10 Providers

Fra Mauro, c. 1450

At the end of 2011, 132,744 prevalent patients were being treated by Fresenius in 1,829 units; 126,763 were receiving care in one of DaVita's 1,747 units; and 13,195 patients were being treated by Dialysis Clinic Inc. (DCI), with 215 units, the latter showing little change from 2010. These three providers manage the majority of the 6,009 dialysis units across the United States. Small dialysis organizations (SDOs), comprising 20–199 units, treated 49,102 patients in 665 units, while independent and hospital-based providers treated 56,339 and 36,034 patients in 788 and 765 units, respectively. In the independent and hospital-based units, numbers of patients and units continue to decline.

Between 2006 and 2011, growth in the number of dialysis units across ESRD networks was as low as 8.0 and 8.9 percent in Networks 13 and 12 and as high as 31.7 percent in Network 9.

The new bundled Prospective Payment System (PPS) for ESRD treatment began in January, 2011. While most of this chapter presents data through 2011, in figures on this new payment system we examine July data from 2010, 2011, and 2012 (months with complete reporting of incident cases, hospitalizations, and deaths). Table 10.a shows the percentage of dialysis providers opting into the full PPS. Overall, 92.2 percent of registered units had opted into the bundle by 2012, accounting for 91.9 percent of patients. Remaining units are phasing into the bundle over a period of four years, with 25 percent of their payments under the bundle in 2011, 50 percent in 2012, 75 percent in 2013, and full payment in 2014.

Between July, 2010 and July, 2012, in units opting into the bundle, the percentage of prevalent patients receiving EPO declined from 86 to 80. The smallest change, a relative decrease of 2.1 percentage points, occurred in the independent units, while Fresenius and the SDOs had the largest decreases, of 8.9 and 9.9 percentage points. The mean monthly EPO dose fell 39 percent overall, from 76,826 units per month to 47,142. The total monthly dose of IV iron fell 21 percent overall, from 384 mg to 303 mg; the change varied from 1.5 percent in hospital-based units to 35 percent in those owned by DaVita. The monthly dose of IV vitamin D also fell — 15.6 percent overall, with a range from 4.2 percent in Fresenius units to 27.3 percent in DaVita units. Hemoglobin levels decreased from 11.3 g/dl to 10.6 overall (6.6 percent). The largest decline occurred in SDOs and hospital-based units, at 7.6 percent, while the smallest decrease of 5.4 percent was found in units owned by Fresenius. And lastly, the percentage of patients with at least one transfusion event increased overall from 2.5 to 3.1; the greatest change, from 2.6 to 3.3 percent, occurred in the SDOs, while Fresenius units saw the smallest change, from 2.5 to 2.7.

Of course the Neverlands vary a good deal. John's, for instance, had a lagoon with flamingos flying over it at which John was shooting, while Michael, who was very small, had a flamingo with lagoons flying over it. John lived in a boat turned upside down on the sands, Michael in a wigwam, Wendy in a house of leaves deftly sewn together. John had no friends, Michael had friends at night, Wendy had a pet wolf forsaken by its parents...

J. M. Barrie
Peter Pan

SDOs, while Fresenius units saw the smallest change, from 2.5 to 2.7.

