



*Bryce Canyon National Park, Utah*

## **TRANSPLANTATION**

286	wait list
287	donation
288	transplant
289	outcomes
291	follow-up care
292	Part D medications in kidney transplant recipients
294	summary

In 2010, the most recent year of available data, 16,843 kidney transplants were performed in patients age 20 and older in the United States — 135 more than in the previous year. There were 85 fewer living donor transplants performed in 2010 compared to 2009, a decrease of 1.4 percent, compared with a 2.0 percent increase in deceased donor transplants. Among patients age 19 and younger, 935 kidney transplants were performed in 2010, 90 fewer than in the previous year.

The number of adult candidates on the waiting list with certified kidney failure continues to increase, growing 6 percent in 2010 to reach 75,807 patients on December 31 (Reference Table E.3); 36 percent of these patients were inactive. Among active listings, 8 percent were listed at more than one transplant center. The rate of new ESRD cases declined 1.1 percent from 2009 to 2010. Twenty-two percent of new ESRD patients in 2009 were added to the waiting list or received a transplant within one year of ESRD certification, a number remaining fairly stable over the past two decades. The percentage of adult candidates who receive a deceased donor transplant within three years of listing varies by candidate blood type, from 20 percent for those with Type O to 47 percent of those with Type AB.

Rates of deceased donation remained flat in 2010, at 21.8 donors per million population, and at 2.4 donations per 1,000 deaths in 2009–2010 combined. With the number of candidates awaiting transplant continuing to increase, transplant rates per 100 dialysis patient years continue to decline, in 2010 reaching 2.4 and 1.3 for deceased and living donor transplants, respectively.

One-year all-cause graft failure continues to reach all-time low levels, at 9 percent for recipients of first-time, deceased donor transplants, and 3 percent for recipients of first-time, living donor transplants in 2009. Five-year all-cause graft failure rates also continue to fall, reaching 29 and 17 percent in deceased and living donor recipients. In 2010, delayed graft function was reported in 23 and 3 percent of deceased and living donor transplants. The rate varies, from 22 percent for standard criteria donors to 28 percent and 41 percent, respectively, for expanded criteria donors and donations after cardiac death.

Attention continues to focus on reducing the incidence of acute rejection and other post-transplant metabolic, cardiovascular, and infectious complications, and on improving long-term outcomes. The incidence of acute rejection episodes during the first year post-transplant, reported in 11 and 10 percent of deceased and living donor recipients in 2009, has declined approximately 50 percent over the past decade. New-onset diabetes following transplant, however, remains common, with over 40 percent of adult, non-diabetic, Medicare-covered recipients having evidence of diabetes by the end of the third year after transplant. Thirty-one percent of non-diabetic transplant recipients with Medicare Part D coverage have claims for insulin during the first six months post-transplant, while 10 percent have claims for sulfonylureas.

Congestive heart failure remains the leading cause of cardiovascular hospitalization during the first two years post-transplant. Among recipients who die with a functioning transplant, cardiovascular disease continues to be the leading cause of death, accounting for 30 percent of deaths, followed by infectious causes and malignancies at 21 and 9 percent. Urinary tract infections are the leading cause of hospitalization due to infection in the first post-transplant year. And in the three years post-transplant, lymphoproliferative disorders are reported in 0.5 and 1.6 percent of adult and pediatric Medicare-covered recipients.

Among all transplant recipients alive with a functioning transplant at the beginning of 2010, 56 percent were enrolled in a Part D prescription drug plan, compared to 44 percent of those receiving a transplant during the year. Reflecting

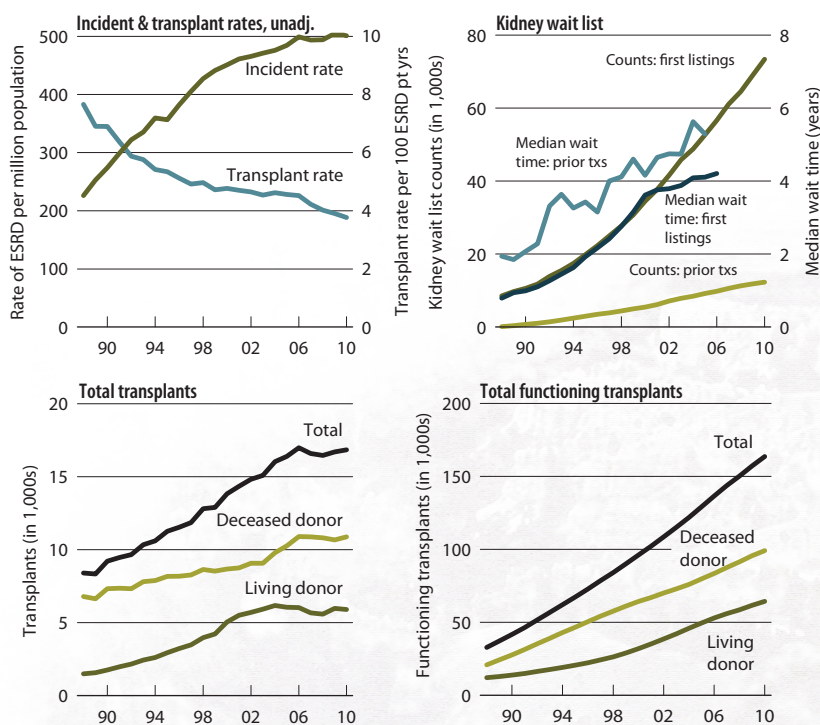
This monster of a land, this mightiest of nations, this spawn of the future, turns out to be the macrocosm of microcosm me.

JOHN STEINBECK  
*Travels with Charley*

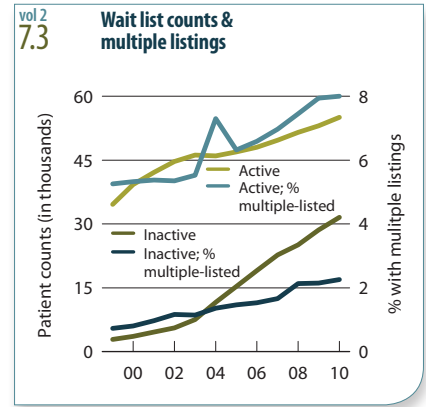
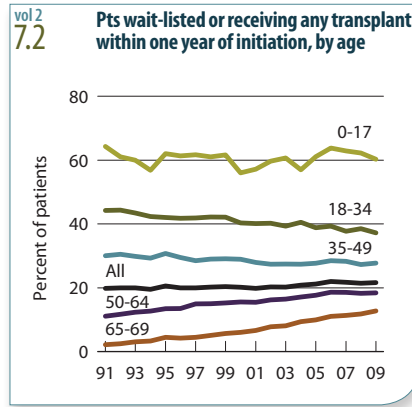
continued attention to the prevention of cardiovascular events, beta blockers are prescribed for 75 and 71 percent of deceased and living donor recipients, respectively, during the first six months post-transplant. ACE inhibitors are prescribed for 23 and 22 percent, dihydropyridine calcium channel blockers for 65 and 58 percent, and loop diuretics for 44 and 27 percent. Approximately 41 percent of transplant recipients with Part D coverage have claims for statins during the first six months post-transplant, and 90 percent of recipients age 35 or older at transplant have a lipid screening performed during the first year. Targeting post-transplant cardiovascular complications will continue to yield improvements in recipient outcomes.

