

Ptolemy's description of the Oceanus, engraved in 1492



Transplantation

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In 2011, 17,671 kidney transplants were performed in the United States — 111 fewer than in 2010. There were 503 fewer living donor transplants, an 8.0 percent decrease, while deceased donor transplants increased 3.4 percent. Among patients age 0–17, 767 kidney transplants were performed in 2011, 7 more than in 2010. The number of kidney transplants has remained stable since 2005, paralleling a leveling off of the ESRD incidence rate. And the number of patients alive with a functioning kidney transplant continues to climb, reaching over 181,000 in 2011.

The waiting list continues to grow, with a 4 percent increase in 2011 to reach 90,474 patients on December 31; 86 percent were awaiting their first transplant, and 14 percent were awaiting a re-transplant. On December 31, 2011, 38 percent of adult (age 18 and older) waiting list candidates were listed with inactive status, leaving 55,371 active adult candidates. With fewer than 18,000 transplants performed in 2011, the active waiting list is three times larger than the supply of donor kidneys — a continuing challenge.

Twenty-one percent of new ESRD patients in 2010 were added to the waiting list or received a transplant within one year of ESRD certification, a number remaining stable over the past two decades. The percentage of adult candidates newly listed in 2008 for a first kidney-alone transplant who receive a deceased donor transplant within three years of listing varies by candidate blood type, from 17 percent for those with Type O to 45 percent of those with Type AB. In contrast, approximately 10 percent of newly-listed candidates, regardless of blood type, die within three years of listing without receiving a transplant. Waiting times continue to increase, with the median waiting time reaching 4.3 years for patients newly listed in 2007.

Rates of deceased donation increased slightly in 2011, to 22.4 donors per million population. With the number of candidates awaiting transplant rising, deceased donor transplant rates remained steady in 2011, at 2.5 per 100 patient years on dialysis. Living donor transplant rates continued to decline, to 1.2 transplants per 100 patient years on dialysis.

The probability of first-year all-cause graft failure (return to dialysis or death with a functioning transplant) for deceased donor transplant recipients continued to improve in 2010, reaching 8.5 percent, down from 13 percent in 2000. The probability of returning to dialysis was 4.8 percent, while that of dying with function was 3.7 percent. These probabilities were lower in living donor transplant recipients, at 3.2 percent for all-cause graft failure, and 1.9 and 1.3 percent for return to dialysis and death, respectively.

For patients receiving a deceased donor transplant in 2006, the probability of five-year all-cause graft failure remained stable, at 29 percent. It improved for living donor transplant recipients, reaching 15.4 percent compared to 17.5 percent in the prior year. In 2011, delayed graft function was reported in 22 and 3 percent of deceased and living donor transplants, respectively. The rate varies by deceased donor quality, from 21 percent for standard criteria donors to 31 and 36 percent, respectively, for expanded criteria donors and donations after circulatory death.

And the ship went out into the High Sea and passed into the West, until at last on a night of rain Frodo smelled a sweet fragrance on the air and heard the sound of singing that came over the water. And then it seemed to him that as in his dream in the house of Bombadil, the grey rain-curtain turned all to silver glass and was rolled back, and he beheld white shores and beyond them a far green country under a swift sunrise.

J.R.R. Tolkien
THE RETURN OF THE KING

Attention continues to focus on reducing acute rejection and other post-transplant complications, and on improving long-term outcomes. The incidence of acute rejection during the first year post-transplant, reported in 10 percent of deceased and living donor recipients in 2010, has declined more than 50 percent since 2000, but has remained stable in the past five years. New-onset diabetes following transplant, however, remains common; 42 percent of adult, non-diabetic, Medicare-covered recipients had evidence of diabetes (as shown by ICD-9-CM diagnosis codes) by the end of the third post-transplant year.

Among patients transplanted in 2009, the rate of hospitalizations for infection in the first year post-transplant was double the rate of hospitalizations due to cardiovascular complications, at 31.9 versus 14.4 admissions per 100 patient years. Urinary tract infections were the most common cause of first-year infectious hospitalizations, followed by septicemia and post-operative infections. Congestive heart failure remains the leading cause of cardiovascular hospitalization during the first two years post-transplant.

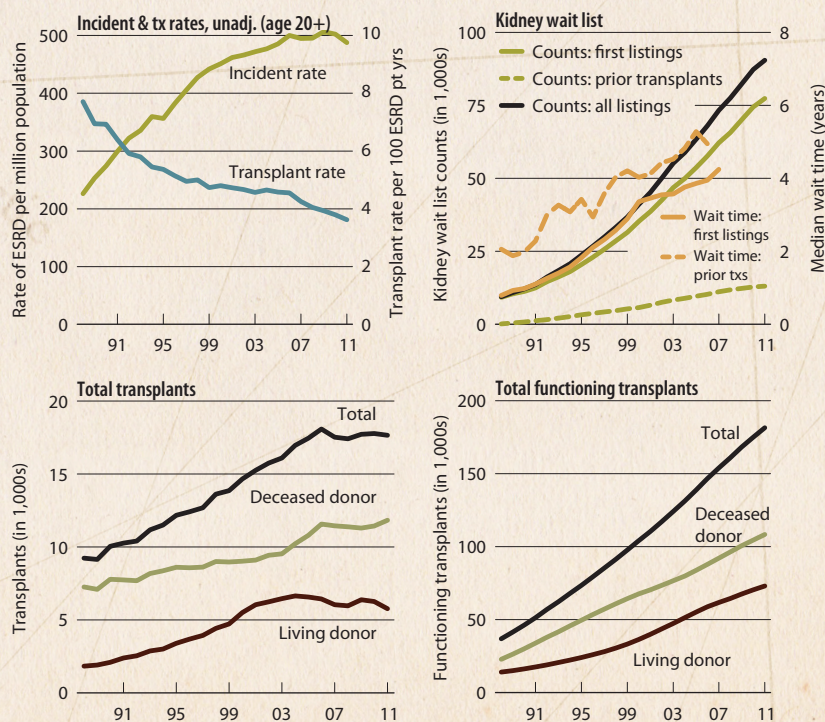
Among recipients who died with a functioning transplant during 2007–2011, cardiovascular disease was reported as the leading cause of death, accounting for

31 percent of these deaths, followed by infectious causes and malignancies at 19 and 10 percent, respectively.

