

Analysis of Home Health Prospective Payment System Notice of Proposed Rulemaking for Calendar Year 2011

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Submitted to:
Home Health Advocacy Coalition

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Executive Summary

The Notice of Proposed Rulemaking (NPRM) for the Home Health Prospective Payment System was released for public comment on July 23, 2010. Contained in this NPRM are several proposed changes that affect the future reimbursement for home health agencies and ultimately the provision of home health care to Medicare beneficiaries. Dobson DaVanzo & Associates, LLC (Dobson | DaVanzo) was commissioned by the Home Health Advocacy Coalition to review select proposed changes and assess the appropriateness of these proposed changes.

Specifically, as reported on below, our purpose was threefold:

1. To review the calendar year (CY) 2011 and CY2012 reductions in the standardized 60-day episode payment due to nominal case-mix change by reviewing Abt Associates' (Abt) methodology and results,¹ as well as to review important concepts and variables that Abt did not capture in its analysis.
2. To investigate the change in home health reimbursement in CY2011 due to the elimination of the hypertension coding requirement.
3. To investigate the patient access and episode cost implications of face-to-face requirements for a physician encounter before, or immediately after, the start of care and the therapy reassessment for high therapy use episodes.

1. Nominal Case-Mix Change

Home Health Resource Group (HHRG) total case-mix is measured by calculating the average HHRG resource use weight across episodes for a given calendar year. In each year's NPRM, The Centers for Medicare & Medicaid Services (CMS) separates the change of total HHRG case-mix increases into two components:

- Real case-mix: related to the underlying health status of home health users (clinical and functional characteristics and number of therapy visits)
- Nominal case-mix: related to improved coding and documentation

CMS had commissioned Abt to devise a method to divide total case-mix change into its real and nominal components. Because Abt could not determine proxies or make other inferences for real-case-mix growth, or perform medical record reviews to determine change in patient severity for determining real case-mix change, they were highly constrained in what they could accomplish. In particular, the clinical data used to measure home health prospective payment system (PPS) case-mix (OASIS assessment data) cannot be used to determine "expected" changes in real case-mix as assessment could reflect improved coding and documentation.

¹ White, A., Plotzke, M., Goldberg, H., Robinson, C. (2010). Analysis of 2000 – 2008 Home Health Case-mix Change. Prepared for CMS, *Abt Associates*.

Changes in real case-mix were estimated between 1999 and 2007 and between 2007 and 2008. Abt used changes in case-mix prediction variables and related coefficients from its regression equations to forecast changes in real case-mix. These changes are compared to the total change in case-mix. One minus the real percent change is equal to the nominal percent change; which CMS will not pay for. Reducing the payment rate increase by the nominal percent change adjusts for this. In this case, 2006, 2007 and 2008 changes are taken out of the base payment rates for 2011 and 2012.

Abt estimates that 11.72% of the total change in HHRG case-mix from 1999 to 2007 is real (0.00193 ÷ 0.1647). Or conversely, about 88.3% of the total change in case-mix is nominal (1.0000 – 0.1172). This finding underlies a large portion of the CMS proposed case-mix “take back” policy. From 2007 to 2008, the estimated real case-mix change decreased to 4.7%, or nominal change was estimated at 95.3%. Given that CMS has already “paid” providers for this nominal increase in 2008, CMS proposes that there should be a “take back” in the form of a payment rate reduction for 2011 and 2012.

Exhibit ES-1: Abt Case-Mix Findings 1999 to 2007 and 2007-2008

Metric	1999 - 2007	2007 - 2008
Total case-mix change	0.1647	0.0533
Total percent change	15.03%	4.07%
Predicted real change	0.0193	0.0025
Percent real case-mix change	11.72%	4.70%
Percent nominal case-mix change	88.28%	95.30%

CMS indicates that it could reduce 2011 home health payments by 7.43% in one year. Instead, CMS “takes back” 3.79% of payment for 2011 and 3.79% of payment for 2012, based on the Abt regression results. CMS notes that:

“We believe it is unlikely that the actual disease burden of home health patients, as indicated by reported comorbidities, change so dramatically in a single year; instead we believe the incentives to report more comorbidities under the refined case-mix system are the reason for the large increase in reported comorbidities.”²

These estimates of real case-mix are likely underrepresented and do not appropriately reflect changes in home health patients due to the following reasons:

- a. **Abt models are unreliable** because 40% of the top variables are different one model to the next (1999 to 2000 and 2007 to 2008) and 20% of the variables change signs. Furthermore,

² Notice of Proposed Rulemaking. July 23, 2010. CMS-1510-P, 25.

the explanatory power (R^2) decreases 46% among models, reflecting either a shift in the relationship between explanatory variables or a general instability of the model.

- b. Numerous Abt model explanatory factors are neither statistically significant nor relevant**, with 94% of the model variables being related to prior inpatient hospital use APR-DRGs. These 848 APR-DRG-related variables only account for 0.6% ($0.000329 \div 0.0533$; see Exhibit 3 below) of total case-mix change. Furthermore, APR-DRGs are not related to home health patient acuity and were developed for acute care inpatients, not post-acute care patients. Post-acute care patient needs vary because of their clinical characteristics, functional status, and therapy utilization. None of these are measured by APR-DRG, hence, the low model R^2 values of the Abt regressions, especially in the 2008 model. In addition, only 39% of home health patients come directly from a stay in an inpatient or post-acute care facility.³ Therefore 94% of the Abt regression variables do not pertain to 61% of the home health patients for which they are trying to determine real case-mix.
- c. Acute care hospital APR-DRGs and other prior use variables are less and less relevant for patients with more than one home health episode** since the prior-use APR-DRGs are likely no longer related to the condition for which the patient is receiving home health care.
- d. The Abt models cannot explain therapy use since therapy visits are, by definition, a direct measure of HHRG case-mix.** CMS has indicated that they cannot predict the correct amount of therapy use for patients; therefore, the Abt model has no underlying causal construct to explain real case-mix changes related to therapy visits.
- e. The Abt models forecast less real case-mix change as acute care hospital days and Medicare expenditures prior to home health admissions decrease.** This is inconsistent with policy initiatives to decrease patient use of facility-based post-acute care and increase reliance on home- and community-based care. There is substantial evidence that home health provides patients with skilled care at a lower cost to Medicare compared to the facility-based settings.
- f. The home health industry is broadening patient care capabilities through increased use of diagnostic-specific care models**, which allows for wider recruitment of home health patients and increases the breadth of care home health agencies can provide in the home.
- g. The Abt models are entirely based on administrative data** and, therefore, cannot account for home health measurement activities that are directed at: 1) patient selection, such as agency-specific recruitment protocols; 2) explicit efforts to substitute home health care for more expensive settings; and 3) policy changes that provide reimbursement for high therapy episodes.

³ Medicare Payment Advisory Commission. (2010). *Report to the Congress: Medicare Payment Policy: Home health service: Assessing payment adequacy and updating payments.*

Data from the Medical Expenditure Panel Survey (MSPS), as analyzed by Professor Deb of Hunter College, City University of New York, indicates that Medicare beneficiaries are becoming sicker over time.⁴ To confirm this finding for Medicare home health users, OCS, a Seattle, Washington-based data warehouse, has conducted data analysis on a national sample of home health agencies to determine if variables exist that would indicate that real case-mix change is higher than Abt findings suggest. OASIS measures were determined from the Start of Care (SOC) OASIS assessments from OCS data warehouse.

Our analyses conclude that there are several variables omitted from the Abt analysis that indicate that home health patients are more acute than they were in 2007, increasing the proportion of real case-mix. Our analyses suggest that home health patients' activities of daily living (ADL) function has decreased at the start of care since 2006. Home health patients have also demonstrated a large increase in acuity regarding clinical conditions and medication management.

CMS should carefully consider the Abt approach to determining changes in real case-mix. The post-acute care industry has changed dramatically since the Abt regressions were first designed. Abt needs to revise its regressions to include assessment data that are not used in the HHRG grouper but still relate to HHRG case-mix measurement. The current use of administrative claims data by Abt and CMS is inadequate, and perhaps even counterproductive. This practice sends the wrong signals as to how home health and facility-based care should be related as the Medicare program moves toward an era of "bundled payments" and other initiatives to coordinate care across settings.

2. Hypertension and its Effect on Case-Mix

The NPRM indicates that about 62% of the total change in case-mix is due to an average change in case-mix at each level of therapy visits per episode.⁵ CMS indicates that much of this increase is due to the coding requirement it initiated in 2008 to report hypertension, which affected 2008 payments.

Eliminating the two hypertension codes (401.9 – unspecified essential hypertension and 401.1 – benign essential hypertension) from the case-mix calculation decreases home health PPS payments by 1.78 percent, according to an OCS analysis. Hence, the reduction in 2011 payments is not 4.75% as indicated in the NPRM, but rather 6.53% (4.75% + 1.78%) because CMS does not factor in the payment results of eliminating the hypertension codes. In order to correct the payment reduction to the 2011 projected payment reduction to the estimated 4.75%, CMS will need to increase the HHRG grouper case weights by 1.78%. Otherwise CMS is taking back the hypertension effect twice: once in the pair of 3.79% payment reductions, which includes hypertension coding, and yet again in a revised grouper for 2011.

⁴ Deb, P. (2010). Trends in Case-mix in the Medicare Population. Hunter College and Graduate Center City University of New York.

⁵ Notice of Proposed Rulemaking. July 23, 2010. CMS-1510-P, 23.

3. Face-to-Face Requirements

The NPRM includes two requirements for face-to-face encounters within a home health episode.

