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Arches National Park, Utah

ESRD PROVIDERS

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At the end of 2010, 127,207 prevalent patients were being treated by Fresenius in 1,779 units; 118,142 were receiving care in one of DaVita's 1,646 units; and 13,176 patients were being treated by Dialysis Clinic Inc. (DCI), with 215 units. These three providers manage the majority of the 5,869 dialysis units across the United States. Small dialysis organizations (SDOs), comprising 20–199 units, treated 48,548 patients in 626 units, while independent and hospital-based providers treated 57,241 and 37,740 patients in 823 and 780 units, respectively. Between 2005 and 2010, growth in the number of dialysis units across End-Stage Renal Disease Networks was as low as 1.8 and 2.4 percent in Networks 13 and 2 and as high as 38 percent in Network 9.

The new, “bundled” prospective payment system began in January, 2011. While the rest of the chapter presents data through 2010, in figures on this new system we examine data from the third quarter of 2010 through the second quarter of 2011. We present early data on adoption of the system by providers, and on their changing practices in use of the newly bundled intravenous medications. Adoption has been fairly widespread, with nearly all of the facilities owned by large dialysis organizations opting in, along with 93 percent of the units owned by small dialysis organizations, 78 percent of independent facilities, and 59 percent of hospital-based facilities.

Between September, 2010 and September, 2011, the percentage of patients with at least one transfusion event increased from 2.4 to 3.0, a relative increase of 24 percent. Some providers are associated with a significant increase in transfusion rates over the one-year time period (the percentage of patients with at least one transfusion event rose from 2.2 to 3.2 in DaVita units, a relative increase of 46 percent), while others show minimal changes (4 and 7 percent in Fresenius and hospital-based units, respectively). This increase is a potential concern, particularly in terms of transplant candidates. It is, however, too early to assess what impact it will have on the transplant waiting list or on calculated panel reactive antibodies. Overall, it is unlikely that transplantation rates would be affected, since in 2010 there were nearly 18,000 transplants and more than 87,000 individuals on the waiting list. These areas will be assessed in more detail in the 2013 ADR.

Consistent with changes in FDA labeling for target hemoglobin levels and in CMS payment policies, the distribution of patients by hemoglobin level has shifted. The Quality Improvement Program, which in 2011 had measures for hemoglobin levels below 10 g/dl and above 12 g/dl, and for a urea reduction ratio of greater than 65 percent, was changed for 2012 with elimination of the below 10 g/dl measure. Given the FDA label changes in 2011, eliminating the prior hemoglobin range of 10–12 g/dl, it is unclear how these changes might impact hemoglobin levels and transfusion rates.

This year we again examine preventive care services delivered by providers, focusing on diabetic care and vaccinations. Glycemic control (A1c) testing in diabetic patients differs by unit affiliation, with 62–66 percent of patients in Fresenius, DaVita, SDO, and independent units receiving four or more A1c tests during 2009–2010, compared to 39–41 percent of patients in hospital-based and DCI units. Just 52–67 percent of diabetic patients on dialysis receive two or more

Those who dwell, as
scientists or laymen,
among the beauties
of the earth are never
alone or weary in life...
Those who contemplate
the beauty of the earth
find reserves of strength
that will endure as
long as life lasts.

