Alliance for Home Health Quality and Innovation

Clinically Appropriate and Cost-Effective Placement Project

Executive Summary: Working Papers #1 & #2

The Alliance for Home Health Quality and Innovation commissioned Dobson DaVanzo & Associates, LLC to conduct a study, entitled the *Clinically Appropriate and Cost-Effective Placement (CACEP) Project,* to determine how the Medicare home health benefit can better meet beneficiary needs and improve the quality and efficiency of care provided within the U.S. healthcare system. As a part of the CACEP Project, the Alliance will issue a series of Working Papers examining Medicare claims data to determine how the appropriate use of care settings across the Medicare program can result in greater efficiency and reduced healthcare costs.

Working Papers #1 and #2 offer descriptive statistics to show the frequency of services provided across care settings by MS-DRG and clinical conditions, as well as the average Medicare payments for these episodes of care. The first two Working Papers presented analyze the use of home healthcare under three distinct episode types:

- Home health as a post-acute care provider within 60 days of discharge from an index acute care hospitalization;
- Home health as a pre-acute care provider for 60 days preceding admission to the index acute care hospitalization; and
- Home health as a non-post-acute care community-based provider for 9 months following discharge from a community home health admission).[1]

This summary highlights the most significant key findings of the CACEP Project's first two Working Papers.*

Home Healthcare Is A Cost Effective Setting for Post-Acute Care

Of the episodes that are admitted to a formal post-acute care setting upon discharge from the index acute care hospitalization (HHA, SNF, IRF, LTCH), home health first setting episodes are the least costly: representing 38.7 percent of episodes, but only 27.8 percent of first setting episode Medicare payments. By contrast, SNF first setting episodes represent 50.7 percent of first setting episodes and 52.3 percent of Medicare episode spending. IRFs represent 8.7 percent of episodes and 13.6 percent of spending, while LTCHs represent 2.0 percent of episodes and 6.3 percent of Medicare episode payments[2] (Exhibit 1).

EXHIBIT 1: Number of Episodes and Medicare Episode Paid by Formal First Settings for 60-Day Fixed-Length Post-Acute Episode (2007-2009)

FIRST SETTING	NUMBER OF EPISODES	PERCENT OF EPISODES IN FORMAL FIRST SETTINGS	MEDICARE EPISODE PAID (IN MILLIONS)	PERCENT OF MEDICARE EPISODE PAID FOR FORMAL FIRST SETTINGS
HHA	**3,005,900**	**38.7%**	**$61,155**	**27.8%**
SNF	3,938,080	50.7%	$115,064	52.3%
IRF	675,840	8.7%	$29,867	13.6%
LTCH	154,480	2.0%	$13,883	6.3%
Total	**7,774,300**	**100%**	**219,969**	**100%**

Source: Dobson DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009, wage index adjusted by setting and geographic region, and standardized to 2009 dollars. All episodes have been extrapolated to reflect the universe of Medicare beneficiaries. Medicare Episode Paid includes care from all facility-based and ambulatory care settings and excludes beneficiary co-payments. Medicare Episode Paid includes care from all facility-based and ambulatory care settings and excludes beneficiary co-payments.

Medicare Expenditures Across Post-Acute Care Settings

Average Medicare episode payments vary significantly by the first setting of care, ranging from $89,869 for LTCH first setting episodes to $14,478 for Community first setting episodes. The average payment for HHA first setting episodes is $20,345. The average Medicare episode payment for SNFs first setting episodes is $29,218, and $44,193 for IRF first setting episodes. The overall average Medicare episode payment across all first settings is $19,505. These average episode payments include the index acute care hospitalization payments and all related care (data not shown.)

Spending and Chronic Conditions

While formal post-acute care settings tend to specialize in treating patients with certain chronic conditions or acute ailments, HHA and SNF first setting episodes often have comparable MS-DRG rankings (by total Medicare episode payments). For example, major joint replacement or reattachment of lower extremity without MCC[3] (MS-DRG 470) is the top ranking MS-DRG for these care settings as well as for IRFs, and overall across all first settings (Exhibit 2). This suggests that patients treated for a given MS-DRG can be treated in multiple care settings. Since each care setting is associated with a significantly different overall episode cost structure, patients with the same clinical need may be able to be appropriately placed in a lower cost setting.