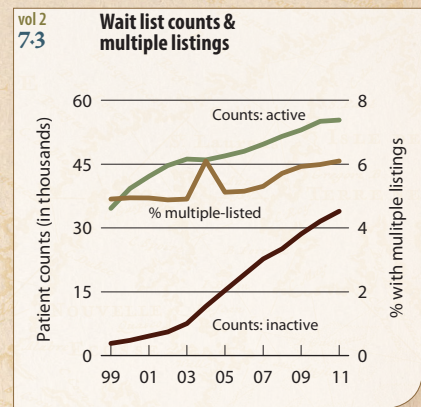
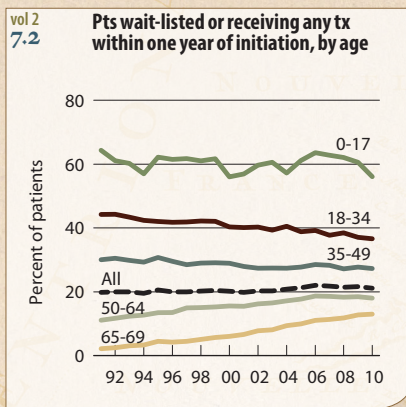
Sixty-two percent of recipients alive with a functioning transplant in 2011 were enrolled in a Part D prescription drug plan, compared to 45 percent of 2011 recipients with Part D coverage at transplant. Reflecting continued attention to the prevention of cardiovascular events, beta blockers are prescribed for 75 and 70 percent of deceased and living donor recipients during the first six months post-transplant, ACE inhibitors for 21 and 20 percent, dihydropyridine calcium channel blockers for 66 and 57 percent, and loop diuretics for 43 and 26 percent.

Metoprolol, an antihypertensive agent, is the most common medication prescribed in each of the first three years post-transplant. The highest prescription drug cost to Medicare during the first year post-transplant is for valganciclovir, recommended by the KDIGO Guidelines for Care of Kidney Transplant Recipients for chemoprophylaxis of CMV infection during the first three months post-transplant and for six weeks following treatment with a T-cell depleting antibody. Use of valganciclovir during years two and three is reduced, although it remains the top medication by cost during year two post-transplant, and the second medication by cost during year three. In year three, the cost of insulin exceeds that of valganciclovir, reflecting the high burden of new-onset diabetes post-transplant. Insulin is the second most-common drug by days supply in years two and three. ♦ **Figure 7.1**; see page 441 for analytical methods. Unadjusted incident & transplant rates: limited to ESRD patients age 20 & older, thus yielding a computed incident rate higher than the overall rate presented elsewhere in the Annual Data Report. Wait list counts: all patients listed for a kidney or kidney-pancreas transplant on December 31 of each year. Wait time: all patients entering wait list in the given year. Transplant counts: all patients known to the USRDS. Functioning transplant: annual status of all patients who received a kidney or kidney-pancreas transplant, regardless of transplant date.

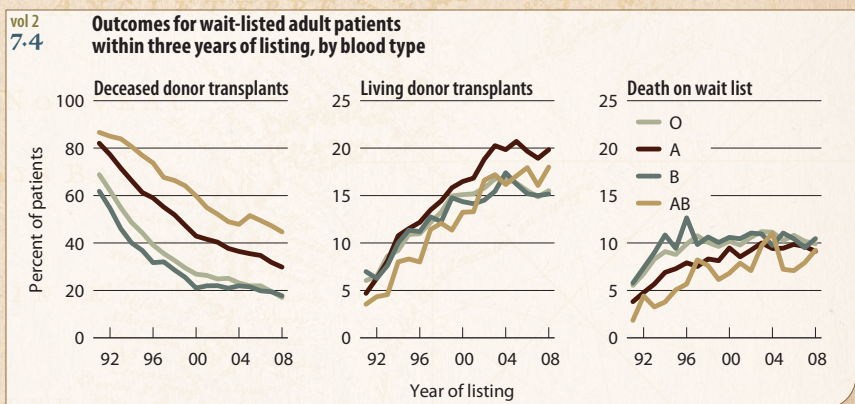
vol 2
7.1 Trends in transplantation: unadjusted rates, wait list, & total & functioning transplants



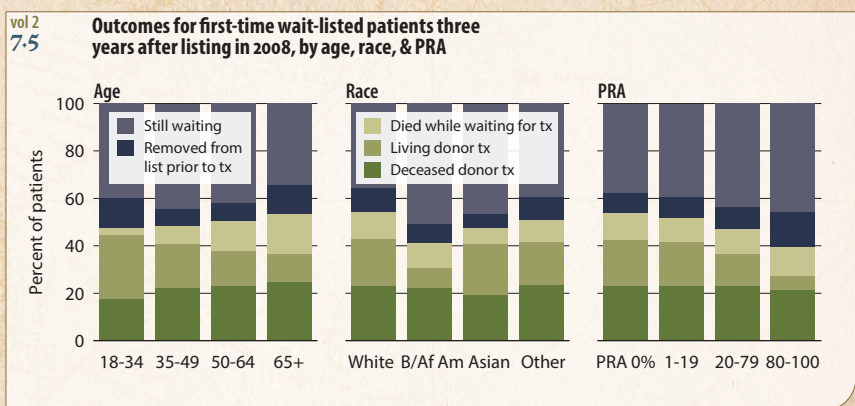
Fifty-six percent of pediatric patients age 0–17 starting ESRD therapy in 2010 were wait-listed or received a deceased donor transplant within one year, compared to 27 percent of those age 35–49. At the end of 2011, there were 55,371 active patients on the wait list for a kidney or kidney-pancreas transplant, and 33,944 inactive patients. ♦ **Figures 7.2–3;** see page 441 for analytical methods. Incident ESRD patients younger than 70 (7.2). Patients age 18 & older listed for a kidney or kidney-pancreas transplant on December 31 of each year (7.3).



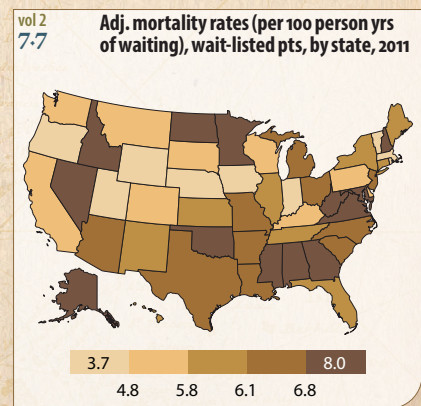
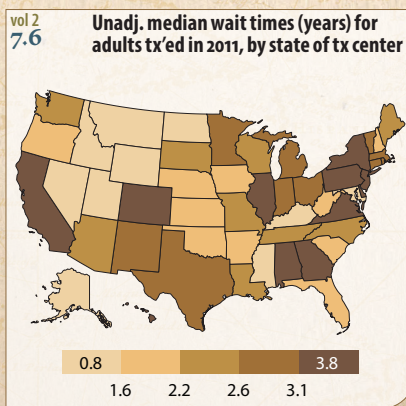
The percentage of adult patients receiving a deceased donor transplant within three years of listing has fallen since 1991, and varies by blood type. It remains highest for those with type AB, at 45 percent for patients listed in 2008, and lowest for those of type O or B, at 17–18 percent. The percentage receiving a living donor transplant has been rising, reaching 20 percent in those with type A. ♦ **Figure 7.4;** see page 441 for analytical methods. Patients age 18 & older listed for a first-time kidney or kidney-pancreas tx.

