chapter eleven

 Costs of ESRD

Well, it’s one for the money, two for the show
Three to get ready, now go, cat, go
But don’t you step on my blue suede shoes
Well you can do anything
But lay off my blue suede shoes

Carl Perkins, “Blue Suede Shoes”
Total Medicare spending in 2009 rose 8.2 percent, to $491 billion, which included the cost of the new Part D prescription drug benefit. Costs for ESRD rose 3.1 percent, to $29 billion; this total does not, however, include Part D, since availability of the ESRD Part D data is one year behind that for the general Medicare population.

When Part D costs are excluded, total Part A, B, and C Medicare expenditures were $434.5 billion in 2009, with the ESRD program accounting for 6.7 percent of this spending—a number consistent over many years. These expenditures cover the more than 571,000 patients in the Medicare ESRD population; costs for the non-Medicare population were an additional estimated $13.5 billion (data from Table 2.1 in the Précis).

Medicare HMO costs in 2009 rose to $3.13 billion, 15 percent higher than in 2008. This annual increase has been consistent since 2003, when the new Medicare hierarchical payment model, with disease burden risk adjusters, was implemented for Medicare Advantage (HMOs). Inpatient expenditures per person per year (PPPY) rose nearly 8 percent, down from their 18 percent growth in the previous year, while PPPY costs by modality remained nearly stable; for hemodialysis patients, these costs rose only 0.2 percent. Interestingly, there were large increases across modalities in 2008, from 9.5 percent for peritoneal dialysis patients to 11 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.

Per person per year costs for inpatient/outpatient services rose 3–4 percent across modalities in 2009. Physician/supplier costs, in contrast, while also increasing 4 percent in the hemodialysis population, rose 16.5 percent for patients receiving a transplant during the year, and nearly 23 percent for those with a functioning transplant. These changes in costs for transplant patients need further investigation to determine their association with inpatient and outpatient care and with particular CPT-coded services.

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 2004–2007, and in 2008 declined to a pre-2004 level of $1.8 billion. In 2009, however, they rose 5 percent, to $1.87 billion. Costs for IV vitamin D rose 12 percent in 2008, and...
then just 3.7 percent in 2009. And IV iron costs rose nearly 7 percent in 2009, to $286 million, a new high.

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 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.

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 adapt to this new system.

The last spread of the chapter provides 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. Part D analyses were expanded this year, and we will provide greater detail in the 2012 ADR.

>> Figure 11.1: see page 392 for analytical methods. Period prevalent dialysis patients. Data for 2006–2008 include Part D expenditures.
Total Medicare costs rose 8.2 percent in 2009, to $491 billion; costs for ESRD increased 3.1 percent, to $29 billion, accounting for 5.9 percent of the Medicare budget. ESRD data for 2009, however, do not include Part D costs—which amounted to $1.6 billion in 2008—making ESRD’s portion of Medicare costs appear lower than in prior years. 

The estimated number of point prevalent Medicare ESRD patients (Figure 11.3) rose 3.2 percent between 2008 and 2009, to more than 470,000, while the non-Medicare ESRD population rose 8.3 percent, to 101,351. Because 2009 ESRD cost data do not include Part D expenditures, total Medicare ESRD expenditures for the year do not accurately reflect actual changes. We will include 2009 ESRD Part D costs in the 2012 ADR.

In 2009, 38 percent of Medicare’s ESRD dollars were spent on inpatient services, 35 percent on outpatient care, and 21 percent on physician/supplier costs. After rising 11 percent between 2007 and 2008, total Medicare expenditures for hemodialysis and transplant rose only 0.2 and 0.4 percent in 2009, to $20.8 and $2.4 billion, while costs for peritoneal dialysis fell 3.3 percent, to $1.1 billion. Per person per year costs fell less than 1 percent across modalities, to $82,285 for hemodialysis, $61,588 for peritoneal dialysis, and $29,983 for transplant.
Inpatient/outpatient costs per person per year (PPPY) for MarketScan patients with a transplant during 2009 fell nearly 6 percent from the previous year, to nearly $145,000, 48 percent more than the $98,000 incurred by their Medicare counterparts, for whom costs increased 4.1 percent. Costs for MarketScan patients with a functioning graft in 2009 were 5.2 percent higher than in 2008, at $33,452 — 2.9 times higher than the $11,384 reported for Medicare patients.