- A physician encounter within 30 days prior to, or 14 days following, the start of the initial home health episode. The encounter must be related to the condition for which the patient is receiving home health services. The proposed rule also requires that the physician (or nurse practitioner or certified nurse specialist) document the encounter, maintain a record of the reasons why the patient meets the homebound requirement, and why the patient needs the prescribed care, as well as provide written certification that the qualifying encounter took place.
- A therapy recertification for patients at least on the 13th and 19th therapy visits prior to any further therapy visits, and every 30 days. No additional therapy visits would be covered until the reassessment has occurred. The proposed rule also would require that the therapist document the assessments and therapy care using objective measurement of function and progress, a clinically supportable statement why there is an expectation that anticipated improvement is attainable in a reasonable and generally predictable period of time, plans for continuing or discontinuing therapy, and changes to therapy goals.

To assess the potential impact of these regulations on physicians and other clinicians, home health agencies and patients, Dobson | DaVanzo developed a survey instrument for home health providers and industry stakeholders. The survey was distributed to National Association for Home Care and Hospice (NAHC) membership, Alliance for Home Health Quality and Innovation membership, and several related listserves using the web-based program, SurveyMonkey. The goal of the survey was to collect information on the current Medicare home health care benefit and the future implementation of proposed Medicare home health benefits. 475 responses were received representing about 1,500 home health agencies.

PROCESS FOR ADMITTING HOME HEALTH PATIENTS: There was great consistency among respondents regarding the process for admitting and providing care to home health patients, the current role of physicians, and the anticipated effect of regulations on physicians, providers, and patients. Despite the Medicare Payment Advisory Commission's (MedPAC) belief that there is great variability in the way home health agencies recruit and provide care, our national survey results indicate that the process for determining patient eligibility and admitting patients to home health is highly consistent across our respondents and responsive to Medicare requirements.

To determine patient need, home health agencies conduct comprehensive evaluations to see if patients meet the homebound requirements with end-point of care in sight. They also evaluate the patient's cognitive and functional ability to manage his/her needs in the home and access to appropriate support systems. Overall, the decision to admit a patient to home health is made collectively by the physician, discharge planner, nurse, social worker, and therapist.

At the time of home health admission, a treatment plan is developed based on a comprehensive assessment of patient status and identification of physical, mental and psychosocial problems, in coordination with the patient, family members, caregivers, and clinicians/therapist assigned to the patient.

These treatment plans are often based on disease-specific protocols and are reviewed by clinical managers before being sent to the physician for review. Physicians then approve the final treatment plan and provide oversight; often receiving written reports from the clinician or therapist. They also reevaluate the treatment plan due to any unexpected change in clinical condition and determine recertification and discharge decisions.

The change in therapy visit thresholds in 2008 and other policy initiatives had little impact on the process and criteria for admitting home health patients, but led to the admission of patients who were in need of a greater number of therapy visits per episode than those admitted in 2007. This is due to patients being discharged from the acute care hospital sooner and the continued focus on home- and community-based care as opposed to facility-based care.

EFFECT OF FACE-TO-FACE ENCOUNTER ON PROVIDERS AND PATIENTS: The physician face-to-face requirement is expected to greatly impact the patient referral, care planning, and management/delivery of home health care. This impact is driven by the time requirement of the encounter (i.e., 30 days prior to, or 14 days following the start of care), the need for additional encounters when a patient's primary condition changes, and the need to document clinical findings to support a patient's homebound status.

Overall, when asked to identify the effect this requirement will have on providing home health, 85% of respondents indicated that providers will become hesitant to refer patients to home health, while 63% of respondents indicated that providers will refer patients to other care settings instead of home health. Hesitation and likely change in referral pattern is attributed to the burden of scheduling and physician travel to the patient to provide the face-to-face encounter in the event that the physician (or other specified practitioner) does not use telehealth. As well as provider hesitation, 52% of respondents expect the patient to be hesitant to use home health services for the fear that they will not get timely care without having to travel to a physician's office. About 47% of respondents expect patients to refuse home health, and opt for facility-based (and more expensive) care because of this requirement. If so, this provision would likely increase overall Medicare expenditures.

Despite the potential inconvenience for the physician and patient to comply with to these requirements, about one quarter of respondents expect this requirement to increase physician involvement in home health care planning and delivery. However, the vast majority of respondents (over 90%) indicated that physicians are not aware of these new requirements, with most of the remaining respondents indicating that they did not know if physicians are aware. Furthermore, several respondents indicated that it is often the home health agency's responsibility to keep the physicians informed about regulation changes. These results suggest a difficult transition to the new physician encounter requirements.

Only about 5% of respondents expect that this requirement will not change referral patterns, care planning or delivery of home health care.

EFFECT OF THERAPY RECERTIFICATION ON PROVIDERS AND PATIENTS: The requirement for a professional therapist to recertify patients at least on the 13th and 19th therapy visits within an episode prior to receiving any additional therapy, and at least every 30 days following the

recertification, is expected to have a significant effect on patient referrals, therapist care planning, patient management, and delivery of home health. More than three-quarters of respondents indicated that this requirement will lead to scheduling difficulties for therapy visits and another 53% of respondents indicated that this will cause difficulties in employing/contracting qualified therapists. Respondents suggest that that administrative burden on these therapists will cause them not to want to serve home health patients.

Some respondents did suggest, however, that this requirement may improve the patient assessment (20% of respondents) and patient care (17% of respondents), and that it may also lead to improved care documentation (28% of respondents). About 15% of respondents feel that this requirement will have no impact on patient referrals, therapist planning, patient management, or delivery of home health care. While the physician face-to-face encounter requirement affects every home health patient, recertification will only affect a small proportion of patients. As of 2008, 15% of episodes contained 13 or more therapy visits, while only 5% of episodes contained 19 or more visits per episode.

PROVIDER COST FOR PHYSICIAN ENCOUNTER AND THERAPY REASSESSMENT: About 50% of respondents indicated that the physician face-to-face encounter and therapy reassessment requirements will increase provider costs per episode. For episodes that would not require therapy reassessment (home health episodes with less than 13 therapy visits per episode), the total median cost increase would be \$197.50 per episode, which equates to about 9% of the unadjusted 60-day standardized payment rate. For episodes that would require the therapy reassessment, the total median cost increase would be \$330.00, or about 9% of total episode payment (for episodes with 13 therapy visits), and 7% of total payment for episodes with 19 therapy visits.⁶

Thus, while requirements for a physician encounter prior to, or immediately following, the start of a home health care episode and therapy reassessment for high therapy episodes may yield modest improvements in the oversight and provision of home health care, they may come with a significant cost to the Medicare system and to the home health agencies directly, all of which will likely restrict Medicare beneficiary access to home health care. This result is contrary to public policy supporting the movement toward home and community-based care. CMS should carefully consider these tradeoffs.

⁶ Total base payment for CY 2011 is proposed at \$2,198.58. Average case-mix for episodes with 13 visits in 2010 is 1.694 and 2.270 for 19 visits.

Purpose

The Notice of Proposed Rulemaking (NPRM) for the Home Health Prospective Payment System was released for public comment on July 23, 2010. Contained in this NPRM are several proposed changes that affect the reimbursement for home health agencies and, ultimately, the provision of care to Medicare beneficiaries. Dobson DaVanzo & Associates, LLC (Dobson | DaVanzo) was commissioned by the Home Health Advocacy Coalition to review select proposed changes and assess the appropriateness of these proposed changes.

Specifically, our purpose was threefold. The first purpose is to review the reduction in the standardized 60-day episode payment due to “nominal” case-mix change. This entails a review of Abt Associates (Abt) methodology and results,⁷ as well as a review of important concepts and variables that Abt did not capture in its analysis. The second purpose is to investigate the change in home health reimbursement due to the elimination of the hypertension coding requirement. We were asked to quantify the impact this change will have on provider revenues and determine if the Centers for Medicare & Medicaid Services (CMS) has already addressed these payments in its proposed case-mix related payment reductions, therefore “double counting” the hypertension coding requirement revenue effects. The third purpose is to investigate the face-to-face requirements for a physician encounter before, or immediately after, the start of care and the therapy reassessment for high therapy use episodes. We determine the impact these requirements will have on provider and patient referral patterns and additional costs to the agencies for adhering to these requirements. This report addresses each of the three purposes in a separate section and concludes with a brief discussion section.

Nominal Case-Mix Change

1. The Historical Context of CMS Case-Mix Decomposition Analysis

The relationship between case-mix measurement and CMS prospective payment systems (PPSs) is highly complex and has been extensively studied since the implementation of the inpatient hospital PPS (IPPS) in 1983.^{8,9} Each Medicare PPS is dependent upon being able to accurately measure case-mix severity: MS-DRGs for inpatient hospitals; LTCH-MS-DRGs for long-term care hospitals; RUGs for skilled nursing facilities; CMGs for inpatient rehabilitation facilities; and HHRGs for home health agencies. Since the inception of IPPS, CMS has attempted to adjust payments for each case (e.g., per diem, case, or episode) to reflect the actual resources required to treat a given level of patient severity (“sickness”).

⁷ White, A., Plotzke, M., Goldberg, H., Robinson, C. (2010). Analysis of 2000 – 2008 Home Health Case-mix Change. Prepared for CMS, *Abt Associates*.

⁸ Carter, G.M., Ginsbur, P.B. (1985). The Medicare Case-mix Index Increase; medical practice changes, aging, and DRG creep. *Rand Corporation*.