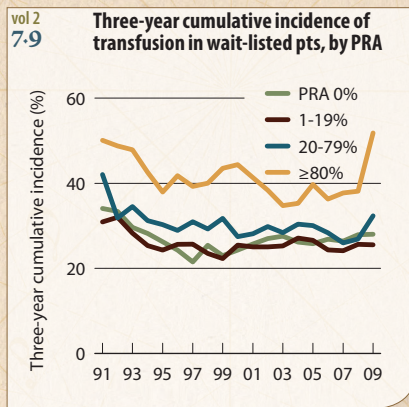
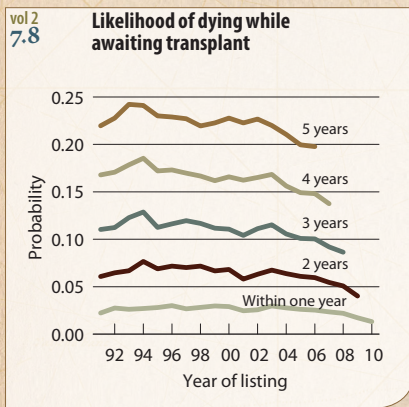


Of patients listed in 2008, 20–21 percent of whites and Asians received a living donor transplant within three years, compared to 8.5 percent of blacks/African Americans. Forty-six and 51 percent of Asians and blacks/African Americans were still waiting after three years, rates higher than the 36 percent among whites. ♦ **Figure 7.5;** see page 441 for analytical methods. Pts age 18 & older listed for a first-time, kidney-only tx in 2008; transplanted patients may have subsequent outcomes in the three-year follow-up period.

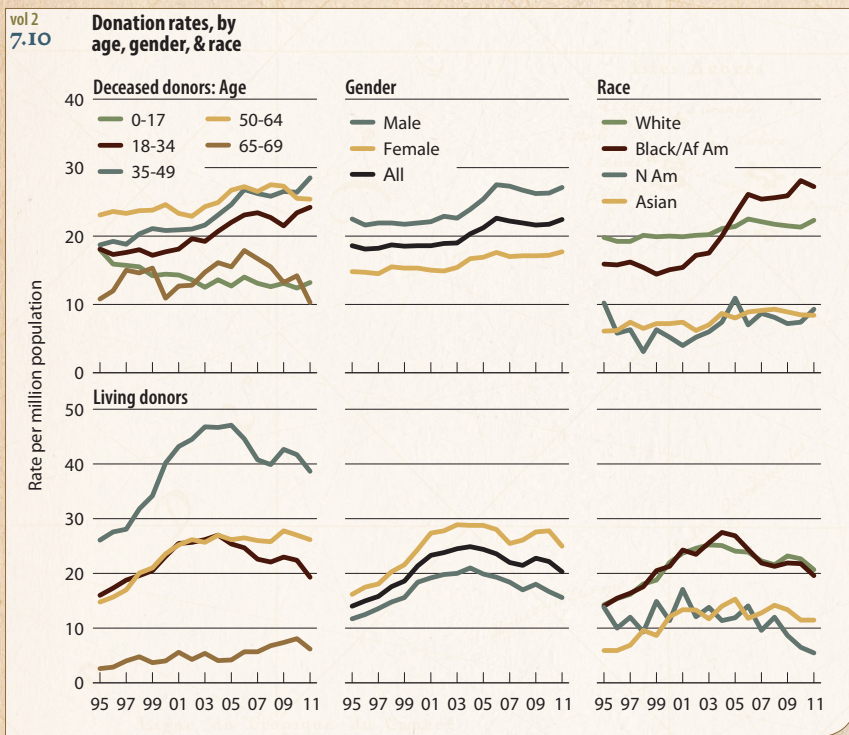


The median wait time for patients transplanted in 2011 was four years or greater in Hawaii, California, and Alabama; the overall median was 2.6. Adjusted mortality among wait-listed patients in 2011 was 6.0 deaths per 100 person years of waiting, and 9.0–9.5 in Alaska, Alabama, and Nevada. ♦ **Figures 7.6–7;** see page 441 for analytical methods. Pts age 18 & older receiving a first-time, deceased-donor, kidney-only transplant in 2011 (7.6). Pts age 18 & older, listed for a kidney or kidney-pancreas transplant as of Jan. 1, 2011; see appendix for adjustments (7.7).



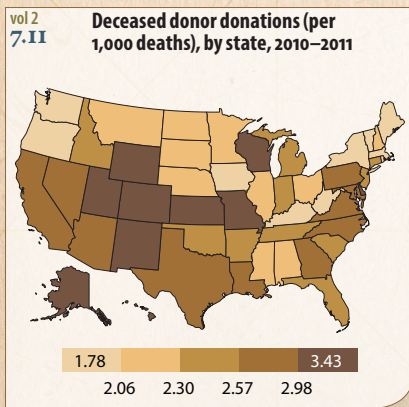


The probability of dying while on the waitlist was 0.013 for 2012 listings; the five-year probability has been falling since 2003. Transfusions are most common among patients who are highly sensitized at the time of transplant (PRA of 80 percent or higher). ♦ **Figures 7.8–9;** see page 442 for analytical methods. *Pts age 18 & older, listed for a first-time kidney or kidney-pancreas tx (7.8); pts age 18 & older with Medicare primary coverage & first listed for a kidney tx in the given year (7.9).*



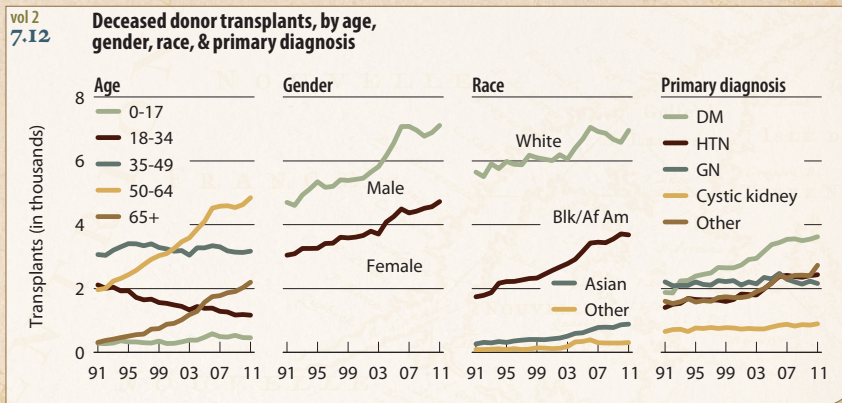
In 2011, rates of kidney donation from deceased donors reached nearly 29 per million population in those age 35–49, and 27 and 18, respectively, for males and females. Since 2005, rates by race have been highest among blacks/African Americans, reaching 27 in 2011, compared to 9.3 and 8.4 among Native Americans and Asians.