In 2009, physician/supplier PPPY costs for patients with a transplant during the year fell 3.8 percent for MarketScan patients, to $19,229; costs for their Medicare counterparts rose 16.5 percent, to $18,709. Figure 11.8; see page 392 for analytical methods. Medicare: period prevalent ESRD patients; MarketScan: period prevalent ESRD patients age 64 & younger.

Of the $2.78 billion spent in 2009 on injectables for dialysis patients, ESAs accounted for 68 percent, or $1.89 billion. The proportions of total costs for IV vitamin D, IV iron, and other injectables were 18.3, 10.3 and 3.6 percent, or $509 million, $286 million, and $99 million, respectively. Medicare costs per person per year for IV vitamin D and IV iron were highest for Zemplar and Ferrlecit, at $1,926 and $868, respectively. Figures 11.9–10; see page 392 for analytical methods. Period prevalent dialysis patients.

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 $7,248 and $1,812, respectively, in the upper quintile. Figure 11.11; see page 392 for analytical methods. Period prevalent dialysis patients, 2009; unadjusted.
Total per person per year outpatient expenditures in the prevalent dialysis population do not vary widely by race. In 2009, for example, costs were $30,365 for white patients, $32,030 for African Americans, and $29,633 for patients of other races. > Figure 11.12; see page 392 for analytical methods. Period prevalent dialysis patients.

In the prevalent dialysis population, per person per year (PPPY) costs for laboratory tests in 2009 are slightly higher for whites than African Americans, at $1,839 and $1,796, respectively. Costs for erythropoiesis stimulating agents (ESAs) are 14.5 percent higher for African Americans than for whites, at $6,746 and $5,892. Costs for iv iron are similar among whites and African Americans, at $789 and $814; iv vitamin D costs, in contrast, are 74 percent higher in African Americans than in whites, at $1,846 and $1,059. Overall PPPY costs for iv antibiotics fell 2.4 percent in 2009, to $13.28. Costs for all other injectables are $210 PPPY overall and $243 and $174, respectively, in whites and African Americans. > Figures 11.13–18; see page 392 for analytical methods. Period prevalent dialysis patients.
In 2009, per person per year (PPPY) outpatient dialysis expenditures were 5.5 percent higher in African Americans than in whites, at $32,030 and $30,365, respectively. When comparing costs by modality in unmatched dialysis populations, those for hemodialysis were 26 percent higher than those for peritoneal dialysis. This difference was sustained when hemodialysis patients were matched to peritoneal patients, at 25 percent for whites and 29 percent for African Americans. > Figure 11.19; see page 392 for analytical methods. Period prevalent dialysis patients, 2009.

In 2009, per person per year costs for laboratory tests were greater in both matched (hemodialysis to peritoneal dialysis) and unmatched hemodialysis populations than for patients on peritoneal dialysis. The difference, however, varies by race. In unmatched populations, costs for hemodialysis patients compared to peritoneal patients are 7.3 percent greater for whites, and 6.0 percent greater for African Americans. In matched dialysis populations, costs are 5.1 and 7.4 percent greater, respectively.

Costs for erythropoiesis stimulating agents (ESAs) are higher for hemodialysis patients than for peritoneal dialysis patients, and greater in African Americans than in whites. In unmatched dialysis populations, costs for hemodialysis compared to peritoneal dialysis are 75 and 44 percent greater in whites and African Americans, respectively; costs for the matched hemodialysis patients are 74 and 50 percent higher.

PPPY expenditures for IV vitamin D are 74 percent greater for African Americans than for whites.

Intravenous iron costs in matched hemodialysis patients are 5.0–5.6 times higher than those for peritoneal dialysis patients, and costs for IV antibiotics are highest in patients on peritoneal dialysis, at $14.48 and $18.16 among whites and African Americans, respectively. > Figures 11.20–25; see page 392 for analytical methods. Period prevalent dialysis patients, 2009.
This table displays the top 25 Part D prescription drugs used in Part D-enrolled ESRD patients by frequency, as measured in total days supply, and by net cost, a reflection of both frequency of use and cost. In 2008, cardiovascular and gastrointestinal medications, phosphate binders, insulin products, levothyroxine, cinacalcet, prednisone, and pain medications were the predominant drugs used in the ESRD population. Metoprolol, a beta blocker, continues to be the most frequently used drug, reflecting the extensive use of beta blockers for congestive heart failure and atrial fibrillation, and after myocardial infarction, percutaneous coronary intervention, and coronary artery bypass graft. Sevelamer tcl is the predominant phosphate binder, and, at $260 million, topped the list in terms of net Part D costs, with cinacalcet coming in at $228 million. Costs for calcium acetate, and lanthanum carbonate each near $50 million.

