

The Effects of Medicare Home Health Outlier Payment
Policy Changes on Older Adults with Type 1 Diabetes*

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Abstract

There have been struggles to find a reimbursement system that achieves a seemingly self-contradictory goal: providing high quality care while minimizing costs. This is exemplified by Medicare home health care's introduction of the 10 percent per-agency cap on outlier payments in 2010. This policy restricts total outlier payments for each home health agency to no more than 10 percent of that agency's total prospective payments from Medicare each year. While the intention of this cap is to control excessively increasing outlier payments, it can ultimately produce undesirable incentives. In essence, the 10 percent cap could penalize agencies that accepted and treated clinically complex, and thus costly patients. To address this issue, using the Medicare Claims and Provider of Services File from 2008 to 2010, this study focuses on Medicare home health patients with type 1 diabetes and examines how these patients were affected by the 10 percent cap. This study finds that the 10 percent cap decreased the intensity of home health service visits for type 1 diabetes patients dramatically. However, the 10 percent cap did not change type 1 diabetes patient's likelihood of being dropped from home health care, hospitalized, transferred to another agency, or admitted to a nursing home. These findings seem to suggest that the 10 percent cap encouraged agencies to provide more efficient care because the reduction in the amount of care did not translate to a worse health outcome among type 1 diabetes patients. However, due to the limited availability of the data, I was able to examine only the first year after the implementation of the 10 percent cap. Thus, these findings are not conclusive given that it might take a relatively long time for a patient's health status to be affected by a change in the amount of care.

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1 Introduction

Medicare home health care has been struggling to find a reimbursement system that achieves a seemingly self-contradictory goal: providing high quality care while minimizing costs. This struggle is exemplified by the 2010 introduction of the 10 percent per-agency cap on outlier payments, which restricts total outlier payments for each home health agency to no more than 10 percent of that agency's total prospective payments from Medicare each year. While the intention of this cap is to control excessively increasing outlier payments, it can ultimately produce undesirable incentives. In essence, the 10 percent cap can penalize agencies that accept and treat clinically complex, and thus costly patients. These agencies can be compelled to either drastically reduce the amount of care for costly patients or to drop them altogether. Some of the dropped patients can then move to other more expensive health care, ultimately increasing total Medicare spending (CMS, 2009). To address this issue, this study focuses on Medicare home health patients with type 1 diabetes, and examines how patients were affected by the addition of the 10 percent cap to the Medicare home health prospective payment system.

Using Medicare Home Health Claim and Provider of Service File of 2008-2010, this study finds that the 10 percent cap was not enforced properly and many agencies had outlier payments that exceeded the 10 percent cap in 2010. Nevertheless, the 10 percent cap decreased the intensity of service visits for type 1 diabetes patients dramatically. More specifically, agencies with the proportion of outlier payments greater than 10 percent provided 82.65 more service visits per episode than did their counterpart agencies whose proportion of outlier payments was less than 7 percent in 2008. This discrepancy stayed the same until 2009, but decreased to 51.22 visits in 2010. However, the 10 percent cap did not influence type 1 diabetes patients' discharge status at the end of an episode of care. That is, the policy did not change their likelihood of being dropped from home health care, hospitalized, transferred to another agency, or of entering a nursing home.

These findings seem to suggest that the 10 percent cap encouraged agencies to provide

more efficient care because the reduction in the amount of care did not translate to a worse health outcome among type 1 diabetes patients. However, due to the limited availability of the data, I was only able to examine only one year after the implementation of the 10 percent cap. Thus, these findings are not conclusive given that it might take a relatively long time for a patient's health status to be affected by a change in the amount of care.

2 Introduction of 10 Percent Cap on Outlier Payments

In an effort to reduce costs, the Medicare home health prospective payment system provides fixed reimbursement per patient based on each patient's health status. Each patient is sorted into one of many payment groups, and agencies receive the predetermined reimbursement amount that corresponds with that group, regardless of the incurred expenditure on patients. Unfortunately, this policy discourages home health agencies from treating high-cost patients whose treatment cost would most likely exceed the reimbursement amount. Thus, certain patient populations have struggled to receive the quantity and quality of care they needed. To address this problem, Medicare introduced a few retrospective features to its prospective payment system. For example, agencies receive additional payments when a patient incurs unusually high costs due to his/her health care needs. These payments are called "outlier payments" (HCFA, 2000).

