Crater Lake National Park, Oregon

COSTS OF ESRD
Total Medicare spending in 2010 rose 6.5 percent, to $522.8 billion. Expenditures for ESRD rose 8.0 percent, to $32.9 billion. These numbers include the new Medicare Part D prescription drug benefit, as the USRDS Coordinating Center now receives up-to-date data on Part D use in the ESRD population.

These expenditures cover 488,938 patients in the prevalent Medicare ESRD population, along with 105,436 non-Medicare patients; these latter patients cost an additional estimated $14.5 billion (data from Table p.a in the Précis).

Medicare HMO costs for ESRD rose to $3.38 billion in 2010, 7.1 percent higher than in 2009. This annual increase is the lowest since 2003, when the new Medicare hierarchical payment model, with disease burden risk adjusters, was implemented for Medicare Advantage (HMOs). Fee-for-service Medicare inpatient expenditures per person per year (PPPY) rose nearly 5.3 percent in 2010, down from their 18 percent growth in 2008, while PPPY costs by modality remained nearly stable, rising just 1.4 percent for hemodialysis patients. Interestingly, there were large increases across modalities in 2007–2008, from 8.9 percent for peritoneal dialysis patients to 7.7 percent for both hemodialysis and transplant patients. These year-to-year variations will need more complete assessment — including consideration of cause-specific hospitalizations — to define their exact source.

With 2010 the last year before the start of the new bundled prospective payment system, some providers may have reduced expenditures in the months prior to January 1, 2011, in anticipation of the changing incentives.

Recent attention to therapies using erythropoiesis stimulating agents (ESAs) has raised awareness of their costs to the healthcare system. After increasing each year since 1992 (including growth of 11–19 percent in 2002–2004) to reach nearly $2 billion, Medicare ESA costs were stable in 2004–2008, rose 4.9 percent in 2009, and changed little in 2010. Costs for IV vitamin D rose 12 percent in 2008, 3.7 percent in 2009, and 2.2 percent in 2010, reaching $519 million. And IV iron costs rose 6.6 percent in 2010, reaching a new high of $304 million.

The Average Sale Price payment system for injectables was introduced in 2004, as investigations showed that many providers had very profitable discount agreements, accounting for significant margins paid under the Medicare system. The composite rate payment was thus rebased, and the margins generated for injectables were addressed by allowing providers to receive only 6 percent above the sale price, monitored under quarterly reporting to CMS. There have been other

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*How novel and original must be each new man’s view of the universe — for though the world is so old — and so many books have been written — each object appears wholly undescribed to our experience — each field of thought wholly unexplored — The whole world is an America — a New World.*  
*Henry David Thoreau, Journals*
changes in ESA payment policies as well, including limited billing when hemoglobin levels are greater than 13 g/dl for three months. These alterations, along with changes in package insert warnings regarding ESA safety, have led to reductions in both ESA dosing and hemoglobin levels, as noted in earlier chapters. Changes under the new bundled payment system have further reduced costs to the Medicare system.

This year we again examine racial differences in expenditure patterns, and look at costs by modality in matched hemodialysis and peritoneal dialysis populations. These analyses explore how racial differences in service utilization in the outpatient dialysis setting may be an important consideration in the new bundled payment system, and how variations in expenditure structures for hemodialysis and peritoneal dialysis may impact the way in which providers choose to adopt peritoneal dialysis. Overall, costs for care of white and black/African American peritoneal dialysis patients were $5,885 and $6,334 less per year than that of matched hemodialysis patients, while ESA costs were $2,441 and $1,908 lower. These differences provide clear incentives under the bundled payment system to consider the use of peritoneal dialysis in appropriate patients.