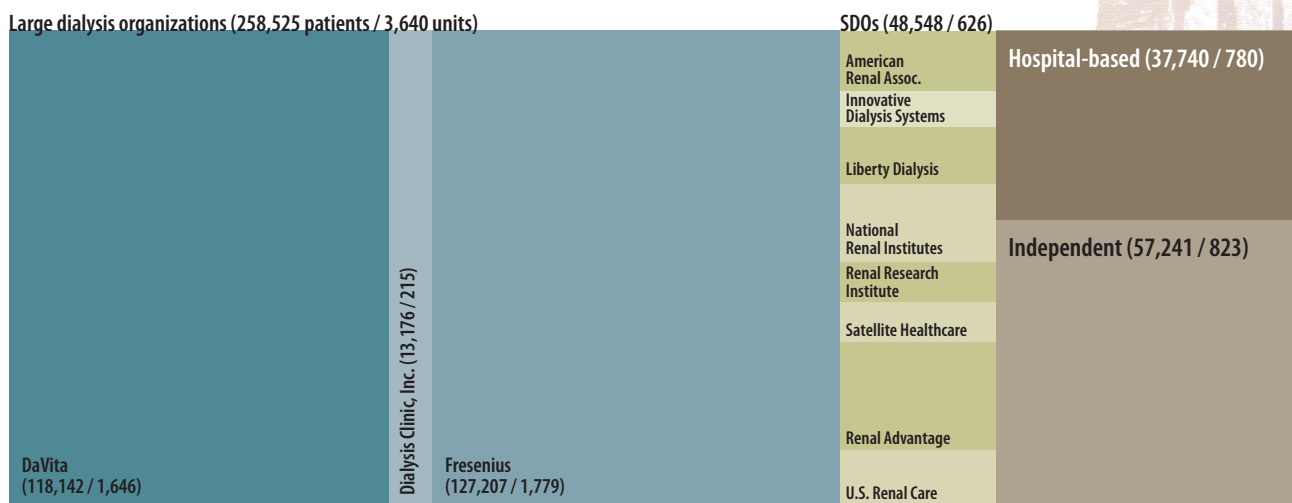
RACHEL CARSON
Sense of Wonder

lipid tests, and fewer than one in three in chain-affiliated units are tested four or more times; those treated in an independent or SDO unit are more likely to receive four or more tests than their counterparts in chain-owned or hospital-based units. These practice patterns may change based on results from the SHARP study, demonstrating reduced atherosclerotic events when patients are treated with a combination lipid lowering therapy (Lancet, June 2011). Eye examinations are another important preventive care tool, used to detect diabetic retinopathy. Fewer than one in four prevalent dialysis patients with diabetes received an eye exam in 2009–2010.

We conclude with an analysis of mortality and hospitalization ratios. Standardized hospitalization ratios (SHRs) and standardized mortality ratios (SMRs) in 2010 were similar across providers with the exception of hospital-based units, in which the SMR was 10.6 percent higher than the national average. Some of this may be explained by the fact that hospital-based units often treat some of the sickest patients; these differences, however, still merit further investigation.

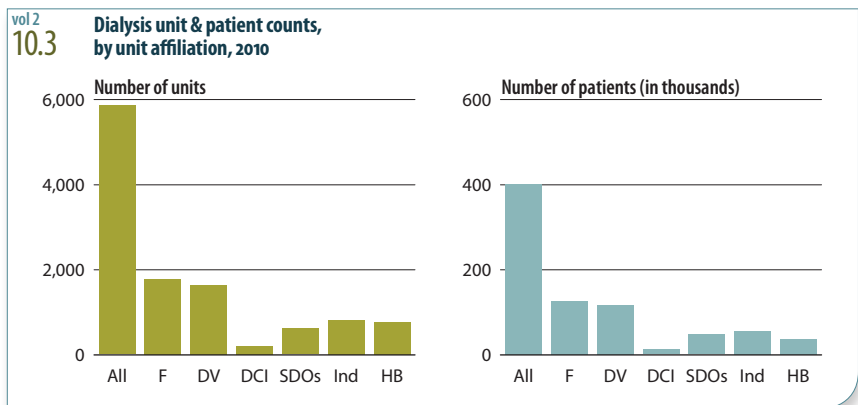
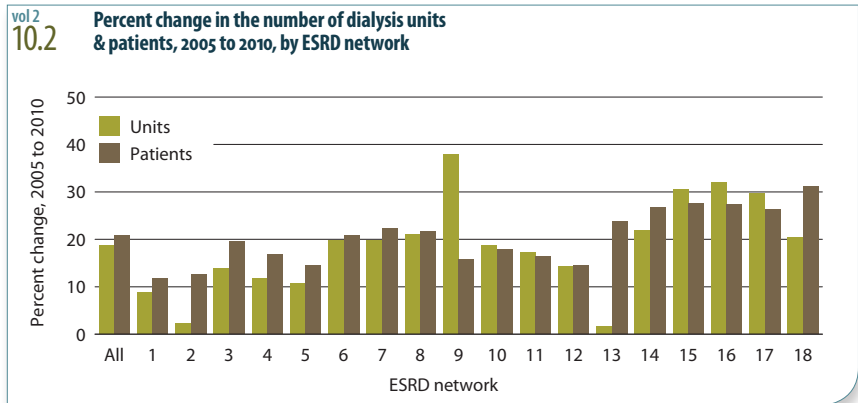
Detailed comparisons provide a clearer picture of the variations within the LDOs, SDOs, and hospital-based units. Among the three LDOs, for example, DCI and DaVita had the lowest SMRs in 2010, and were not significantly different from one another. DCI continues to have the lowest SHR — in 2010, 10 percent lower than those of the other LDOs. Among the SDOs, grouped by geographic region, the highest SHR occurs in the West North Central region. And in the hospital-based units, the 2010 SMR in the East South Central region was 41 percent higher than the national average, while the ratios in the South Atlantic and West South Central regions were each 31 percent higher. » **Figure 10.1**; see page 444 for analytical methods. *CMS Annual Facility Survey, 2010.*

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10.1 Distribution of patients,
by unit affiliation, 2010



Between 2005 and 2010, the number of dialysis units grew 38 percent in Network 9, and 31–32 percent in Networks 15 and 16. In Networks 13 and 2, in contrast, the number of units rose only 1.8 and 2.4 percent. Growth in the number of patients ranged from 12 percent in Network 1 to 31 percent in Network 18.