However, outlier payments do not fully cover patients' incurred expenditures. First, Medicare makes outlier payments only when estimated cost for an episode of care (episode refers to a two-month payment period in Medicare home health care) exceeds a threshold amount. The threshold amount is not the fixed reimbursement amount, but the sum of the fixed reimbursement amount and a "fixed dollar loss" amount. Thus, an agency must bear a certain amount of loss before an episode becomes eligible for outlier payments. In addition, the outlier payment is a proportion (80%) of estimated costs beyond the threshold amount.

Nevertheless, agencies may find outlier payments attractive because the marginal benefit of one visit increases from zero to positive once their patients qualify for outlier payments.

Therefore, outlier payments might encourage agencies to provide extra services for patients whose treatment costs are high to make them eligible for outlier payments (HCFA, 2000; MedPAC, 2011). Agencies might also want to increase the number of service visits as much as possible for each patient eligible for outlier payments.

In fact, many home health agencies manipulated outlier payments, and as a result there has been a dramatic rise in outlier payments in a few counties. For example, in 2008, 52 percent of all outlier payments nationwide were made to agencies in one county, Miami-Dade in Florida, where only 2 percent of all home health patients resided. In the same year, 23 other counties exhibited similar outlier payment patterns similar to that of Miami-Dade County (OIG, 2009; MedPAC, 2010). Government policy has taken a few actions to deal with these fraud issues, such as curtailing fraudulent payments for agencies whose claims for outlier payments seemed implausibly high. The government has also increased the fixed dollar loss amount. However, adjusting the fixed dollar loss amount failed to curb rising outlier payments and was perceived as inappropriate because all agencies, not just those suspected of fraud were penalized (CMS, 2009; MedPAC, 2010).

As a result, in 2010, the government implemented an agency-level outlier cap, such that in any given year, an individual agency would receive no more than 10 percent of its total home health reimbursement in outlier payments (Federal Register, 2009). The government expected that the 10 percent cap would lessen agencies' incentive to provide unnecessary services. The reduction in aggregate outlier payments created by the 10 percent cap would be transferred to aggregate prospective payments, causing the standard prospective payment rate to increase, and thus benefitting agencies serving home health patients with moderate health needs (CMS, 2009). Thus, the intention behind a series of recent outlier policy changes was to shift resources from fraudulent agencies to non-fraudulent agencies. However, an OIG report (2012) suggests that the 10 percent cap on the total outlier payments has not been enforced properly and 434 home health agencies (3.87 percent) had outlier payments that exceeded the 10 percent cap in 2010.

3 Expected Effects of 10 Percent Cap on Patients with Type 1 Diabetes

The 10 percent per agency outlier cap might lead to unintended consequences. It was thought that the 10 percent cap would penalize agencies that legitimately served costly patients such as those with type 1 diabetes and likely compel agencies to reduce the number of service visits for costly patients or even drop them. Denied patients would then have three options: find other agencies that had not yet met the 10 percent cap, enter nursing homes, or seek hospital care. It was also believed that the policy would prevent such patients from being discharged from nursing homes to home health agencies (CMS, 2009).

The disrupted home health care could lead to a worse health outcome among costly patients, in particular those with type 1 diabetes. Many patients with type 1 diabetes cannot safely administer their insulin because they have visual, cognitive, or dexterity impairments. If such patients do not have access to informal caregivers, then they must rely on home health agency visits that provide daily diabetic management. This makes them extremely costly outlier patients. Without home health care insulin management, however, these patients cannot live independently (CMS, 2009). Thus, the 10 percent cap might undermine the quality of care for these sicker and highly vulnerable home health patients (CMS, 2009). In particular, the influence of the 10 percent cap on a home health patient with type 1 diabetes would be greater if the patient was served by an agency that had outlier payments higher than or close to 10 percent of total home health prospective payments in 2010.

The finalized rule of the 10 percent cap was announced in November, 2009, and Medicare started to implement the 10 percent cap on January 1, 2010. If agencies were at risk of having the proportion of outlier payments over or near the 10 percent level in 2009, they would have started to adjust service provision practices for type 1 diabetes patients. However, given that the final announcement about the 10 percent cap was made in November 2009, agencies had too short a period of time to adjust service provision for outlier payments with type 1 diabetes

patients. Thus, it is less likely that the influence of the 10 percent cap on the care for type 1 diabetes patients would have become significant in 2009.