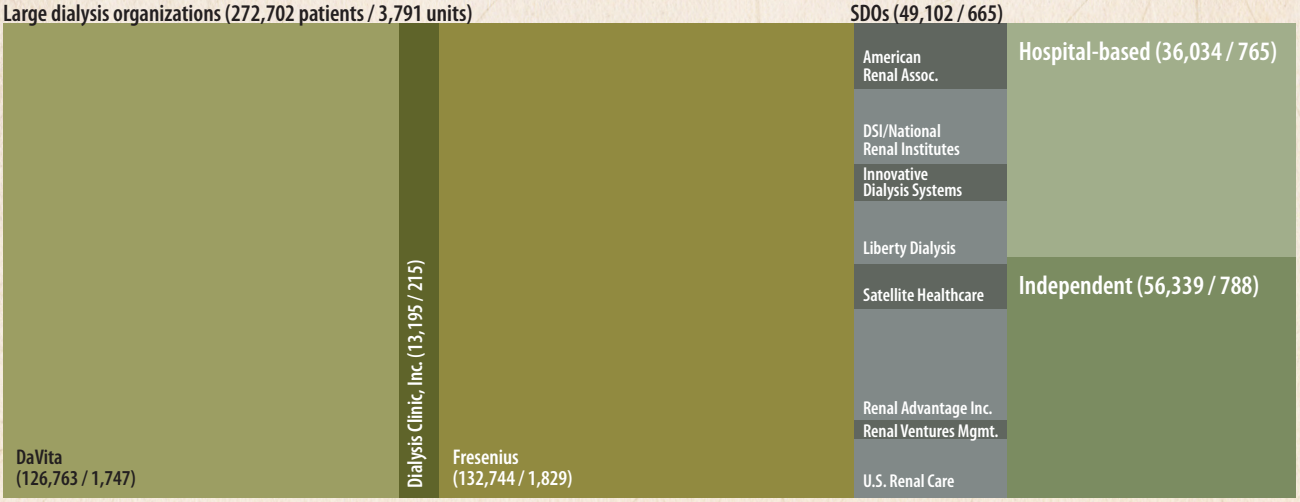
These changes are associated with both the bundled payment system and with changes in FDA labeling for ESAs, introduced in June, 2011. In Chapters Three and Five we illustrate trends in hospitalization and mortality, showing that, between 2010 and 2011, all-cause hospitalization rates among hemodialysis patients have fallen 3.2 percent overall, 11 percent for cardiovascular hospitalizations, 1.6 percent for infections, and 14 percent for hospitalizations related to vascular access. Among peritoneal dialysis patients, rates have fallen, respectively, 0.8, 2.1, 3.8, and 8.0 percent. Mortality rates in 2011 continued to decline, although at a slower rate than in prior years. Reasons for this are unclear, but at a minimum there is no evidence for an increased death rate associated with the changing payment policy for dialysis.

This new policy has led providers to reduce IV medication use, thereby generating margins. The magnitude of the savings has been greater than anticipated, leading CMS to consider reducing the bundled rate payment. In terms of morbidity and mortality, there is little evidence that any adverse effects have developed, although the increase in transfusions may impact transplantation rates. This will take more time to assess.

We conclude once again with an analysis of mortality and hospitalization ratios. Standardized hospitalization ratios (SHRs) and standardized mortality ratios (SMRs) in 2011 were similar across providers with the exception of hospital-based units, in which the SMR was again 10.6 percent higher than the national average. This may be explained in part by the fact that hospital-based units often treat some of the sickest patients; these differences, however, still merit further investigation.

Detailed comparisons provide a clearer picture of the variations within the LDOs, SDOs, and hospital-based units. Among the three LDOs, for example, DCI and DaVita had the lowest SMRs in 2011, and were not significantly different from one another. DCI continues to have the lowest SHR — in 2011, 9 percent lower than those of the other LDOs. ◆ **Figure 10.1;** see page 444 for analytical methods.
CMS Annual Facility Survey, 2011.

vol 2
10.1 **Distribution of patients, by unit affiliation, 2011**

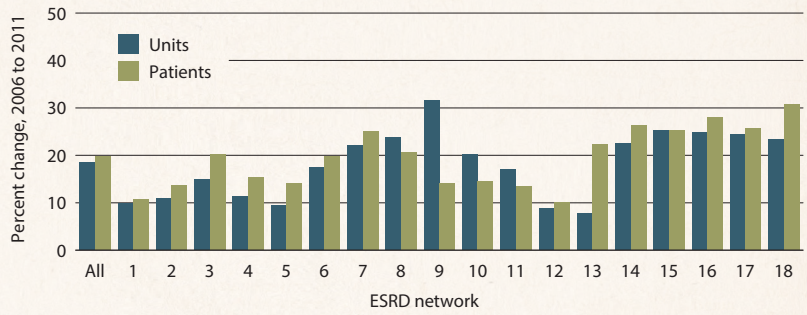


Between 2006 and 2011, the number of dialysis units grew 32 percent in Network 9 and 20–25 percent in Networks 7, 8, 10, 14, 15, 16, 17, and 18. In Networks 1, 5, 12, and 13, in contrast, growth in the number of units was much less, ranging between 8.0–9.9 percent. Growth in the number of patients was 19.9 percent overall and ranged from 10.2 percent in Network 12 to 31 percent in Network 18.