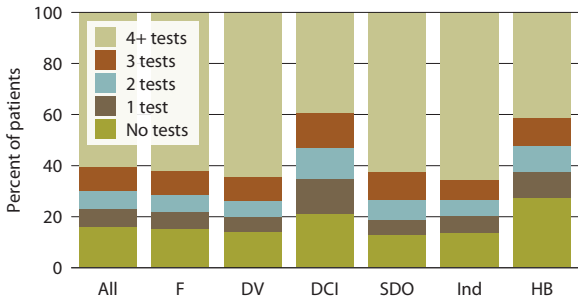
In 2010, Fresenius and DaVita were the largest dialysis providers, with close to 60 percent of all dialysis units and patients; units owned by DCI totaled 215, with just 3.3 percent of the total dialysis population. Small dialysis organizations (SDOs) — defined as those with 20–199 dialysis units — accounted for 11–12 percent of units and patients, and independently owned facilities accounted for 14 percent. Hospital-based facilities represented 13 percent of all dialysis units, and accounted for 9.4 percent of the dialysis population. » **Figures 10.2–3**; see page 444 for analytical methods. *CMS Annual Facility Survey.*



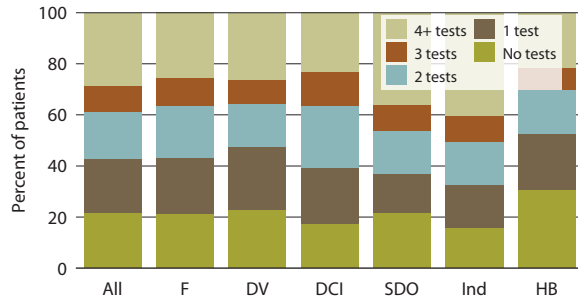
Unit affiliation

- 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

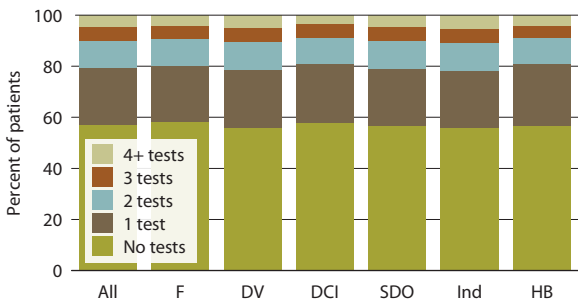
vol 2
10.4 Glycosylated hemoglobin (A1c) testing in diabetic dialysis patients, by unit affiliation & number of tests, 2009–2010



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10.5 Lipid testing in diabetic dialysis patients, by unit affiliation & number of tests, 2009–2010



