



ACUMEN

**Skilled Nursing Facility Therapy Payment Models
Technical Expert Panel Summary**

November 2015

Acumen, LLC
500 Airport Blvd., Suite 365
Burlingame, CA 94010

TABLE OF CONTENTS

1	Introduction	3
2	Panel Overview	4
2.1	Objectives	4
2.2	Structure	4
2.3	Materials	4
2.4	Members	5
3	Discussion and Recommendations	7
3.1	Session 2: Evaluating Therapy Payment Alternatives	7
3.1.1	Therapy Payment Alternatives	8
3.1.2	Evaluation Criteria	9
3.2	Session 3: Identifying Therapy Costs for Medicare Part A Stays	10
3.2.1	Therapy Units	11
3.2.2	Therapy Utilization Measures	13
3.2.3	Therapy Discipline Options	14
3.3	Session 4: Understanding and Addressing Special Subpopulations	16
3.3.1	Total Therapy Costs and Payment Units	16
3.3.2	Facility Access and Beneficiary Complexity	17
3.3.3	Additional Subpopulations for Consideration	18
3.4	Session 5a: Selecting Beneficiary Characteristics Predictive of Therapy Utilization	19
3.4.1	Clinical Condition	20
3.4.2	ADLs and Other Functional Measures	21
3.4.3	Comorbidity Groupings	22
3.4.4	Additional Beneficiary Characteristics	23
3.5	Session 5b: Identifying Limitations of Current Data and Models	24
3.5.1	Modeling Therapy Costs	24
3.5.2	Accounting for High-Cost Outliers	25
3.5.3	Accounting for Variation in Therapy Intensity across the Stay	26
3.5.4	Predicting Length of Stay and Intensity of Therapy Services	27
3.6	Session 6: Exploring Additional Patterns in Therapy Utilization	29
3.6.1	Changes in Therapy Intensity across a Stay	29
3.6.2	High-Cost Stays	30
	Appendix A : Discussion Objectives and Questions	32
A.1	Session 2: Evaluating Therapy Payment Alternatives	32
A.2	Session 3: Identifying Therapy Costs for Part A Stays	32
A.3	Session 4: Understanding and Addressing Special Subpopulations	33
A.4	Session 5a: Selecting Beneficiary Characteristics Predictive of Therapy Utilization	33
A.5	Session 5b: Identifying Limitations of Current Data and Models	34
A.6	Session 6: Exploring Additional Patterns in Therapy Utilization	35

LIST OF TABLES AND FIGURES

Table 1: TEP Panelists	5
------------------------	---

1 INTRODUCTION

This report summarizes the technical expert panel (TEP) established by Acumen, LLC to discuss the development of alternative payment models for Medicare Part A therapy services in the skilled nursing facility (SNF) setting. The TEP is part of Acumen's ongoing effort as part of a contract with the Centers for Medicare & Medicaid Services (CMS) to identify, evaluate, and propose potential alternatives to the current SNF Prospective Payment System (PPS). Specifically the project team is working towards two goals: (1) identifying and assessing potential alternatives to SNF PPS therapy payments, and (2) examining whether improvements can be made to overall SNF PPS payments. The TEP meeting summarized in this report was held in order to solicit feedback in support of the first goal, with panelists providing comments and recommendations on SNF PPS therapy services. The SNF Therapy Payment Models TEP was held on February 19, 2015 at the CMS headquarters in Baltimore, Maryland, and the discussion focused on the results of Acumen's work to date.

Since 1998, Medicare has paid for services provided by SNFs under the Medicare Part A benefit on a per-diem basis through the SNF PPS, with therapy reimbursement based primarily on the amount of therapy provided to a beneficiary. Recommendations to change the reimbursement model have been proposed by the Medicare Payment Advisory Commission (MedPAC) and the Office of the Inspector General (OIG), as well as The Urban Institute in research commissioned by CMS. These reports advocate for a new payment model to promote individualized care for beneficiaries by setting payment using specific beneficiary characteristics and therapy care needs in place of service use. To address these opportunities for improvement, CMS has contracted with Acumen to consider alternative therapy payment approaches that would strengthen the system. The project aims to:

- Develop potential payment alternatives for SNF therapy services that promote payment accuracy and positive beneficiary outcomes
- Assess the impact of alternative payment models on SNF beneficiaries, SNF providers, and the overall Medicare system
- Recommend payment modifications for adoption by CMS

Acumen will use the feedback provided by TEP panelists and summarized in this report to identify opportunities for improvement that can be incorporated as the project moves forward. This report begins by outlining the objectives, methods, and composition of the TEP panel. It then summarizes the discussion held by the TEP panelists, including recommendations made to Acumen. A separate memo explains next steps Acumen will take to incorporate the TEP panel's recommendations into present and future research.