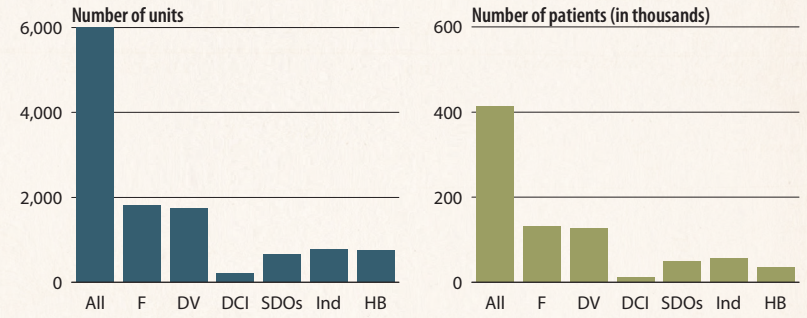
In 2011, Fresenius and DaVita were the largest dialysis providers, with close to 60 percent of all dialysis units and 63 percent of patients; units owned by DCI totaled 215, with just 3.2 percent of the total dialysis population. Small dialysis organizations (SDOs) — defined as those with 20–199 units — accounted for 11–12 percent of units and patients, and independently owned facilities accounted for approximately 13 percent. Hospital-based facilities represented 13 percent of all dialysis units, and 8.7 percent of the dialysis population.

♦ **Figures 10.2–3;** see page 445 for analytical methods. *CMS Annual Facility Survey.*

vol 2
10.2 **Percent change in the number of dialysis units & patients, 2006 to 2011, by ESRD network**



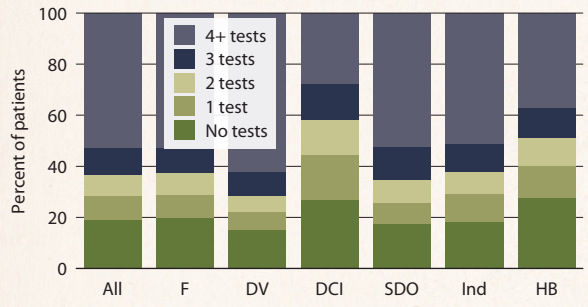
vol 2
10.3 **Dialysis units & patient counts, by unit affiliation, 2011**



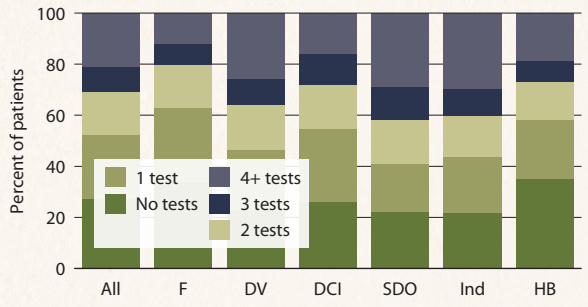
unit affiliation

All	All units
F	Fresenius
DV	DaVita
DCI	Dialysis Clinic, Inc.
SDOs	Small dialysis organizations (defined as 20–199 dialysis units; unit classification assigned by the USRDS)
Ind	Independent units
HB	Hospital-based units

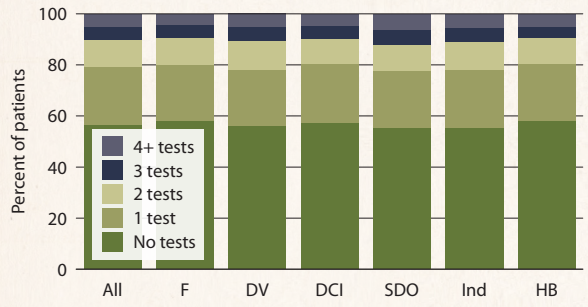
vol 2
10.4 **Glycosylated hemoglobin (A1c) testing in dialysis patients with diabetes, by unit affiliation & number of tests, 2010–2011**



vol 2
10.5 **Lipid testing in dialysis patients with diabetes, by unit affiliation & number of tests, 2010–2011**



vol 2
10.6 **Eye examinations in dialysis patients with diabetes, by unit affiliation & number of tests, 2010–2011**