⁹ Carter, G.M., Newhouse, J.P., Relles, D.A. (1990). How Much Change in the Case-mix Index is DRG creep? *Rand Corporation*.

As the IPPS was designed, every effort was made not to pay based on services rendered, but rather to pay for patient condition or severity. This isn't always possible, as current PPS systems contain explicit deviations from pure prospectivity in cases where payments are directly related to provider decisions to perform a given procedure type or volume of care. For example, surgical procedures are explicitly paid for under MS-DRGs, higher numbers of therapy minutes are paid for under RUGs, and additional therapy visits are paid for under HHRGs.

PPS case-mix systems are “flawed” in two ways. First, improved coding systems will lead to higher provider payments and case-mix increases due to improved coding methods (nominal case-mix change) as opposed to a shift in “real” patient case-mix severity (real case-mix change). Second, if more surgeries (as opposed to medical care), therapy minutes, or therapy visits are performed, providers are paid more. In the case of home health, CMS earlier noted that there was no apparent proxy for therapy need; therefore, the number of therapy visits directly influences HHRG case-mix measurement in the home health PPS.

In practice, each year CMS attempts to separate out changes in real case-mix from nominal case-mix for each PPS. For instance, when RUG 44 for skilled nursing facilities was expanded to RUG 53, the relative distribution of the new “high weight” therapy – Extensive Services category – increased from an expected 18 to 20 percent to nearly 40 percent. While much of this change could be attributed to “sicker” patients, CMS attempted to determine the proportion of the change attributed to improved coding and mapping of patients to categories with higher therapy minutes as opposed to real case-mix change, wherein sicker patients are using more care. In this case, severity reporting (by the RUG definition) was compounded with resource use (therapy minutes).

The Medicare Payment Advisory Commission (MedPAC) has stated that under skilled nursing facility RUGs, “payments vary with the amount of therapy (e.g., therapeutic exercise and therapeutic activities) furnished,” breaking the link between patient severity and payments.¹⁰ MedPAC has recommended that the skilled nursing facility RUG therapy component “should be replaced” with one that establishes payments based solely on predicted patient care needs. MedPAC has made similar comments concerning home health PPS.¹¹ In short, a payment system based in part on the type or amount of care provided, as opposed to predicted patient care needs, provides strong signals to providers to furnish additional care, and it is difficult, if not impossible, to determine the degree to which care provided in this instance is related to underlying patient severity or payment incentives.

The problem is most apparent with home health resource group (HHRGs). The HHRG system provides for incremental payments based on the number of therapy visits. The original July 3, 2000 home health PPS *Final Rule* defined a threshold of 10 therapy visits per episode. This led to an increase in total visits per episode, and a concentration of episodes with between 6 and 9 visits and between 10 and 13 visits. This was not unreasonable, as CMS declared that 10 visits represented an “industry standard” and was consistent with existing research literature at the time.

¹⁰ Medicare Payment Advisory Commission. (2010). *Report to the Congress: Medicare Payment Policy*. A revised prospective payment system for skilled nursing facilities.

¹¹ Medicare Payment Advisory Commission. (2010). *Report to the Congress: Medicare Payment Policy*. Skilled nursing facility services.

The 2008 home health PPS *Final Rule* implemented payment thresholds at six, 14, and 20 therapy visits per episode. In doing so, CMS noted that, “several common treatment plans require only about 6 visits” (e.g., treatment of falls).¹² CMS observed that only a few patients use 14 or more visits, and CMS also indicated that medical review staff could judge the appropriateness of 14 (and 20) visit episodes as few cases require this level of care. The 20-visit threshold was set to “ensure access to appropriate treatment in the rare case where such treatment is necessary.” CMS further indicated that, “the revised case-mix regression model improves the ability of the model to predict resource use.” While it is true that the additional therapy thresholds improved the case-mix system’s ability to “classify episodes into homogenous cost groups,” the system still violates the basic rule of prospectivity in that prospective payment should not be based on service provision. CMS indicates (in its 2008 *Final Rule*) that, “no study has been performed to study the clinically appropriate number of visits primarily because of the resources required to perform such a study.”¹³ Thus, attempts to determine if changes in HHRG case-mix that are driven by therapy units represent real or nominal case-mix change have little or no theoretical foundation.

In the end, CMS has concluded that the home health PPS, as with its other PPS case-mix measurement, is an educated guess as to how home health therapy visits should be paid for. Case-mix measurement is an art, not a science. CMS has done a reasonable job of approximating resource use with its home health PPS, but because it ultimately pays in an important way on resources provided, the home health PPS doesn’t lend itself to analyses which attempt to separate out real from nominal case-mix. As we note below, CMS’s current attempts to split out real and nominal case-mix growth have not met the challenges posed above.

2. Background

A. THE HHRG CASE-MIX PROBLEM

(HHRG total case-mix is measured by calculating the average HHRG resource use weight across episodes for a given calendar year. In each year’s NPRM, CMS separates the change of total HHRG case-mix increases into two components:

- Real case-mix: related to the underlying health status of home health users (clinical and functional characteristics and number of therapy visits)
- Nominal case-mix: related to improved coding and documentation

CMS has the legislative authority to not pay for home health nominal case-mix change (according to the Balanced Budget Act of 1997). In order to accomplish this goal, CMS needs to determine how much real change in total case-mix increases it should pay for each year. This has proven very difficult, both conceptually and practically because a way must be devised to determine proxies or other inferences for real case-mix growth. (As noted above, CMS has noted that therapy use cannot be broken out of case-mix change since CMS cannot determine the appropriate level of therapy for patients.)

Determining how case-mix would have changed absent of incentives to more accurately code patient episodes is often done by measuring case-mix growth prior to the implementation of PPS, or prior to a

¹² Department of Health and Human Services, 72 Fed. Reg. 41128. (to be codified at 42 C.F.R. pt. 484). (2008).

¹³ Department of Health and Human Services, 72 Fed. Reg. 49776 (to be codified at 42 CFR pt. 484). (2008)

change in how case-mix is measured (e.g., a change in a patient grouper program). Another way to measure real case-mix increase is to independently review medical records to determine if coding practices have changed, such as entering more comorbidities into the medical records for a more complete assessment of severity.

CMS commissioned Abt to devise a method to divide total case-mix into its real and nominal components. Because Abt could not use the traditional methods for determining real case-mix change, they were highly constrained in what they could accomplish. In particular, the clinical data used to measure home health PPS case-mix (selected OASIS assessment items) cannot be used to determine “expected” changes in real case-mix.

B. ABT METHODS IN BRIEF

Changes in real case-mix were estimated between 1999 and 2007 and between 2007 and 2008. Abt performed a series of regression analyses for each period linking HHRG case-mix information at the person level (not episode level) to nearly 1,000 explanatory variables of the following types:

- Patient demographics
- Medicare utilization prior to home health care
- Living arrangements
- APR-DRG (procedural or medical)
- Hospital diagnosis (APR-DRG related)
- Type of agency control

The unit of observation during the pre-home health PPS base period (October 1999 through September 2000 regression) is the 80 category HHRG episode and 153 category HHRG system that are used for the 2008 regression. Short stay cases receiving low utilization payment adjustments (LUPAs) were omitted, as these are not part of case-mix measurement. Outliers were included, although, while they affect payment, they do not affect the underlying measurement of case-mix. Regressions were estimated for the base period and for 2008. The regression specifications are highly similar in each model, aside from the fact that the HHRG system was substantially revised in 2008.

Abt used changes in case-mix prediction variables and the variable coefficients from its regression equations to forecast changes in real case-mix. The model will not predict substantial change in real case-mix change if either the change in variable values or the variable coefficients are small. Any resultant changes are compared to the total change in case-mix. One minus the real percent change is equal to the nominal percent change, which CMS will not pay for. Reducing the payment rate increase by the nominal percent change adjusts for this. In this case, changes between 2006, 2007 and 2008 are taken out of base payment rates for 2011 and 2012.

1999 to 2007 Findings: Exhibit 1 presents Abt’s results for 1999 through 2007. Abt estimates that 11.72% of the total change in HHRG case-mix is real ($0.00193 \div 0.1647$). Or conversely, 88.28% of the total change in case-mix is nominal ($1.00 - 0.12$). This finding underlies a large portion of the CMS proposed case-mix “take back” policy.

Exhibit 1: Abt Initial Case-Mix Findings 1999 to 2007

Metric	Value	Formula
Total case-mix change (80 category HHRGs)	0.1647	$(1.2606 - 1.0959)$
Total percent change	15.03%	$(0.1647 \div 1.0959)$
Predicted real change	0.0193	
Percent of real case-mix change	11.72%	$(0.0193 \div 0.1647)$
Percent of nominal change	88.28%	$(100\% - 11.72\%)$

2007 to 2008 Findings: As seen in Exhibit 2, Abt estimates that only about 4.70% of the total change in case-mix from 2007 to 2008 is real ($0.0025 \div 0.0533$), and about 95.30% of the total change in home health case-mix between 2007 and 2008 is nominal. Given that CMS has already paid providers for this nominal increase in 2008, CMS proposes that there should be a “take back” in the form of a payment rate reduction for 2011 and 2012.