Sevelamer carbonate represented 5.3 percent of sevelamer use in 2008. Together, costs for sevelamer hydrochloride and carbonate reached $274 million — 18 percent of the $1.54 billion in Part D costs in the ESRD population. Medications typically used in kidney transplant patients also appear on the lists. Prednisone, a generic immunosuppressant, makes the list by frequency, but not cost. The immunosuppressants tacrolimus, mycophenolate mofetil, and valganciclovir (used for prophylaxis against cytomegalovirus) appear on the list by frequency, as measured by their costs, but not by frequency, implying that their costs are relatively higher than the frequency of their use. There were no generic forms of tacrolimus or valganciclovir in 2008, while a generic version of mycophenolate mofetil entered the market in the middle of the year.  

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Total days supply</th>
<th>By frequency</th>
<th>Total days supply</th>
<th>By net cost</th>
<th>Total cost (dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metoprolol</td>
<td>25,663,315</td>
<td>Sevelamer HCl</td>
<td>18,166,544</td>
<td>259,937,292</td>
<td></td>
</tr>
<tr>
<td>Insulin</td>
<td>22,046,311</td>
<td>Calcium acetate</td>
<td>13,555,312</td>
<td>50,883,011</td>
<td></td>
</tr>
<tr>
<td>Amlodipine besylate</td>
<td>20,111,872</td>
<td>Lanthanum carbonate</td>
<td>3,051,539</td>
<td>49,570,220</td>
<td></td>
</tr>
<tr>
<td>Sevelamer HCl</td>
<td>18,166,544</td>
<td>Clopidogrel bisulfate</td>
<td>10,440,202</td>
<td>39,218,355</td>
<td></td>
</tr>
<tr>
<td>Lisinopril</td>
<td>14,610,979</td>
<td>Valganciclovir HCl</td>
<td>873,053</td>
<td>35,882,030</td>
<td></td>
</tr>
<tr>
<td>Calcium acetate</td>
<td>13,555,312</td>
<td>Atorvastatin calcium</td>
<td>11,130,735</td>
<td>32,110,987</td>
<td></td>
</tr>
<tr>
<td>Simvastatin</td>
<td>13,364,770</td>
<td>Sevelamer carbonate</td>
<td>10,798,684</td>
<td>22,786,850</td>
<td></td>
</tr>
<tr>
<td>Clonidine HCl</td>
<td>12,998,841</td>
<td>Cinacalcet HCl</td>
<td>12,917,238</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Furosemide</td>
<td>12,974,753</td>
<td>Calcium acetate</td>
<td>12,974,752</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Cinacalcet HCl</td>
<td>12,974,752</td>
<td>Calcium acetate</td>
<td>12,974,752</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Levothyroxine sodium</td>
<td>11,608,757</td>
<td>Calcium acetate</td>
<td>11,608,757</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Atorvastatin calcium</td>
<td>11,130,735</td>
<td>Calcium acetate</td>
<td>11,130,735</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Omeprazole</td>
<td>10,798,684</td>
<td>Calcium acetate</td>
<td>10,798,684</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Clopidogrel bisulfate</td>
<td>10,440,202</td>
<td>Calcium acetate</td>
<td>10,440,202</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Carvedilol</td>
<td>9,285,287</td>
<td>Calcium acetate</td>
<td>9,285,287</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Prednisone</td>
<td>9,043,691</td>
<td>Calcium acetate</td>
<td>9,043,691</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Warfarin sodium</td>
<td>8,652,391</td>
<td>Calcium acetate</td>
<td>8,652,391</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Nifedipine</td>
<td>7,783,768</td>
<td>Calcium acetate</td>
<td>7,783,768</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Hydrocodone /acetaminophen</td>
<td>7,328,747</td>
<td>Calcium acetate</td>
<td>7,328,747</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Gabapentin</td>
<td>7,215,758</td>
<td>Calcium acetate</td>
<td>7,215,758</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Pantoprazole sodium</td>
<td>6,156,904</td>
<td>Calcium acetate</td>
<td>6,156,904</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Esomeprazole</td>
<td>5,839,869</td>
<td>Calcium acetate</td>
<td>5,839,869</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Atenolol</td>
<td>5,878,508</td>
<td>Calcium acetate</td>
<td>5,878,508</td>
<td>24,380,444</td>
<td></td>
</tr>
<tr>
<td>Allopurinol</td>
<td>5,737,338</td>
<td>Calcium acetate</td>
<td>5,737,338</td>
<td>24,380,444</td>
<td></td>
</tr>
</tbody>
</table>

Total Part D costs for dialysis and transplant patients in 2008 reached $1.3 billion and $285 million — 2.4 and 0.5 percent of all Medicare Part D costs, respectively. Costs for Part D medications in dialysis patients represent a smaller portion of their overall Medicare costs than do Part D costs in general Medicare patients, at 5.7 versus 11.2 percent. Part D costs for transplant patients, in contrast, account for a higher portion of their total Medicare costs, at 11.9 percent.  

