It’s overwhelming what human beings can do, and to have the chance to save someone else’s life is incredible.

Andrea, kidney recipient
Over the past 12 years, there has been a small but steady increase in the number of new patients added to the waiting list for a deceased donor kidney, contributing to an increase in the total number of patients on the waiting list (Figure 1.1). In 2003, a major Organ Procurement and Transplantation Network (OPTN) policy change (Policy 3.5.11.1; http://optn.transplant.hrsa.gov/PoliciesandBylaws2/policies/pdfs/policy_7.pdf) allowed patients on the list to accrue waiting time while inactive. Before 2003, an unknown number of patients on the list had been listed as active so they could accrue waiting time, even though they would not have accepted a kidney offer. After 2003, without this incentive to list inactive patients as active, the number of patients listed as inactive grew incrementally (Figure 1.1). Nevertheless, the growth in the total number of patients on the waiting list has been almost linear, suggesting that the growth in inactive listings since 2003 is indeed an artifact of the OPTN policy change.

The demographic profile of the deceased donor kidney transplant waiting list has changed (Figure 1.2), as have the profiles of patients added to the waiting list (Figure 1.3). The proportions of men and women have remained relatively constant. However, the proportions of whites and blacks have declined slightly, while
the proportion of Hispanics has grown. The proportions of patients on the waiting list due to end-stage renal disease (ESRD) from diabetes and hypertension have grown. The most striking demographic changes have been the increase in the proportion of older patients on the waiting list (Figure 1.2) and the proportion of newly listed patients who are older (Figure 1.3).

The proportions of waiting-list patients (Figure 1.2) and newly listed patients (Figure 1.3) with panel reactive antibody (PRA) higher than 0% have declined, but only slightly. The policy allowing individuals to accept an ECD kidney went into effect in 2004 (Policy 3.5.1; http://optn.transplant.hrsa.gov/PoliciesandBylaws/policies/pdfs/policy_7.pdf). Since then, 45% of listed patients have agreed to accept an ECD kidney, if offered; that proportion has varied very little since 2004.

The waiting time for prevalent patients on the deceased donor waiting list has also increased. Between 1998 and 2009, the percentage of patients waiting 2 or more years increased from 36.0% to 44.7% (Figure 1.2). Obviously, the increase in new listings has not been matched by an increase in transplants. Hence, the percentage of prevalent dialysis patients on the deceased donor kidney transplant waiting list has also increased slightly over the past 12 years (Figure 1.4). This increase has occurred in all age groups.
Because the number of patients needing a kidney transplant has increased at a greater rate than the number of available organs, the rate of transplants per 100 patient-years on the waiting list has continued to decline (Figure 1.5). Rates are similar among age groups, but the overall rate is higher for patients aged 18 to 34 years, reflecting a higher living donor transplant rate in this group (Figure 1.5).

On January 1, 2009, there were 79,161 deceased donor listings. Patients listed at more than one center are counted once per listing. After additions and removals there were 84,614 listings at the end of 2009 (Figure 1.6). A kidney was received by 16,830 patients, but 5,412 listings were removed due to death, making death the second most common reason for removal from the waiting list. The number of listings removed because the patient was too sick for transplant increased from 992 in 2007 to 1,243 in 2008 and 1,475 in 2009.

By 3 years after placement on the deceased donor waiting list, only 29.7% of listings had received a deceased donor kidney (Figure 1.7). The time from listing to transplant is longer for patients listed as inactive (Figure 1.8). The waiting time for a deceased donor kidney varies by region (Figure 1.9). Median waiting times are longer for minorities than for whites (Figure 1.10). Blood type and PRA strongly influence waiting time. Waiting times were slightly shorter for patients who agreed to accept an ECD kidney,
but it is important to remember that these differences are not adjusted for other factors that may affect waiting time (Figure 1.10).

Since 2003, equal proportions of men and women have agreed to accept an ECD kidney (Figure 1.11). Older patients are more likely to be listed for an ECD kidney. Willingness to accept an ECD kidney is increasing slightly among patients aged 65 years or older and decreasing in those aged younger than 50 years (Figure 1.11). Interestingly, blood type and PRA influence waiting time dramatically (Figure 1.10) but do not seem to affect the proportions of patients listing for ECD kidneys (Figure 1.11). Mortality rates on the waiting list vary by age, as expected (Figure 1.12). Mortality rates are highest for whites compared with other groups. Mortality rates are highest for patients with ESRD caused by diabetes as opposed to other causes.