Exhibit 2: Abt Case-Mix Findings 2007 to 2008

Metric	Value	Formula
Total case-mix change (153 HHRGs)	0.0533	$(1.3085 - 1.2552)$
Total percent change	4.07%	$(0.0533 \div 1.2552)$ Abt <i>(Dobson DaVanzo calculates 4.25%)</i>
Predicted real change	0.0025	
Percent of real case-mix change	4.70%	$(0.0025 \div 0.0533)$
Percent of nominal change	95.30%	$(100\% - 4.70\%)$
Percentage points as nominal	3.88%	(0.9530×0.0407)

C. CMS USE OF ABT RESULTS

Based on the Abt regression results, CMS indicates that it could reduce 2011 home health payments by 7.43% in one year, but rather “takes back” 3.79% of payment for 2011 and 3.79% of payment for 2012. CMS notes that:

“We believe it is unlikely that the actual disease burden of home health patients, as indicated by reported comorbidities, change so dramatically in a single year; instead we believe the incentives to report more comorbidities under the refined case-mix system are the reason for the large increase in reported comorbidities.”¹⁴

Thus, CMS feels justified in recommending these extensive “take backs” for 2011 and 2012. Given that CMS had already proposed a 2.71% decrease in 2011 payments based on prior Abt case-mix studies, the proposed take-back for 2011 represents an additional 1.08% in CMS-related payment reductions (3.79% – 2.71% = 1.08%). There were no previously established take backs scheduled for 2012, therefore the total reduction in payment (3.79%) is due to nominal case-mix increases from 2007 to 2008.

We note in the following section that this decision is an overreach given the relative strength of the Abt results and the application of the Abt methods. While the Abt model used variables not subject to up-coding incentives, the variables they did use were not reasonable predictors of real case-mix change. Furthermore, while some real case-mix is explained in the models through statistically significant variables, there may be several other unexplained variables that can account for additional changes in real case-mix. If these unexplained variables that influence real case-mix change over time, real case-mix will be underestimated through Abt’s model. This is true even if we cannot directly measure the omitted variables, such as changes in the dynamics of post-acute care provision over the last decade emphasizing more extensive and complex care in the home setting.

3. Critique of Abt Associates Study Case-Mix Inferences

We have identified seven main technical concerns with the Abt model that could result in underestimated real case-mix change. We explain each concern in this section.

A. ABT MODELS ARE UNRELIABLE

The Abt regression model contains numerous input variables that are not statistically significant and may provide spurious results. Of the 902 variables in the Abt model, only a few are statistically significant, and 848 are APR-DRG-related prior use hospitalization variables. Additionally, the model is unstable and the underlying theory of what drives case-mix change in home health is not reliable over time. About 40% of the top 25 variables are different one model to the next (1999 to 2007 and 2007 to 2008) and 20% of the top variables change signs (+/-).

Furthermore, the overall explanatory power of the models falls 46% from 19% to 10% ($R^2 = 0.1894$ for baseline model; $R^2 = 0.1023$ for 2008 model). The much lower R^2 in 2008 may reflect a shift in the

¹⁴ Notice of Proposed Rulemaking. July 23, 2010. CMS-1510-P, 25.

relationship between explanatory variables and case-mix or may reflect a general instability of the model given changes in home health visit thresholds and HHRGs categories (suggesting “measurement error” in the Abt variables over time), which means that the variables measure different things in different time periods. The drop in R^2 is inconsistent with the increased refinement in the 153 category HHRG system from the 80 category HHRG system. Given that there is more variance in the latter system, one would expect the R^2 to rise, not fall.

B. NUMEROUS ABT MODEL EXPLANATORY FACTORS ARE NEITHER STATISTICALLY SIGNIFICANT NOR RELEVANT

As indicated above, 94% of the regression models variables are related to the APR-DRG designations of prior acute care hospitalizations (848 of the 902 variables). The vast majority of these variables, as well as the remaining 6% of variables, are typically not statistically significant.

The amount of real case-mix decreases from one model to the next by 7 percentage points (from 11.72% in the base period model to 4.70% in the 2007-2008 model; see Exhibits 1 and 2). Given the decrease in R^2 and a general lack of fit between case-mix and independent variables, the decrease in the estimated percent of real case-mix change is not surprising, it is neither convincing nor relevant.

Exhibit 3 shows the relative explanatory power of selected model variables (by Abt) in explaining real case-mix change. Exhibit 3 first shows changes in real case-mix within specific categories (aggregations) of variables (e.g., demographic, Medicare utilization, living arrangements, etc.). For instance, for 2007 to 2008, hospital diagnoses (APR-DRGs) explained 0.000329 or 0.6% ($0.000329 / 0.0533$) of total case-mix change. This indicates that the 848 APR-DRG related variables (94% of the total variables) only explain 0.6% of the overall total case-mix change. A change of this magnitude is essentially rounding error. The second portion of Exhibit 3 shows the relative explanatory power of individual variables.

The lack of the model’s overall explanatory power and the lack of categories and individual variable’s forecasting power is due to the discordance between prior hospitalization APR-DRGs and HHRG case-mix change. For instance, only 39% of home health patients are preceded by a stay in the inpatient or post-acute care facility.¹⁵ The model in totality, as explained by Abt, leads to the answer that real case-mix does not change much. However, if the variables used in the model do not explain case-mix change, and they, in turn, do not change much over time, the results cannot imply much at all about the actual change in real case-mix over time. This is as much of a specification error as anything else. If variables that do not explain real case-mix changes are put in the model, the Abt report is not particularly relevant.

¹⁵ Medicare Payment Advisory Commission. (2010). *Report to the Congress: Medicare Payment Policy*. Home health service: Assessing payment adequacy and updating payments.

Exhibit 3: Variables Listed in the Abt Report as Real Case-Mix Change Drivers

Category/Variables	Predicted Real Case-Mix Change
Categories (Aggregation) of Variables	
Patient Demographic Variables (Age, Race, Sex)	
IPPS to 2007	0.000430
2007 to 2008	-0.000141
Medicare Utilization Variables	
IPPS to 2007	-0.007288
2007 to 2008	-0.003677
Living Arrangements	
IPPS to 2007	0.002801
2007 to 2008	Not included in model
APR-DRG (Procedure or Medical)	
IPPS to 2007	0.000313
2007 to 2008	-0.000261
Mortality	
IPPS to 2007	0.003062
2007 to 2008	0.000918
Hospital Diagnosis (APR-DRG) Variables	
IPPS to 2007	0.000755
2007 to 2008	0.000329
Type of Agency Control	
IPPS to 2007	0.012280
2007 to 2008	0.000366
Medicare Costs	
IPPS to 2007	0.006904
2007 to 2008	0.000360
Individual Variables	
Drivers of Real Case-Mix Change: IPPS to 2007: Medicare Real Case-Mix Change	
Other Proprietary	-0.024360
Facility-Based Vol/NP	0.023636
Any Hospital in Prior 14 Days IP Claims	0.007374
Free-Standing Vol/NP	0.006107
Acute Care Hospital Days in Period 14 Days Preceding Home Health Episode	-0.005495
Cva W Infarct/Nonspecific Cva & Precerebral Occl w/o Infarct	-0.004259
Medicare SNF Payments in 120 Days Preceding Home Health Episode	0.004171
No Hosp/Rehab/SNF in 14 Days From Prior IP claims	-0.003590
Acute Care Hospital Days in Period 15 to 120 Days Preceding Home Health Episode	-0.003162
Facility-Based Government	0.003139
Acute Care Hospital Payments in 120 Days Preceding Home Health Episode	0.002905
Rehabilitation Facility Days in Period 14 Days Preceding Home Health Episode	-0.002870
Free-Standing Government	0.002680
Free-Standing Proprietary	-0.002652
Facility-Based Proprietary	0.002631
2008 Knee Joint Replacement	0.002265

Category/Variables	Predicted Real Case-Mix Change
Drivers of Real Case-Mix Change: 2007 to 2008: Medicare Real Case-Mix Change	
Other Proprietary	0.004160
No Hosp/Rehab/SNF in 14 Days From Prior IP claims	-0.002039
Any Hospital in Prior 14 Days IP Claims	0.001321
Acute Care Hospital Days in Period 14 Days Preceding Home Health Episode	-0.001253
Mortality Risk Level 2	0.001057
Rehabilitation Facility Days in Period 14 Days Preceding Home Health Episode	-0.000821
Acute Care Hospital Days in Period 15 to 120 Days Preceding Home Health Episode	-0.000575
Free-Standing Proprietary	0.000514
Facility-Based Vol/NP	0.000463
Mortality Risk Level 3	-0.000459
Acute Care Hospital Payments in 120 Days Preceding Home Health Episode	0.000438
Rehabilitation Facility Days in Period 15 to 120 Days Preceding Home Health Episode	-0.000412
CVA W Infarct/Nonspecific Cva & Precerebral Occl w/o Infarct	-0.000391
Medicare Skilled Nursing Facility Days Period 15-120 Days Preceding Home Health Episode	0.000378
Mortality Risk Level 1	0.000320
Age 85 to 94	0.000280
Procedure APR DRG	-0.000257
Other Vol/NP	-0.000238
23 Signs, Symptoms & Other Factors Influencing Health Status	0.000201

Source: White, A., Plotzke, M., Goldberg, H., Robinson, C. (2010). Analysis of 2000 – 2008 Home Health Case-mix Change. Prepared for CMS, *Abt Associates*.

APR-DRGs are not related to home health patient acuity: A regression model should have an underlying theory of how the dependent and explanatory variables are causally related. This is missing in the Abt model, for it is well known that APR-DRGs are not always related to post-acute care severity. For instance, over half of patient diagnoses coded with APR-DRGs in acute care hospitals do not appear in subsequent long-term care hospital admission diagnoses. If correlation between acute care hospital and long-term care hospital diagnoses is low, the correlation between acute care hospitals and home health agencies' patient severity is likely much lower.