Definitions of terms used on this spread are provided on page 246.
In 2008, net Part D costs for ESRD patients represented 3 percent of overall Part D expenditures, and were dominated by costs for patients with the low income subsidy (LIS). Per patient per year (PPPY) costs are similar for dialysis and transplant patients, at $6,600 and $2,050 for LIS and non-LIS patients, respectively. Costs for LIS patients are more than three times those of non-LIS patients, and costs for patients with ESRD are twice those incurred in the general Medicare population.

On average, ESRD patients with LIS pay much less out-of-pocket in proportion to their net Part D costs than do general Medicare patients, reflecting the high proportion of ESRD patients with LIS. Non-LIS ESRD patients, in contrast, pay a similar proportion of out-of-pocket costs — about 41 percent — as do general Medicare patients, but much more in absolute amount.

Compared to general Medicare patients, dialysis patients with LIS have higher Part D costs for antihypertensives and diabetes agents; the opposite is true in non-LIS patients. Asian LIS patients have the highest costs by race for antihypertensives and phosphate binders, while costs for diabetes agents and cinacalcet are highest for whites and African Americans, respectively. There is less cost variability in non-LIS patients, though net Part D costs for antihypertensives are almost twice as high for non-LIS patients in the general Medicare population than for their ESRD counterparts. >> Figure II.28–36; see page 392 for analytical methods.
ESRD SPENDING, BY PAYOR, 2009
DOLLARS, IN BILLIONS
» MEDICARE PAID 25.9» MEDICARE PATIENT OBLIGATION 4.2» MEDICARE HMO 3.1» NON-MEDICARE 9.3 [FIG 11.1]

TOTAL MEDICARE DOLLARS SPENT ON ESRD, BY TYPE OF SERVICE, 2009 $25 billion
» INPATIENT 38% » OUTPATIENT 35% » PHYSICIAN/SUPPLIER 21% [FIG 11.5]

TOTAL MEDICARE EXPENDITURES FOR ESRD, BY MODALITY, 2009
DOLLARS, IN BILLIONS
» HEMODIALYSIS 20.8 » PERITONEAL DIALYSIS 11 » TRANSPLANT 2.4 [FIG 11.6]

TOTAL MEDICARE EXPENDITURES PER PERSON PER YEAR, 2009
» HEMODIALYSIS $82,285 » PERITONEAL DIALYSIS $61,588 » TRANSPLANT $29,983 [FIG 11.7]

TOTAL MEDICARE SPENDING FOR INJECTABLES, 2009 $2.8 billion
» ERYTHROPOIESIS STIMULATING AGENTS 68% » IV VITAMIN D 18% » IV IRON 10% » OTHER INJECTABLES 4% [FIG 11.9]

TOTAL PER PERSON PER YEAR OUTPATIENT EXPENDITURES, 2009 $30,955
» WHITE $30,365 » AFRICAN AMERICAN $32,030 » OTHER RACE $29,633 [FIG 11.12]

PER PERSON PER YEAR OUTPATIENT EXPENDITURES FOR ERYTHROPOIESIS STIMULATING AGENTS, 2009 $6,175
» WHITE $5,892 » AFRICAN AMERICAN $6,746 » OTHER RACE $5,217 [FIG 11.14]

PER PERSON PER YEAR OUTPATIENT EXPENDITURES FOR IV VITAMIN D, 2009 $1,361
» WHITE $1,059 » AFRICAN AMERICAN $1,846 » OTHER RACE $1,085 [FIG 11.15]

TOTAL PART D ESRD COSTS, 2008 $1.55 billion
» DIALYSIS $1.26 BILLION » TRANSPLANT $285 MILLION [FIG 11.26]

PER PERSON PER YEAR PART D NET ESRD COSTS, 2008
LOW INCOME SUBSIDY
NO LOW INCOME SUBSIDY
» DIALYSIS $6,674 » TRANSPLANT $6,553 [FIG 11.29]
» DIALYSIS $2,043 » TRANSPLANT $2,077 [FIG 11.29]