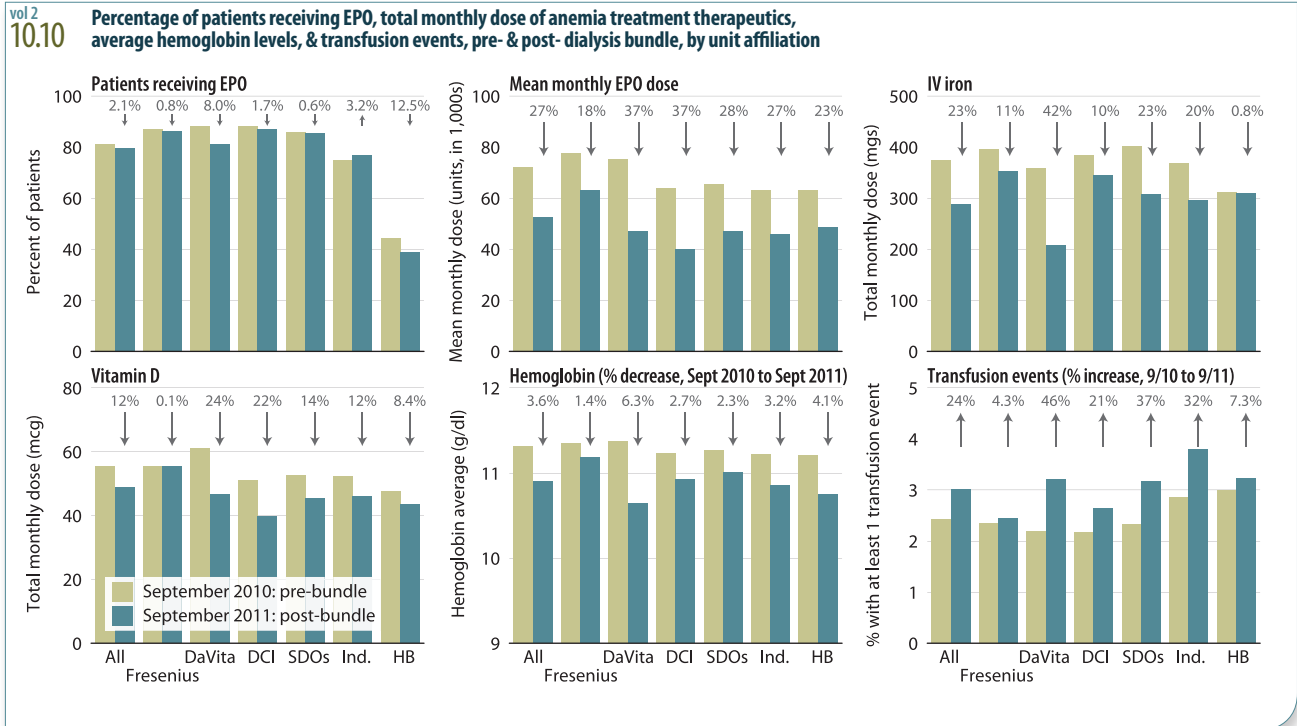
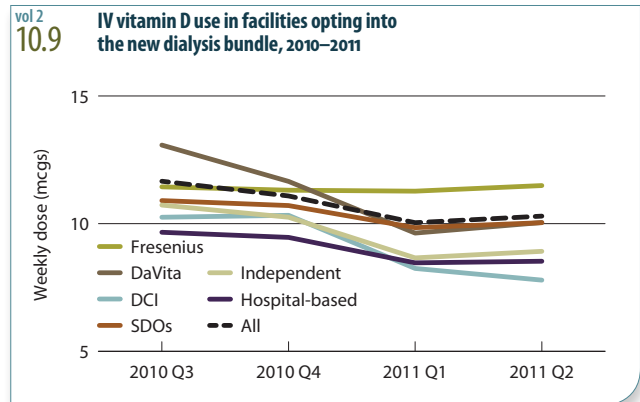
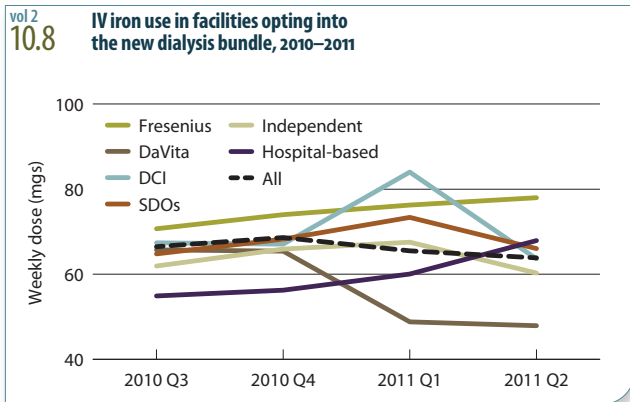
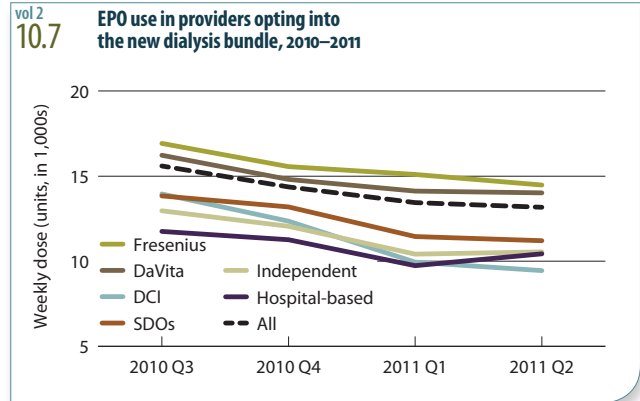
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10.6 Diabetic eye examinations in diabetic dialysis patients, by unit affiliation & number of tests, 2009–2010