The last spread of the chapter provides expanded information on use of the Part D Medicare prescription drug benefit in the ESRD population, addressing the most frequent claims for medications, rank order by frequency and cost, and differences in use between the dialysis and transplant populations. » Figure 11.1; see page 445 for analytical methods. Period prevalent ESRD patients. Includes Part D.
Total Medicare costs rose 6.5 percent in 2010, to $523 billion; costs for ESRD increased 8.0 percent, to $33 billion, accounting for 6.3 percent of the Medicare budget. The estimated number of point prevalent Medicare ESRD patients grew 3.2 percent between 2009 and 2010, to nearly 489,000, while the non-Medicare ESRD population rose 7.1 percent, to 105,436. Figures 11.2–3; see page 445 for analytical methods. Includes Part D (11.2). December 31 point prevalent ESRD patients (11.3).

Total Medicare costs for ESRD patients increased 6.1 percent between 2009 and 2010, compared to a 2.0 percent increase in costs per person per year. This growth was lower than that seen in 2009, at 7.6 and 5.3 percent, respectively.

In 2010, 38 percent of Medicare’s ESRD dollars were spent on inpatient services, 34 percent on outpatient care, 21 percent on physician/supplier costs, and 7.2 percent on Part D prescription drugs. Part D costs for ESRD patients reached $1.92 billion in 2010, 11 percent higher than in the previous year.

Total Medicare expenditures for peritoneal dialysis patients rose 7.8 percent in 2010, compared to increases of 5.8 and 2.5 percent for hemodialysis and transplant, respectively. Costs reached $23.6 billion for hemodialysis, and $1.28 and $2.8 billion for peritoneal dialysis and transplant.

Per person per year Medicare ESRD costs rose just 1.4 and 1.7 percent for hemodialysis and peritoneal dialysis in 2010, to $87,561 and $66,751, while transplant costs fell 1.1 percent, to $32,914. Figures 11.4–7; see page 445 for analytical methods. Total Medicare ESRD costs from claims data; includes all Medicare as primary payor claims as well as amounts paid by Medicare as secondary payor (11.4–5). Period prevalent ESRD patients; patients with Medicare as secondary payor are excluded (11.6–7).
Inpatient/outpatient costs per person per year (PPPY) for MarketScan patients with a transplant during 2010 rose 4.3 percent from the previous year, to $151,190, 54 percent more than the $97,935 incurred by their Medicare counterparts, for whom costs fell 1.0 percent. Costs for MarketScan patients with a functioning graft in 2010 were 3.0 percent lower than in 2009, at $33,101 — 2.8 times higher, however, than the $11,975 reported for Medicare patients.

In 2010, physician/supplier PPPY costs for patients with a transplant during the year fell 4.3 percent for MarketScan patients, to $18,396; costs for their Medicare counterparts fell 2.2 percent, to $18,308. 

Of the $2.8 billion spent in 2010 on injectables for dialysis patients, ESAs accounted for 67 percent, or $1.87 billion. The proportions of total costs for IV vitamin D, IV iron, and other injectables were 18.5, 10.9 and 3.8 percent, or $519 million, $304 million, and $106 million, respectively. PPPY costs for Feraheme, an IV iron injectable introduced in 2009, reached $1,293 in 2010, compared to $974 for INFeD.

Per person per year costs for erythropoiesis stimulating agents (ESAs) and IV iron, and costs for IV vitamin D, both show a distinct geographic pattern, with costs highest along the Gulf Coast and the Eastern Seaboard, and lowest in the western half of the country. Costs average $7,703 and $1,630, respectively, in the upper quintile. 

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Total per person per year outpatient expenditures in the prevalent dialysis population do not vary widely by race. In 2010, for example, costs were $30,106 for white patients, $31,651 for blacks/African Americans, and $29,834 for patients of other races. » Figure 11.12; see page 445 for analytical methods. Period prevalent dialysis patients.