Real case-mix change, as estimated by Abt, could be underestimated if the, admittedly weak, APR-DRG relationship to the patient status at home health admission changes over time due to “quicker and sicker” discharges from the acute care hospital. Relationships could also change if home health agency patient selection techniques target more severe patients as the home health PPS system better pays for more severe patients, such as the change in therapy visit thresholds in 2008.

APR-DRGs should not be expected to show a strong relationship to home health severity. APR-DRGs were developed for acute care patients, not post-acute care patients. Post-acute care patient needs vary because of their clinical characteristics, functional status, and therapy utilization; none of which are measured by APR-DRGs, hence the low model R^2 values of the Abt regressions, especially the 2008 model. In addition to the disconnect between the APR-DRGs and home health patient diagnoses, only

39% of home health patients come directly from a facility-based acute care or post-acute care setting.¹⁶ Therefore 94% of the Abt variables do not pertain to more than 61% of the home health patients for which they are trying to determine real case-mix. In summary, we would not expect Abt's use of APR-DRGs and other variables to reasonably explain HHRG case-mix; and they do not.

C. ACUTE CARE HOSPITAL APR-DRGS AND OTHER PRIOR USE VARIABLES ARE LESS AND LESS RELEVANT FOR PATIENTS WITH MORE THAN ONE HOME HEALTH EPISODE

The HHRG case-mix includes all episodes for home health patients. Approximately 38% of home health PPS episodes are recertifications. The Abt model relies heavily on experiences prior to home health care (primarily APR-DRGs), which are less and less relevant as home health care is provided further away from prior facility-based events, further underestimating changes in real case-mix.

D. THE ABT MODELS CANNOT EXPLAIN THERAPY USE SINCE THERAPY VISITS ARE A DIRECT MEASURE OF HHRG CASE-MIX

As mentioned, CMS has indicated that the correct amount of therapy use for patients cannot be predicted. As a result, therapy use is paid directly under HHRGs. Therefore, CMS cannot determine if any given change in therapy use is appropriate (real) or due to provider response to home health PPS payment incentives. CMS notes that “the research found that the assessment data could not predict the amount of required therapy with sufficient accuracy for use in the payment system.”¹⁷ Thus, by CMS's own admission, the Abt model has no underlying theoretical construct to link changes in therapy visits to either real or nominal case-mix change. As a result, CMS's use of the Abt regression model to partition total case-mix change into real and nominal change is inappropriate as it relates to therapy use. Because CMS has concluded that 38% of case-mix change is due to therapy,¹⁸ this aspect of real case-mix change is effectively unaddressed by the Abt model. Indeed, until CMS changes the therapy unit portion of its home health PPS, little can be done convincingly to sort out real from nominal therapy unit case-mix changes. CMS could either use predictive therapy need, as recommended by MedPAC, or some type of individual claim review to achieve this goal.

E. THE ABT MODELS FORECAST LESS REAL CASE-MIX CHANGE AS ACUTE CARE HOSPITAL DAYS AND MEDICARE EXPENDITURES PRIOR TO HOME HEALTH ADMISSION DECREASE

One important goal of home health care is to serve as a substitute for higher cost facility-based care and to allow Medicare beneficiaries to “age in place.” Home health payment reductions based on Abt model results may work against the larger good of the Medicare Hospital Insurance (HI) Trust Fund protection. Suggesting a reduction in home health payments as a result of facility-based prior use seems counter to

¹⁶ Medicare Payment Advisory Commission. (2010). *Report to the Congress: Medicare Payment Policy* Home health service. Assessing payment adequacy and updating payments.

¹⁷ Notice of Proposed Rulemaking. July 23, 2010. CMS-1510-P, 38.

¹⁸ Department of Health and Human Services, 75 Fed. Reg. 43241. (to be codified at 42 C.F.R. pt. 409, 418, 424 et al.). (2010).

broader Medicare interests. Minimally, if patients are released “quicker and sicker” from acute care hospital care and other facility-based providers, sicker patients would be expected to be admitted to home health care. The Abt results are contrary to home- and community-based public health policy initiatives.

Additionally, sicker patients may be diverted to home health agencies from inpatient rehabilitation facilities due to the CMS 60% rule and from skilled nursing facilities as policy continues to favor home- and community-based care. Increased emphasis on reducing avoidable hospital readmissions and hospital length of stay could also contribute to an increase in home health patient severity.

As home health care technology increases and policy incentives that favor the home setting over institutional care are pursued, it only seems reasonable to expect an increase in patient severity in the home setting. In this sense, the Abt regression results are, again, contrary to the research literature and public policy goals.

F. THE HOME HEALTH INDUSTRY IS BROADENING PATIENT CARE CAPABILITIES THROUGH INCREASED USE OF DIAGNOSIS-SPECIFIC CARE MODELS

These diagnosis-specific care protocols enable a more careful targeting of specific and appropriate interventions with Medicare home health patients, and allow for the treatment of a broader array of patients in the home. This trend supports the notion that home health agencies are treating higher acuity patients as they better target patient care to more severely ill patients.

G. THE ABT MODELS ARE BASED ON ADMINISTRATIVE DATA

The Abt models do not use OASIS or other clinical data, as Abt did not want to incorporate any variables in their model that could be influenced by home health PPS payment incentives. As noted above, attempts to estimate real case-mix must be based on data not related to the measurement of the total case-mix change, or subject to home health PPS payment incentives. This is a highly limiting constraint, particularly in home health care where constructing a rate of change in case-mix prior to home health PPS implementation and/or rescoring clinical records over time to see if coding practice has changed are not feasible.

Administrative data do not enable the Abt researchers to capture important home health measurement activities that are directed at patient selection. Examples of these are:

- Changes in agency care protocols allowing for selection of certain categories of sicker patients in the home over time;
- Changes in agency-specific admission policies due to changed therapy visit thresholds and other payment rules;
- Recruitment of patients with a greater need for therapy visits over time;
- Explicit efforts to substitute home health care for hospital care, skilled nursing facility, or inpatient rehabilitation facility care, hence drawing more severe patients into home health; and

- The ability to provide additional therapy services to sicker patients, given the change in therapy thresholds.

4. Data External to the Abt Study and the Proxies for Real Case-Mix Change

A. MEDICARE EXPENDITURE PANEL SURVEY (MEPS) DATA ANALYSIS

A recent study conducted for AHA¹⁹ demonstrated that Medicare beneficiaries are becoming sicker over time. This study used data from a nationally representative survey (Medical Expenditures Panel Survey - MEPS) and estimated case-mix change using clinical classification software developed by Thompson-Reuters. In a personal communication, Professor Deb, the author of this paper, indicated that the MEPS analysis is “based on all health care services not just inpatient care.” Thus, his conclusion that Medicare “patients are getting sicker every year” between 2000 and 2007 holds for the Medicare population generally, and provides an external validation of change in patient acuity outside of the HHRG case-mix calculation. Professor Deb’s models show over a 15% change in real case-mix between 2000 and 2007. This is about the same amount that CMS indicates as “nominal” change in its NPRM. This finding is in vivid contrast to the Abt results reviewed above. Because the Deb analysis uses data external to the calculation of the HHRG case-mix, the results suggest that the Abt study results are overly broad, and hence, their conclusions may not be valid.

B. OCS DATA ANALYSIS

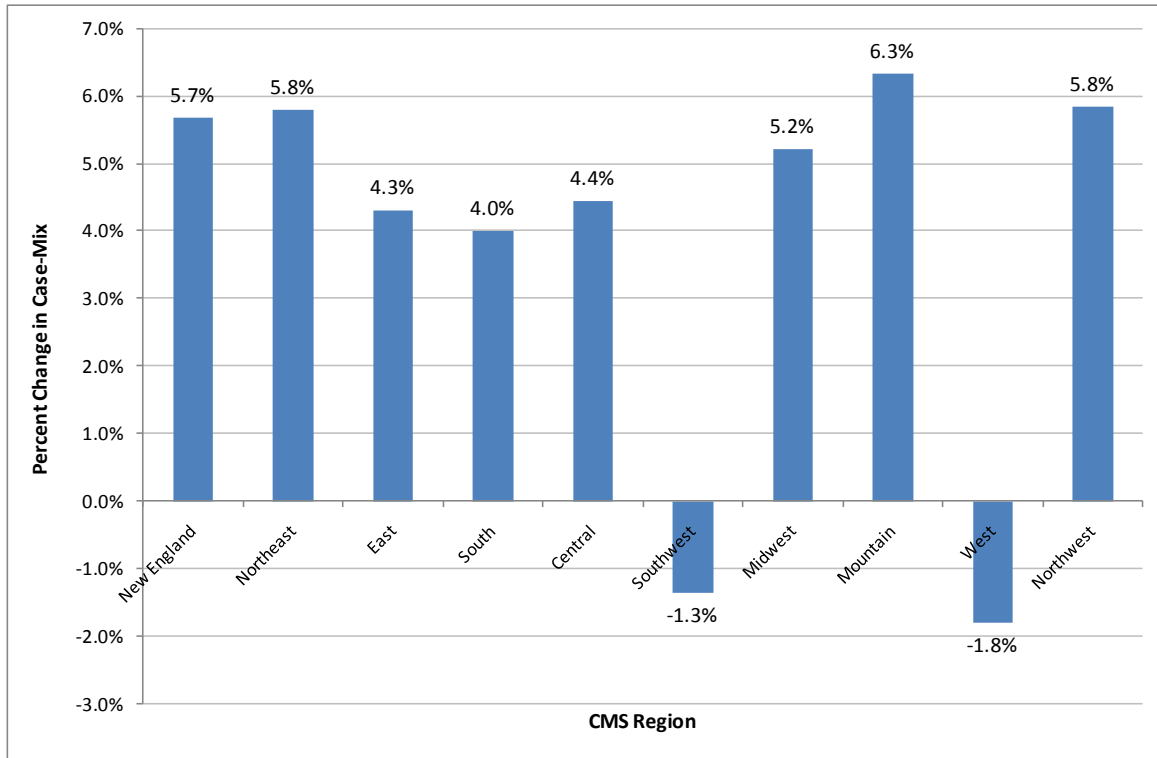
Based on the above findings, the Home Health Advocacy Coalition contracted with OCS, a Seattle, Washington-based data warehouse, to determine if any variables had been omitted from the Abt analysis that would reflect change in real case-mix from 2007 to 2008.