On December 31, 2009, 73.7% of wait-listed patients were aged 45 years or older and 18.3% were aged 65 years or older (Figure 1.13); 38.1% were white, 34.9% black, 18.0% Hispanic, and 7.6% Asian. Most (56.0%) had kidney disease caused primarily by diabetes or hypertension. There were 15.8% on the list for a repeat kidney transplant, and 44.8% were listed for an ECD kidney. Forty-five percent had been waiting at least 2 years, and 11.0% had been waiting at least 5 years.
deceased donation

Ideally, the deceased donation rate should reflect donations among eligible donors. However, it is difficult to collect reliable data using uniform definitions of eligible deaths. Data on donations per million population (pmp), although crude, have been collected worldwide. Deceased donations pmp have increased over the past decade (Figure 2.1). Deceased donations pmp are similar for ages 18 to 49 and 65 to 70 years, higher for ages 50 to 64 years, and lowest for children and adolescents. Deceased donation rates tend to be higher for men than women. Donation rates are similar for whites, blacks, and Hispanics, but lower for Asians. There is substantial geographic heterogeneity in rates of deceased kidney donation (Figure 2.2). The number of kidneys recovered and transplanted per donor has declined only slightly (Figure 2.3).

In 2009, 11.2% of deceased donor kidneys were transplanted with another organ; this has changed little over the past 12 years (Figure 2.4). However, the number of deceased donor kidneys transplanted with a pancreas declined, while the number transplanted with a liver increased, each plateauing in the past 2 to 3 years.

The discard rate for deceased donor kidneys has increased slightly over the past several years (Figure 2.5). Discard rates are proportionally higher for older donor age, and are as high as 60% for donors aged 60 years or older. The KDRI predicts kidney allograft survival based on characteristics of the deceased donor kid-
A higher KDRI indicates a higher risk of graft failure than a lower KDRI. The mean KDRI for patients receiving a deceased donor kidney has increased (Figure 2.6). The components of the KDRI have changed at different rates over time.

An ECD kidney is a kidney from any brain-dead donor aged 60 years or older, or from a donor aged 50 to 59 years with 2 of the following: hypertension, terminal serum creatinine greater than 1.5 mg/dL, or death from a cerebrovascular accident (http://optn.transplant.hrsa.gov/PoliciesandBylaws2/policies/pdfs/policy_7.pdf). Donation after circulatory death (DCD) can yield ECD or standard criteria donor (SCD) kidneys. From 1998 to 2009, the overall percentage of non-DCD/SCD deceased donors has remained relatively constant (13.6% in 1998 to 15.0% in 2009), whereas the percentage of DCD/SCD donors has risen over that time (from 1.1% in 1998 to 10.8% in 2009). Conversely, the overall percentage of non-DCD/SCD donors has fallen (85.2% in 1998 to 73.1% in 2009). DCD/ECD donors have become slightly more prevalent (0.1% in 1998 to 1.1% in 2009). Two kidneys can be transplanted en bloc; this strategy has been used to transplant kidneys that otherwise have a high risk of failure. Currently, only 1.8% of adult deceased donor kidneys are transplanted en bloc (Figure 2.7). Kidneys with higher KDRI scores are increasingly likely to be ECD kidneys and vice versa (Figure 2.8).
Living kidney donations increased every year from 1998 to 2004, declined from 2005 to 2008, and increased by 7.0% in 2009 compared with 2008 (Figure 3.1). The 2009 increase in living donations was seen in all age groups and was greatest in Hispanics (12.0%). The increase in living donors in 2009 compared with 2008 was 3.3% for related donors, 8.4% for distantly related donors, 10.4% for spouses/partners, and 6.3% for unrelated donors (Figure 3.2).

Parallel increases occurred in the rates of living kidney donation pmp in 2009 compared with 2008 (Figure 3.3). The rate of living kidney donation was highest for patients aged 35 to 49 years and lowest for those aged 0 to 17 years. Rates were higher for women than men, and were similar for whites, blacks, and Hispanics, and slightly lower for Asians. Substantial geographic variation remains in the rates of living kidney donation (Figure 3.4). Rates are high in New England and the north central US, and lowest in the southeast.

The use of kidney donations for paired exchange is relatively new in the US. The numbers, albeit small, are notable given that recipients are often patients for whom it is difficult to find an appropriate match (Figure 3.5). Despite an effort to improve reporting for living kidney donor follow-up, the number of donors without follow-up data remains high (Figure 3.6). For patients who donated a kidney in 2008, the proportions of serum creati-
nine values that were missing at post-op, 6 months, and 12 months were 5.6%, 34.3%, and 53.0%, respectively (Figure 3.6). The proportions with missing blood pressure values were even higher, missing at post-op, 6 months, and 12 months in 20.1%, 44.3%, and 58.9%, respectively.