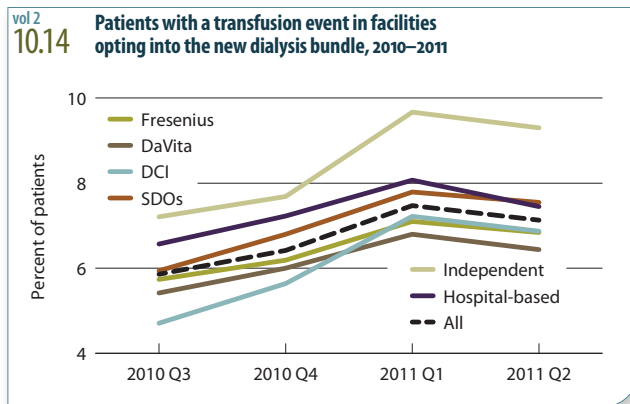
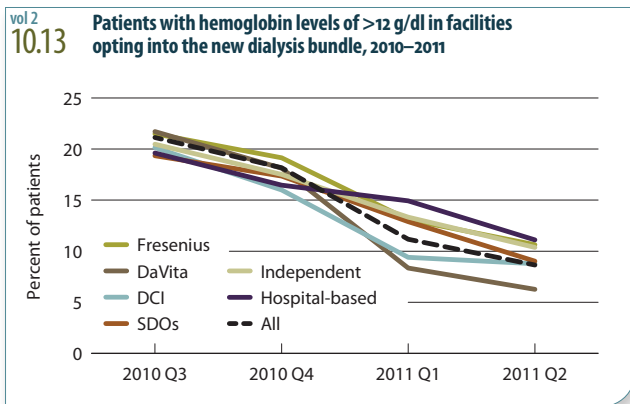
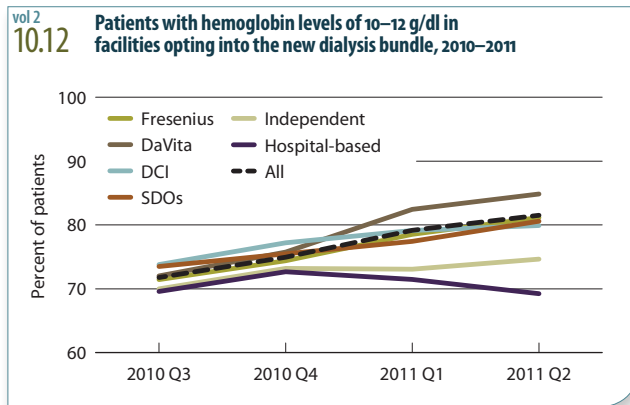
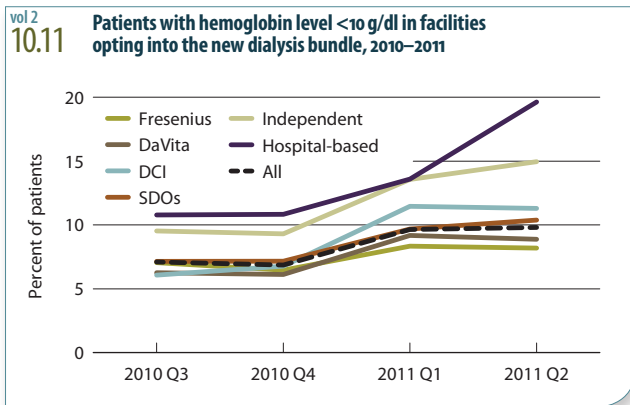


Overall, 60 percent of prevalent dialysis patients with diabetes received four or more glycosylated hemoglobin (A1c) tests in 2009–2010. Patients in units owned by DCI were the least likely to receive four or more tests, at 39 percent. Fifty-seven percent of diabetic patients receive two or more lipid tests annually; and patients in SDOs, independent units, and hospital-based units are more likely to receive two or more tests than their counterparts in corporate owned facilities. Across unit affiliations, 57 percent of diabetic patients did not receive a diabetic eye examination during 2009–2010. » [Figures 10.4–6](#); see page 444 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, 2009–2010.*

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

	Number of facilities	Number opting for bundle	Percent of facilities	Percent of patients
All providers	6,167	5,285	85.7	95.3
DaVita	1,609	1,605	99.8	100.0
DCI	209	209	100.0	100.0
Fresenius	1,765	1,757	99.5	99.9
Hospital-based	571	337	59.0	70.1
Independent	767	601	78.4	82.2
SDO	619	574	92.7	92.3





Here we examine care under the new Prospective Payment System for dialysis, or “bundle,” which took effect in January, 2011, and show changes between the last two quarters of September, 2010 and the first two quarters of September, 2011. The three largest dialysis providers — Fresenius, DaVita, and DCI — adopted the bundled payment system in virtually all of their units, while 59 percent of the 571 hospital-based units opted into the system.