Medicare prescription drug costs, including all Part D costs as well as Part B costs for injectable and immunosuppressive drugs, reached \$10,000 per transplant patient per year in 2010. Metoprolol, an antihypertensive agent, was the most common medication prescribed in each of the first three years post-transplant. The highest costs to Medicare during the first year post-transplant were for valganciclovir, recommended by the KDIGO Guidelines for Care of the Kidney Transplant Recipients (Guideline 13.2.1) 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 and the fourth medication by cost during year three post-transplant. » **Figure 7.1;** see page 440 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: patients age 20 & older listed for a kidney or kidney-pancreas transplant on December 31 of each year. Wait time: patients age 20 & older entering wait list in the given year. Transplant counts: patients age 20 & older as known to the USRDS.*

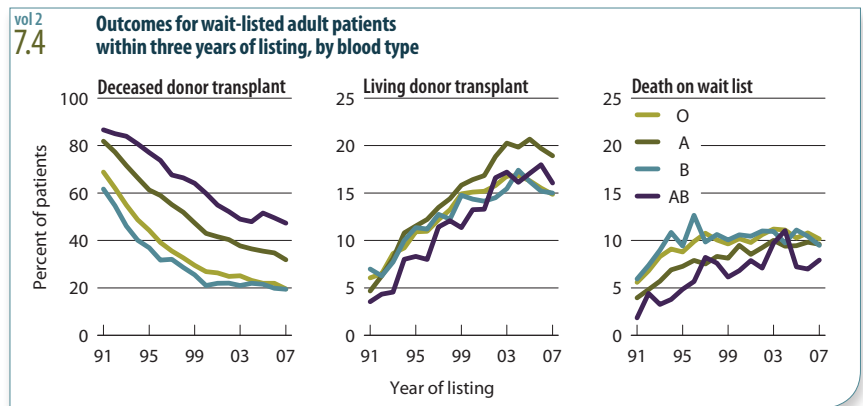
vol 2  
7.1 Trends in transplantation: unadjusted rates, wait list, & total & functioning transplants, patients age 20 & older



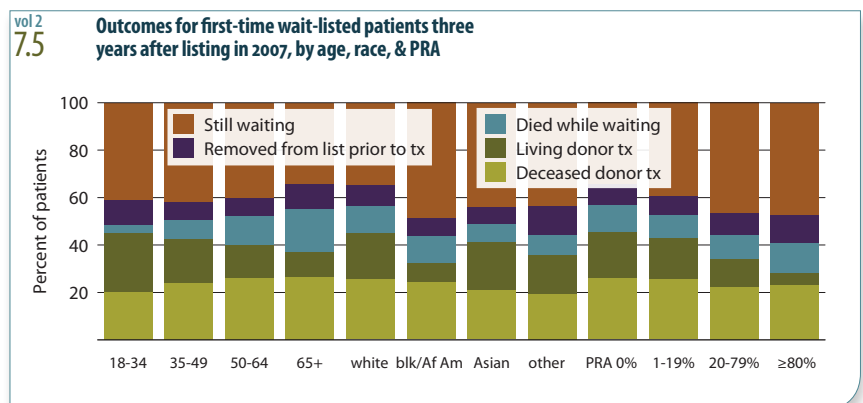
Sixty percent of pediatric patients age 0–17 starting ESRD therapy in 2009 were wait-listed or received a deceased donor transplant within one year, compared to 28 percent of those age 35–49. At the end of 2010, there were 55,060 active patients on the wait list for a kidney or kidney-pancreas transplant, and 31,560 inactive patients. » **Figures 7.2–3**; see page 440 for analytical methods. *Incident ESRD pts 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).*



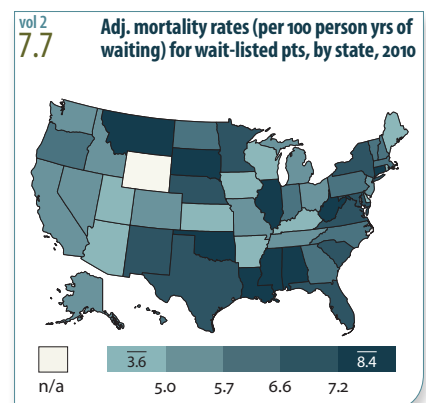
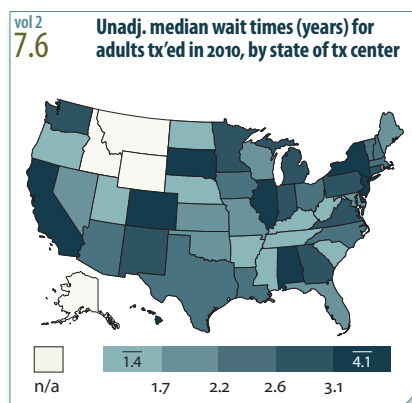
The percentage of adult patients receiving a deceased donor transplant within three years of listing has fallen considerably since 1991, and varies by blood type. It continues to be highest for those of blood type AB — at 47 percent for patients listed in 2007 — and lowest for those of type O or B, at 20 percent. The percentage receiving a living donor transplant has been rising, and varies little by blood type. » **Figure 7.4**; see page 440 for analytical methods. *Patients age 18 & older listed for a first-time kidney or kidney-pancreas transplant.*

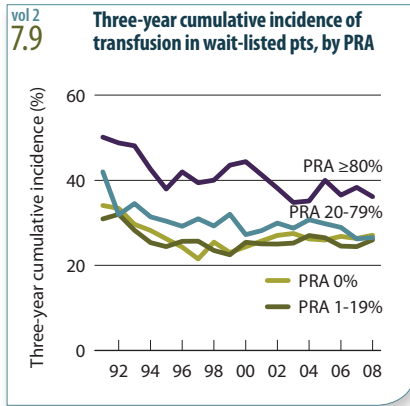
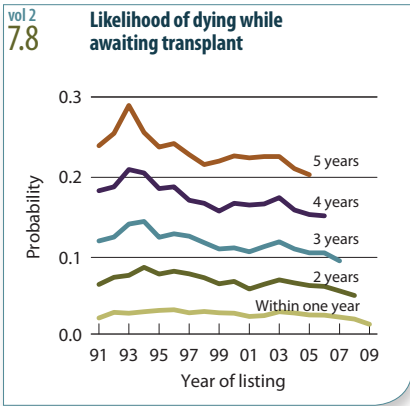