In the prevalent dialysis population, per person per year (PPPY) costs for laboratory tests in 2010 were slightly higher for whites than for blacks/African Americans, at $1,825 and $1,775, respectively. Costs for erythropoiesis stimulating agents (ESAs) were 14.7 percent higher for blacks/African Americans than for whites, at $6,423 and $5,600. IV iron costs were similar among whites and blacks/African Americans, at $804 and $826; IV vitamin D costs, in contrast, were 73.5 percent higher in blacks/African Americans than in whites, at $1,592 and $918. Overall PPPY costs for IV antibiotics remained stable between 2009 and 2010, at just over $13. Costs for all other injectables were $197 PPPY overall and $224 and $167, respectively, in whites and blacks/African Americans. » Figures 11.13–18; see page 445 for analytical methods. Period prevalent dialysis patients.
Since peritoneal dialysis (PD) patients are younger than hemodialysis patients and have less comorbidity, we developed a matched hemodialysis (HD) population, thus allowing direct cost analyses. Hemodialysis patients matched to the PD population generally have costs similar to those of the unmatched patients. In 2010, per person per year (PPPY) outpatient dialysis expenditures were 5.1 percent higher in blacks/African Americans than in whites, at $31,651 and $30,106, respectively. By modality, costs for hemodialysis are generally 24–25 percent higher than those sustained by peritoneal patients in both matched and unmatched populations.

PPPY costs for laboratory tests are greater in both matched (hemodialysis to peritoneal dialysis) and unmatched hemodialysis populations compared to those for patients on peritoneal dialysis. In unmatched populations, for example, costs for hemodialysis patients are 4.0 percent greater for whites, and 4.2 percent greater for blacks/African Americans. In matched populations, costs are 2.6 and 4.2 percent greater, respectively.

Costs for erythropoiesis stimulating agents (ESAs) are higher for hemodialysis patients than for peritoneal dialysis patients, and higher in blacks/African Americans than in whites. In unmatched populations, ESA costs for hemodialysis compared to peritoneal dialysis are 73 and 41 percent higher in whites and blacks/African Americans, respectively; costs for hemodialysis patients matched to peritoneal patients are 74 and 41 percent higher.

Expenditures for IV vitamin D are 59 percent greater for blacks/African Americans than for whites in matched dialysis populations.

Intravenous iron costs are 4–5 times higher for matched and unmatched hemodialysis patients when compared to peritoneal patients. In matched hemodialysis patients, PPPY costs for IV antibiotics for whites and blacks/African Americans are $11.99 and $15.77, respectively, compared to those on peritoneal dialysis, at $12.15 and $18.19. » Figures 11.19–25; see page 445 for analytical methods. Period prevalent dialysis patients, 2010.
Total Part D net costs for dialysis and transplant patients in 2010 reached $1.5 billion and $306 million — 2.6 and 0.5 percent of total Medicare Part D costs, respectively. Figure 11.26; see page 445 for analytical methods. Part D-enrolled general Medicare patients from the 5 percent sample & period prevalent dialysis & transplant patients, 2010.

Costs for Part D medications in general Medicare and transplant patients represent a nearly equal portion of their overall Medicare costs, at 11.1 and 11.0 percent, respectively. Costs for dialysis patients, in contrast, are just 6.1 percent of their total Medicare expenditures. Figure 11.27; see page 445 for analytical methods. Part D-enrolled general Medicare patients from the 5 percent sample & period prevalent dialysis & transplant patients, 2010. Values are Part D costs as percent of total Medicare costs.
In 2010, costs for patients with the low income subsidy (LIS) accounted for 69 percent of total Part D net costs in the general Medicare population. In the dialysis and transplant populations, in contrast, they accounted for 90 and 84 percent, respectively. » Figure 11.28; see page 445 for analytical methods. Part D-enrolled general Medicare patients from the 5 percent sample & period prevalent dialysis & transplant patients, 2010.

Per person per year (PPPY) net Part D costs are much higher for LIS and non-LIS ESRD patients than costs incurred by patients in the general Medicare population. Among dialysis and transplant patients with the LIS, for example, net Part D costs in 2010 were $7,424 and $6,407, respectively, compared to costs of $3,985 in the general Medicare population. In patients with no LIS, Part D costs were noticeably lower, at $2,133 for dialysis, $1,978 for transplant, and $1,010 in the general population.