Most donor nephrectomies are now performed laparoscopically, with almost twice as many hand-assisted as not (Figure 3.7). In 2009, only 4.9% of donor nephrectomies used a retroperitoneal flank (3.8%) or intra-abdominal (1.1%) approach. The proportion of intended laparoscopic donor nephrectomies that were converted to open procedures declined to less than 1% in 2009 (Figure 3.7).

Readmission rates (Figure 3.8) and complications (Figure 3.9) appear to be low for living kidney donors in the first year; some information is not known, however. In 2008, major complications included bleeding in 2.2%, need for wound hernia repair in 0.8%, and bowel obstruction in 1.0% (Figure 3.10). The numbers of living donor deaths occurring within 30 days of donation and thought to be donation-related were 0 in 2005, 1 in 2006, 0 in 2007, 1 in 2008, and 1 in 2009. The numbers (and percentages) of living donor deaths from any cause that occurred within 1 year of donation were 2 (0.03%) in 2005, 5 (0.08%) in 2006, 3 (0.05%) in 2007, 3 (0.05%) in 2008, and 2 (0.05%) in 2009.
From 1998 to 2006, the number of adult kidney transplants increased 34%; deceased donor transplants increased 26%, and living donor transplants increased 51% (Figure 4.1). However, from 2006 to 2009, the number of transplants fell 1.8%, with a 2.1% decline in deceased donor transplants and a 1.2% decline in living donor transplants. It is therefore encouraging that, between 2008 and 2009, there was a 1.4% increase in kidney transplants, which was entirely due to a 6.6% increase in living donor transplants, while deceased donor transplants declined 1.4%.

The largest increase in transplants between 2008 and 2009 was in patients aged 65 years or older (5.6%); transplants in patients aged 18 to 34 years declined 2.1% (Figure 4.2). Most of the increase was in women (3.3%) versus men (0.1%). The 2009 increase was greatest in blacks (4.8%).

Unfortunately, the increase in 2009 was not enough to keep pace with the increase in the number of patients on the deceased donor waiting list. Hence, the rate of transplants per 100 patient-years on the waiting list declined 3.2% in 2009 (Figure 4.3). Since 1998, the rate of adult kidney transplants has declined by more than 30%. In 2009 12.1% of transplants were repeat transplants, and 89.5% of the repeat transplants were second, 9.5% third, and 1.0% fourth transplants (Figure 4.4). The proportion of deceased donor transplants using DCD kidneys has grown more than 8-fold, and
in 2009 DCD kidneys comprised 13% of deceased donor kidneys (Figure 4.5). There is remarkable heterogeneity among donor service areas (DSAs) in the proportion of deceased donor transplants using DCD kidneys, from 0% to 38% in 2009 (Figure 4.6).

The rates of deceased and living donor kidney transplants per 100 patient-years on the waiting list also show remarkable geographic variation (Figure 4.7). Rates of deceased donor kidney transplants were 6.5 and 9.7 per 100 patient-years on the waiting list in California and Texas, respectively, but in neighboring states Oregon and Oklahoma, the rates were more than 2-fold higher, 32.8 and 21.8 per 100 patient-years on the waiting list, respectively. Rates for living donor transplants were lowest in California, Nevada, and the southeastern states and were 2- to 3-fold higher in Minnesota, Iowa, New England, and some western states (Figure 4.7).

In 2009, 54.7% of kidney transplant recipients had Medicare as their primary insurance provider (Figures 4.8 and 4.9). In 2009, 16.5% of kidney transplants were preemptive (transplant before beginning maintenance dialysis), but 12.1% were repeat transplants, and 26.6% were for patients who had been on renal replacement therapy for 5 or more years before transplant (Figure 4.8). Also in 2009, 12.9% of deceased donor kidney transplants used DCD kidneys, and 20.4% used ECD kidneys (Figure 4.8).
In general, the immunological risk of kidney transplant has increased over the past 12 years. For recipients of deceased donor kidneys, the proportion with a PRA level of 0% at the time of transplant has declined from 72.9% in 1998 to 59.7% in 2009 (Figure 5.1). Over the same period, the proportion with a PRA level of 80% to 100% has increased from 2.2% to 8.1%. For recipients of living donor kidneys, the proportion with a PRA level of 0% at the time of transplant declined only slightly, from 73.8% in 1998 to 67.9% in 2009, while the proportion with a PRA level of 80% to 100% increased from 0.9% to 3.4%.