Of patients listed in 2007, 20 percent of whites and Asians received a living donor transplant within three years, compared to just 8.0 percent of blacks/African Americans. Forty-four and 49 percent of Asians and blacks/African Americans were still waiting after three years, rates considerably higher than the 35 percent among whites. » **Figure 7.5**; see page 440 for analytical methods. *Pts age 18 & older listed for a first-time, kidney-only tx in 2007; transplanted patients may have subsequent outcomes in the three-year follow-up period.*

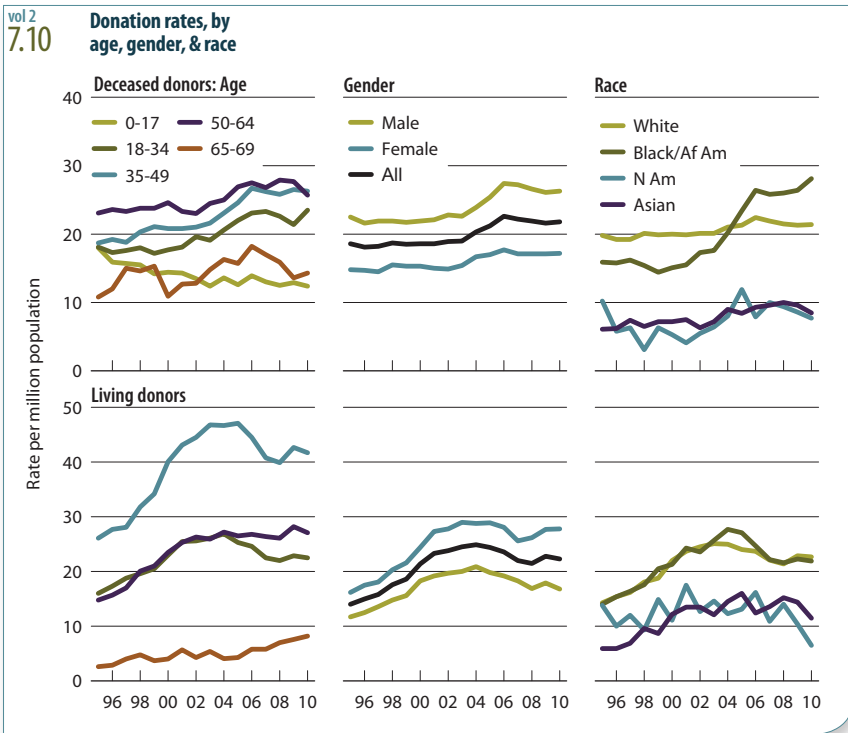


Median wait times for patients transplanted in 2010 exceeded four years in Alabama, Hawaii, New Jersey, California, and South Dakota; the median was 2.6. Adjusted mortality among wait-listed patients in 2010 was 6.2 deaths per 100 person years of waiting, and reached 9.2 in Louisiana. » **Figures 7.6–7**; see page 440 for analytical methods. *Pts age 18+ receiving a first-time, deceased-donor, kidney-only tx in 2010 (7.6). Pts age 18+, listed for a kidney or kidney-pancreas tx as of Jan. 1, 2010; see appendix for adjustments (7.7).*



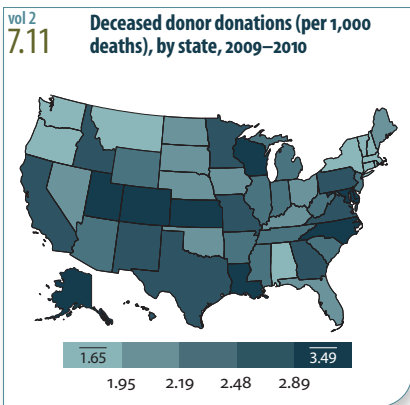


For first-time transplant candidates, the probability of dying within one or five years while awaiting a transplant continued a downward trend in 2009, falling to 0.02 and 0.20. Transfusions are most common among patients who are highly sensitized at the time of transplant (PRA of 80 percent or higher). » **Figures 7.8–9**; see page 440 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).*



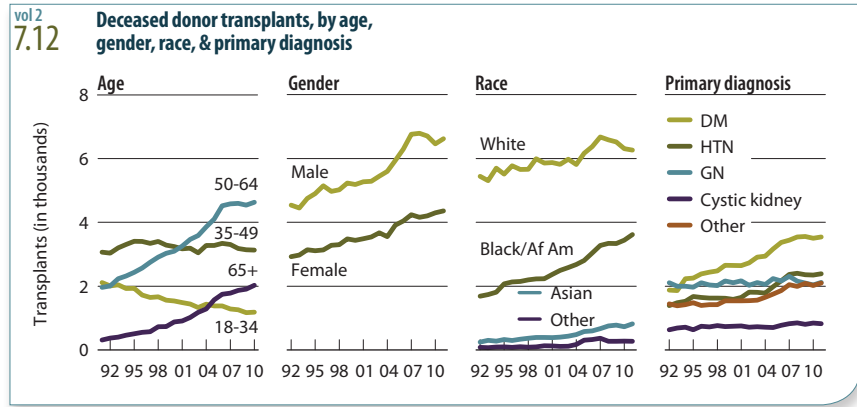
In 2010, rates of kidney donation from deceased donors reached 26 per million population in recipients age 35–64, and 26.3 and 17.2, respectively, in males and females. Since 2005, rates by race have been highest in blacks/African Americans, reaching 28.1 in 2010, compared to just 7.7 and 8.5 among Native Americans and Asians.

Rates of donations from living donors are noticeably higher among patients age 35–49, reaching 47 per million population in the middle of the decade, and 42 in 2010. By race, rates in 2010 were 6.5 and 11.5 per million among Native Americans and Asians, and 22–23 among whites and blacks/African Americans. » **Figure 7.10**; see page 440 for analytical methods. *Donors younger than 70 whose organs are eventually transplanted.*

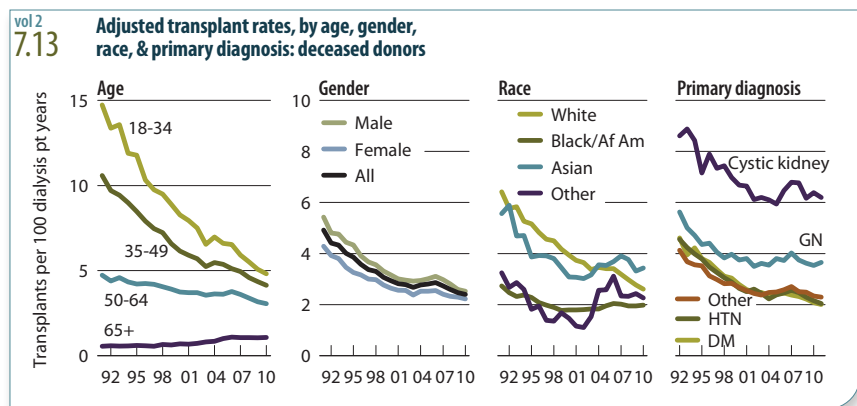


In 2009–2010, the overall rate of donations from deceased donors was 2.4 per 1,000 deaths. Rates by state were greater than 3 per 1,000 deaths in Alaska, Delaware, Kansas, Utah, Maryland, Wisconsin, and Colorado, and less than 1.75 in Montana, New Hampshire, Oregon, Rhode Island, and Vermont. » **Figure 7.11**; see page 440 for analytical methods. *Deaths from July 1, 2009 to July 1, 2010.*