Overall, 53 percent of prevalent dialysis patients with diabetes received four or more glycosylated hemoglobin (A1c) tests in 2010–2011. Patients in units owned by DCI were the least likely to receive four or more tests, at 28 percent. Forty-eight percent of diabetic patients receive two or more lipid tests annually, and patients in SDOs, independent units, and hospital-based units are generally more likely to receive two or more tests than their counterparts in corporate-owned facilities. Across unit affiliations, 56–58 percent of diabetic patients did not receive a diabetic eye examination during 2010–2011. ✦ **Figures 10.4–6;** see page 445 for analytical methods. *Point prevalent dialysis patients with diabetes as the primary cause of ESRD or as a comorbidity listed on the Medical Evidence form, age 18–75, 2010–2011.*

On this spread we examine care under the new Prospective Payment System for dialysis, or "bundle," which took effect in January, 2011. As of 2012, the three largest dialysis providers — Fresenius, DaVita, and DCI — had adopted the bundled payment system in virtually all of their units, while just one-half of hospital-based units, and 79 percent of independent units, had opted into the system. ✦ **Table 10.a;** see page 445 for analytical methods.

vol 2 **10.a** **Distribution of providers opting into the new dialysis composite rate, 2012**

	Number of facilities	Number opting for bundle	Percent of facilities	Percent of patients
All*	5,522	5,089	92.2	91.9
Fresenius	1,824	1,811	99.3	99.9
Davita	1,729	1,713	99.1	99.9
DCI	213	212	99.5	100.0
SDOs	660	607	92.0	92.6
Independent	686	541	78.9	83.7
Hospital-based	410	205	50.0	54.4

Figure 10.7 illustrates changes in the percentage of patients receiving EPO, in the use of anemia therapeutics, in hemoglobin levels, and in transfusion events.

Between July, 2010 and July, 2012, the overall percentage of patients receiving EPO fell from 86 to 80. By provider, decreases of 8.9 and 6.8 percentage points, respectively, were evident in units owned by Fresenius and DaVita, and 9.9 percentage points in the SDOs. In units opting into the bundle, EPO doses fell 39 percent overall, and 30–42 percent in large chain affiliated units, SDOs, independent units, and units that are hospital-based.

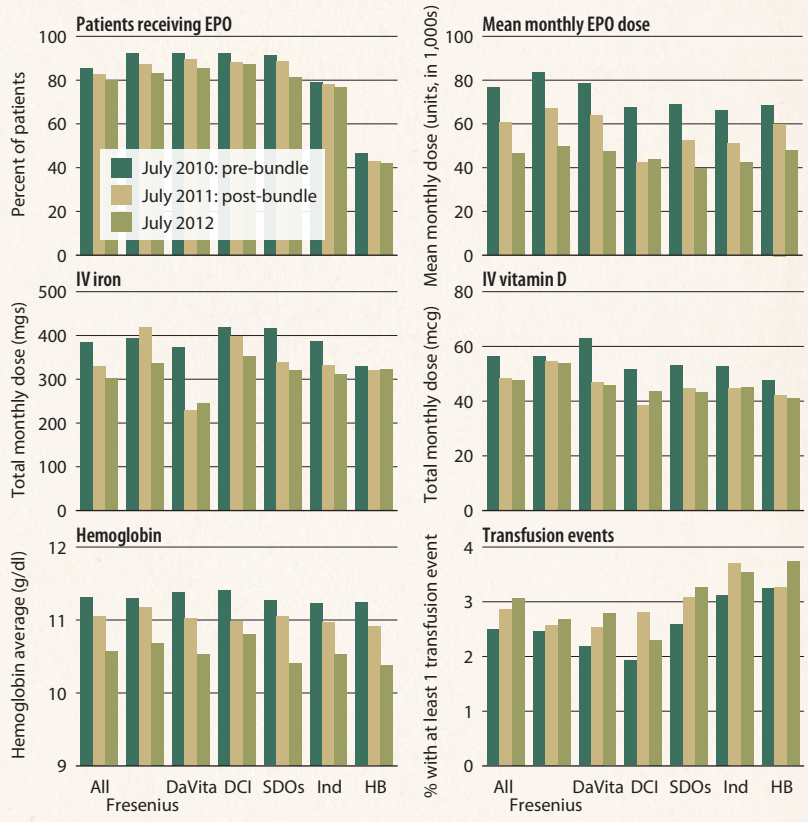
IV iron total monthly doses fell 21 percent overall, and 34.5 percent in DaVita units, while doses declined only 1.5 percent in hospital-based units.