Over the past several years, the proportion of patients with 3 or fewer donor/recipient human leukocyte antigen (HLA) mismatches has been decreasing (Figure 5.2). For example, the percentage of 0 HLA mismatches declined from 14.3% in 1998 to 7.9% in 2009 for deceased donor transplants, and from 13.9% to 7.9% for living donor transplants. Similar declines in the degree of HLA matching are seen for HLA-A (Figure 5.3), HLA-B (Figure 5.4), and HLA-DR mismatches (Figure 5.5).

The risk for cytomegalovirus (CMV) infection after transplant is largely determined by the donor and recipient antibody status (indicating prior CMV infection). The highest risk for transmission of CMV occurs when the donor has had CMV infection and the recipient has not. Between 2005 and 2009, 17.4% of deceased donors had CMV infection.
donor recipients were in this high-risk category, as indicated by a serology match between a donor positive and a recipient negative (D+/R-) for CMV. Among living donor transplant recipients, 14.4% were D+/R- (Figure 5.6). Of even more concern is transmission of Epstein-Barr virus (EBV) infection, which can cause PTLD. At increased risk (D+/R-) for EBV and PTLD were 7.7% of adult deceased donor kidney recipients and 5.8% of living donor kidney recipients (Figure 5.7). Few patients appeared to be at risk for hepatitis B virus (HBV) infection from the transplanted kidney; 2.9% of deceased donor recipients were cases of D+/R- for hepatitis B core antibody (HBcAb; indicating prior HBV infection); for living donor recipients, the percentage was 1.5% (Figure 5.8). Interestingly, only 2.3% of deceased and 1.5% of living donor recipients were HBV surface antigen (HBsAg) positive, indicating either prior infection or immunization (recommended in guidelines) (Figure 5.9). Only 0.3% of deceased donor recipients were cases of D+/R- for hepatitis C virus (HCV) antibody, and 1.9% were D+/R+ for HCV. There were 0.5% living donor kidney recipients D+/R- for HCV and 0.0% D+/R+ for HCV (Figure 5.10). Fortunately, there were no recorded instances of recipients receiving kidneys from donors positive for human immunodeficiency virus (HIV) antibody (Figure 5.11).
Outcomes have continued to improve after kidney transplant. The loss of a kidney graft within 90 days of transplant declined from 5.2% in 1998 to 2.7% in 2009 (Figure 6.1). In 2009, the proportion of patients with primary non-function was 1.4% for living donor kidneys and 2.7% for deceased donor kidneys (4.6% for ECD, 3.8% for DCD, and 2.2% for SCD).

In 2009, delayed graft function (DGF), defined as the need for dialysis during the first week after transplant, occurred in 23.5% of recipients of deceased donor kidneys and 3.4% of recipients of living donor kidneys (Figure 6.2). In 2009, DGF occurred in 21.6% of SCD kidney recipients, 31.2% of ECD kidney recipients, and 37.1% of DCD kidney recipients. The incidence of DGF has changed little over the past 12 years.

Graft survival (i.e., survival with a functioning graft) has continued to improve. Graft survival for deceased donor kidneys in 2009 was 94.4% at 6 months; for transplants in 2008, 92.0% at 1 year; for transplants in 2006, 81.9% at 3 years; for transplants in 2004, 70.0% at 5 years; and for transplants in 1999, 42.7% at 10 years (Figure 6.3). Graft survival for living donor transplants in 2009 was 97.7% at 6 months; for transplants in 2008, 96.3% at 1 year; for transplants in 2006, 90.9% at 3 years; for transplants in 2004, 82.5% at 5 years; and for transplants in 1999, 59.6% at 10 years (Figure 6.4). One-year graft survival will be difficult to
improve on, but there is much room for improvement in 10-year graft survival.

The rate of late graft failure is traditionally measured by the graft half-life conditional on 1-year survival, defined as the time to when half of grafts surviving at least 1 year are still functioning. Graft half-lives for deceased and living donor kidneys have increased (Figure 6.5). For deceased donor kidneys, the half-life increased 45%, from 10.1 years for transplants in 1991 to 14.7 years for transplants in 2007. For living donor kidneys, the half-life increased 68.2%, from 15.8 years for transplants in 1991 to 26.6 years for transplants in 2007. Remarkably, the half-life of a deceased donor kidney in 2007 (14.7 years) is substantially less than the half-life of a living donor kidney in 1991 (26.6 years). This suggests there is substantial room to improve the rate of late graft failure, at least for recipients of deceased donor kidneys.