EXHIBIT 2: Top 5 MS-DRGs for 60-Day Fixed-Length Post-Acute Episode (Ranked by Medicare Episode Paid) by First Setting (2007-2009)

MS-DRG	MED/SURG	OVERALL	HHA	SNF	IRF	LTCH
470: Major joint replacement or reattachment of lower extremity w/o MCC	Surgical	**1**	**1**	**1**	**1**	34
871: Septicemia or severe sepsis w/o MV 96+ hours w MCC	Medical	2	6	3	20	3
291: Heart failure & shock w MCC	Medical	3	2	7	29	9
003: ECMO or trach w MV 96+ hrs or PDX exc face, mouth & neck w maj O.R.	Surgical	4	91	31	10	1
194: Simple pneumonia & pleurisy w CC	Medical	5	9	5	65	22

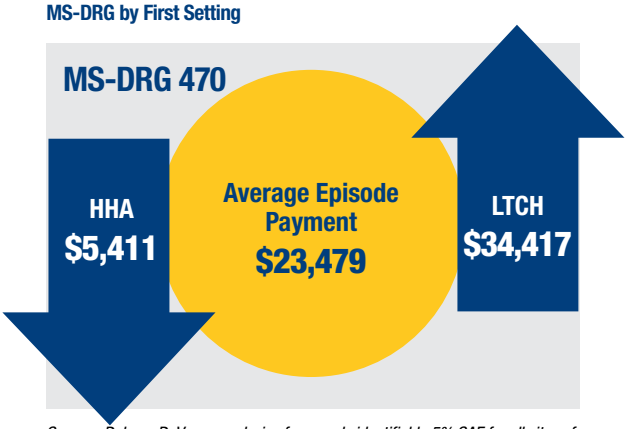
Variation in Medicare Expenditures Across MS-DRGs

Although average Medicare episode payment varies widely by first settings, the rankings of most-costly first settings remain consistent across MS-DRGs. HHA first setting episodes have the lowest average Medicare episode payment, followed by SNF, IRF and LTCH first setting episodes.

The range of the payment differences varies within and across MS-DRGs. For example, for MS-DRG 470 (major joint replacement or reattachment) the overall average episode payment is $23,479. The average HHA first setting episode payments are $5,411 less than the overall average, while LTCH first setting episodes are $34,417 more than the overall average (Exhibit 3).

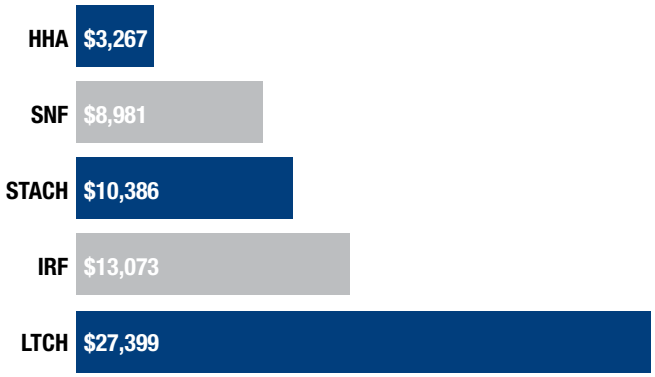
The variation in Medicare episode payments that exists across the different first settings is attributable to both the first setting and subsequent care that is used. The Medicare payment for index acute care hospitalizations and physician services received during the Index stay is relatively similar across a given MS-DRG; the Medicare episode payments to the first setting (Exhibit 4) and subsequent care settings comprise the greatest variation.

Exhibit 3: Average Medical Episode Payment Varies Within MS-DRG by First Setting



Source: Dobson DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009, wage index adjusted by setting and geographic region, and standardized to 2009 dollars. All episodes have been extrapolated to reflect the universe of Medicare beneficiaries. Medicare Episode Paid includes care from all facility-based and ambulatory care settings and excludes beneficiary co-payments.