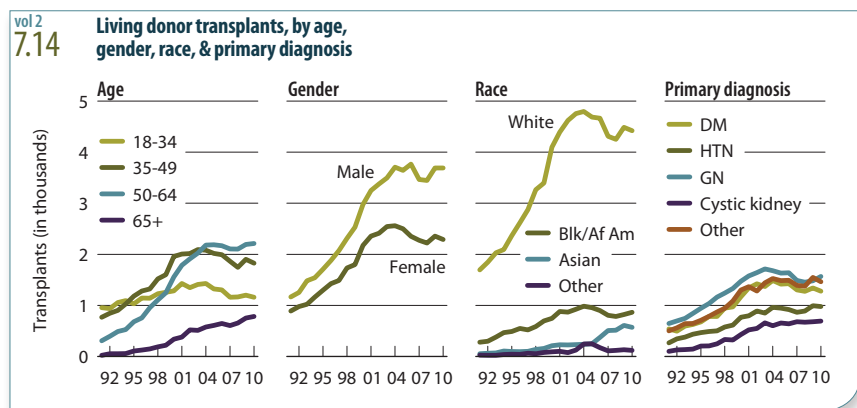
Since 2000, the number of deceased donor transplants among patients age 65 and older has more than doubled, to 2,031, and there has been an increase of 50 percent among patients age 50–64. Among those age 18–34, in contrast, transplants have fallen 23 percent, to 1,187. Among blacks/African Americans and Asians, the number of transplants has grown 53 and 111 percent, respectively. » **Figure 7.12;** see page 440 for analytical methods. *Pts age 18 & older. Includes kidney-alone & kidney-pancreas transplants.*



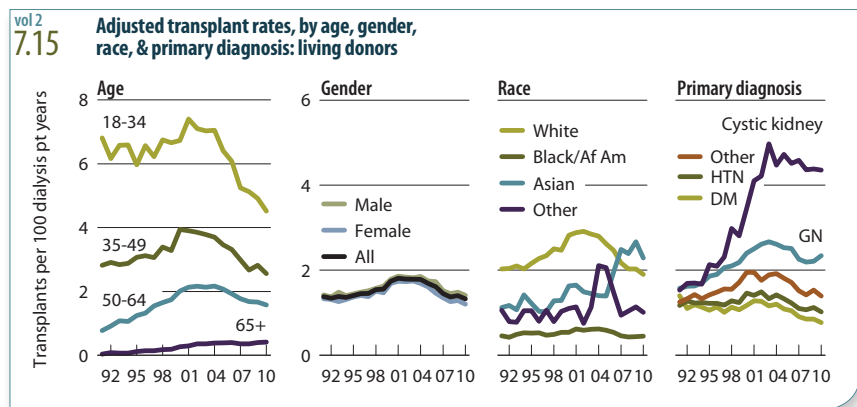
The adjusted deceased donor transplant rate has increased 54 percent since 2000 for patients age 65 and older, while falling 42 percent for those age 18–34. By race, the rate is down 34 percent among whites, while rising 11 percent for blacks/African Americans and Asians. » **Figure 7.13;** see page 440 for analytical methods. *Patients age 18 & older. Adj: age/gender/race/ethnicity/primary diagnosis (rates by one factor adjusted for remaining four).*

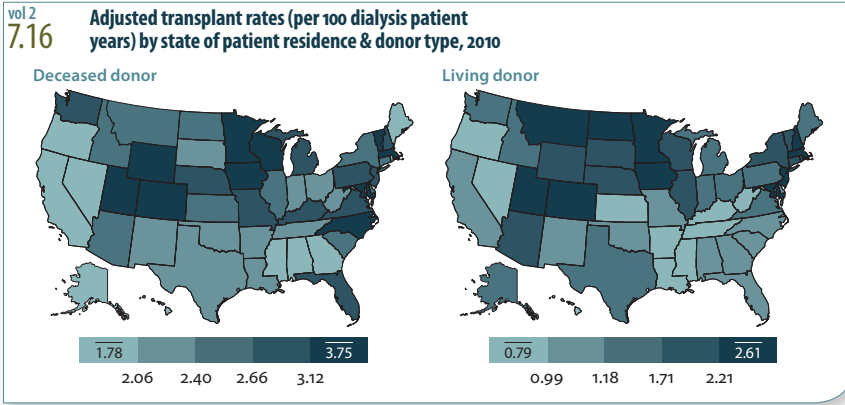


Among patients younger than 50, the number of living donor transplants has fallen 7–10 percent since 2000. For those age 50–64, in contrast, the number is now 42 percent higher, and for patients age 65 and older it has more than doubled. Living donor transplants among whites and blacks/African Americans have increased 8 and 16 percent, respectively, in this period, and have more than doubled among Asians. » **Figure 7.14;** see page 440 for analytical methods. *Patients age 18 & older. Includes kidney-alone & kidney-pancreas transplants.*

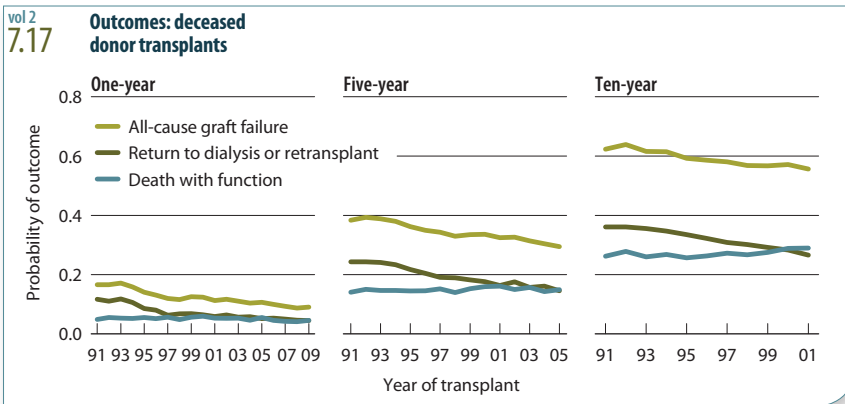


Rates of living donor transplants peaked at the beginning of the decade, and have since fallen for many patient groups. As with deceased donor transplants, rates by race are now greatest in the Asian population, reaching 2.3 per 100 dialysis patient years in 2010 — 41 percent higher than in 2000. » **Figure 7.15;** see page 440 for analytical methods. *Patients age 18 & older. Adj: age/gender/race/ethnicity/primary diagnosis (rates by one factor adjusted for remaining four).*