Donation rates among living donors are noticeably higher among those age 35–49, reaching 47 per million population in the middle of the decade, but falling to 39 in 2011. By race, rates in 2011 were 5.5 and 11.5 per million among Native Americans and Asians, and 20–21 among whites and blacks/African Americans. ♦ **Figure 7.10;** see page 442 for analytical methods. *Donors younger than 70 whose organs are eventually transplanted.*

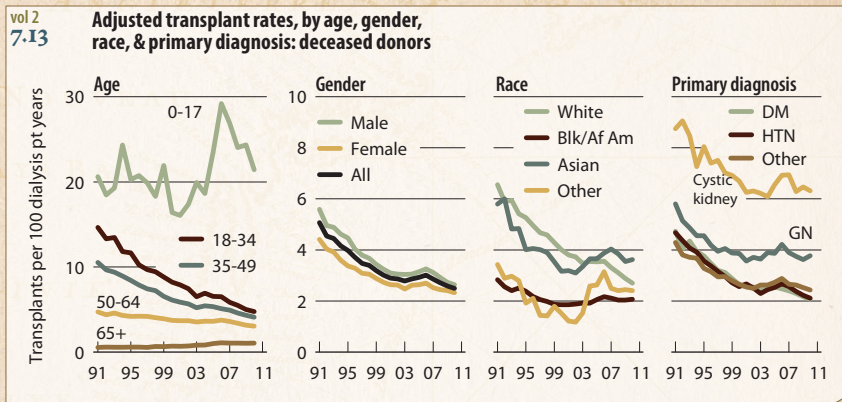


In 2010–2011, the overall rate of donations from deceased donors was 2.5 per 1,000 deaths. Rates averaged 3.4 in the upper quintile and were highest in Wisconsin, Washington DC, Alaska, and Utah, and were lowest in Rhode Island, Maine, Oregon, and New York, while averaging 1.78 in the lower quintile. ♦ **Figure 7.11;** see page 442 for analytical methods. *Donations per 1,000 deaths, from July 1, 2010 to July 1, 2011.*

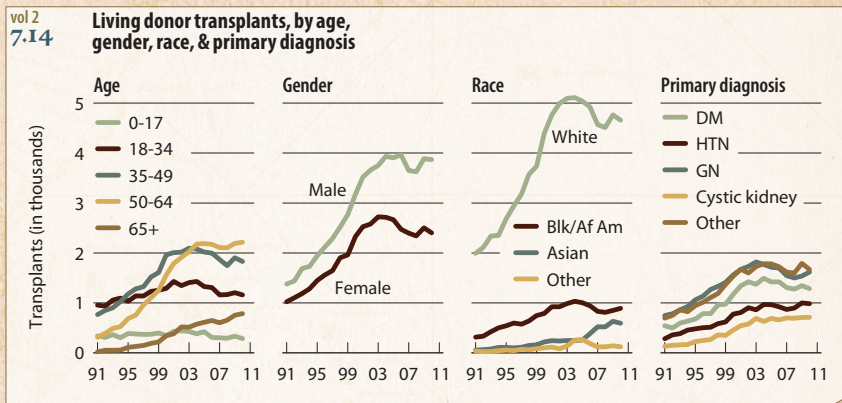
Since 2000, the number of deceased donor transplants among patients age 65 and older has increased 150 percent, to 2,196, and there has been an increase of 56 percent among patients age 50–64. Among those age 18–34, in contrast, transplants have fallen 24 percent, to 1,166. Among blacks/African Americans and Asians, the number of transplants has grown 50 and 122 percent, respectively. + **Figure 7.12**; see page 442 for analytical methods. Includes kidney-alone & kidney-pancreas transplants.



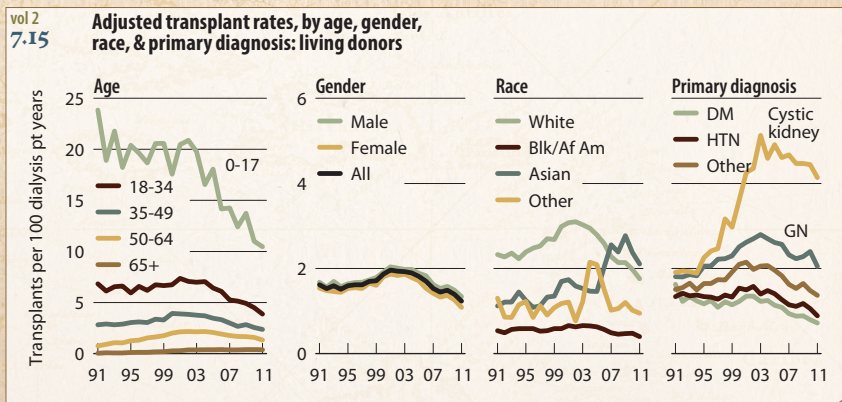
The adjusted deceased donor transplant rate has increased 61 percent since 2000 for patients age 65 and older, while falling 46 percent for those age 18–34. By race, the rate is down 33 percent among whites, while rising 9.1 and 12 percent for blacks/African Americans and Asians, respectively. + **Figure 7.13**; see page 442 for analytical methods. Adj: age/gender/race/ethnicity/primary diagnosis (rates by one factor adjusted for remaining four).



Among patients age 18–34, the number of living donor transplants has fallen 22 percent since 2000. For those age 50–64, in contrast, the number is now 29 percent higher, and for patients age 65 and older the number has increased 120 percent. In the white and black/African American populations the number of transplants has fallen 2 percent; among Asians, in contrast, is it now 152 percent greater. + **Figure 7.14**; see page 442 for analytical methods. Includes kidney-alone & kidney-pancreas transplants.



Since the early 2000s, rates of living donor transplants have fallen for many patient groups. As with deceased donor transplants, rates by race are now greatest in the Asian population, reaching 2.1 per 100 dialysis patient years in 2011 — 24 percent higher than in 2000. + **Figure 7.15**; see page 442 for analytical methods. Adj: age/gender/race/ethnicity/primary diagnosis (rates by one factor adjusted for remaining four).



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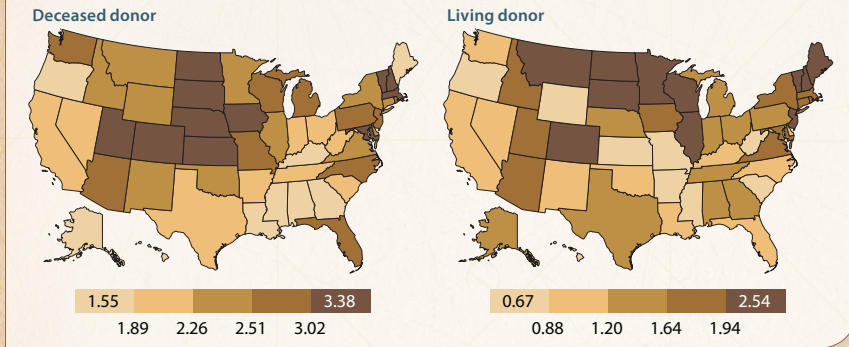
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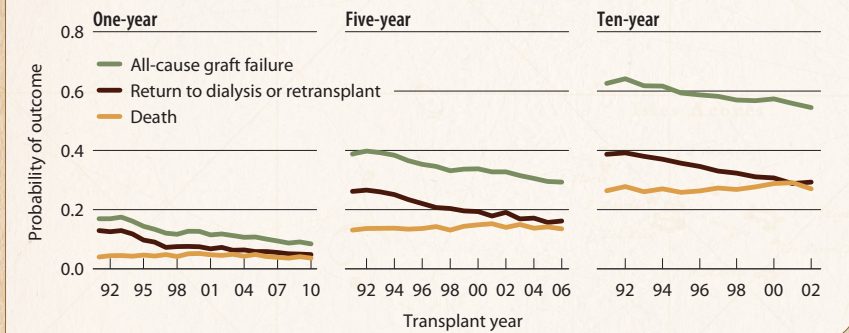
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7.16 Adjusted transplant rates (per 100 dialysis patient years), by state of patient residence & donor type, 2011