Vitamin D doses fell 15.6 percent across all providers, 27 percent in DaVita units, and just 4.2 percent in units owned by Fresenius.

Average hemglobin levels decreased 6.6 percent, from 11.3 g/dl in July, 2010 to 10.6 g/dl in July, 2012. Across providers, the range of hemoglobin levels fell from 11.2–11.4 to 10.5–10.8.

Overall, the percentage of patients with at least one transfusion event increased from 2.5 to 3.1 between July, 2010, and July, 2012. The largest increases occurred in units owned by DaVita and those classified as SDOs.✦ **Figure 10.7 & Table 10.b;** see page 445 for analytical methods. *Period prevalent dialysis patients.*

vol 2 **10.7** **Total monthly dose of anemia treatment therapeutics, hemoglobin levels, & transfusion events, pre- & post- dialysis bundle, by unit affiliation**



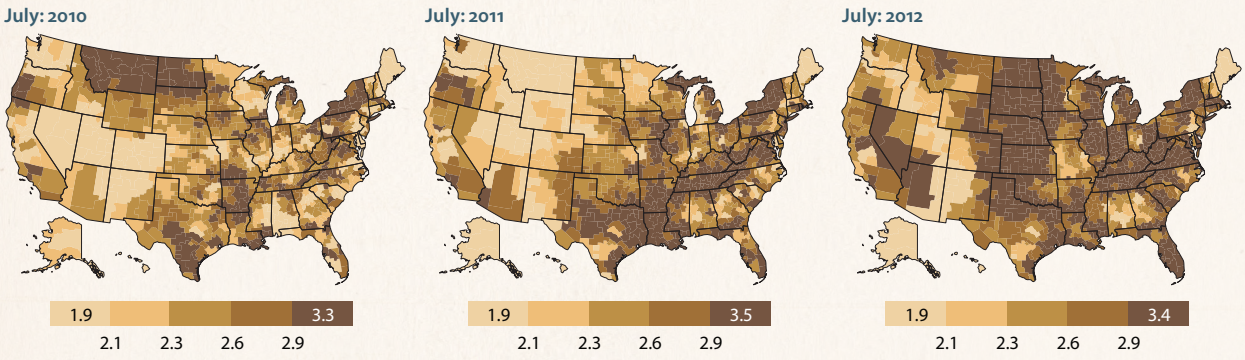
vol 2 **10.b** **Changes (%) in the use of injectable medications, average hemoglobin, & transfusion events pre- & post- dialysis bundle (July 2010 to July 2012), by unit affiliation**

	All	Fresenius	DaVita	DCI	SDOs	Ind	HB
% of patients receiving EPO	-5.9	-8.9	-6.8	-4.9	-9.9	-2.1	-4.4
EPO: mean monthly dose	-38.6	-40.7	-39.8	-35.4	-41.7	-34.9	-30.2
IV iron: total monthly dose	-21.0	-14.5	-34.5	-16.1	-23.0	-19.3	-1.5
Vitamin D: total monthly dose	-15.6	-4.2	-27.3	-15.1	-18.8	-14.5	-13.3
Average hemoglobin	-6.6	-5.4	-7.4	-5.3	-7.6	-6.3	-7.6
At least one transfusion event	0.6	0.2	0.6	0.4	0.7	0.4	0.5

unit affiliation

All	All units
F	Fresenius
DV	DaVita
DCI	Dialysis Clinic, Inc.
SDOs	Small dialysis organizations (defined as 20–199 dialysis units; unit classification assigned by the USRDS)
Ind	Independent units
HB	Hospital-based units

vol 2
10.8 **Geographic variations in the percentage of patients with at least one transfusion event, by HSA**