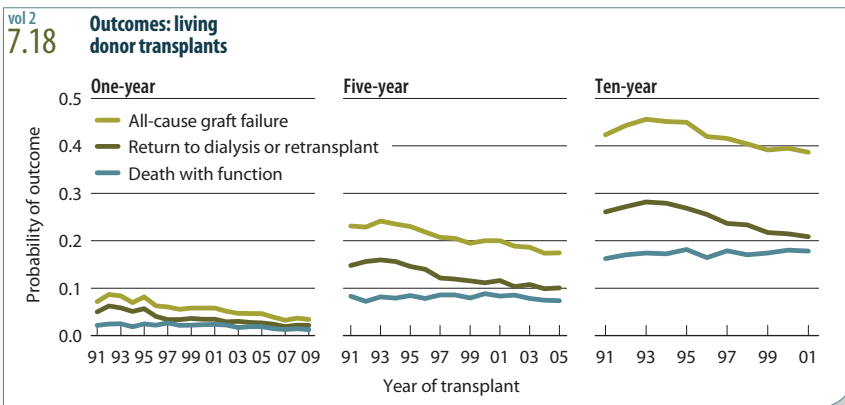




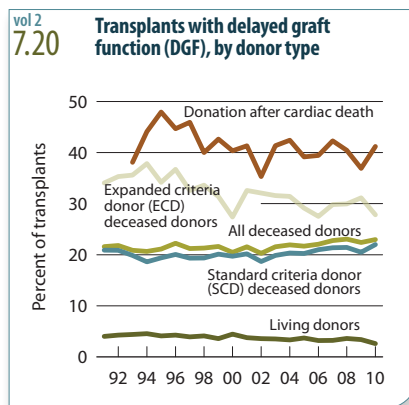
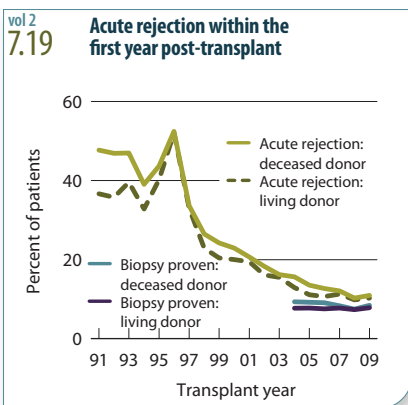
In 2010, the national rate of deceased donor transplantation was 2.6 per 100 dialysis patient years. The highest rates were seen among residents of Vermont, Colorado, and Wyoming, with rates of 3.6 to 6.8. The rate of living donor transplantation was 1.5 nationally, and above 3.1 in Minnesota and North Dakota. » **Figure 7.16**; see page 440 for analytical methods. *Patients age 18 & older. Adj: age/gender/race/primary diagnosis; ref: prevalent dialysis patients, 2010.*



Among patients who received a deceased donor kidney transplant in 2009, 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 0.17 and 0.39 compared to 0.29 and 0.56 in those receiving a deceased donor transplant.

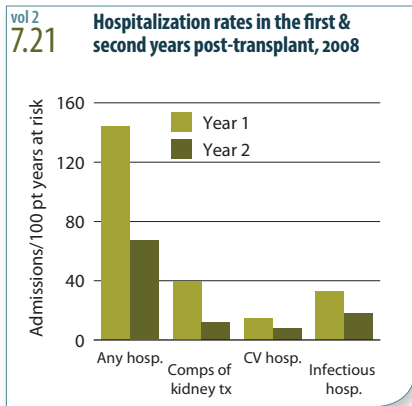


The probability of returning to dialysis or being retransplanted has lessened for both deceased and living donor recipients. For transplants performed between 1992 and 2001, the probability of return to dialysis by ten years post-transplant fell 26 and 23 percent, respectively. In contrast, the probability of death with function at ten years post-transplant has increased approximately 10 percent in both populations. » **Figures 7.17–18**; see page 440 for analytical methods. *Patients age 18 & older receiving a first-time, kidney-only transplant; unadjusted.*

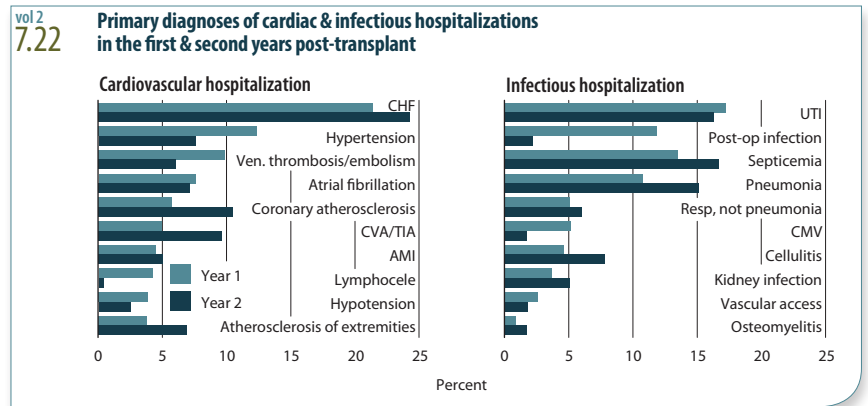


The percentage of transplant patients experiencing an acute rejection has declined steadily over the past decade, and three-fourths of reported acute rejections are biopsy-proven. In 2010, delayed graft function was reported in 2.6 percent of transplants from living donors, compared to 22, 28, and 41 percent of SCDS, ECDs, and donations after cardiac death. » **Figures 7.19–20**; see page 440 for analytical methods. *Patients age 18 & older with a functioning graph at discharge.*

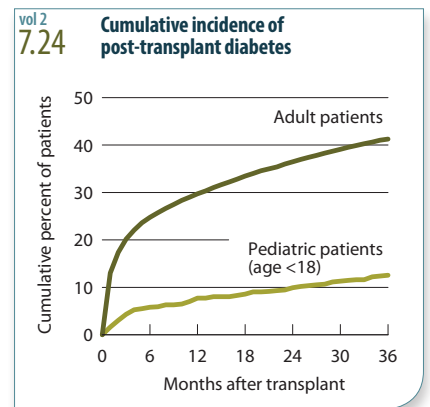
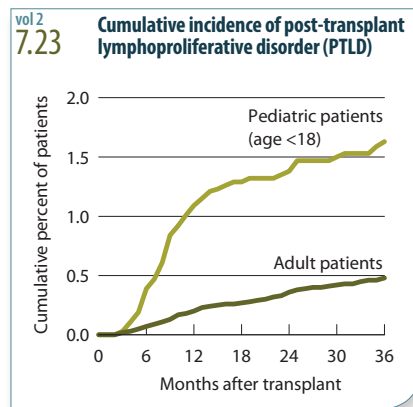
In the second year post-transplant, hospitalization rates for adult recipients are 54 percent lower than in the first year, at 67 admissions per 100 patient years. Admissions due to transplant complications fall 69 percent, to 12.1, while admissions due to cardiovascular causes and to infection fall 45 and 46 percent, to 8.2 and 18.1. » **Figure 7.21**; see page 440 for analytical methods. *First-time, kidney-only transplant recipients, age 18 & older, transplanted in 2008; ref: transplant patients, 2005.*



