,535	21	71,958	21,325
	Enteropathies	1	0	157,134	1	6,277	2,908	1	6,740	2,252
	Other/unk.	39	69,473	12,213	32	52,085	13,344	36	77,843	17,171

IN 5.6 Total calendar-year Medicare costs ($) spent on intestinal transplant recipients, 2008, 2009, & 2010

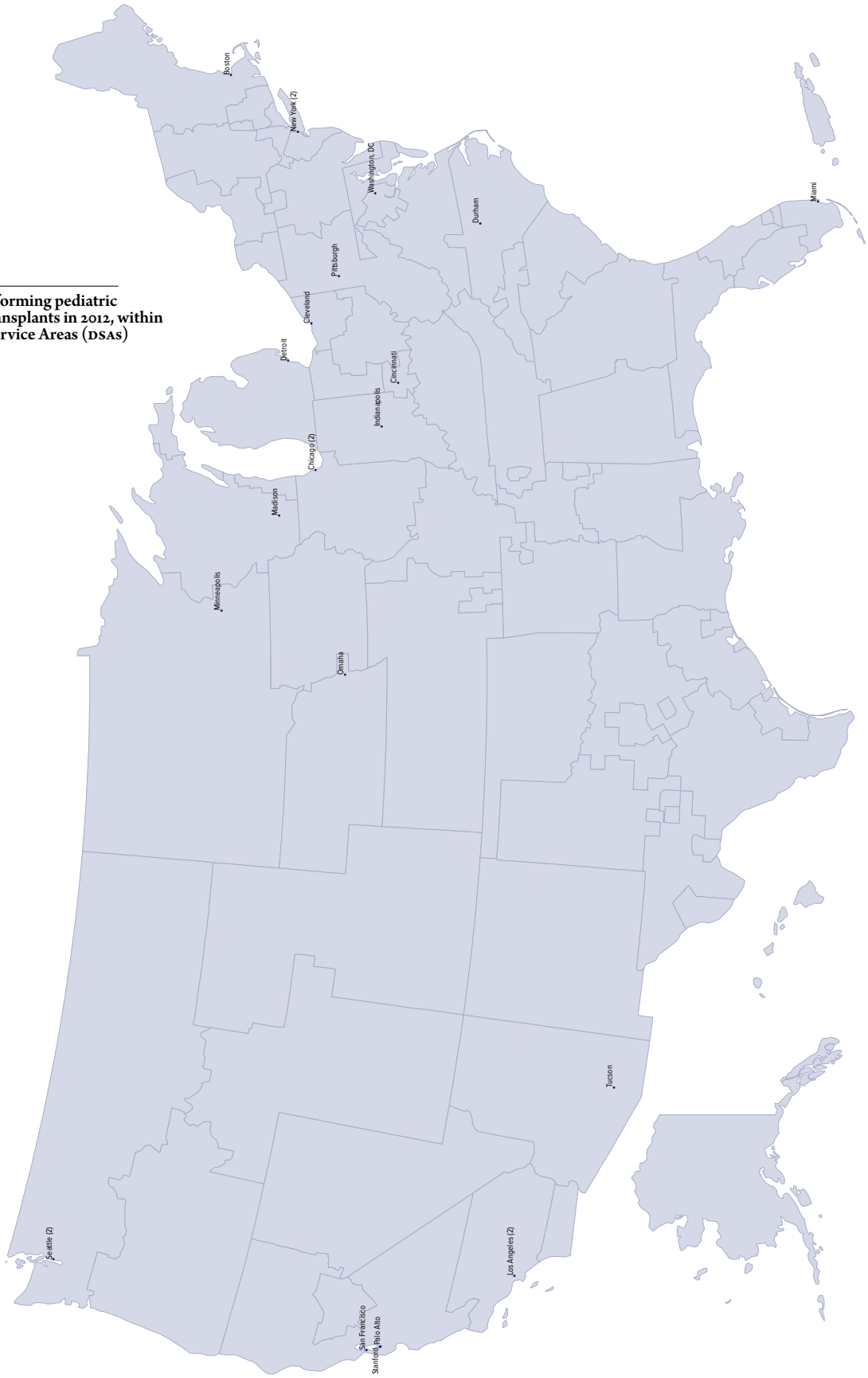
Costs paid by Medicare in each calendar year among recipients alive with graft function in the given year, regardless of Medicare eligibility at the time of transplant. Costs incurred after transplant failure are excluded. Values for cells with 9 or fewer patients are suppressed.

data behind the figures can be downloaded from our website, at srtr.transplant.hrsa.gov

IN 6.1 Centers performing adult intestinal transplants in 2012, within Donation Service Areas (DSAs)



IN 6.2 Centers performing pediatric intestinal transplants in 2012, within Donation Service Areas (DSAs)



data behind the figures can be downloaded from our website, at srtr.transplant.hrsa.gov