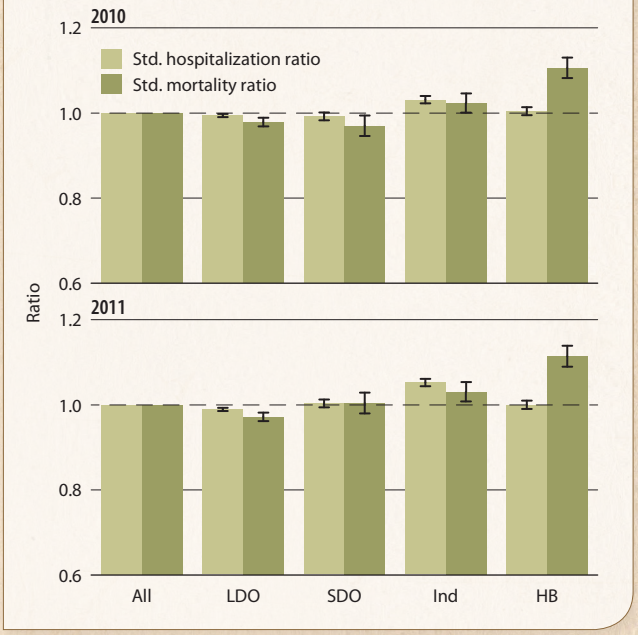
In July, 2010, the percentage of dialysis patients with as least one transfusion event was 2.5 nationwide, averaging 1.9 and 3.3 percent, respectively, in the upper and lower quintiles. Patients residing in the upper Midwest, parts of Texas, the South Central U.S., and parts of New England were most likely to receive a transfusion.

The ESRD bundled Prospective Payment System (PPS) was implemented in January, 2011, and appears to have directly affected the use of EPO and other injectable theraputics (see Figure 10.7). In 2011, for example, the transfusion rate for dialysis patients was 2.9 percent nationwide and averaged 3.5 percent in the upper quintile, which included patients residing in Texas, Louisiana, and the eastern one-third of the country.

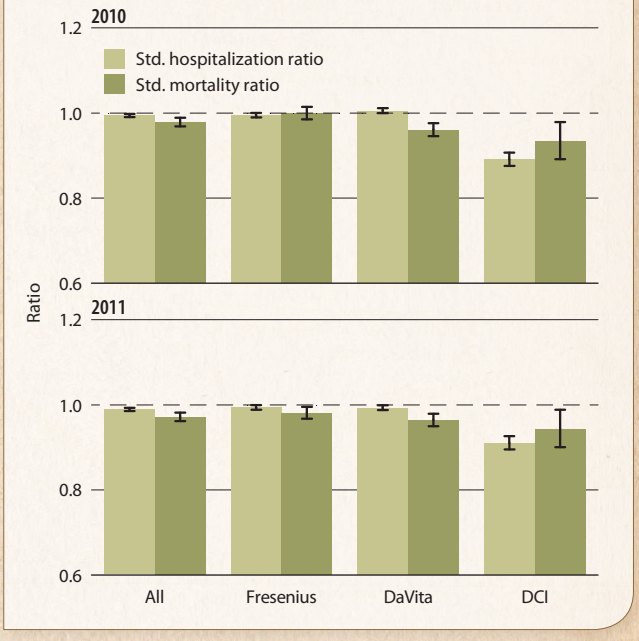
In 2012 (one year after implementation of the bundle), the likelihood of a transfusion event was far more widespread geographically, averaging 3.0 percent nationwide and 3.4 percent in the upper quintile, which included the easter two-thirds of nation as well as parts of Arizona, Nevada, and California.

• **Figure 10.8;** see page 445 for analytical methods. *Period prevalent dialysis patients.*

vol 2
10.9 **All-cause standardized hospitalization & mortality ratios, by unit affiliation, 2010 & 2011**



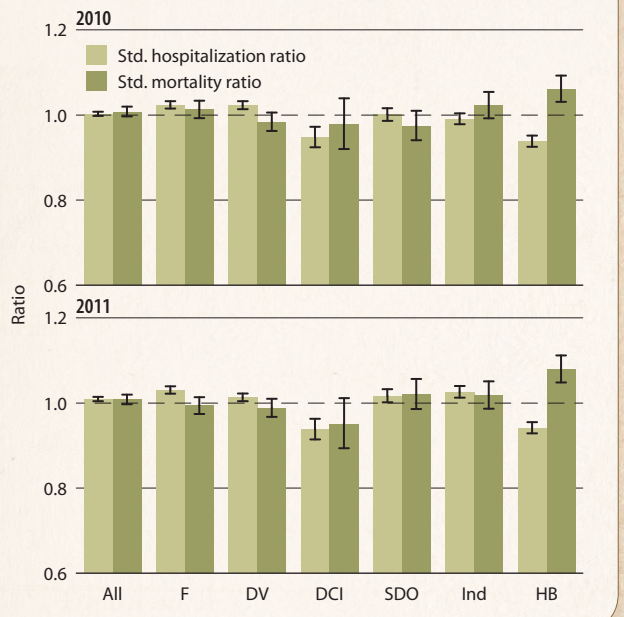
vol 2
10.10 **All-cause standardized hospitalization & mortality ratios in large dialysis organizations, 2010 & 2011**