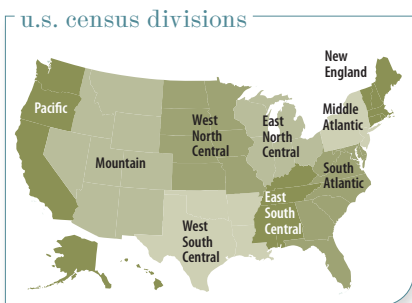
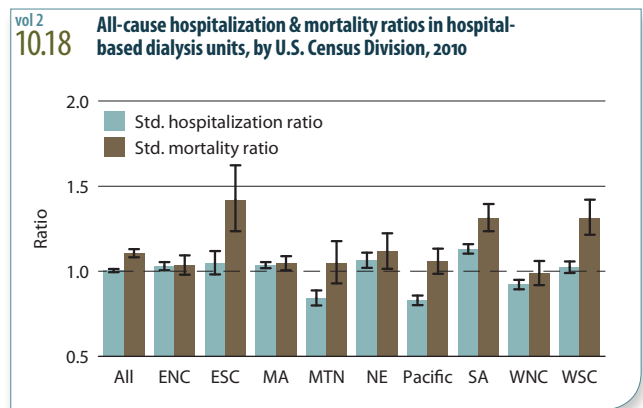
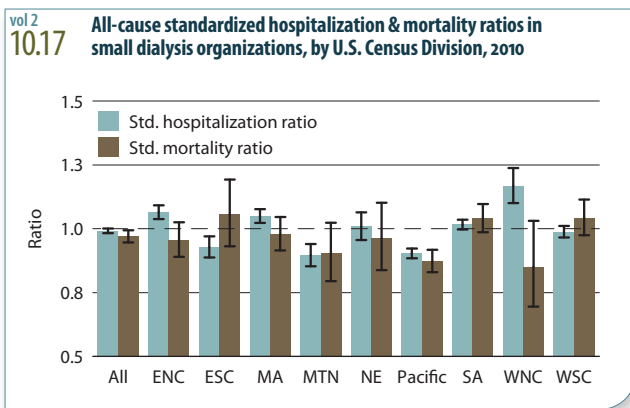
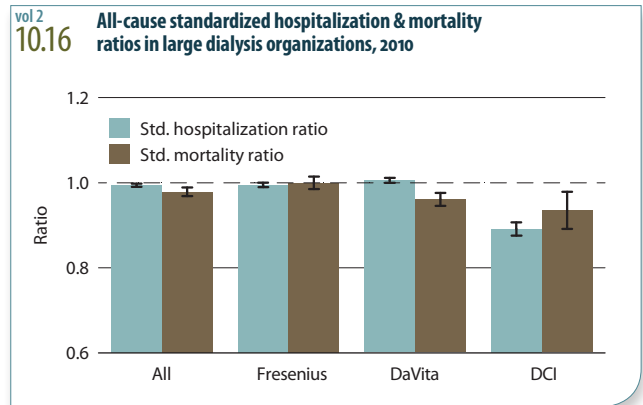
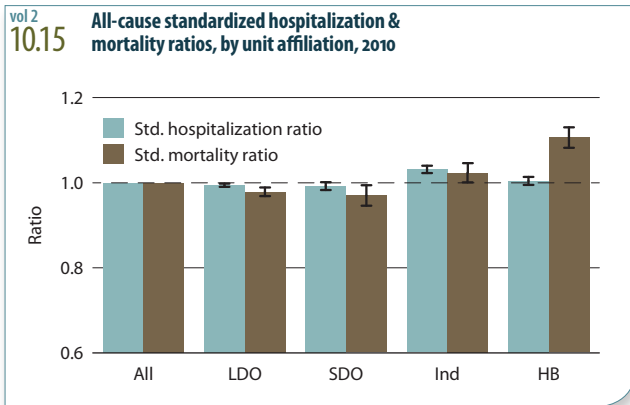
The greatest change in weekly iron dosing was among DaVita units, in which doses fell 27 percent in the first half of 2011. IV vitamin D dosing declined in all facilities, but to a greater extent in units owned by DaVita and DCI, with decreases of 14 and 25 percent, respectively.

Figure 10.10 illustrates changes in the percentage of patients receiving EPO, in the use of anemia therapeutics, in hemoglobin levels, and in transfusion events.

Between September, 2010 and September, 2011, the percentage of patients receiving EPO fell 2.1 percent overall, 8.0 percent in DaVita units, and 12.5 percent in hospital-based units (the low use of EPO in these latter units can be explained by their frequent use of DPO for anemia treatment). EPO doses fell 27.1 percent overall, and 37 percent in DaVita and DCI units, compared to 18 percent in units owned by Fresenius. IV iron doses dropped 23 percent overall, and 42 percent in DaVita units; doses declined only 1 percent in hospital-based units. Vitamin D doses declined 12 percent across all providers and 22–24 percent in DaVita and DCI units.