I have located only one study by Litchman (2010) that investigated the effects of the 10 percent cap. Using descriptive statistics from her clinic's patients (N=97), she concludes that the cap compelled her clinic to reduce the amount of care for 61% of patients and discharge 7% of patients to nursing homes. This study revisits her conclusions with 5 percent of all Medicare home health patients, and examines the following hypotheses. First, the 10 percent cap reduced the intensity of services for patients with type 1 diabetes if they were treated by an agency that had outlier payments higher than or close to 10 percent of total prospective payments. Second, the 10 percent cap encouraged those agencies to drop patients with type 1 diabetes.

4 Data

4.1 Datasets

I use data from: 1) the CMS 5% Limited Data Set-Denominator File from 2008 to 2010, 2) the CMS 5% Limited Data Set-Home Health Agency File from 2008 to 2010, and 3) the CMS Provider of Service File-Home Health Agency from 2008 to 2010 (King et al., 2010). I use data from 2008 through 2010 because Medicare partially revised its home health reimbursement system in 2008. The first dataset, which was extracted from Medicare claims, is a panel of 5 % of Medicare beneficiaries and contains their basic demographic information such as age, race, gender, and date of death, as well as Medicare HMO enrollment status. The second dataset, which was also taken from Medicare claims, is also a panel of 5% of Medicare home health patients and contains administrative information about each patient's Medicare home health care service use (CMS, 2012b). The last dataset was extracted from the Online Survey and Certification Reporting System/ Quality Improvement Evaluation System collected by the CMS Regional Offices (Choi and Davitt, 2009; CMS, 2012a). It

is a panel of all Medicare/Medicaid-certified home health agencies across the nation and includes their basic agency information like location, ownership type, and date of initial Medicare certification. I combine the first two datasets using each beneficiary's ID number, and create a complete Medicare claim dataset. The home health agency provider number enables me to merge the combined Medicare claim dataset and CMS Provider of Service File, resulting in a patient-agency linked, unbalanced panel data set. Each observation in this dataset corresponds to a patient's unique episode of care.

I drop Medicare beneficiaries who were enrolled in Medicare HMOs because Medicare HMOs were not directly influenced by Medicare reimbursement system changes. I further exclude those beneficiaries with zero Medicare payments, zero Medicare home health service visits, or positive non-Medicare payment amount as well as beneficiaries who resided in Puerto Rico, the U.S. Island Areas, or unidentified county areas. Medicare home health patients whose agency information was not found in the CMS Provider of Service File-Home Health Agency were also dropped. Additionally, I exclude one of the records in cases in which two episodes had the same service start and end date and referred to the same episode, but had separate records due to significant changes in the patient's health condition or the existence of an unclean claim. I drop as well episodes of care for beneficiaries who died earlier, but received home health visits after their date of death. Finally, I drop observations with missing values for the variables used in my analysis.

4.2 Key Independent Variables

The key independent variables are two dummy variables indicating 1) whether an agency's outlier payments were between 7 percent and 10 percent of total Medicare payments and 2) whether an agency's outlier payments exceeded 10 percent of total Medicare prospective payments were used. I consider these two variables because a patient with type 1 diabetes would have experienced a more drastic change in home health use in 2010 if the patient was served by an agency that had outlier payments higher than or close to 10 percent of total

home health prospective payments.

To construct these two dummy variables, I first compute the proportion of outlier payments as

$$T = \frac{\sum \text{outlier payments for each agency each year}}{\sum \text{all payments for each agency each year}}$$

and then create two dummy variables: $T_{jt}^{0.7} = 1\{0.07 \leq T < 0.1\}$ and $T_{jt}^{1.0} = 1\{0.1 \leq T\}$.

My dataset collects only 5 percent of Medicare home health episodes, which may not be representative at an agency level. In other words, the proportion of outlier payments for each agency in the 5 percent datasets is likely to be higher than the actual proportion. In fact, 1,308 agencies (13.55%) had outlier payments over the 10 percent cap in 2010 in my dataset, which is much higher than the corresponding number, 434 agencies, in the OIG report (2012) that used the 100 percent of Medicare home health episodes.