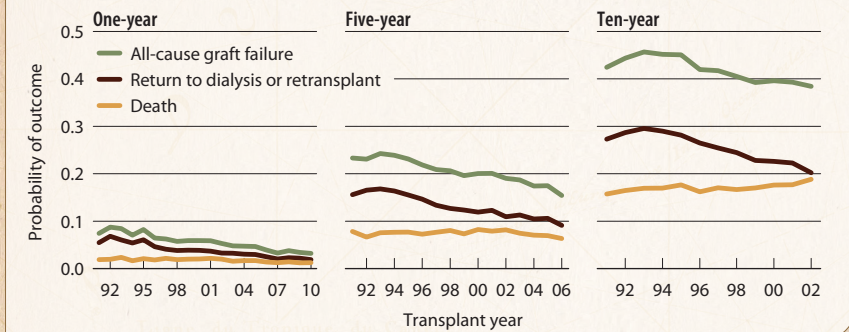
In 2011, the overall rate of deceased donor transplantation was 2.3 per 100 dialysis patient years. The highest rates were seen among residents of Iowa, New Hampshire, South Dakota, and Vermont, at 3.5–4.1. The rate of living donor transplantation was 1.4 overall, and reached 3.2 and 4.0 in Minnesota and North Dakota, respectively. ♦ **Figure 7.16**; see page 442 for analytical methods. Patients age 18 & older. Adj: age/gender/race/ethnicity/primary diagnosis; ref: prevalent dialysis patients, 2011.

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7.17 Outcomes: deceased donor transplants



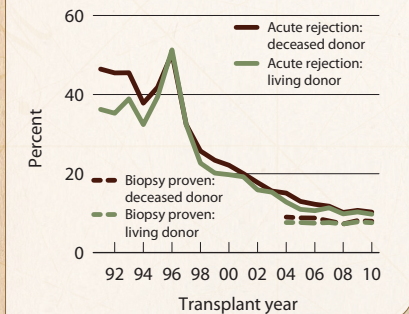
Among patients who received a deceased donor kidney transplant in 2010, the probability of all-cause graft failure in the first year following transplant was 0.09, compared to 0.03 in those receiving a transplant from a living donor. The one-year graft and survival advantage experienced by living donor transplant recipients continues at five and ten years post-transplant, with probabilities of 0.15 and 0.38 compared to 0.29 and 0.54 in those receiving a deceased donor transplant.

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7.18 Outcomes: living donor transplants



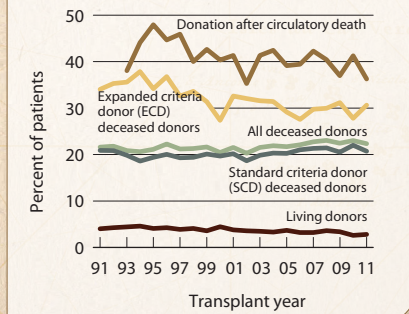
The probability of returning to dialysis or being retransplanted has lessened for both deceased and living donor recipients. Between 1991 and 2002, the probability of return to dialysis by ten years post-transplant fell 24–26 percent. In contrast, the probability of death at ten years post-transplant is now 2.5 percent higher for deceased donor recipients, and 20 percent greater for those with a living donor transplant. ♦ **Figures 7.17–18**; see page 442 for analytical methods. Pts age 18 & older receiving a first-time, kidney-only tx; unadjusted.

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7.19 Acute rejection within the first year post-transplant

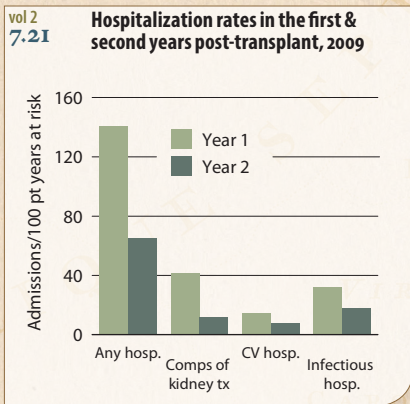


The percentage of transplant patients experiencing an acute rejection has declined steadily over the past decade, and more than three-fourths of reported acute rejections are biopsy-proven. In 2011, delayed graft function was reported in 2.8 percent of transplants from living donors, compared to 21, 31, and 36 percent of SCDS, ECDs, and donations after circulatory death. ♦ **Figures 7.19–20**; see page 442 for analytical methods. Patients age 18 & older with a functioning graft at discharge.

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7.20 Transplants with delayed graft function (DGF), by donor type

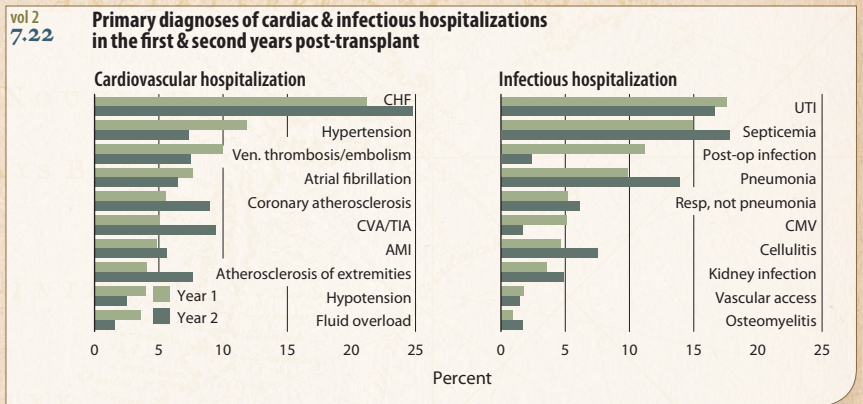


In the second year post-transplant, overall hospitalization rates for adult recipients are 54 percent lower than in the first year, at 65 admissions per 100 patient years. Admissions due to transplant complications fall 72 percent, to 11.6, while admissions due to cardiovascular causes and to infection fall 48 and 44 percent, to 7.6 and 17.8. **Figure 7.21**; see page 442 for analytical methods. *First-time, kidney-only transplant recipients, age 18 & older, transplanted in 2009.*