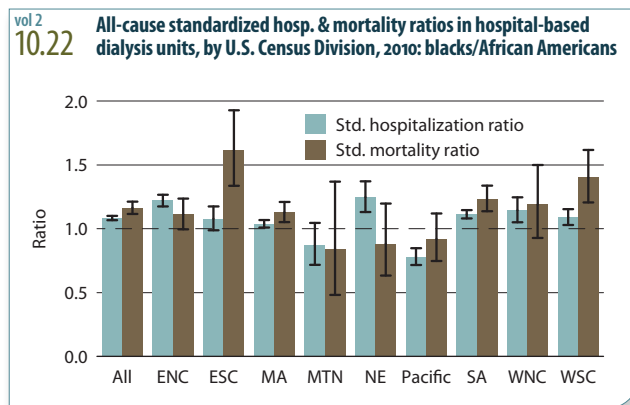
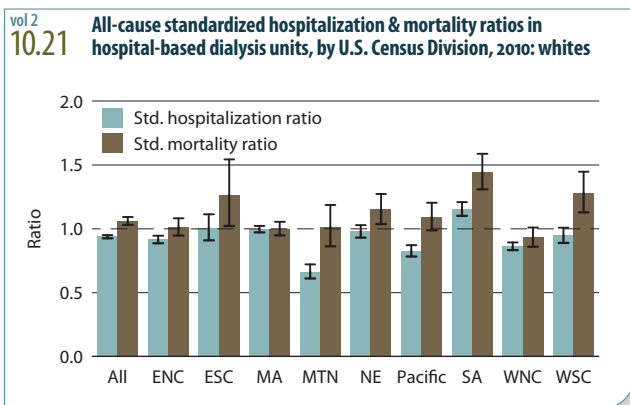
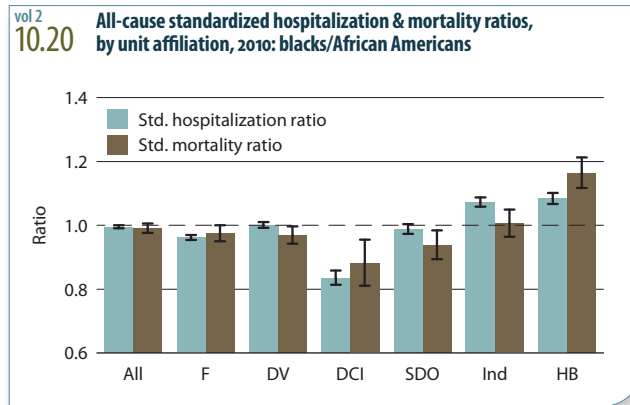
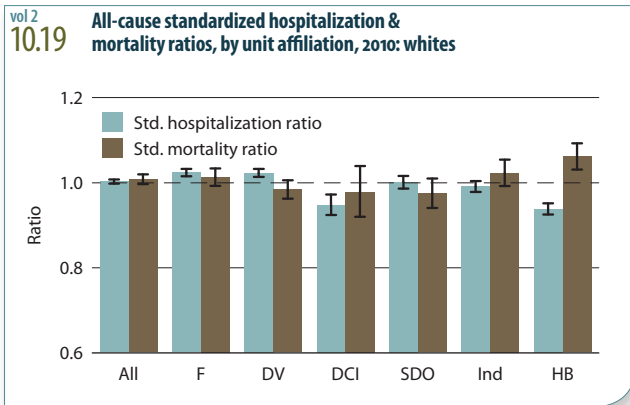
Overall hemoglobin levels fell an average of 0.4 g/dl, or 3.6 percent — 0.7 g/dl (6.3 percent) in DaVita facilities and 0.2 g/dl (1.4 percent) in units owned by Fresenius. Transfusion events increased 24 percent across all units; Fresenius and hospital-based units had the smallest increases, of 4.3 and 7.3 percent, respectively, compared to increases of 46 and 37 percent in DaVita and SDO facilities.

The percentage of patients with a hemoglobin level below 10 g/dl increased the most in hospital-based units, reaching 19 percent in the second quarter of 2011, and more patients had levels of 10–12 g/dl over the quarterly period than previously noted. DaVita had the largest increase, reaching 85 percent of patients in the second quarter of 2011, but, as previously noted, also saw the greatest decrease in average hemoglobin level among providers. Over the one-year period, there was a consistent decline in the percentage of patients with hemoglobin levels exceeding 12 g/dl, from 19.6 to 11.1 percent in hospital-based units and from 21.7 to 6.3 percent in units owned by DaVita; the overall change among providers was from 21.1 to 8.7 percent. » [Table 10.a & Figures 10.7–14](#); see page 444 for analytical methods. *Period prevalent dialysis patients 2010 & 2011; with the exception of Figure 10.10 (which includes all facilities), only facilities defined as opting in the new bundle are included. In 10.10, only patients with a dialysis claim during the month are included in graphs showing patients receiving EPO & those with a transfusion event.*



For 2010, standardized hospitalization ratios (SHRs) are almost equal in small and large dialysis organizations (SDOs and LDOs), as are standardized mortality ratios (SMRs). Independent facilities have the highest SHR, and hospital-based facilities the highest SMR. By unit affiliation among the LDOs, DCI continues to have the lowest ratios for both hospitalization and mortality.

Within the SDOs, two U.S. Census Divisions — East North Central and Middle Atlantic — have statistically significant higher SHRs; the East South Central, Mountain, and Pacific divisions have statistically significant lower ones. The overall mortality ratio in the SDOs is less than one and statistically significant, as is the SMR in the Pacific division. Among hospital-based units, the Mountain, Pacific, and West North Central divisions have lower SHRs, while the Middle Atlantic, New England, and South Atlantic divisions each have higher SHRs and SMRs. » [Figures 10.15–18](#); see page 444 for analytical methods. *January 1 point prevalent hemodialysis patients, 2010, with Medicare as primary payor (SHRs); January 1 point prevalent hemodialysis patients, 2010 (SMRs). SHRs & SMRs are calculated based on national hospitalization & death rates. Adj: age/gender/race/dialysis vintage.*



In units owned by Fresenius and DaVita, white patients have statistically significant higher SHRs, while black/African American patients have statistically significant lower SHRs in Fresenius units and DCI units, and lower SMRs in DaVita and DCI units and in the SDOs. In hospital-based units, SHRs are lower than one and statistically significant for whites, but higher than one for blacks/African Americans.