2 PANEL OVERVIEW

This section presents an overview of the SNF therapy payment models TEP. Section 2.1 summarizes the objectives and scope of the TEP. Section 2.2 describes the structure of the TEP, and Section 2.3 describes the materials provided to panelists. Lastly, Section 2.4 contains a list of all TEP panelists and brief descriptions of their backgrounds.

2.1 Objectives

The TEP had three main objectives:

- Discuss potential criteria for evaluating therapy payment approaches.
- Review and discuss the key features of SNF therapy payment approaches.
- Provide recommendations for the further exploration and development of SNF therapy payment approaches.

To accomplish these objectives, the TEP reviewed the research into different approaches for designing components of a SNF therapy payment system and made recommendations about the relative strengths and limitations of each of these approaches. Moreover, the TEP offered suggestions for refinements to these approaches.

In addition to researching alternative payment approaches for SNF therapy services, the project team is also investigating alternative methods for paying for SNF services more broadly. However, the focus of this TEP was limited to the research into therapy payment systems. As other aspects of the payment system are investigated in the future, CMS and Acumen will facilitate additional opportunities for stakeholder involvement.

2.2 Structure

The TEP was organized into a series of topic-specific discussion sessions. It was held on February 19, 2015, from 8:30 a.m. to 4:00 p.m., at CMS headquarters in Baltimore, Maryland. Throughout the day, panelists engaged in a structured discussion about SNF therapy payments guided by an Acumen moderator. To motivate the discussion, Acumen project team members presented empirical results pertaining to specific aspects of therapy payment and the moderator posed relevant discussion questions.

2.3 Materials

Prior to the TEP, Acumen provided panelists with an agenda, a TEP charter stating the scope and duties of the panel, a list of TEP members, and a logistics document. The agenda outlined the scheduled discussion sessions, with a description of the objective of the session, the discussion topics, and detailed discussion questions for review. The discussion questions can be found in Appendix A. Panelists were also encouraged to read the [public report](#) published on the

CMS website that summarizes the analysis and findings from the first phase of the project team’s research.

2.4 Members

The TEP was composed of expert representatives from consumer and provider stakeholder organizations, as well as independent researchers. Table 1 lists the TEP panelists and their organizational affiliation.

Table 1: TEP Panelists

Name	Organizational Affiliation
Rochelle Archuleta <i>MSHA, MBA</i>	Senior Associate Director of Policy, American Hospital Association
Alice Bell <i>PT, DPT, GCS</i>	Member, American Physical Therapy Association; Vice President of Clinical Services, Genesis Rehabilitation Services
Michael Capstick <i>PT</i>	Co-Chairman of Medical Services Committee, National Association for the Support of Long-Term Care
Toby Edelman <i>JD</i>	Senior Policy Attorney, Center for Medicare Advocacy
Brant Fries <i>PhD</i>	Professor, Institute of Gerontology, University of Michigan
Judi Kulus <i>RN, MAT, RAC-MT, C-NE</i>	Vice-President of Curriculum Development, American Association of Nurse Assessment Coordination
Natalie E. Leland <i>PhD, OTR/L, BCG, FAOTA</i>	Fellow, American Occupational Therapy Association; Assistant Professor, School of Gerontology, University of Southern California

Name	Organizational Affiliation
Mary Ousley <i>RN</i>	Member and Past Chair, American Health Care Association; President, Ousley and Associates
Timothy Reistetter <i>OTR, PhD</i>	Associate Professor, University of Texas Medical Branch
Cynthia Rudder <i>PhD</i>	Leadership Council, National Consumer Voice for Quality Long-Term Care; Founder and Past Director, Long-Term Care Community Coalition
William Scanlon <i>PhD</i>	Senior Consultant, National Health Policy Forum; Former Managing Director, Government Accountability Office; Former Commissioner, MedPAC
Jill Sumner <i>MPH, MBA</i>	Vice President, Health Policy and Integrated Services, LeadingAge
Mary Van de Kamp <i>CCC-SLP</i>	TEP Panelist Representing the American Speech-Language Hearing Association; Senior Vice-President of Quality and Care Management, Kindred Healthcare
Doug Wissoker <i>PhD</i>	Applied Economist and Senior Fellow, Statistical Methodology Group, Urban Institute

3 DISCUSSION AND RECOMMENDATIONS

This section summarizes the discussions held during the TEP and highlights the recommendations provided by panelists. The TEP included six discussion sessions covering topics related to developing an alternative SNF therapy payment system, as well as an open discussion session at the end of the day for non-participant observers to offer their feedback. For each of these sessions in turn, the following sections present the session's background and context, describe the discussion, and compile the panelists' recommendations. The recommendations below are not intended to represent the consensus view of all TEP panelists, but rather the suggestions of individual panelists. Where relevant, the sections below also summarize comments from observers made during the open discussion that related to the session's discussion topics.