OCS has conducted data analysis on a national sample of home health agencies to determine if variables exist that might indicate that real case-mix change is higher than the Abt findings suggest. Average case-mix calculations by region were calculated from the national Standard Analytic File Limited Dataset (LDS). OASIS measures were selected from the Start of Care (SOC) OASIS assessments from the OCS data warehouse. This warehouse is updated daily with OASIS assessment data for approximately 2,400 agency locations nationwide, containing approximately 1.3 million records annually.

Exhibit 4 shows the percent change in average case-mix from 2007 to 2008 for non-LUPA episodes by region. Other than the southwest and west regions, average case-mix increased from 4.0% to 6.3%. The southwest and west regions had a 1.3% and 1.8% reduction, respectively, from 2007 to 2008. These data suggest that a one-size-fits-all approach to adjust for nominal case-mix will have a disproportionate effect on the regions – penalizing the two regions that reduced their case-mix during this time. This suggests that CMS should develop an alternate methodology for accounting for nominal case-mix, as the proposed method could have detrimental effects on some regions.

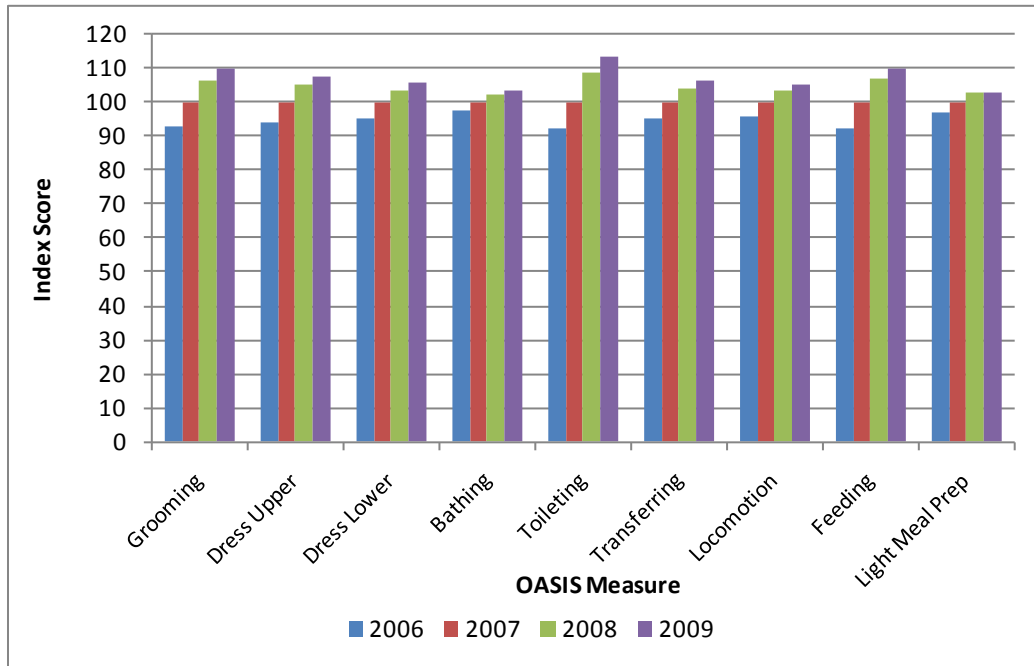
¹⁹ Deb, P. (2010). Trends in Case-mix in the Medicare Population. Hunter College and Graduate Center City University of New York.

Exhibit 4: Percent Change in Average Case-Mix By Region: 2007 to 2008

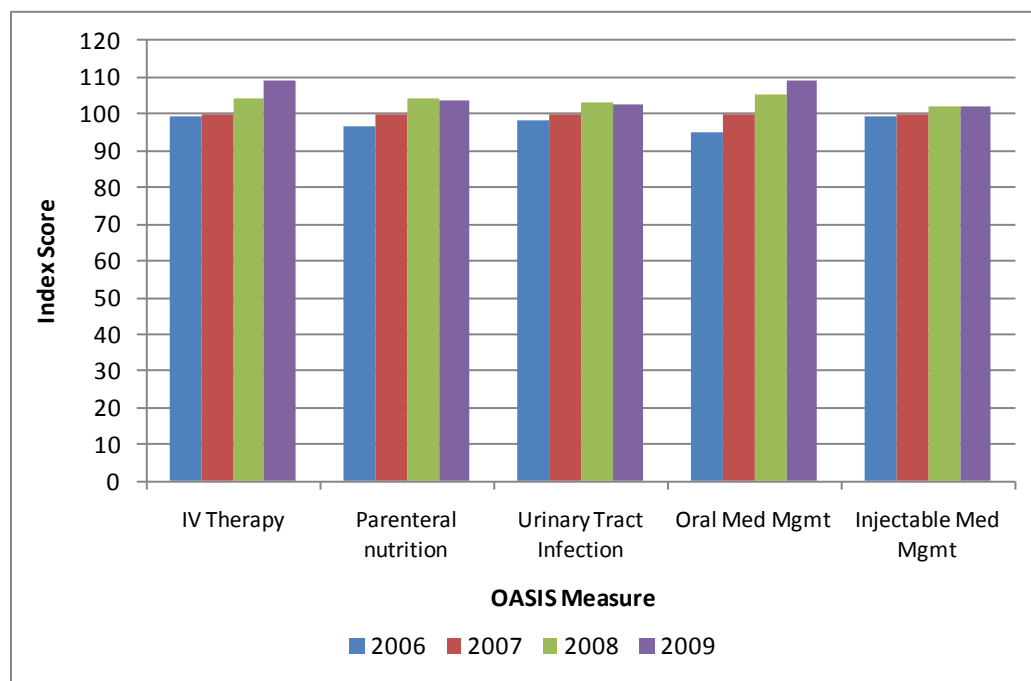


OASIS assessment data captures components of activities of daily living (ADLs) at the start of care using several indicators. These indicators are used to assess patients’ functionality and clinical conditions and are not likely to be upcoded as payment incentives vary over time. OCS conducted an analysis of major functional and clinical categories to determine if patients entering home health are more severe at the start of their episode in 2008 than they were in 2006. Indexing the average score at 2007, Exhibit 5 shows the increased acuity (decreased function) of patients from 2006 to 2008. For all of the functional categories – grooming, dressing upper and lower, bathing, toileting, transferring, locomotion, feeding and preparing light meals – the largest increase in acuity is seen in toileting, with grooming and feeding as the next largest increases. Bathing and preparing light meals have the smallest increase, but still demonstrate that patients are slightly more severe than in 2007.

Exhibit 5: Index ADL Score for All Episodes (2006-2009)



Home health patients have also recently demonstrated a large increase in acuity in their clinical conditions and their ability to manage medications. Exhibit 6 shows the increased proportion of patients who require intravenous therapy and parenteral nutrition and have urinary tract infections at the start of care and the average score for patient ability to manage oral and injectable medications. The most significant increase in acuity is in the proportion of patients requiring IV assessment and the decreased functional ability of patients to manage oral medications.

Exhibit 6: Index Clinical Conditions for All Episodes (2006-2009)

Note: IV Therapy, Parenteral nutrition, and urinary tract infection measures capture the change in proportion of patients that require these treatments or have particular conditions. Oral medication management and injectable medication management is based on an average OASIS score at the start of care.

Hypertension and its Effect on Case-Mix

The NPRM proposes to reduce home health payments for both 2011 and 2012 in each year by 3.79%. The NPRM indicates that about 62% of the total change in case-mix is due to an average change in case-mix at each level of therapy visits per episode.²⁰ CMS indicates that much of this increase is due to the coding requirement that was initiated in 2008 to report hypertension due to its expected requirement for higher resource use, which affected 2008 payments. Thus, the 3.79% reductions account for the coding of hypertension in 2011 and 2012 and all years going forward.

As a result of its analysis of 2008 data, CMS concluded that for 2011, two hypertension ICD-9 codes should be removed from the home health PPS case-mix system: 401.9 – unspecified essential hypertension and 401.1 – benign essential hypertension.

Eliminating the two hypertension codes from the case-mix calculation decreases home health PPS payments by 1.78 percent, according to an OCS analysis. This change would affect the 2008 HHRG case-

²⁰ Notice of Proposed Rulemaking. July 23, 2010. CMS-1510-P, 23.

mix grouper as applied in 2011. This, in effect, takes out the hypertension effect on home health PPS payments a second time.