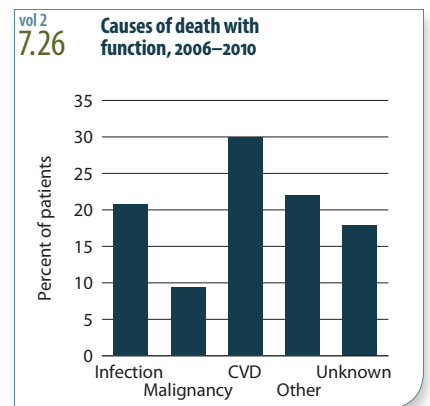
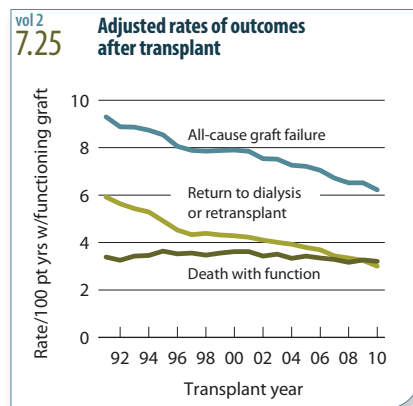
In the first year after transplant, 21 percent of cardiovascular hospitalizations are due to congestive heart failure; this number rises in the second year, to 24 percent. Hospitalizations for coronary atherosclerosis and CVA/TIA also increase, from 5.8 and 5.0 percent, respectively, in year one to 10.5 and 9.7 percent in year two. Urinary tract infection, septicemia, and pneumonia are the most common diagnoses among transplant patients admitted for infection, at 15–16 percent in the second year after transplant. » **Figure 7.22**; see page 440 for analytical methods. *First-time, kidney-only transplant recipients, age 18 & older, with Medicare primary payor coverage, transplanted in 2006–2008.*



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 1.63 percent compared to 0.48. Adults, in contrast, have a higher incidence of post-transplant diabetes, reaching 41 percent at 36 months, compared to 13 percent among pediatric patients. » **Figures 7.23–24**; see page 441 for analytical methods. *Patients receiving a first-time, kidney-only transplant, 2003–2007 combined.*

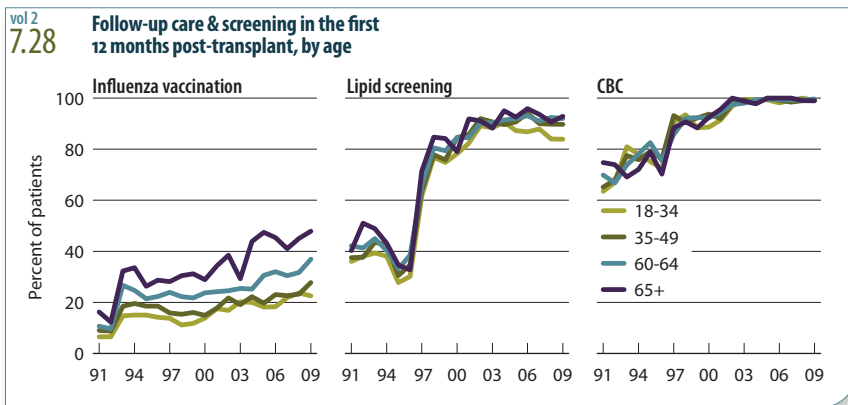
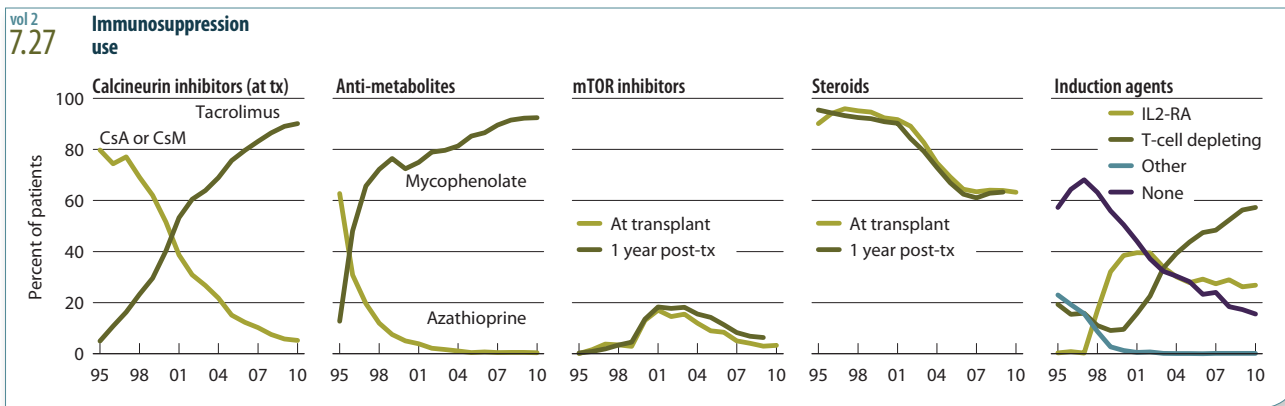


The overall graft failure rate among adult transplant recipients fell to 6.2 per 100 patient years in 2010, while the rate of failure requiring dialysis or retransplantation fell to 3.0. Cardiovascular disease and infection are the main cause of death for 30 and 21 percent of adult patients who die with a functioning graft. » **Figures 7.25–26**; see page 441 for analytical methods. *Pts age 18+ at transplant; adj: age/gender/race (7.25). First-time, kidney-only transplant recipients, age 18+, 2006–2010, who died with functioning graft (7.26).*