The number of patients with a functioning kidney graft has doubled, from 68,200 in 1998 to 144,180 in 2009 (Figure 6.6). The proportion of patients with acute rejection has declined. For transplants in 2005–2009, only 11.6% of patients with deceased donor kidneys and 10.0% of patients with living donor kidneys experienced acute rejection by 1 year post-transplant (Figure 6.7). Hospitalization is common (Figure 6.8). PTLD is an uncommon but potentially lethal complication (Figure 6.9).
immunosuppression

In 2009, 81% of kidney transplant recipients’ initial maintenance immunosuppression included tacrolimus and mycophenolate (Figure 7.1). Use of an induction antibody has grown; in 2009, 58% of patients received a T-cell depleting antibody, 21.2% an interleukin-2 receptor antagonist (IL2-RA), and 3.6% both a T-cell depleting antibody and an IL2-RA; only 17.2% did not receive induction (Figure 7.2). At 1 year after transplant, 72.1% of patients were receiving tacrolimus and mycophenolate, and only 5.3% were receiving cyclosporine A and mycophenolate (Figure 7.3).

Use of cyclosporine for initial immunosuppression has declined from 66.3% in 1998 to 5.7% in 2009 (Figure 7.4). During this time, use of tacrolimus increased from 25.9% to 87.8%. From 1998 to 2009, use of azathioprine declined from 11.5% to 0.6%, while use of mycophenolate as initial immunosuppression increased from 72.5% to 89.9%. Use of mammalian target of rapamycin (mTOR) inhibitors peaked in 2001, being used in 17.2% of patients as initial immunosuppression and 17.8% at 1 year after transplant. However, use of mTOR inhibitors declined to 3.0% at the time of transplant in 2009, and 6.5% at 1 year post-transplant in 2008.

Use of corticosteroids for initial maintenance immunosuppression was as high as 95.1% in 1998, declined to 65.8% in 2006, and was almost unchanged at 63.7% in 2009. Use of corticosteroids at 1 year post-transplant declined from 90.6% in 1999 to 63.5% in 2006, and remained unchanged at 63.1% in 2008.
pediatric transplant

Beginning in 2003, the number of children listed as inactive on the kidney transplant waiting list increased dramatically; as for adults (Figure 1.1), this was likely a result of the change in policy allowing waiting time accrual while inactive on the list. The number of active patients on the waiting list declined between 1998 and 2009 (Figure 8.1). The age and race distribution of the waiting list has changed little (Figure 8.2). In 2009, 13.9% of patients on the waiting list were waiting for re-transplants (Fig 8.3). Fortunately, few children and adolescents die on the waiting list (Figure 8.4). For children and adolescents who were listed for a deceased donor kidney in 2006, by 3 years after listing, 64.6% had undergone deceased donor transplant, 16.7% had undergone living donor transplant, 2.3% had died, 1.7% had been removed from the list, and only 14.7% were still waiting for a transplant (Figure 8.5). The median waiting time for children and adolescents declined from 11.2 months in 1998 to 6.8 months in 2009 (Figure 8.6). The decline in waiting time was mostly for individuals with blood type O.
pediatric transplant