To address this problem, I drop smaller agencies (i.e., agencies with the number of annual observations smaller than 25) for the accuracy of the data. (Ruth does not agree with this) (I think I need to make a stronger argument why I choose 25 as a cutoff.) After excluding episodes served by smaller agencies, 430 (11.30 percent) agencies exceeded the 10 percent cap and 131 (3.44 percent) agencies had 7 percent to 10 percent proportion of outlier payments in 2010. [have to add more to this paragraph]

As discussed above, this study finds that the 10 percent cap on total outlier payments was not enforced properly in 2010. However, the policy forced agencies with the proportion of outlier payments exceeding 10 percent to decrease outlier payments significantly. Among those agencies, the average proportion of outlier payments decreased from 41 percent in 2008 to 26 percent in 2010 (see Table 1). By contrast, there were barely no changes in the average proportion of outlier payments among other agencies in 2010.

4.3 Type 1 Diabetes Patients

ICD-9-CM includes no codes for type 1 diabetes. Given that most patients with type 1 diabetes have diabetes and take insulin everyday, I identify type 1 diabetes patients as those assigned with two ICD-9-CM codes: 250—Diabetes Mellitus and V58.67—Long-term (current) use of insulin.

Medicare home health patients with type 1 diabetes were different from the rest of patients in demographic characteristics and home health service use pattern in 2008 (See Table 2). In particular, I choose the 2008 data to compare patients with/without type 1 diabetes because the 10 percent cap on outlier payments might change the profile of patients with type 1 diabetes and their home health service utilization patterns.

Apparently, patients with type 1 diabetes had different demographic characteristics and home health service use patterns from other patients. For example, roughly 32 percent of episodes of type 1 diabetes patients were eligible for outlier payments whereas the corresponding number for non type 1 diabetes patients was only 2.30 percent. In addition, type 1 diabetes patients received on average 49.45 home health visits (mostly skilled nursing visits) per episode, which was much higher than 17.84 visits among non type 1 diabetes patients (See Table 2).

5 Empirical Framework

If a patient with type 1 diabetes was served by an agency that had outlier payments higher than or close to 10 percent of total home health prospective payments, then the patient would have experienced a more drastic decrease in their home health service use in 2010. The patient who received less intensive treatment might experience more hospitalization. The 10 percent cap might also compel agencies to drop patients with type 1 diabetes, and as a result, the dropped patients might enter nursing homes or be transferred to other agencies. To address this hypothesis, I limit my sample to patients with type 1 diabetes and then

estimate the following equation.

$$\begin{aligned}
Y_{ijkt} = & \beta_0 + \beta_1 T_{jt}^{0.07} + \beta_2 T_{jt}^{0.10} + \sum_{t=2009}^{t=2010} \gamma_{1t} year_t \\
& + \sum_{t=2009}^{t=2010} \theta_{1t} T_{jt}^{0.07} \times year_t + \sum_{t=2009}^{t=2010} \theta_{2t} T_{jt}^{0.10} \times year_t \\
& + \delta_1 Agency_{jt} + \delta_2 Patient_{ijkt} + \varepsilon_{ijkt}
\end{aligned} \tag{1}$$

where i , j , k , and t refer to a patient, agency, episode, and year. Y_{ijkt} refers to the outcome of interest including 1) the likelihood of being eligible for outlier payments, 2) the number of service visits per episode, and 3) the discharge status at the end of each episode (i.e., recertification, hospitalization, nursing home entry, and transfer to another agency). $T_{jt}^{0.07}$ is a dummy variable indicating whether an agency j 's total outlier payments were between 7 percent and 10 percent of total prospective payments in year t . $T_{jt}^{0.10}$ is a dummy variable indicating whether an agency j 's total outlier payments exceeded 10 percent of total prospective payments in year t . $Agency_{jt}$ represents each agency's basic characteristics including ownership type (for-profit-reference group, non-profit, and government ownership), the annual number of patients served by each agency, and facility-based status. $Patient_{ijkt}$ denotes each patient's basic characteristics including age, gender, race/ethnicity, participation in the Medicare buy-in program, clinical severity, and functional severity. The parameter of interest, $\theta_{2,2010}$ measures how the outcome differs in 2010, compared to 2008, depending on whether an agency's total outlier payments exceeded 10 percent cap.

In particular, I estimate separate linear probability models for each dependent variable. In fact, all results are essentially the same if I estimate probit models instead. However, I prefer the individual OLS results due to the more straightforward inference with the interaction term estimates. Standard errors are clustered on individual patients.