Out-of-pocket Part D costs for patients with LIS status are a fraction of those realized by patients without the LIS, at 1.7–2.8 percent of net costs compared to 65–68 percent. » Figure 11.29; see page 445 for analytical methods. Part D-enrolled general Medicare patients from the 5 percent sample & period prevalent dialysis & transplant patients, 2010. Net pay is estimated as the sum of Medicare covered amount & LIS amount.
Overall, Part B medications account for 10.1 percent of per person per month (PPPM) Part A and B costs. Costs for branded medications far exceed those for generics. Branded medication use averages 1.8 prescriptions per month, at a cost of $465.19, while PMPM costs for an average 4.3 generic prescriptions are $96.12.

For branded and generic medications, average prescriptions per month vary little by age. Medication use is slightly less in younger populations, yet costs per month are generally higher. By gender, prescriptions for branded and generic medications average 1.7 and 4.1, respectively, per month in males, and 2.0 and 4.6 in females.

Average prescriptions per month for branded medications are highest in Asians, at 2.2, and with costs of $521.27; whites tend to use more generic drugs, averaging 4.6 prescriptions per month at a cost of $98.11. » Table 11.a; see page 445 for analytical methods. Medicare Part D-enrolled period prevalent dialysis patients with Medicare as primary payor.
### Medicare Parts B & D per person per month costs ($) for ESRD-related medications, by age, gender, race, ethnicity, & LIS status, 2010

<table>
<thead>
<tr>
<th>Part B</th>
<th>Part D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESAs</td>
<td>507.22</td>
<td>68.61</td>
</tr>
<tr>
<td>Iron</td>
<td>516.73</td>
<td>68.71</td>
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<tr>
<td>Vitamin D</td>
<td>103.77</td>
<td>108.60</td>
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<tr>
<td>Other</td>
<td>34.38</td>
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<tr>
<td>Oral vit D</td>
<td>29.52</td>
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<td>Phos. binder</td>
<td>11.95</td>
<td>101.66</td>
</tr>
<tr>
<td>Calcimimetics</td>
<td>11.15</td>
<td>115.73</td>
</tr>
<tr>
<td>Non-LIS</td>
<td>472.84</td>
<td>68.26</td>
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<tr>
<td>20–44</td>
<td>530.53</td>
<td>69.02</td>
</tr>
<tr>
<td>LIT</td>
<td>560.33</td>
<td>67.10</td>
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<tr>
<td>Non-LIS</td>
<td>487.21</td>
<td>58.32</td>
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<tr>
<td>45–64</td>
<td>520.86</td>
<td>68.48</td>
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<tr>
<td>LIT</td>
<td>532.30</td>
<td>69.02</td>
</tr>
<tr>
<td>Non-LIS</td>
<td>505.48</td>
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<tr>
<td>65–74</td>
<td>496.10</td>
<td>69.93</td>
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<tr>
<td>LIT</td>
<td>503.33</td>
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<tr>
<td>Non-LIS</td>
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<td>75+</td>
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<td>462.90</td>
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<tr>
<td>Non-LIS</td>
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<tr>
<td>Male</td>
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<tr>
<td>LIT</td>
<td>490.44</td>
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<tr>
<td>Non-LIS</td>
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<td>67.35</td>
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<td>Female</td>
<td>530.15</td>
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<tr>
<td>LIT</td>
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<tr>
<td>Non-LIS</td>
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<td>White</td>
<td>481.58</td>
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<tr>
<td>LIT</td>
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<td>68.20</td>
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<tr>
<td>Non-LIS</td>
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<td>68.96</td>
</tr>
<tr>
<td>Blk/Af Am</td>
<td>553.09</td>
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<tr>
<td>LIT</td>
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<tr>
<td>Non-LIS</td>
<td>516.98</td>
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<tr>
<td>Asian</td>
<td>430.24</td>
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<tr>
<td>LIT</td>
<td>433.77</td>
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<tr>
<td>Non-LIS</td>
<td>407.28</td>
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<tr>
<td>Other</td>
<td>426.61</td>
<td>60.31</td>
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<tr>
<td>LIT</td>
<td>430.21</td>
<td>60.54</td>
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<tr>
<td>Non-LIS</td>
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<tr>
<td>Hispanic</td>
<td>438.33</td>
<td>64.24</td>
</tr>
<tr>
<td>LIT</td>
<td>438.59</td>
<td>64.26</td>
</tr>
<tr>
<td>Non-LIS</td>
<td>414.32</td>
<td>64.07</td>
</tr>
</tbody>
</table>

ESAs, iron, vitamin D, and other injectables were included in the bundle as of January 1, 2011; calcimimetics and phosphate binders, currently in Part D, will be included on January 1, 2014.