Death rates on the waiting list vary by age, but have declined since 1998 (Figure 8.7). Overall, from 1998 to 2009, the number of transplants increased 31.0%. However, the increase was due to an 83.8% increase in deceased donor transplants; living donor transplants declined 10.2% (Figure 8.8). In 2009, pediatric patients began to receive additional priority in the deceased donor kidney allocation system. It is interesting, therefore, that between 1998 and 2004, the rate of deceased donor kidney transplants (per 100 ESRD patient-years) increased 10.2% (Figure 8.8). In 2005, pediatric patients began to receive additional priority in the deceased donor kidney allocation system. It is interesting, therefore, that between 1998 and 2004, the rate of deceased donor kidney transplants (per 100 ESRD patient-years) increased 10.2% (Figure 8.8). In contrast, between 1998 and 2004, the rate of living donor transplants (per 100 wait list patient-years) increased 61.4%, from 11.1 to 17.8, while from 2004 to 2009 the rate declined 3.5%, to 17.2 (Figure 8.9). The apparent shift from living donor to deceased donor transplants may have been partly due to the allocation policy change. Between 2007 and 2009, 29.4% of transplants were preemptive, and 27.6% of patients were on renal replacement therapy for less than 1 year before transplant (Figure 8.10). Only a small number of deceased donor kidneys were from DCD donors. Among living donor transplants, 85.4% of patients received kidneys from related or distantly related donors in 2009 (Figure 8.11). However, the number of living related or distantly related donors...
declined 18.0% between 1998 and 2009. In 2009, no ECD donor kidneys were transplanted into pediatric patients; however, 6.4% of deceased donor kidneys were DCD kidneys (Figure 8.12). Among pediatric patients who underwent transplants in 2009, the primary insurance was private for 43.3%, Medicare for 28.3%, Medicaid for 21.2%, other public source for 5.8%, or other for 1.4% (Figure 8.13). Pediatric patients are at higher risk for PTLD than adults because they are less likely to have antibodies to EBV. The highest risk for EBV infection and PTLD occurs for EBV(-) recipients of EBV(+) donor kidneys. For transplants in 2005–2009, this was the case in 22.6% of recipients of deceased donor kidneys and 29.7% of recipients of living donor kidneys (Figure 8.14), that is, much more often than in adults (Figure 5.7). For pediatric patients who underwent transplants in 2000–2009, the incidence of PTLD was 0.49% at 6 months, 1.3% at 1 year, 1.7% at 2 years, 2.0% at 3 years, 2.1% at 4 years, and 2.4% at 5 years post-transplant (Figure 8.15). Trends in maintenance immunosuppressive medications for pediatric patients (Figure 8.16) are similar to trends for adults (Figure 7.4). In 2009, 91.9% of pediatric patients received tacrolimus as part of the initial maintenance immunosuppressive medication regimen, and 88.6% received mycophenolate. Steroids were used in 60.4% of transplant recipients at 1 year post-transplant; 79% of patients receiving kidneys received induction therapy: IL2-RA, 33%; T-cell depleting antibody, 42%; no induction therapy, 21%. 
Graft survival (i.e., survival with a functioning graft) has continued to improve over the past decade. Graft survival for deceased donor kidneys in 2009 was 96.6% at 6 months; for transplants in 2008, 93.3% at 1 year; for transplants in 2006, 81.8% at 3 years; and for transplants in 2004, 68.8% at 5 years (numbers were too small to calculate 10-year graft survival) (Figure 8.17). Graft survival for living donor kidneys in 2009 was 98.6% at 6 months; for transplants in 2008, 96.3% at 1 year; for transplants in 2006, 92.9% at 3 years; for transplants in 2004, 81.4% at 5 years; and for transplants in 1999, 64.0% at 10 years (Figure 8.18). These graft survival numbers are almost identical to those for adults (Figure 6.3 and 6.4).

The rate of late graft failure is traditionally measured by the graft half-life conditional on 1-year survival, defined as the time to when half of grafts surviving at least 1 year are still functioning. Graft half-lives for deceased and living donor kidneys have changed little over the past 17 years, although from year to year there is substantial variability due to the small numbers used in these calculations (Figure 8.19). For transplants in 2006–2007, the half-life was 15.1 years for deceased donor kidneys and 28.8 years for living donor kidneys.
In 2009, 12.1% of transplant centers performed 10 or fewer adult and pediatric kidney transplants (Figure 9.1). In contrast, 9 centers transplanted more than 250 kidneys in 2009, including 1 center that transplanted 330 kidneys. Half of all centers performed fewer than 50 kidney transplants in 2009. In 2005–2009, one-third of centers performed 146 transplants or fewer (i.e., less than approximately 30 transplants per year), one-third performed more than 400 (i.e., more than approximately 80 per year), and one-third performed 147 to 400. Among low-volume centers, 25.0% transplanted kidneys alone, that is, did not perform kidney transplants along with other organs (Figure 9.2). In contrast, among high-volume centers, only 1.4% transplanted kidneys only. Thus, multi-organ transplants that include kidneys are more likely at high-volume centers than at low-volume centers. Similarly, among low-volume centers, 31.0% performed deceased donor kidney transplants using only SCD kidneys in 2005–2009, while none of the high-volume centers performed only SCD deceased donor kidney transplants (Figure 9.3). Of low-volume centers, 60.7% used DCD kidneys, but all high-volume centers used at least some DCD kidneys in 2005–2009.
Centers performing adult kidney transplants in 2009, within Donation Service Areas (DSAs)
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Figure 10.3  Centers performing adult kidney transplants in 2009, within OPTN regions