To account for these types of effects, whenever CMS produces a new grouper, it always implements a budget neutrality adjustment to ensure that the new grouper payments are equal to overall payments from the prior year's grouper. CMS does not propose to do this for the 153 HHRG grouper for 2011 after the hypertension codes are removed. Hence, the reduction in 2011 payments is not 4.75% as indicated in the NPRM, but rather 6.53% (4.75% + 1.78%) because CMS does not factor in the payment results of eliminating the hypertension codes. In order to correct the payment reduction to the 2011 projected payment to the estimated 4.75% reduction, CMS would need to increase the HHRG grouper case weights by 1.78%. Otherwise CMS is taking back the hypertension effect twice: once in the pair of 3.79% payment reductions, which includes hypertension coding, and then again in a revised grouper.

Face-to-Face Requirements

1. Review of Physician Face-to-Face Encounter and Therapy Reassessment Requirements

The NPRM includes two requirements for face-to-face encounters: a physician encounter prior to the start of a home health episode, and a therapy recertification for patients requiring more than 13 or 19 visits per episode.

The Patient Protection and Affordable Care Act requires that a physician (or nurse practitioners or nurse specialists working in collaboration with the physician) provides a face-to-face encounter with a patient prior to certifying the patient's need for home health services. CMS has proposed to implement this by requiring the certifying physician (or nurse practitioner or certified nurse specialist) to have a face-to-face encounter within 30 days prior to, or 14 days following, the start of the initial home health episode. The encounter must be related to the condition for which the patient is receiving home health services. The proposed rule also requires that the physician (or nurse practitioner or certified nurse specialist) document the encounter, maintain a record of the reasons why the patient meets the homebound requirement and why the patient needs the prescribed care, and provide written certification that the qualifying encounter took place.²¹

The proposed rule also requires that a professional therapist assess all Medicare patients at least on the 13th and 19th therapy visits, prior to any further therapy visits. Additionally, the patient will be reassessed at least every 30 days. No additional therapy visits would be covered until the reassessment has occurred. The proposed rule would also require that the therapist document the assessments and therapy care using objective measurement of function and progress, a clinically supportable statement of why there is an expectation that anticipated improvement is attainable in a reasonable and generally predictable period of time, plans for continuing or discontinuing therapy, and changes to therapy goals.

²¹ Department of Health and Human Services, 75 Fed. Reg. 43267. (to be codified at 42 C.F.R. pt. 409, 418, 424 et al.). (2010).

2. Methodology

The implementation of these requirements will impact not only the physicians, therapists, and home health agencies, but may also impact the future referral patterns of patients into home health, and possibly the overall number of patients served by home health agencies. To fully assess the potential impact of these regulations on the home health industry, Dobson | DaVanzo designed a survey instrument for home health providers and industry stakeholders.

The survey was distributed to National Association for Home Care and Hospice (NAHC) membership, Alliance for Home Health Quality and Innovation membership, and several related listserves using the web-based program, SurveyMonkey. The goal of the survey was to collect information in the following areas:

- Current process for admitting home health patients
 - Change in admission process
 - Change in acuity of patients
- Predicted effect of physician face-to-face encounter on providers and patients
- Predicted effect of therapy recertification on providers and patients
- Predicted provider cost for physician encounter and therapy reassessment

We received 475 responses from both home health companies (operating multiple agencies) and independent agencies. The responses represent almost 1,500 home health agencies. (We cannot determine if any single agencies are double-counted within companies.)

Every state in the country (with the exception of Alaska) was represented by a responding agency or company. Therefore, our sample includes agencies that provide home health care to both urban and rural communities. Slightly more than half of the agencies serve urban areas, with the remaining agencies serving rural areas. Furthermore, more than 80% of responding agencies are free-standing, with about 16% affiliated with a hospital.

3. Process for Admitting Home Health Patients

There was great consistency across respondents regarding the process for admitting and providing care to home health patients, the current role of physicians, and the anticipated effect of regulations on physicians, providers, and patients. Despite MedPAC's belief that there is great variability in the way home health agencies recruit and provide care, our survey results indicate that the process for determining patient eligibility and admitting patients to home health is greatly consistent across our respondents and reflective of CMS home health eligibility regulations.

To be eligible for Medicare’s home health benefit, beneficiaries “must need part-time (fewer than eight hours per day) or intermittent skilled care (e.g., nursing, physical, occupational, and speech therapies, aide service, and medical social work) and must be unable to leave their homes without considerable effort.”²²

Prior to referring a patient to home health, survey respondents indicated that a comprehensive assessment is conducted to evaluate the patient’s cognitive and functional ability to manage his/her needs in the home. Additionally, there is an evaluation of the support systems available to the patient. Respondents noted that an interdisciplinary decision is often made by a physician, discharge planner, nurse, social worker and therapist. It is often the clinical decision, as much as the availability of support systems in the home, that determines if a patient is admitted to home health.

When a physician refers a patient for the Medicare home health benefit, the referral order includes an initial visit and comprehensive assessment conducted by the home health provider. Respondents indicated that home health agencies typically send a nurse or other type of clinician to assess the patient’s clinical and functional needs, as well as mental and psychosocial problems. This is coordinated with the patient, family, and caregivers. Agencies also send a therapist (physical, occupational, speech) to assess the patient’s therapy needs. The clinician and therapist then reconcile their individual assessments, and make a recommendation to the ordering physician regarding the appropriate amount of therapy needed by the patient. In many cases, the patient will be considered unlikely to respond to therapy, which is why many home health patients have a single therapy visit (the initial assessment). For patients that do require, and can benefit from, therapy, the physician will then approve or modify the recommendations made by the clinician and therapist, and issue a therapy order. Medicare requires that a physician certify a patient’s eligibility for home health care and that any patient receiving home care be under the care of a physician.²³

Once the treatment plan is developed, the physician provides oversight of the treatment and the patient’s condition, and often receives written reports from the clinician or therapist. Often, the physician relies on the notes and communication with the therapist to remain current with the patient’s condition. At any point during the episode when the patient experiences an unexpected change, the physician will respond or reevaluate the treatment plan. Furthermore, the physician is responsible for recertification and discharge decisions. Our survey findings show more consistency in the admission process than found by MedPAC.²⁴

CHANGE IN ADMISSION PROCESS: Due to the change in the therapy visit thresholds implemented in 2008, providers now receive reimbursement for providing more than 10 therapy visits per episode for their more severe patients. The majority of respondents, however, indicated that the process and criteria for identifying home health patients has not changed due to the regulation change. Select respondents indicated that they now are able to serve a different patient population (stroke patients, for example)

²² Medicare Payment Advisory Commission. (2010). *Report to the Congress: Medicare Payment Policy*. Home health service: Assessing payment adequacy and updating payments.

²³ Medicare Payment Advisory Commission. (2010). *Report to the Congress: Medicare Payment Policy*. Home health service: Assessing payment adequacy and updating payments.

²⁴ Medicare Payment Advisory Commission. (2008). *Report to the Congress: Medicare Payment Policy*. Home health service: Assessing payment adequacy and updating payments.

because the reimbursement now allows them to provide the appropriate number of therapy visits to these patients.

CHANGE IN ACUITY OF PATIENTS: As a result of the regulation changes, some respondents indicated that the acuity of home health patients since 2008 has increased. Providers attribute this change to patients being discharged earlier than they used to from the acute care hospital. Many patients are skipping sub-acute care and entering home health within days of hip and joint replacements, for example. These patients require more extensive therapy than those who would have entered an inpatient rehabilitation facility or other facility-based care first.

Respondents also attribute a change in acuity, and subsequent increase in therapy visits to the new OASIS-C assessment tool. Using this new version of OASIS has allowed providers to better assess the patient's living situation and risk for falls. Better assessment of these indicators has allowed patients to receive the therapy they need to remain safe in their home while achieving maximum outcomes. Since providers are more accurately assessing need, this change in case-mix driven by the better specificity of the OASIS tool has caused a slight increase in therapy visits per episode in some agencies. This would seem to be second guessed by the Abt report findings and the CMS NPRM payment update reductions.

4. Effect of Physician Face-to-Face Encounter on Providers and Patients

The physician face-to-face requirement is expected to greatly impact the patient referral, care planning and management/delivery of home health care. This impact is driven by the time requirement of the encounter (i.e., 30 days prior to, or 14 days following the start of care), the need for additional encounters when a patient's primary condition changes, and the need to document clinical findings in support of the patients' homebound status.

Overall, when asked to identify the effect this requirement will have on providing home health, 85% of respondents indicated that providers will become hesitant to refer patients to home health, while 63% of respondents indicated that providers will refer patients to other care setting instead of home health. This hesitation and change in referral pattern is attributed to the burden of scheduling and travel to provide the face-to-face encounter in the event that the physician (or other specified practitioner) will not use telehealth or visit the patient in the home. As well as the provider hesitation, 52% of respondents reported expecting the patient to be hesitant to use home health services for the fear that they will not get timely care without having to travel to a physician's office. About 47% of respondents actually expected patients to refuse home health, and opt for facility-based, and more expensive, care due to this requirement. If so, this would increase overall Medicare expenditures.

A primary driver of the impact of this requirement on providers and patients is driven by the timing in which this face-to-face visit must occur. More than 86% of respondents indicated that the need for this visit with 30 days before or 14 days after the start of the care will delay patient referral and the initiation of care. This indicates that patients in the home may be without care due to the inability of the home health agency and physician to schedule the face-to-face visit. In extreme cases, patients may not be discharged from facility-based settings if they are unsure of when the physician encounter will occur. This could increase acute care hospital length of stay.

In addition to the start of the home health episode, physicians are required to have a face-to-face encounter if and when the primary condition for which the patient is seeking home health care changes. Respondents indicated that this requirement will further affect patient referrals, care planning and patient management and delivery of home health by increasing the hesitation of providers to refer patients to home health (73% of respondents). Providers may feel that patients, especially those with several comorbidities, may receive more timely care in other settings in the event that the conditions change and a visit is required before care can be provided (85% of respondents).