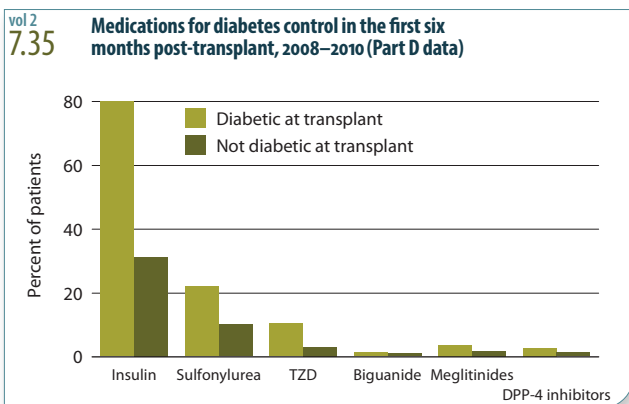
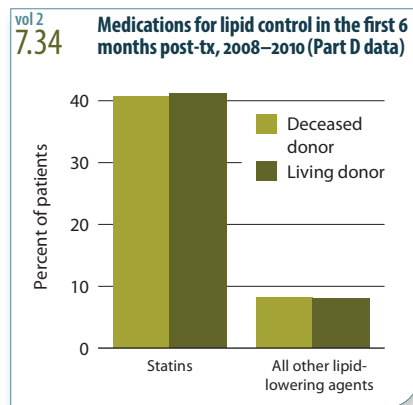
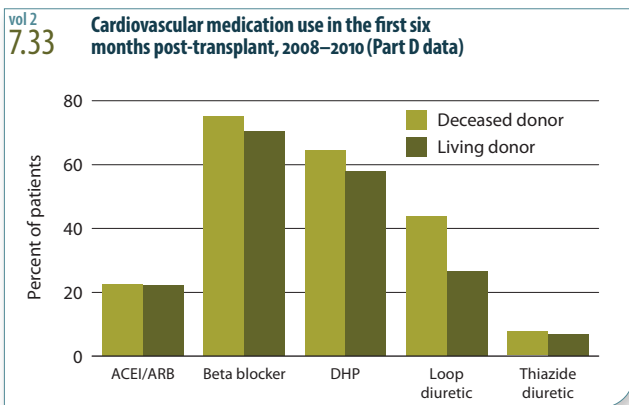
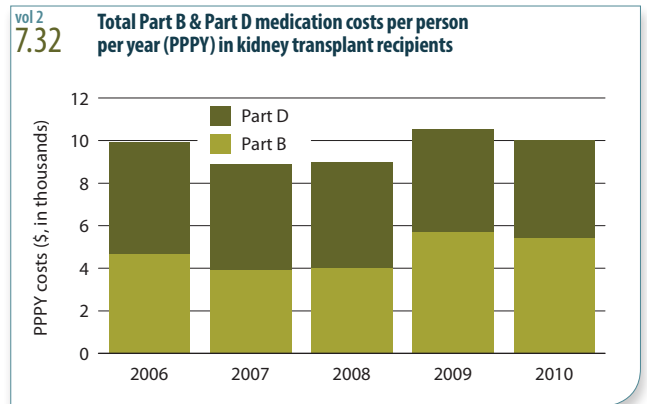
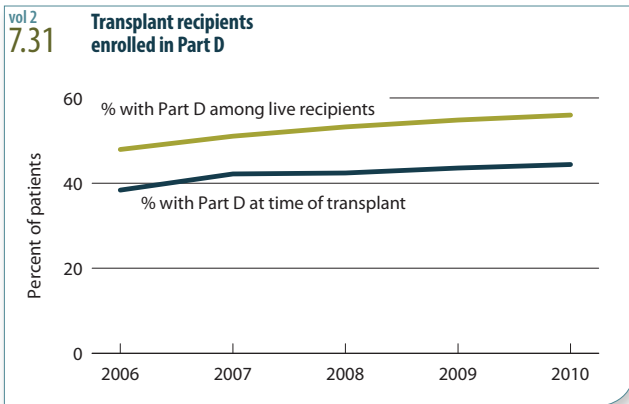
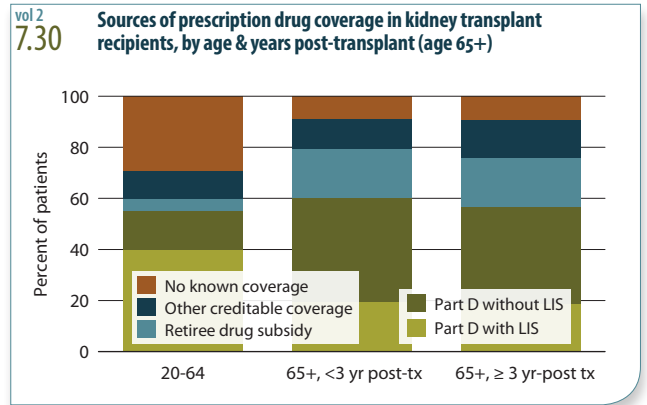
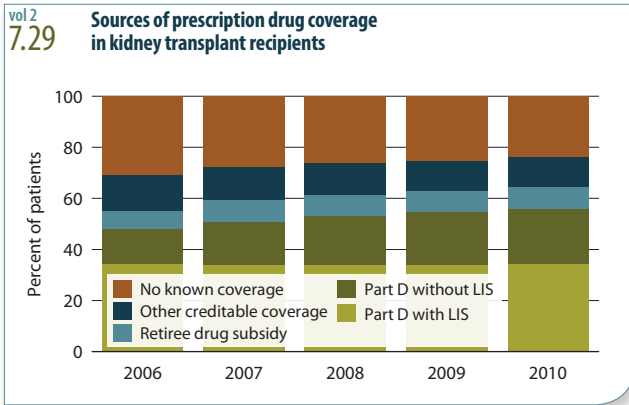




Ninety percent of patients transplanted in 2010 used tacrolimus as their initial calcineurin inhibitor, and mycophenolate has almost completely replaced azathioprine as the anti-metabolite used in new transplant recipients. Use of mTOR inhibitors, both initially and post-transplant, has changed little, while steroid use seems to be stabilizing. Use of T-cell depleting and IL2-RA induction agents showed a negligible increased in 2010. » **Figure 7.27**; see page 441 for analytical methods. *Patients age 18 & older receiving a first-time, kidney-only transplant. CSA: cyclosporine A; CSM: cyclosporine microemulsion.*



In 2009, 23 percent of recipients age 18–34 received an influenza vaccination in the 12 months post-transplant, compared to 37 percent of those age 60–64, and 48 percent of those age 65 and older. Lipid screening rates range from 84 percent in the youngest adults to 92–93 percent in those age 60 and older. Since 2003, nearly all recipients have received a CBC test in the year after transplant. » **Figure 7.28**; see page 441 for analytical methods. *Patients age 18 & older, with Medicare primary payor coverage, receiving a first-time, kidney-only transplant.*



» **Figures 7.29–35;** see page 441 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 2006–2010. 7.33–35: Patients age 18 & older receiving a first-time, kidney-only transplant between January 1, 2008 & June 30, 2010, who remain alive with function, & who have Medicare Part D coverage for six months post-transplant.

vol 2  
7.a Top 15 medications used by Part D-enrolled kidney recipients transplanted in 2007, by days supply