Exhibit 4: Variation in Average Medicare Payments to Post-Acute Care First Settings for MS-DRG 470



Source: Dobson DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009, wage index adjusted by setting and geographic region, and standardized to 2009 dollars. All episodes have been extrapolated to reflect the universe of Medicare beneficiaries. Average Medicare Episode Paid includes care from all facility-based and ambulatory care settings and excludes beneficiary co-payments.

EXHIBIT 5: Distribution of Episodes and Medicare Episode Paid Defined by Primary Chronic Conditions for 60-Day Fixed-Length Pre-Acute Episode (2007-2009)

PRIMARY CHRONIC CONDITION	PERCENT OF EPISODES	PERCENT OF MEDICARE EPISODE PAID
CHF*COPD	24.9%	27.3%
DIABETES*CHF	13.3%	15.3%
CHF*RENAL	5.6%	6.3%
Lung Cancer	2.0%	2.5%
Osteoporosis	15.0%	12.8%
Other	39.1%	35.8%
Total	**100.0%**	**100.0%**

Source: Dobson DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009, wage index adjusted by setting and geographic region, and standardized to 2009 dollars. All episodes have been extrapolated to reflect the universe of Medicare beneficiaries. Medicare Episode Paid includes care from all facility-based and ambulatory care settings, and excludes beneficiary co-payments.

[a] For methodology used to determine primary chronic condition, see Working Paper #1.

EXHIBIT 6: Medicare Episode Paid and Percent of Medicare Episode Paid for All Episodes by Setting for 60-Day Fixed-Length Pre-Acute Episode (2007-2009)

SETTING	PERCENT MEDICARE EPISODE PAID
HHA	0.4%
SNF	1.2%
IRF	0.5%
LTCH	0.2%
STACH	74.5%
Physician	17.3%
Other	6.1%
Total	**100.0%**

Source: Dobson DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009.
All episodes have been extrapolated to reflect the universe of Medicare beneficiaries. Medicare Episode Paid includes care from all facility-based and ambulatory care settings, and excludes beneficiary co-payments.

EXHIBIT 7: Medicare Episode Paid and Percent of Medicare Episode Paid for All Episodes by Setting for 9 Month Fixed-Length Non-Post-Acute Care Community-Based Episode (2007-2009)

SETTING	PERCENT MEDICARE EPISODE PAID
HHA	28.9%
SNF	10.6%
IRF	2.2%
LTCH	2.1%
STACH	28.0%
Physician	16.1%
Other	12.2%
Total	**100.0%**

Source: Dobson DaVanzo analysis of research-identifiable 5% SAF for all sites of service, 2007-2009.
All episodes have been extrapolated to reflect the universe of Medicare beneficiaries. Medicare Episode Paid includes care from all facility-based and ambulatory care settings, and excludes beneficiary co-payments.

Home Healthcare Could Be Better Utilized in Pre-Acute Care to Prevent Avoidable Hospitalizations

As shown in Exhibit 5, pre-acute care episodes are concentrated among the highest severity primary chronic conditions (CHF*COPD[4], Diabetes*CHF[5] and Osteoporosis).

Medicare payments for home health, SNF, IRF and LTCH combined represent only 2.3 percent of all pre-acute care Medicare episode payments (Exhibit 6). This is likely due to the healthcare system's reliance on these settings for post-acute care following acute care hospitalizations. Acute care hospitalizations (including the index and any other stays) and physician services collectively represent about 92 percent of Medicare episode payments.

Home Healthcare Can Effectively Manage Chronic Conditions in the Non-Post-Acute (Community-Based) Setting

Similar to the pre-acute care episodes, non-post-acute care episodes are concentrated among the highest severity primary chronic conditions, including congestive heart failure, COPD, diabetes, renal failure, and osteoporosis.