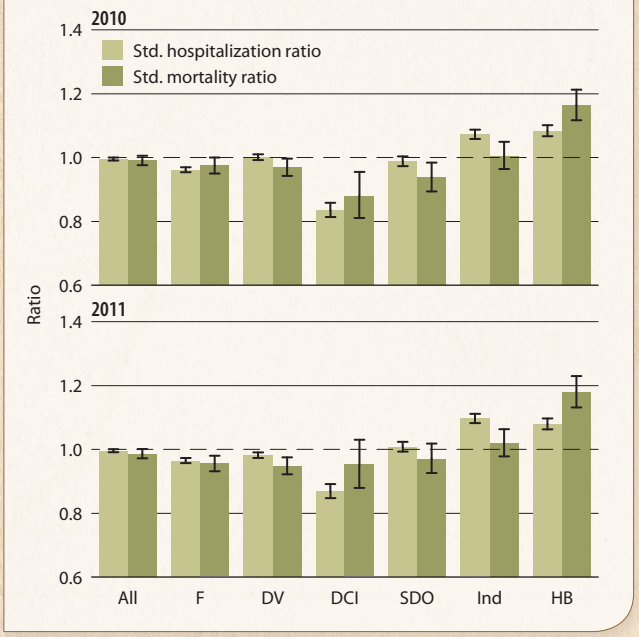
Adjusted standardized hospitalization and mortality ratios (SHRs and SMRs) in small and large dialysis organizations (SDOs and LDOs) tend to be lower when compared to ratios for independent and hospital-based facilities. All types of facilities generally showed minimal changes in SHRs and SMRs between 2010 and 2011 with the exception of SDOs, in which SMRs increased by 3.5 percent. Independent facilities had the highest SHRs in 2011 at 1.05, and hospital-based facilities the highest SMRs at 1.11.

Among the LDOs, DCI had the lowest SHRs in 2011, at 0.91 compared to the overall SHRs of 0.99 overall and for both Fresenius and DaVita. SMRs were also lowest for DCI, at 0.94 compared to 0.97 overall and 0.98 and 0.96, respectively, for Fresenius and DaVita. ⌖ **Figures 10.9–10;** see page 445 for analytical methods. *January 1 point prevalent hemodialysis patients, 2010 & 2011, with Medicare as primary payer (SHRs); January 1 point prevalent hemodialysis patients, 2010 & 2011 (SMRs). SHRs & SMRs are calculated based on national hospitalization & death rates. Adj: age/gender/race/dialysis vintage/primary diagnosis.*

vol 2
10.11 **All-cause standardized hospitalization & mortality ratios, by unit affiliation, 2010 & 2011: whites**



vol 2
10.12 **All-cause standardized hospitalization & mortality ratios, by unit affiliation, 2010 & 2011: blacks/African Americans**



Among white patients, standardized hospitalization and mortality ratios (SHRs and SMRs) changed little between 2010 and 2011. The most notable increase was from 0.99 to 1.03 in the SHR for independent units, a change of 3.5 percent, compared to an overall change of 0.7 percent. SMRs rose 4.7 percent in SDOs and 1.7 percent in hospital-based units, while falling 2.7 percent in units owned by DCI. SHRs in 2011 were greater than one and statistically significant overall and for units owned by Fresenius and DaVita, for SDOs, and for units operated independently.

When compared to those among white patients, increases in SHRs and SMRs between 2010 and 2011 were slightly higher in the black/African American population. In units owned by DCI, SHRs and SMRs for blacks/African Americans increased 4.0 and 8.1 percent, respectively, yet still remained below one and were the lowest of all facilities. SHRs were greater than one and statistically significant in hospital-based units and in those operated independently. SMRs were greater than one and statistically significant in hospital-based facilities. ✦ **Figures 10.11–12;** see page 445 for analytical methods. *January 1 point prevalent hemodialysis patients, 2010 & 2011, with Medicare as primary payer (SHRs); January 1 point prevalent hemodialysis patients, 2010 & 2011 (SMRs). SHRs & SMRs are calculated based on national hospitalization & death rates. Adj: age/ gender/race/ dialysis vintage/primary diagnosis.*