Year 1 (2007 tx, n=17,478)	days supply	Year 2, n=16,221	days supply	Year 3, n=15,551	days supply
Metoprolol tartrate	837,466	Metoprolol tartrate	971,827	Metoprolol tartrate	899,486
Sulfamethoxazole/trimethoprim	821,055	Sulfamethoxazole/trimethoprim	785,021	Insulin regular, human	756,665
Amlodipine besylate	608,887	Insulin regular, human	768,476	Prednisone	703,262
Insulin regular, human	605,076	Amlodipine besylate	642,724	Amlodipine besylate	613,562
Valganciclovir hydrochloride	511,240	Prednisone	585,395	Sulfamethoxazole/trimethoprim	455,960
Clonidine HCl	427,646	Omeprazole	400,065	Omeprazole	439,090
Furosemide	348,484	Furosemide	391,181	Simvastatin	410,455
Sevelamer HCl	333,817	Atorvastatin calcium	372,285	Furosemide	393,483
Prednisone	325,863	Clonidine HCl	346,789	Atorvastatin calcium	342,796
Nifedipine	315,436	Simvastatin	312,978	Lisinopril	321,464
Atorvastatin calcium	308,241	Nifedipine	304,991	Clonidine HCl	305,833
Cinacalcet HCl	302,288	Pantoprazole sodium	279,568	Nifedipine	270,908
Omeprazole	272,421	Lisinopril	263,551	Levothyroxine sodium	241,404
Pantoprazole sodium	242,264	Famotidine	262,765	Pantoprazole sodium	209,770
Famotidine	238,466	Levothyroxine sodium	233,243	Famotidine	205,251

vol 2  
7.b Top 15 medications used by Part D-enrolled kidney recipients transplanted in 2007, by days supply & cost

Year 1 (2007 tx, n=17,478)	days supply	cost (\$)	Year 2, n=16,221	days supply	cost (\$)	Year 3, n=15,551	days supply	cost (\$)
Valganciclovir hydrochloride	511,240	19,378,257	Valganciclovir hydrochloride	219,703	9,448,638	Insulin regular, human	756,665	3,118,123
Cinacalcet HCl	302,288	4,914,595	Insulin regular, human	768,476	2,773,441	Cinacalcet HCl	137,093	2,431,925
Sevelamer HCl	333,817	4,874,633	Cinacalcet HCl	158,589	2,626,572	Tacrolimus anhydrous	146,933	2,125,449
Insulin regular, human	605,076	1,784,213	Tacrolimus anhydrous	153,712	2,590,869	Valganciclovir hydrochloride	46,607	2,016,824
Epoetin alfa	34,891	1,149,713	Mycophenolate mofetil	104,911	1,729,031	Mycophenolate mofetil	98,464	1,348,384
Tacrolimus anhydrous	58,856	1,068,910	Esomeprazole mag trihydrate	220,582	1,099,050	Esomeprazole mag trihydrate	193,938	1,017,276
Esomeprazole mag trihydrate	198,789	923,789	Atorvastatin calcium	372,285	1,019,139	Atorvastatin calcium	342,796	959,288
Pantoprazole sodium	242,264	912,792	Epoetin alfa	27,441	958,019	Pantoprazole sodium	209,770	704,086
Lanthanum carbonate	70,586	911,533	Pantoprazole sodium	279,568	940,790	Epoetin alfa	16,858	521,435
Amlodipine besylate	608,887	881,814	Lansoprazole	126,568	689,142	Lansoprazole	86,625	496,004
Atorvastatin calcium	308,241	823,422	Nifedipine	304,991	538,412	Clopidogrel bisulfate	127,275	478,822
Mycophenolate mofetil	50,010	801,330	Darbepoetin alfa in polysorbate	10,060	476,595	Tamsulosin HCl	145,157	448,922
Lansoprazole	142,714	709,711	Mycophenolate sodium	33,503	444,535	Nifedipine	270,908	436,630
Nifedipine	315,436	600,525	Clopidogrel bisulfate	123,852	443,161	Mycophenolate sodium	27,997	406,624
Ganciclovir	31,430	567,921	Omeprazole	400,065	405,819	Omeprazole	439,090	387,225

In 2010, 56 percent of kidney transplant patients were enrolled in Medicare Part D: 34 percent with the low income subsidy (LIS), and 22 percent without. Transplant patients age 65 and older are less likely to have the LIS than those age 20–64, at 19 and 40 percent, respectively. Since 2006, the proportion of recipients enrolled in Part D has increased from 38 to 44 percent at the time of transplant, and from 48 to 56 percent among living recipients.

In 2010, total Part B per person per year medication costs for transplant patients were slightly higher than those for Part D, at \$5,420 and \$4,580, 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 44 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 22 and 10.5 percent, respectively, using sulfonylureas or TZDs.

Among those transplanted in 2007, 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 441 for analytical methods. *Patients enrolled in Medicare Part D & transplanted in 2007. 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, 2010 (Figure 7.1)*

» deceased donor · 10,891 » living donor · 5,898

### *wait-listed patients receiving a deceased donor transplant within three years of listing in 2007, by blood type (%; Figure 7.4)*

» type O · 19.6 » type A · 31.9 » type B · 19.5 » type AB · 47.3

### *deceased donor transplants, 2010 (Figure 7.12)*

» white · 6,267 » black/African American · 3,617 » Asian · 821 » other race · 272

### *living donor transplants, 2010 (Figure 7.14)*

» white · 4,423 » black/African American · 866 » Asian · 574 » other race · 124

## **WAIT LIST**

### *patients waiting for a transplant three years after listing in 2007 (percent; Figure 7.5)*

» white · 34.5 » black/African American · 48.6 » Asian · 43.8 » other race · 43.4

### *probability of dying while awaiting transplant (percent; Figure 7.8)*

» within 1 year · 1.7 » 2 years · 5.3 » 3 years · 9.6 » 4 years · 15.2 » 5 years · 20.3

## **DONATION**

### *rate of kidney donation, 2010 (per million population; Figure 7.10)*

deceased donors » white · 21.4 » black/African American · 28.1 » Native American · 7.7 » Asian · 8.5

living donors · 22.7 · 21.9 » Native American · 6.5 » Asian · 11.5

### *adjusted rate of deceased donor transplants, 2010 (per 100 dialysis patient years; Figure 7.13)*

» white · 2.6 » black/African American · 2.0 » Asian · 3.4 » other race · 2.3

### *adjusted rate of living donor transplants, 2010 (per 100 dialysis patient years; Figure 7.15)*

» white · 1.9 » black/African American · 0.5 » Asian · 2.3 » other race · 1.0

## **OUTCOMES**

### *probability of graft failure or death (Figures 7.17–18)*

» deceased donors » one-year · 9.1% » five-year · 29.5% » ten-year · 55.6%

» living donors · 3.4% · 17.4% · 17.8%

### *cumulative incidence of post-transplant lymphoproliferative disorder at 36 months after transplant (Figure 7.23)*

» pediatric patients · 1.63% » adult patients · 0.48%

### *cumulative incidence of post-transplant diabetes at 36 months after transplant (Figure 7.24)*

» pediatric patients · 12.6% » adult patients · 41.3%

### *causes of death with a functioning graft (Figure 7.26)*

» infection · 20.8% » malignancy · 9.4% » CVD · 29.9%