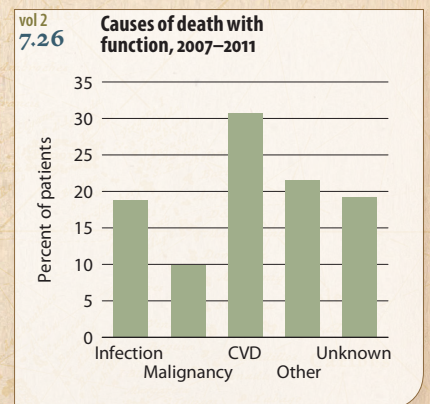
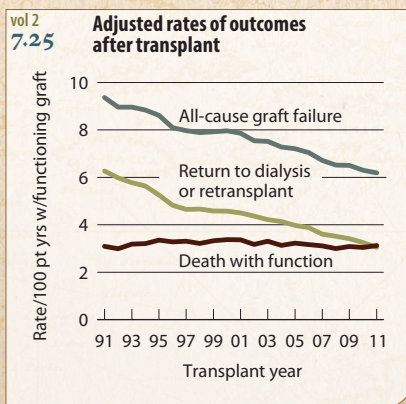
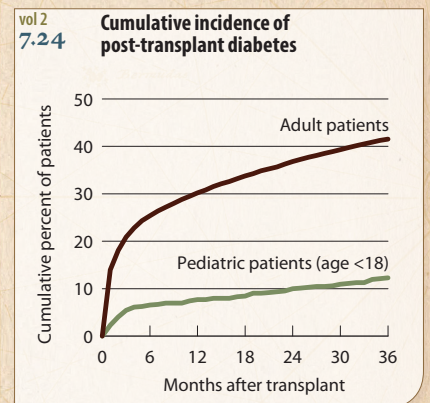
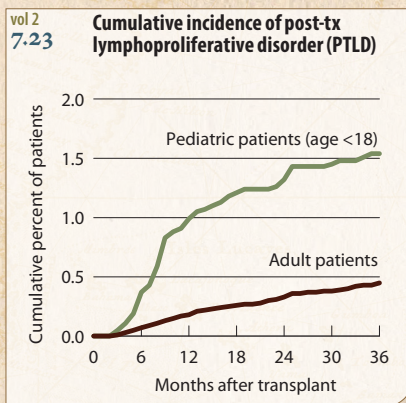


At 36 months after transplant, the cumulative incidence of post-transplant lymphoproliferative disorder (PTLD) is more than three times greater among pediatric patients than among adults, at 1.54 percent compared to 0.45. Adults, in contrast, have a higher incidence of post-transplant diabetes, reaching 42 percent at 36 months, compared to 12 percent among pediatric patients. **Figures 7.23–24**; see page 442 for analytical methods. *Patients receiving a first-time, kidney-only transplant, 2004–2008 combined.*

In the first year after transplant, 21 percent of cardiovascular hospitalizations are due to congestive heart failure; this number rises in the second year, to 25 percent. Hospitalizations for coronary atherosclerosis and CVA/TIA also increase, from 5.5 and 5.0 percent, respectively, in year one to 9.0 and 9.4 percent in year two. Urinary tract infection, septicemia, and pneumonia are the most common diagnoses among transplant patients admitted for infection, at 14–18 percent in the second year after transplant. **Figure 7.22**; see page 442 for analytical methods. *First-time, kidney-only transplant recipients, age 18 & older, with Medicare primary payer coverage, transplanted in 2007–2009.*



The overall graft failure rate among adult transplant recipients was 6.2 per 100 patient years in 2011, while the rate of failure requiring dialysis or retransplantation fell to 3.1. Cardiovascular disease and infection are the main cause of death for 31 and 19 percent of adult patients who die with a functioning graft. **Figures 7.25–26**; see page 442 for analytical methods. *Patients age 18 & older at transplant; adj: age/gender/race (7.25). First-time, kidney-only transplant recipients, age 18 & older, 2007–2011, who died with functioning graft (7.26).*



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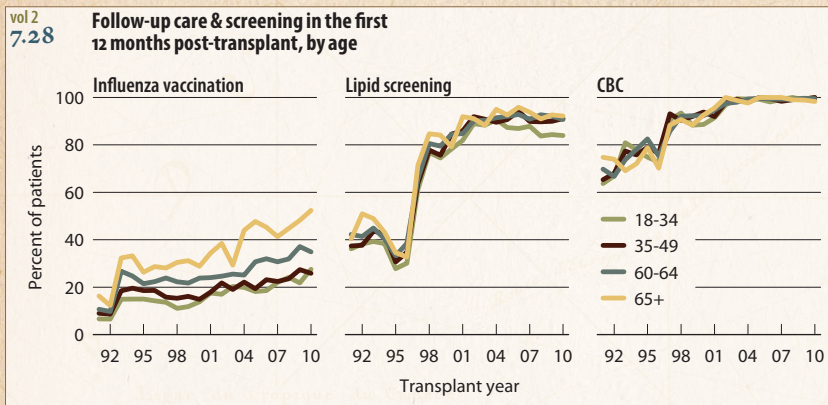
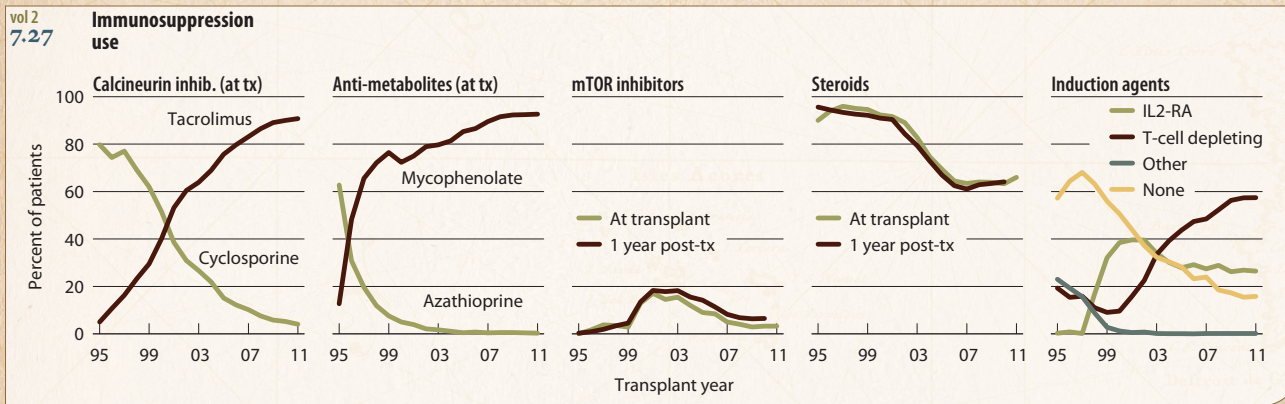
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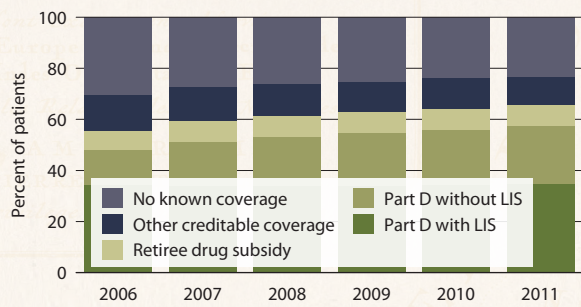
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Ninety-one percent of patients transplanted in 2011 used tacrolimus as their initial calcineurin inhibitor, and mycophenolate has almost completely replaced azathioprine as the anti-metabolite used in new transplant recipients. Use of mTOR inhibitors, both initially and post-transplant, has changed little, while steroid use seems to be stabilizing. Use of T-cell depleting and IL2-RA induction agents remained stable in 2011. + **Figure 7.27**; see page 442 for analytical methods. Patients age 18 & older receiving a first-time, kidney-only transplant. IL2-RA: interleukin-2 receptor antagonist.