There can be a potentially endogenous relationship between the outcome variables and the dummy variables relevant to the proportion of outlier payments. This is because unobserved

agency heterogeneity can become confounded with the outcome variable and each agency's proportion of outlier payments. For example, an agency might serve many patients with type 1 diabetes, and thus have a relatively high proportion of outlier payments. This indicates that patients who are treated by the agency are more likely to have type 1 diabetes and thus be eligible for outlier payments.

6 Empirical Results

The 10 percent cap reduced the intensity of service visits for type 1 diabetes patients drastically (See Table 3). The discrepancy of a patient's likelihood of being eligible for outlier payments between agencies with the proportion of outlier payments higher than 10 percent and lower than 7 percent increased by 14 percentage points from 2008 to 2010. The discrepancy in the number of home health service visits provided per episode between those two groups of agencies also increased by 31.43 visits from 2008 to 2010.

Despite the dramatic drop in the intensity of service provided for type 1 diabetes patients, the 10 percent cap did not affect their likelihood of being dropped from home health care, transferred to another agency, hospitalized, or entering a nursing home (See Table 4).

7 Discussion

This study has several limitations. First, because my datasets include 5 percent of Medicare home health patients, the proportion of outlier payments for each agency might be inaccurate. To address this concern, I dropped smaller agencies with fewer than 25 observations each year, but the accuracy of the data is not guaranteed. Second, the unobserved agency heterogeneity can affect both outcome variables and the proportion of outlier payments in regressions, which might bias my estimates. Third, this study examines the influence of the 10 percent cap on outlier payments on a patient's health until 2010, but it might take longer time for the policy to affect the actual health status of patients.

Table 1: Change in the Proportion of Outlier Payments (T) over 2008-2010

| | Average Proportion of Outlier Payments (T) | | |
|------|--|---------------------------------|---------------------------|
| | Agencies with $T < .07$ | Agencies with $.07 \leq T < .1$ | Agencies with $T \geq .1$ |
| 2008 | .0062 | .085 | .41 |
| 2009 | .0060 | .083 | .42 |
| 2010 | .0074 | .083 | .26 |

Table 2: Demographic Characteristics and Home Health Service Use Patterns of Patients with/without Type 1 Diabetes in 2008

| Characteristics | Patients with Type 1 Diabetes | Patients without Type 1 Diabetes |
|----------------------------|----------------------------------|-------------------------------------|
| Demographic Factors | | |
| Age | 71.59(.26) | 76.44(.033)*** |
| Female(%) | 59.73(1.05) | 63.64(.14)*** |
| Race | | |
| White(%) | 66.51(1.01) | 83.09(.11)*** |
| Black(%) | 21.22(.88) | 11.76(.092)*** |
| Others(%) | 12.27(.70) | 5.15(.063)*** |
| Participation in | | |
| Medicare Buy-in Program(%) | 44.74(1.07) | 25.17(.12)*** |
| Observations(# Patients) | 2,169 | 122,602 |
| | Episodes with Type 1 Diabetes | Episodes without Type 1 Diabetes |
| Service Use per Episode | | |
| Pr(Outlier) | .32(.0060) | 2.30(.031)*** |
| Number of Visits | 49.45(.74) | 17.84(.039)*** |
| Skilled Nursing | 39.85(.64) | 9.22(.028)*** |
| Therapy | 2.98(.078) | 5.29(.015)*** |
| Home Health Aide | 6.49(.21) | 3.20(.018)*** |
| Type of Service Visits | | |
| Any Skilled Nursing(%) | 98.27(.17) | 91.14(.058)*** |
| Any Therapy(%) | 29.59(.59) | 51.98(.10)*** |
| Any Home Health Aide(%) | 26.22(.088) | 23.25(.088)*** |
| Observations(# Episodes) | 5,969 | 232,979 |

Notes: Percentages are shown for categorical variables; means are shown for continuous variables with standard errors in parentheses.

* $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$ for t-test.

