Lower Case Mix Adjusters Are Associated With Lower Erythropoiesis-Stimulating Agent and Other Bundled Costs

Scott Sibbel, PhD, MPH[1]; Jaime Rubin, MA[1]; Alex Yang, MD[2]

[1]DaVita Clinical Research, Minneapolis, MN, USA; [2]Affymax, Inc., Palo Alto, CA, USA

Introduction

The CMS dialysis prospective payment system (PPS) uses patient characteristics and comorbidities to calculate payments. The final list of multipliers (case-mix adjusters; CMAs) was effective January 2011. Component CMAs are multiplied together to arrive at the composite CMA. Base composite CMAs are used to determine adjustment on the base payment ($229.62). Outlier composite CMAs are used in the calculation of outlier payment qualification and amount.

Objective

We assessed patient CMAs and their relationship to erythropoiesis-stimulating agents (ESAs) and other resource utilization covered by the newly implemented prospective payment system.

Methods

- Retrospective analysis of patients at a large dialysis organization from January 1, 2011 through June 30, 2011. Approximately 85,750 patients each contributed 1 observation per month for the 6 months of the study, totalling 514,745 observations. Each patient could only be assigned 1 CMA category per month.
- Inclusion criteria:
  - Medicare patients
  - Adults (≥18 years old)
  - Patients receiving in-center hemodialysis
- Exclusion criteria:
  - Commercially insured patients
  - Patients receiving peritoneal dialysis, home hemodialysis, and nocturnal hemodialysis
- Patient CMAs, ESA utilization, other bundled costs (IV medications and laboratory tests), and number of sessions attended were assessed for association with the PPS composite CMA.
- Component CMAs were compiled retrospectively, using the final rules for the PPS for dialysis services (published August 12, 2010).[1]
- Medicare Allowable Payments (MAP) and patient CMAs were used to determine which patients qualify for outlier payments, and outlier payments were calculated (Figure 1).

Figure 1. Formula for Outlier Payment

Outlier Payment =
(MAP – (($82.78 * Outlier CMA) + $155.44)) * 0.969 * 0.80

- Resource utilization data and CMA components were acquired at the patient level 4 months after the close of the 6-month study period.
- Cost and ESA dose data were log transformed because of their non-normal distribution therefore standard deviations and standard errors are not provided.

Results

Table 1. Case-Mix Adjuster Weights for Base Payments

Patient and Facility Characteristics	Base Adjuster weight
Facility size: <4,000 treatments each year from '06-'08	1.189
Age:	
18-44	1.171
45-59	1.013
60-69	1.000
70-79	1.011
80+	1.016
Body Surface Area	1.020
Body Mass Index < 18.5	1.025
Onset of renal dialysis: ≤4 mo	1.510
Acute:	
Pericarditis	1.114
Bacterial pneumonia	1.135
GI bleed in with hemorrhage	1.183
Chronic:	
Hereditary hemolytic or sickle cell anemias	1.072
Myelodysplastic syndrome	1.099
Monoclonal gammopathy	1.024

Figure 2. Composite CMAs Distribution: Individual Level Analysis

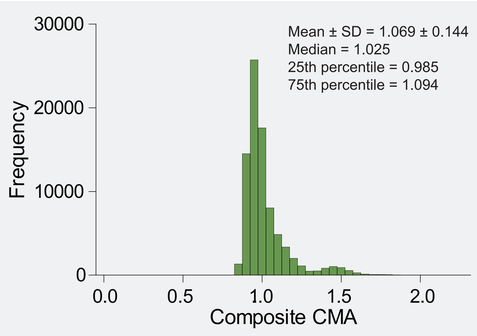
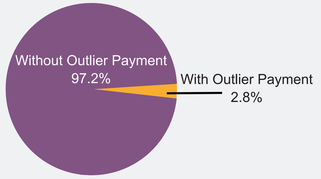


Figure 3. Frequency of Outlier Payments*



*Frequency as percent of total number of payments is shown

Figure 4. Proportional ESA Costs With and Without Outlier Payments

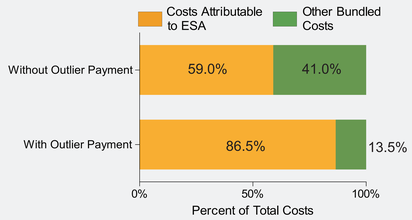
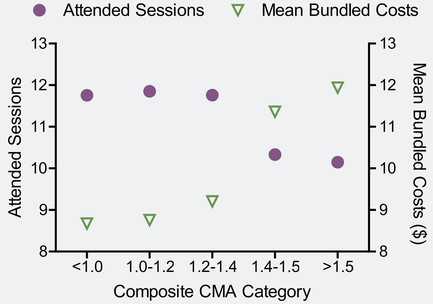


Figure 5. Mean Bundled Costs and Attended Sessions Estimated by CMA Category



- Composite CMA values clustered tightly around 1.0 (Figure 2).
- ESA dose per month was 1.24 times higher for patients in the highest CMA category (>1.5) relative to patients in the lowest CMA category (<1.0), data not shown.
  - Outlier payments were found to be rare (Figure 3), yet ESA use accounted for the highest proportion of total costs in both non-outlier payment qualifiers and outlier payment qualifiers (Figure 4).
- Patients in the lowest CMA category had mean additional bundled costs of $8.67 and patients in the highest category had a cost of $11.99 dollars.
- CMA values were inversely associated with number of attended sessions with the greatest increase above CMAs >1.4 (Figure 5; 11.75 attended sessions in the lowest CMA group vs.10.16 attended sessions in the highest).

Conclusions

- This study shows an association between CMAs and ESA utilization, additional treatment costs, and attended sessions.
- Monthly average CMA values cluster tightly around 1.0, indicating most patients do not qualify for CMS-defined CMAs. Monthly CMAs greater than 1.4 are associated with a noticeable increase in mean bundled costs and a drop in attended sessions.
- Therefore, CMS should implement processes to help dialysis providers gain access to the underlying CMA conditions and diagnoses in the patients served by their dialysis clinics.

References

1. Centers for Medicare & Medicaid Services End-Stage Renal Disease Prospective Payment System. Fed Regist. 2010;75(155):49029-49214. http://federalregister.gov/a/2010-18466. Accessed August 12, 2010.

Acknowledgments

Our sincere appreciation is extended to the teammates in more than 1600 DaVita clinics who work every day to take care of patients but also to ensure the extensive data collection on which our work is based. We thank DaVita Clinical Research® (DCR®), and specifically acknowledge Karen M. Spach, PhD of DCR for editorial contributions in preparing this poster. DCR is committed to advancing the knowledge and practice of kidney care.

This analysis was funded by Affymax Inc. and Takeda Pharmaceutical Company Limited.

*Correspondence: scott.sibbel@davita.com

Poster available at www.davitaclinicalresearch.com/directory.asp

International Society of Pharmacoeconomics and Outcomes Research 17th Annual International Meeting, June 2-6, 2012, Washington, DC