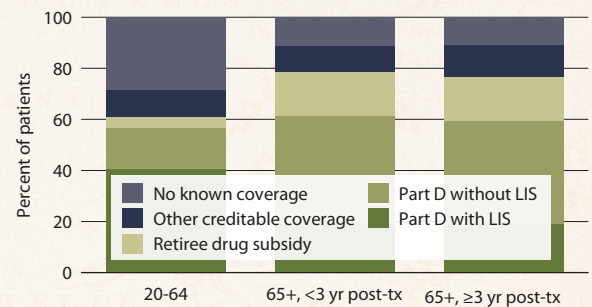


In 2010, 28 percent of recipients age 18–34 received an influenza vaccination in the 12 months post-transplant, compared to 35 percent of those age 60–64, and 53 percent of those age 65 and older. Lipid screening rates range from 84 percent in the youngest adults to 91–92 percent in those age 35 and older. Since 2003, nearly all recipients have received a CBC test in the year after transplant. + **Figure 7.28**; see page 442 for analytical methods. Patients age 18 & older, with Medicare primary payer coverage, receiving a first-time, kidney-only transplant.

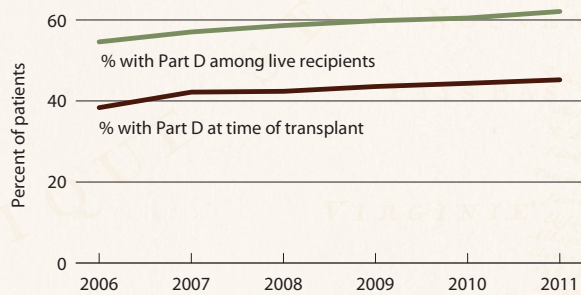
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7.29 Sources of prescription drug coverage in kidney transplant recipients



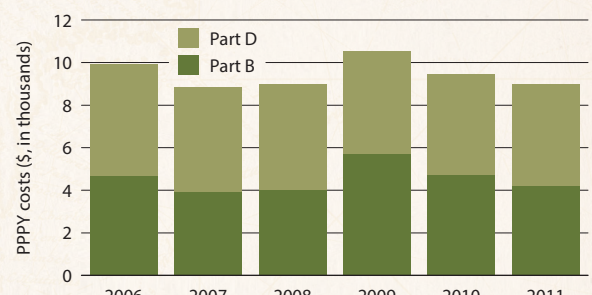
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7.30 Sources of prescription drug coverage in kidney transplant recipients, by age & years post-transplant (age 65+)



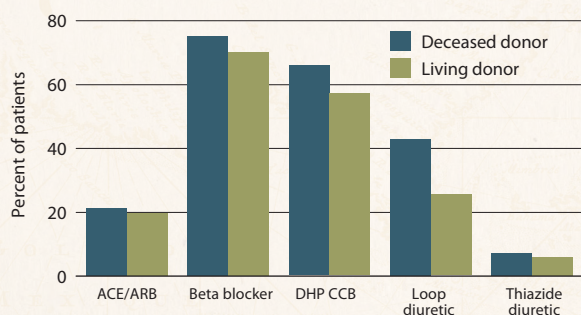
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7.31 Transplant recipients enrolled in Part D



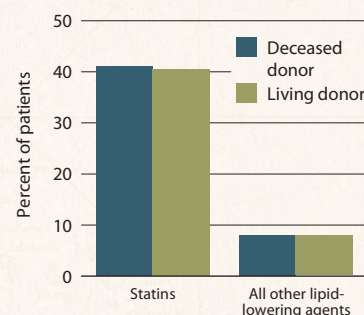
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7.32 Total Part B & Part D medication costs per person per year (PPPY) in kidney transplant recipients



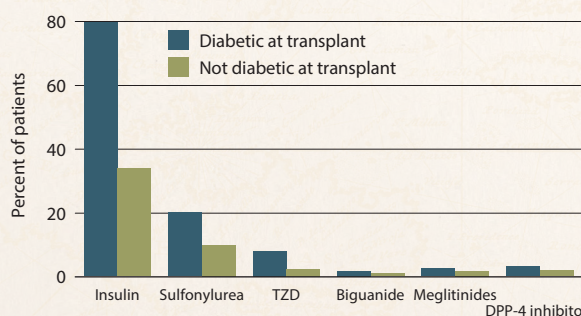
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7.33 Cardiovascular medication use in the first six months post-transplant, 2009–2011 (Part D data)



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7.34 Lipid control medications in the first 6 months post-tx, 2009–2011 (Part D data)



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7.35 Medications for diabetes control in the first six months post-transplant, 2009–2011 (Part D data)



+ Figures 7.29–35; see page 443 for analytical methods. 7.29–30: Point prevalent Medicare-enrolled transplant recipients alive on January 1. 7.31: Medicare-enrolled transplant recipients. 7.32: Period prevalent transplant patients; includes all Part B & Part D costs for injectable & immunosuppressive drugs for calendar years 2006–2011. 7.33–35: Patients age 18 & older receiving a first-time, kidney-only transplant between January 1, 2009 & June 30, 2011, who remain alive with function, & who have Medicare Part D coverage for six months post-transplant.

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7.a**Top 15 medications used by Part D-enrolled kidney recipients transplanted in 2008, by days supply**

Year 1 (2008 tx, n=17,365)	days supply	Year 2, n=16,125	days supply	Year 3, n=15,517	days supply
Metoprolol	843,244	Metoprolol	946,332	Metoprolol	895,690
Sulfamethoxazole/trimethoprim	821,649	Insulin	778,201	Insulin	758,605
Amlodipine	645,955	Sulfamethoxazole/trimethoprim	771,958	Prednisone	731,654
Insulin	637,775	Amlodipine	685,017	Amlodipine	668,960
Valganciclovir	510,639	Prednisone	615,703	Omeprazole	554,878
Clonidine	400,159	Omeprazole	543,797	Simvastatin	476,896
Omeprazole	382,095	Simvastatin	412,564	Sulfamethoxazole/trimethoprim	459,155
Furosemide	359,460	Furosemide	361,531	Furosemide	378,243
Prednisone	344,164	Clonidine	320,564	Lisinopril	346,066
Sevelamer	321,818	Atorvastatin	304,898	Atorvastatin	289,645
Cinacalcet	320,080	Nifedipine	303,060	Clonidine	279,763
Nifedipine	317,187	Lisinopril	275,101	Levothyroxine	257,320
Lisinopril	267,064	Pantoprazole	263,816	Nifedipine	251,182
Simvastatin	265,899	Famotidine	253,432	Carvedilol	236,895
Atorvastatin	265,764	Levothyroxine	243,952	Famotidine	215,163