Among hospital-based dialysis units in the South Atlantic division, white patients have a statistically significant higher SHR, as do blacks/African Americans in the East North Central, Middle Atlantic, New England, South Atlantic, West North Central, and West South Central divisions. In the Pacific division, the SHR is lower than one for both whites and blacks/African Americans. SMRs greater than one and statistically significant are reported for both white and black/African American patients in the East South Central, South Atlantic, and West South Central divisions. » **Figures 10.19–22**; see page 444 for analytical methods. *January 1 point prevalent hemodialysis patients, 2010, with Medicare as primary payor (SHRs); January 1 point prevalent hemodialysis patients, 2010 (SMRs). SHRs & SMRs are calculated based on national hospitalization & death rates. Adj: age/gender/race/dialysis vintage.*

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, 2010 (Figure 10.1)

» large dialysis organizations · 64.3% » small dialysis organizations · 12.1% » independent · 14.2% » hospital-based · 9.4%

dialysis unit counts, by unit affiliation, 2010 (Figure 10.3)

» all · 5,869 » Fresenius · 1,779 » DaVita · 1,646 » DCI · 215 » SDOS · 626 » independent · 823 » hospital-based · 780

dialysis patients, by unit affiliation, 2010 (Figure 10.3)

» all · 402,054 » Fresenius · 127,207 » DaVita · 118,142 » DCI · 13,176
» SDOS · 48,548 » independent · 57,241 » hospital-based · 37,740

PREVENTIVE CARE

diabetic dialysis patients with four or more A1c tests annually, 2009–2010 (Figure 10.4)

» overall · 60% » Fresenius · 62% » DaVita · 65% » DCI · 39% » SDO · 63% » independent · 66% » hospital-based · 41%

diabetic dialysis patients with two or more lipid tests annually, 2009–2010 (Figure 10.5)

» overall · 57% » Fresenius · 57% » DaVita · 57% » DCI · 52% » SDO · 61% » independent · 63% » hospital-based · 67%

TREATMENT UNDER THE NEW DIALYSIS COMPOSITE RATE

change in the percentage of patients receiving EPO pre- & post-dialysis bundle: September 2010 to September 2011 (Figure 10.10)

» all · -2.1 » Fresenius · -0.8 » DaVita · -8.0% » DCI · -1.7 » SDOS · -0.6% » independent · -3.2% » hospital-based · -12.5%

change in total monthly dose of EPO pre- & post-dialysis bundle: September 2010 to September 2011 (Figure 10.10)

» all · -27% » Fresenius · -18% » DaVita · -37% » DCI · -37 » SDOS · -28% » independent · -27% » hospital-based · -23%

change in total monthly dose of IV iron pre- & post-dialysis bundle: September 2010 to September 2011 (Figure 10.10)

» all · -23% » Fresenius · -11% » DaVita · -42% » DCI · -10 » SDOS · -23% » independent · -20% » hospital-based · -0.8%

change in total monthly dose of IV vitamin D pre- & post-dialysis bundle: September 2010 to September 2011 (Figure 10.10)

» all · -12% » Fresenius · -0.1% » DaVita · -2.4% » DCI · -22 » SDOS · -14% » independent · -12% » hospital-based · -8.4%

decrease in hemoglobin level pre- & post-dialysis bundle: September 2010 to September 2011 (Figure 10.10)

» all · -3.6% » Fresenius · -1.4% » DaVita · -6.3% » DCI · -2.7 » SDOS · -2.3% » independent · -3.2% » hospital-based · -4.1%

increase in transfusion events pre- & post-dialysis bundle: September 2010 to September 2011 (Figure 10.10)

» all · 2.4% » Fresenius · 4.3% » DaVita · 4.6% » DCI · 21 » SDOS · 37% » independent · 32% » hospital-based · 7.3%

STANDARDIZED HOSPITALIZATION & MORTALITY RATIOS

all-cause standardized hospitalization ratios, 2010 (Figure 10.15)

» all · 1.00 » LDOS · 0.99 » SDOS · 0.99 » independent · 1.03 » hospital-based · 1.00

all-cause standardized mortality ratios, 2010 (Figure 10.15)

» all · 1.00 » LDOS · 0.98 » SDOS · 0.97 » independent · 1.02 » hospital-based · 1.11

all-cause standardized hospitalization ratios in large dialysis organizations, 2010 (Figure 10.16)

» all · 0.98 » Fresenius · 1.00 » DaVita · 1.01 » DCI · 0.89