In 2010, erythropoiesis stimulating agents (ESAs) accounted for nearly 75 percent of PPPM Part B medication costs, at $507.22; costs for iron and vitamin D were $68.61 and $103.77, respectively.

Younger patients have higher costs for ESAs and vitamin D, while the reverse is true for iron. By gender, women tend to have higher PPPM costs for ESAs compared to men, but costs for iron and vitamin D are comparable.

By race/ethnicity, costs for ESAs are highest in blacks/African Americans, at $553.09, compared to costs of $481.68, $430.24, and $436.33 in whites, Asians, and Hispanics.

For Part D medications, PPPM costs overall are highest for phosphate binders, at $391.92, while those for oral vitamin D and calcimimetics are $29.52 and $99.10, respectively. Costs for phosphate binders tend to be highest in older patients, males, and Asians and Hispanics. 

Table 11.b; see page 445 for analytical methods. Medicare Part B-enrolled period prevalent dialysis patients with Medicare as primary payor.
OVERALL COSTS OF ESRD & INJECTABLES

ESRD spending, by payor, 2010 (Figure 11.1)
- Medicare paid · $29.6 billion
- Medicare patient obligation · $4.7 billion
- Medicare HMO · $3.4 billion
- non-Medicare · $9.8 billion

total Medicare dollars spent on ESRD, by type of service, 2010 (Figure 11.5)
- overall · $28.7 billion
- inpatient · 38%
- outpatient · 34%
- physician/supplier · 21%
- Part D · 7%

total Medicare expenditures for ESRD, by modality, 2010 (Figure 11.6)
- hemodialysis · $23.6 billion
- peritoneal dialysis · $1.28 billion
- transplant · $2.8 billion

total Medicare expenditures per person per year, 2010 (Figure 11.7)
- hemodialysis · $187,561
- peritoneal dialysis · $66,751
- transplant · $32,914

total Medicare spending for injectables, 2010 (Figure 11.9)
- overall · $2.8 billion
- erythropoiesis stimulating agents · $1.87 billion
- IV vitamin D · $519 million
- IV iron · $304 million
- other injectables · $106 million

RACIAL DIFFERENCES IN SPENDING

total per person per year outpatient expenditures, 2010 (Figure 11.12)
- overall · $30,679
- white · $30,106
- black/African American · $31,651
- other race · $29,834

per person per year outpatient expenditures for erythropoiesis stimulating agents, 2010 (Figure 11.14)
- overall · $5,875
- white · $5,600
- black/African American · $6,423
- other race · $4,987

per person per year outpatient expenditures for IV vitamin D, 2010 (Figure 11.15)
- overall · $1,178
- white · $918
- black/African American · $1,592
- other race · $957

MATCHED & UNMATCHED DIALYSIS POPULATIONS

total per person per year outpatient expenditures, 2010 (Figure 11.19)
- all dialysis
- white · $30,106
- black/African American · $31,651
- HD matched to PD
- white · $30,620
- black/African American · $32,092

MEDICARE PART D COSTS

total Part D ESRD costs, 2010 (Figure 11.26)
- dialysis · $1.52 billion
- transplant · $305 million

per person per year Part D net & out-of-pocket costs, 2010 (Figure 11.29)
 net costs, LIS
- general Medicare · $3,895
- dialysis · $7,424
- transplant · $6,407
 net costs, no LIS
- general Medicare · $1,010
- dialysis · $2,133
- transplant · $1,978
 out-of-pocket costs, LIS
- $110
- $122
- $139
 out-of-pocket costs, no LIS
- $688
- $1,382
- $1,352

2012 USRDS ANNUAL DATA REPORT

COSTS OF ESRD

SUMMARY