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7.b**Top 15 medications used by Part D-enrolled kidney recipients transplanted in 2008, by days supply & cost**

Year 1 (2008 tx, n=17,365)	days supply	cost (\$)	Year 2, n=16,125	days supply	cost (\$)	Year 3, n=15,517	days supply	cost (\$)
Valganciclovir	510,639	20,645,585	Valganciclovir	218,581	9,992,743	Insulin	758,605	3,534,914
Cinacalcet	320,080	5,687,765	Insulin	778,201	3,202,810	Valganciclovir	60,683	2,829,562
Sevelamer	321,818	5,112,564	Cinacalcet	145,329	2,634,544	Cinacalcet	140,858	2,685,591
Insulin	637,775	2,196,748	Tacrolimus	133,589	2,450,192	Tacrolimus	128,581	1,981,222
Tacrolimus	73,472	1,407,785	Mycophenolate mofetil	82,855	1,284,412	Esomeprazole	214,640	1,241,605
Lanthanum	70,703	1,108,739	Esomeprazole	229,562	1,269,257	Atorvastatin	289,645	909,594
Esomeprazole	207,595	1,064,712	Atorvastatin	304,898	894,133	Mycophenolate mofetil	95,039	859,392
Epoetin alfa	29,057	989,248	Pantoprazole	263,816	878,907	Pantoprazole	171,866	647,150
Mycophenolate mofetil	52,913	901,738	Epoetin Alfa	26,544	826,583	Clopidogrel	142,843	639,295
Pantoprazole	257,346	835,216	Clopidogrel	141,746	560,478	Epoetin alfa	17,709	578,055
Calcium Acetate	208,572	833,930	Tamsulosin	174,521	544,358	Mycophenolate	30,669	452,799
Atorvastatin	265,764	768,453	Nifedipine	303,060	522,015	Nifedipine	251,182	392,454
Ganciclovir	30,171	604,282	Darbepoetin alfa	10,994	521,330	Omeprazole	554,878	362,394
Darbepoetin alfa	11,559	596,675	Omeprazole	543,797	507,452	Metoprolol	895,690	318,071
Nifedipine	317,187	582,745	Lansoprazole	83,372	494,307	Pioglitazone	56,392	316,793

In 2011, 58 percent of kidney transplant patients were enrolled in Medicare Part D: 35 percent with the low income subsidy (LIS), and 23 percent without. Transplant patients age 65 and older are less likely to have the LIS than those age 20–64, at 19 and 41 percent, respectively. Since 2006, the proportion of recipients enrolled in Part D has increased from 38 to 45 percent at the time of transplant, and from 55 to 62 percent among living recipients.

In 2011, total Part D per person per year medication costs for transplant patients were slightly higher than those for Part B, at \$4,772 and \$4,226, respectively.

Data on cardiovascular medication use in the first six months after transplant show that both living and deceased donor transplant recipients are more likely to receive a beta blocker or dihydropyridine calcium channel blocker than an ACE inhibitor or angiotension receptor blocker; loop diuretics,

however, are far more widely used in deceased donor recipients, at 43 versus 26 percent. Recipients are more likely to use statins than other types of lipid lowering medications, and 80 percent of those with diabetes at the time of transplant use insulin compared to 20 and 10 percent, respectively, using sulfonylureas or TZDs.

Among those transplanted in 2008, metoprolol tartrate was the most frequently used medication in the first three years post-transplant. Valganciclovir hydrochloride was the most costly medication in the first two years post-transplant, and insulin the most costly in year three. + **Tables 7.a–b**; see page 443 for analytical methods. *Patients enrolled in Medicare Part D & transplanted in 2008. Costs are estimated Medicare payment, defined as the sum of plan covered payment amount & low income subsidy amount. “Year 1” is the period from transplant to one year later. Years 2 & 3 are similarly defined.*

Transplant

KIDNEY TRANSPLANTS IN PATIENTS AGE 20 & OLDER, 2011 (FIGURE 7.1)

total: 17,671; deceased donor: 11,835; living donor: 5,772

PATIENTS WITH A FUNCTIONING TRANSPLANT, 2011 (FIGURE 7.1)

total: 181,469; deceased donor: 108,375; living donor: 73,094

WAIT-LISTED PATIENTS RECEIVING A DECEASED DONOR TRANSPLANT WITHIN THREE YEARS OF LISTING IN 2008 (FIGURE 7.4)

blood type o: 17%; type A: 30%; type B: 18%; type AB: 45%

DECEASED DONOR TRANSPLANTS, 2011 (FIGURE 7.12)

white: 6,956; black/African American: 3,685; Asian: 886; other race: 308

LIVING DONOR TRANSPLANTS, 2011 (FIGURE 7.14)

white: 4,313; black/African American: 778; Asian: 557; other race: 123

wait list

PATIENTS WAITING FOR A TRANSPLANT THREE YEARS AFTER LISTING IN 2008 (FIGURE 7.5)

white: 36%; black/African American: 51%; Asian: 46%; other race: 39%

PROBABILITY OF DYING WHILE AWAITING TRANSPLANT (FIGURE 7.8)

within 1 year: 1.3%; 2 years: 4.0%; 3 years: 8.7%; 4 years: 13.8%; 5 years: 19.8%

donation

RATE OF KIDNEY DONATION, 2011 (PER MILLION POPULATION; FIGURE 7.10)

	white	black/African American	Native American	Asian
deceased donors	22.3	27.2	9.3	8.4
living donors	20.7	19.6	5.5	11.5

ADJUSTED RATE OF DECEASED DONOR TRANSPLANTS, 2011 (PER 100 DIALYSIS PATIENT YEARS; FIGURE 7.13)

white: 2.7; black/African American: 2.0; Asian: 3.6; other race: 2.4

ADJUSTED RATE OF LIVING DONOR TRANSPLANTS, 2011 (PER 100 DIALYSIS PATIENT YEARS; FIGURE 7.15)

white: 1.8; black/African American: 0.4; Asian: 2.1; other race: 1.0

outcomes

PROBABILITY OF GRAFT FAILURE (FIGURES 7.17–18)

	one-year	five-year	ten-year
deceased donors	8.5%	29%	54%
living donors	3.2%	15.4%	38%

CUMULATIVE INCIDENCE OF POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER AT 36 MONTHS AFTER TRANSPLANT (FIGURE 7.23)

pediatric patients: 1.5%; adult patients: 0.5%

CUMULATIVE INCIDENCE OF POST-TRANSPLANT DIABETES AT 36 MONTHS AFTER TRANSPLANT (FIGURE 7.24)

pediatric patients: 12.3%; adult patients: 42%

CAUSES OF DEATH WITH A FUNCTIONING GRAFT, 2007–2011 (FIGURE 7.26)

infection: 18.8%; malignancy: 9.8%; CVD: 31%