unit affiliation

All	All units
F	Fresenius
DV	DaVita
DCI	Dialysis Clinic, Inc.
SDOs	Small dialysis organizations (defined as 20–199 dialysis units; unit classification assigned by the USRDS)
Ind	Independent units
HB	Hospital-based units

provider growth

PATIENT DISTRIBUTION, BY UNIT AFFILIATION, 2011 (FIGURE 10.1)

large dialysis organizations: 65.8%; small dialysis organizations: 11.9%; independent units: 13.6%; hospital-based units: 8.7%

DIALYSIS UNIT COUNTS, BY UNIT AFFILIATION, 2011 (FIGURE 10.3)

all: 6,009; Fresenius: 1,829; DaVita: 1,747; DCI: 215; SDOS: 665; independent: 788; hospital-based: 765

DIALYSIS PATIENT COUNTS, BY UNIT AFFILIATION, 2011 (FIGURE 10.3)

all: 414,177; Fresenius: 132,744; DaVita: 126,763; DCI: 13,195; SDOS: 49,102; independent: 56,339; hospital-based: 36,034

preventive care

DIABETIC DIALYSIS PATIENTS WITH FOUR OR MORE HEMOGLOBIN AIC TESTS ANNUALLY, 2010–2011 (FIGURE 10.4)

all: 53%; Fresenius: 53%; DaVita: 62%; DCI: 28%; SDOS: 52%; independent: 51%; hospital-based: 37%

DIABETIC DIALYSIS PATIENTS WITH TWO OR MORE LIPID TESTS ANNUALLY, 2010–2011 (FIGURE 10.5)

all: 48%; Fresenius: 37%; DaVita: 37%; DCI: 53%; SDOS: 46%; independent: 59%; hospital-based: 56%

treatment under the dialysis composite rate

CHANGE IN MEAN MONTHLY EPO DOSE PRE- & POST-DIALYSIS BUNDLE: JULY 2010 TO JULY 2012 (FIGURE 10.7)

all: -39%; Fresenius: -41%; DaVita: -40%; DCI: -36%; SDOS: -42%; independent: -35%; hospital-based: -30%

CHANGE IN TOTAL MONTHLY DOSE OF IV IRON PRE- & POST-DIALYSIS BUNDLE: JULY 2010 TO JULY 2012 (FIGURE 10.7)

all: -21%; Fresenius: -14.5%; DaVita: -34.5%; DCI: -16.1%; SDOS: -23%; independent: -19.3%; hospital-based: -1.5%

CHANGE IN AVERAGE HEMOGLOBIN LEVELS PRE- & POST-DIALYSIS BUNDLE: JULY 2010 TO JULY 2012 (FIGURE 10.7)

all: -6.6%; Fresenius: -5.4%; DaVita: -7.4%; DCI: -5.3%; SDOS: -7.6%; independent: -6.3%; hospital-based: -7.6%

standardized hospitalization and mortality ratios

ALL-CAUSE STANDARDIZED HOSPITALIZATION & MORTALITY RATIOS, BY UNIT AFFILIATION, 2011, FIGURE 10.9

	all	LDOS	SDOS	independent	hospital-based
SHR	1.00	0.99	1.00	1.05	1.00
SMR	1.00	0.97	1.00	1.03	1.11

ALL-CAUSE STANDARDIZED HOSPITALIZATION & MORTALITY RATIOS, BY AFFILIATION, 2011: WHITES (FIGURE 10.11)

	all	Fresenius	DaVita	DCI	SDOS	independent	hospital-based
SHR	1.01	1.03	1.01	0.94	1.02	1.03	0.94
SMR	1.01	0.99	0.99	0.95	1.02	1.02	1.08

ALL-CAUSE STANDARDIZED HOSPITALIZATION & MORTALITY RATIOS, BY AFFILIATION, 2011: BLACKS/AFRICAN AMERICANS (FIGURE 10.12)

	all	Fresenius	DaVita	DCI	SDOS	independent	hospital-based
SHR	1.00	0.97	0.98	0.87	1.01	1.10	1.08
SMR	0.99	0.96	0.95	0.95	0.97	1.02	1.18