Care is distributed more widely across care settings in non-post-acute community-based care episodes than in pre-acute care episodes. Whereas almost 92 percent of all Medicare episode payments for pre-acute care were associated with hospital admissions and physician services, only 44.1 percent of payments were associated with those settings in non-post acute care community-based episodes. Moreover, home healthcare represents 28.9 percent of episode payments, as opposed to 0.4 percent in pre-acute care episodes (Exhibit 7).

DEFINING THE EPISODE TYPES

POST-ACUTE CARE	Post-acute care episodes studied in the Project begin with an index acute care hospitalization and extend 60 days after hospital discharge. An index acute care hospitalization is defined by a hospital admission that is preceded by 15 days of no facility-based or home healthcare. Episodes are clinically defined by the index acute care hospitalization MS-DRG. This episode framework is similar to the post-acute care episodes included in CMS' Bundled Payment for Care Improvement (BPCI) initiative.
PRE-ACUTE CARE	Pre-acute care episodes are clinically defined by a "primary chronic condition." Primary chronic condition was determined by mapping each chronic condition identified in the patients' Chronic Condition Warehouse (CCW) claims to the corresponding hierarchical condition category (HCC) with the highest community-risk score. Episodes are clinically defined by the chronic condition with the highest community-risk score.
NON-POST-ACUTE (COMMUNITY-BASED) CARE	Non-post-acute care or community-based episodes begin with a community admission to home health. This episode type captures all care during the 9 months following completion of the index home health admission. Patients who meet the Medicare eligibility requirements to receive home healthcare can be referred by physicians in the community, as opposed to being referred by a hospital. Like the pre-acute care episodes, each non-post-acute community-based care episode is clinically defined by a "primary chronic condition" that categorizes episodes according to linkage of the Chronic Condition Warehouse (CCW) chronic condition flags and the community-risk score of HCCs.

Conclusions

Working Papers 1 and 2 demonstrate the complexity of how and when care is provided both prior to, and following, an acute care hospitalization. Across all three episode types, episodes and Medicare episode payments are highly concentrated within a few MS-DRGs or chronic conditions.

Across first settings, episodes for these high-volume MS-DRGs have very different compositions (the services contained in the episode) and average Medicare episode payments. While care settings often specialize in select MS-DRGs, the overlap of MS-DRGs across first settings is evidence that all formal post-acute care settings have the ability to treat a variety of patient conditions. MS-DRG 470 is a good example of this, as this is the highest ranked MS-DRG for HHA, SNF, and IRF first setting episodes.

As a result, this may suggest that patients with appropriate clinical characteristics can be placed in lower cost settings. This would reduce overall health care expenditures and allow patients to receive care in the home – their preferred setting.

About the Alliance for Home Health Quality and Innovation

The Alliance for Home Health Quality and Innovation (the Alliance) is comprised of leaders in the home healthcare community – including several of the largest home healthcare providers in the United States and the largest national trade association representing home healthcare providers. The Alliance invests in research and education to further its mission of demonstrating and enhancing the value proposition home healthcare offers to the U.S. healthcare system and to patients in delivering quality, cost-effective, patient-centered care. The Alliance is dedicated to improving the nation's health care system through development of high quality and innovative solutions aimed at achieving optimal clinical outcomes.

[1] An "index acute care hospitalization" is an acute care hospital admission that is preceded by 15 days of no facility-based or home health care. Both the post-acute and pre-acute care episodes include the Medicare payments for the index acute care hospitalization. Likewise, the non-post-acute community-based care episode includes the Medicare payments for the index home health admission.

[2] While about one-third of post-acute care episodes have a formal first setting, most post-acute care episodes are for patients who are discharged from an index acute care hospital into the community. More than half (52.7 percent) of all post-acute care episodes have a "Community" first setting, meaning that the patient received physician and other outpatient services prior to receiving care from any other setting.

[3] "MCC" refers to major complications or comorbidities.

[4] Patients with both congestive heart failure (CHF) and chronic obstructive pulmonary disease (COPD)

[5] Patients with both Diabetes and CHF

*CACEP Project also includes a third working paper on patient pathways and a fourth working paper on readmissions. The working paper series will culminate in a final report exploring how home healthcare can make the medical program more effective and efficient.