Table 3: The Influence of 10 Percent Cap on the Intensity of Service Visits

| Covariate | Pr(Outlier) (1) | Number of Service Visits (2) |
|-----------------------------------|--------------------|---------------------------------|
| Year | | |
| (2008) | | |
| 2009 | -.0022(.0048) | -.53(.46) |
| 2010 | -.011(.0046)* | -1.43(.45)** |
| Proportion of Outlier Payments | | |
| $T^{0.07}$ | .38(.063)*** | 27.10(4.26)*** |
| $T^{0.1}$ | .75(.015)*** | 82.65(2.31)*** |
| Interaction | | |
| 2009 $\times T^{0.07}$ | -.14(.068)* | -9.15(4.83) |
| 2010 $\times T^{0.07}$ | -.11(.078) | -11.95(5.52)* |
| 2009 $\times T^{0.1}$ | .14(.016) | -.20(2.61) |
| 2010 $\times T^{0.1}$ | -.14(.023)*** | -31.43(2.94)*** |
| R-squared | 0.62 | 0.53 |
| Observations | 19,757 | 19,757 |

Notes: Other control variables include 1) agency's characteristics including ownership type (for-profit-reference group, non-profit, and government ownership), the annual number of patients served by each agency, and facility-based status and 2) each patient's characteristics including age, gender, race/ethnicity, participation in the Medicare buy-in program, clinical severity, and functional severity. Equations are estimated using an ordinary least squares regression. Standard errors are clustered on individual patients.

* $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$

Table 4: The Influence of 10 Percent Cap on the Discharge Status at the End of Each Episode

| Covariate | Pr(Continue) (1) | Pr(Transfer) (2) | Pr(Hospital) (3) | Pr(Nursing Home) (4) |
|-----------------------------------|---------------------|---------------------|---------------------|-------------------------|
| Year | | | | |
| (2008) | | | | |
| 2009 | -.0054(.012) | -0.00(.0039) | -.0093(.0038)* | .0013(.0016) |
| 2010 | -.020(.013) | .0029(.0038) | -.0071(.0038) | .00088(.0015) |
| Proportion of Outlier Payments | | | | |
| $T^{0.07}$ | .12(.046)** | .014(.019) | -.018(.012) | .011(.015) |
| $T^{0.1}$ | .21(.015)*** | .016(.0055)** | -.010(.0046)* | -.0030(.0014)* |
| Interaction | | | | |
| $2009 \times T^{0.07}$ | .057(.052) | -.030(.029) | .014(.015) | -.016(.014) |
| $2010 \times T^{0.07}$ | -.00031(.059) | -.12(.022) | .010(.014) | -.013(.015) |
| $2009 \times T^{0.1}$ | .0089(.017) | -.0092(.0068) | .0055(.0058) | -.00016(.0021) |
| $2010 \times T^{0.1}$ | -.019(.019) | -.0076(.0074) | .0016(.0060) | .0035(.0025) |
| R-squared | .12 | .18 | .0032 | .0022 |
| Observations | 19,757 | 19,757 | 19,757 | 19,757 |

Notes: Other control variables include 1) agency's characteristics including ownership type (for-profit-reference group, non-profit, and government ownership), the annual number of patients served by each agency, and facility-based status and 2) each patient's characteristics including age, gender, race/ethnicity, participation in the Medicare buy-in program, clinical severity, and functional severity. Equations are estimated using an ordinary least squares regression. Standard errors are clustered on individual patients.

* $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$

References

- Choi, S. and Davitt, J. (2009). Changes in the medicare home health care market: the impact of reimbursement policy. *Medical Care*, 47(3):302–309.
- CMS (2009). Medicare program; home health prospective payment system rate update for calendar year 2010; final rule. federal register. Federal Register Vol. 74, No. 216.
- CMS (2012a). Provider of services file. <https://www.cms.gov>.
- CMS (2012b). Standard analytical files-LDS. <https://www.cms.gov>.
- HCFA (2000). Medicare program; prospective payment system for home health agencies; final rule. Federal Register Vol. 65, No. 128.
- King, M., Ruggles, S., Alexander, T., Flood, S., Genadek, K., Schroeder, M., Trampe, B., and Vick, R. (2010). Integrated public use microdata series, current population survey: Version 3.0. [Machine-readable database]. Technical report, University of Minnesota, Minneapolis.
- MedPAC (2010). Report to the congress: Medicare payment policy. Technical report, Washington, D.C.
- MedPAC (2011). Report to the congress: Medicare payment policy. Technical report, Washington, D.C.
- OIG (2009). Aberrant medicare home health outlier payment patterns in miami-dade county and other geographic areas in 2008. Technical Report OEI-04-08-00570.
- OIG (2012). Inappropriate and questionable billing by medicare home health agencies. Technical Report OEI-04-11-00240.