Physicians must currently certify that Medicare patients are “homebound” and would require substantial effort to leave their house before the patient is eligible for Medicare covered home health services. The additional requirement to document the clinical evidence to support the decision that a patient is, in fact, homebound is expected to make providers further hesitant to refer patients to home health (18% of respondents) and is expected to delay the initiation of care (83% of respondents). Implementing a requirement that may oblige a patient to leave their home in order to be certified to receive home health care may have a large impact on the referral patterns of providers, especially given the difficulty of Medicare homebound patients traveling. When telehealth is not available, patients will need to travel to their physician’s office. This can be especially difficult for patients in rural areas or during inclement weather, as well as more generally for homebound patients.

Despite the potential inconvenience for the physician and patient to comply with these requirements, about one quarter of respondents expect this requirement to increase physician involvement in home health care planning and delivery. However, the vast majority of respondents (over 90%) indicated that physicians are not aware of these new requirements, with most of the remaining respondents indicating that they do not know if physicians are aware. Furthermore, several respondents indicated that it is often the home health agency’s responsibility to keep the physicians informed about regulation changes. This finding would suggest a difficult transition to the new physician encounter requirements.

Only about 5% of respondents expect this requirement to have no change on referral patterns, care planning or delivery of home health care.

5. Effect of Therapy Recertification on Providers and Patients

The requirement for a professional therapist to recertify patients at least on the 13th and 19th therapy visits within an episode prior to receiving any additional therapy, and at least every 30 days following the recertification, is expected to have a significant effect on patient referrals, therapist care planning, patient management, and delivery of home health. More than three-quarters of respondents indicated that this requirement would lead to scheduling difficulties for therapy visits and another 53% of respondents indicated that it would cause difficulties in employing/contracting qualified therapists. Respondents suggest that the administrative burden on these therapists will cause them not to want to serve home health patients.

Respondents did suggest, however, that this requirement may improve patient assessment (20% of respondents) and patient care (17% of respondents). It may also lead to improved care documentation (28% of respondents). About 15% of respondents reported that this requirement will have no impact on

patient referrals, therapist planning, patient management, or delivery of home health care. While the physician face-to-face encounter requirement affects every home health patient, recertification will only affect a small proportion of patients. As of 2008, 15% of episodes contained more than 13 or more therapy visits, while only 5% of episodes contained 19 or more visits per episode.

6. Provider Cost for Physician Encounter and Therapy Reassessment

About 50% of respondents indicated that the physician face-to-face encounter and therapy reassessment requirements will increase provider costs per episode. The professional therapist who performs the reassessment will be the largest contributor of cost, with a median value of \$100 per episode, while the remaining categories of activity are estimated at about a \$50 increase per episode. See Exhibit 7.

Exhibit 7: Effect of Face-to-Face Requirements on Provider Costs

Cost Category	Percent that Reported Cost Increase	Median Cost Increase
Scheduling	43.7%	\$45.00
Professional Therapist (Assessment)	52.5%	\$100.00
Documentation	46.4%	\$50.00
Compliance Oversight	51.3%	\$50.00
Physician Communications	46.0%	\$50.00
Staff Training	49.6%	\$50.00

For episodes that would not require therapy reassessment (home health episodes with less than 13 therapy visits per episode), the total median cost increase would be \$197.50 per episode, which equates to about 9% of the unadjusted 60-day standardized payment rate. For episodes that would require therapy reassessment, the total median cost increase would be \$330.00 per episode, or about 9% of total episode payment for episodes with 13 therapy visits, and 7% of total payment for episodes with 19 therapy visits.²⁵

7. Survey Results: Summary

We found a high degree of consistency in how respondents described the process of admitting home health patients. All agencies essentially follow the same process to ensure that home health patients are appropriately placed and treated. We did not find the variation that MedPAC noted in its March 2010

²⁵ Total base payment for CY 2011 is proposed at \$2,198.58. Average case-mix for episodes with 13 visits in 2010 is 1.694 and 2.270 for 19 visits.

Report to Congress. If our survey results are correct, the physician face-to-face requirement may be excessively burdensome and costly.

Thus, while requirements for a physician encounter prior to, or immediately following, the start of a home health care episode and therapy reassessment for high therapy episodes may yield modest improvements in the provision of home health care, these improvements may come with a significant cost to the Medicare system and to the home health agencies directly. These requirements will likely restrict Medicare beneficiaries' access to home health care, which is contrary to public policies supportive of home- and community-based care. CMS should carefully consider these tradeoffs.

Respondents have indicated that the NPRM requirements will deter providers from referring patients to home health, resulting in providers settling for facility-based post-acute care instead. Furthermore, home bound patients will not want to use home health, knowing that they will need to leave their homes for a physician encounter before they can receive home health services. This could result in additional costs to Medicare, and could remove the patient from his or her home. The home health agencies and physicians that comply with these requirements can anticipate an increased administrative burden to ensure the documentation and timing of visits is accurate. Additional responsibility will fall on the home health agencies to inform physicians of further policy changes, for the vast majority of physicians are unaware of the proposed requirements. This administrative burden for scheduling, documenting, training and communication is estimated to increase the total cost per episode to about \$200 for those episodes that do not require extensive therapy (less than 13 visits per episode). The increase in the total cost per episode for ones that require the therapy reassessment is estimated to be \$330.

Physician oversight and care improvement is of utmost importance to both home health agencies and patients. While few (about one quarter of responses) indicated that the NPRM requirements may result in better care provision, we suggest that CMS investigate other options to improve care without deterring providers and patients from the home setting and increasing the cost per episode so dramatically.

Discussion

In this report we reviewed three aspects of the NPRM for 2011 updates to the home health PPS:

- The reduction in the standardized 60-day episode payment due to changes in real and nominal case-mix by reviewing Abt' methodology and results,²⁶ as well as reviewing of important concepts and variables that Abt did not capture in its analysis;
- The change in home health reimbursement due to the elimination of the hypertension coding requirement;
- The face-to-face requirements in the proposed rule requiring a physician encounter before, or immediately after, the start of care, as well as the therapy reassessment for high therapy use episodes.

²⁶ White, A., Plotzke, M., Goldberg, H., Robinson, C. (2010). Analysis of 2000 – 2008 Home Health Case-mix Change. Prepared for CMS, *Abt Associates*.

1. Nominal Case-Mix Change

An analysis of the Abt case-mix methodology and the applicability of the results is the most complex issue addressed in this report. Fundamentally, Abt notes that if variables are omitted from their regression model that are related to case-mix, and these variables change over time, then their model would underestimate real case-mix change. While there are numerous reasons why the Abt analyses likely underestimate increases in home health patient severity, this basic argument is straightforward and powerful.

Because Abt could not use data that were directly related to the calculation of HHRG case-mix (OASIS), they used administrative claims data reflecting Medicare patient utilization and expenditures prior to home health admissions. These data do not contain the assessment information necessary to adequately capture the severity of home health patients at the time of admission, nor do they reflect the clinical decisions to determine whether a patient is admitted to home health. These are critical omissions in the assessment of patient severity.

In this report, we provide numerous reasons why about 94% percent of the 902 Abt regression variables are not useful in determining case-mix severity for home health patients. Additionally, many of the Abt variable coefficients produce counter-intuitive results and appear in conflict with health care reform initiatives. To reduce home health payment as Medicare beneficiary utilization and expenditures prior to home health admissions are reduced is contrary to the notion that home health care services should be used as a substitute for more expensive facility-based care. The use of home-based health care in this manner has been a national policy goal since the mid-1980s.

Finally, the Abt regressions cannot reasonably be expected to predict case-mix change associated with therapy visits because, by CMS' own admission, data are not available to determine the proper amount of therapy needed for a given patient. The administrative claims data used by Abt are not able to compensate for this lack of available information.

CMS should carefully consider the Abt approach to determining case-mix. The post-acute care industry has changed dramatically since the Abt regressions were first designed. Abt needs to revise its regressions to include assessment data that are not used in the HHRG grouper but are still related to patient clinical status. The current use of administrative claims data is inadequate, and perhaps even counterproductive. This sends the wrong signals as to how home health and facility-based care should be related as the Medicare program moves toward an era of “bundled payments” and other initiatives to coordinate care across settings.

2. Hypertension

The second component of our analysis concerns the omission of two hypertension codes in the development of HHRG case-mix for 2011. We demonstrate that CMS double counts the financial effect of this action. CMS first accounts for the financial effect of these codes by reducing 2011 and 2012 HH PPS payments. CMS then reduces payment again – for the same financial effect – by eliminating the hypertension codes from the HHRG grouper. We estimate the value of this double counting as 1.78% of home health expenditures. CMS should rebase the 2011 HHRG grouper to reverse this double counting.

3. Physician Face-to-Face Requirements

The third component of our analysis concerns the new physician face-to-face encounter requirements, and is based on a survey we conducted representing about 1,500 home health agencies. These survey results were inconsistent with prior research referenced by MedPAC and CMS that indicated that home health admission policies are arbitrary and highly variable across the country. Rather, our national survey found that home health agencies use admissions processes that are highly structured, highly consistent, and patient-centered. While the role of the physician is admittedly to provide oversight, the admissions process as it currently stands is clinically coherent. The proposed face-to-face encounter could reduce access to home health for the most vulnerable Medicare homebound patients and could increase HHRG episode costs by just under 10%, neither of which is desirable. CMS needs to carefully consider the access and cost consequences of the proposed approach.