The TEP contained the following discussion sessions, summarized below:

- [Session 2](#): Evaluating Therapy Payment Alternatives
- [Session 3](#): Identifying Therapy Costs for Medicare Part A Stays
- [Session 4](#): Understanding and Addressing Special Subpopulations
- [Session 5a](#): Selecting Beneficiary Characteristics Predictive of Therapy Utilization
- [Session 5b](#): Identifying Limitations of Current Data and Models
- [Session 6](#): Exploring Additional Patterns in Therapy Utilization

3.1 Session 2: Evaluating Therapy Payment Alternatives

This session's objective was to identify and define characteristics of a well-designed therapy payment alternative or refinement. The session began with a review of the broad therapy payment concepts that were considered as potential alternatives to the SNF PPS: a resident characteristics model, an adjusted resident characteristics model, a fee schedule, and a competitive bidding approach. Next, Acumen presented the criteria it used to evaluate, compare, and select a subset of the alternatives for further specification and testing during the base year. Acumen asked panelists to discuss the existing evaluation criteria and propose additional criteria that are important to consider when evaluating alternatives to the SNF PPS therapy component. Specifically, Acumen asked the panelists to consider the following questions:

- (i) Do the six criteria groups identified by Acumen capture the full range of characteristics of a successful therapy payment system?
- (ii) Which beneficiary characteristics are considered reproducible, verifiable, and objective?

- (iii) What are effective approaches for measuring how well a payment system improves predictability and reduces system complexity relative to the SNF PPS?
- (iv) When considering the effect of the SNF therapy payment system on other settings, are there particular settings that should be given more weight?

3.1.1 Therapy Payment Alternatives

After Acumen reviewed the four main payment approaches evaluated during the initial phase of this project, Acumen explained the two strongest candidates were the resident characteristics model and the adjusted resident characteristics model; these options are the focus of Acumen's current research efforts. The remainder of this section describes the panelists' discussion of the merits of these payment concepts as well as their recommendations.

Discussion

Panelists supported the consideration of a therapy payment system alternative based on resident characteristics. No alternative options were offered or discussed. Some panelists questioned, however, whether a payment system based on resident characteristics developed using currently available data could improve upon the ability of the current system to explain variation in therapy costs. A system that uses the amount of therapy services provided to determine payment should statistically outperform any system that uses resident characteristics. To provide context for discussion of alternative payment systems, panelists described the process used to develop the original Resource Utilization Group (RUG)-based SNF payment system. The panelists explained that during this development process, practitioners could not agree on standards for the appropriate amount of therapy to provide to residents, reflecting a lack of consensus in the industry overall. Given the absence of consistent standards for appropriate volume of service, the developers of the original SNF payment system instead chose to proceed with the service-use-based model used in the existing SNF PPS.

Panelists also discussed the relationship between alternative payment systems and apparent overutilization of therapy. One potential cause of overutilization of therapy services, panelists noted, may be that CMS is providing too much reimbursement for these services, incentivizing facilities to provide more rehabilitation; conversely, reducing reimbursement would likely decrease the amount of therapy provided. Panelists discussed the merits of a fee-for-service system with reduced payment compared to a resident-characteristics-based payment system. Panelists generally agreed that a payment system based on resident characteristics would be conceptually preferable, but they noted that therapy costs are not independent of other expenses incurred by the facilities and that all of these costs need to be considered in the development of an alternative payment system.

Recommendations

- Continue development of an alternative payment system based on resident characteristics.

3.1.2 Evaluation Criteria

Acumen introduced the six criteria groups identified during the initial stage of this project as the guidelines for evaluating therapy payment system alternatives and refinements. The six criteria groups include:

- (i) Improves payment accuracy for SNF services
- (ii) Improves alignment between payment and clinical characteristics
- (iii) Feasible to implement in the short-to-medium-term
- (iv) Minimizes burden on stakeholders
- (v) Minimizes start-up and ongoing implementation costs for CMS
- (vi) Reduces impacts on or improves consistency with other settings and payers

The remainder of this section summarizes the discussion and recommendations related to these criteria as well as additional criteria proposed by the panelists.

Discussion

Panelists supported the existing evaluation criteria proposed by Acumen and noted additional criteria that should be considered in assessing an alternative payment system. Two major topics related to additional criteria were discussed at length:

- Ensuring sufficient levels of therapy to achieve the highest possible well-being for all residents, including those receiving maintenance therapy
- Accounting for outcomes of therapy provision

First, panelists noted that some therapy is provided to prevent or to slow residents' decline or deterioration rather than to restore function and that this therapy is an important type of care provided in a SNF. The recent court decision of *Jimmo v. Sebelius* on the topic of Medicare coverage for beneficiaries requiring maintenance therapy was discussed. Some panelists expressed concern that a new reimbursement system may contradict the standard set by this decision, and therefore the incentives related to providing maintenance therapy should be considered during the evaluation process.

Second, panelists stated that Acumen should consider criteria related to beneficiary outcomes. Panelists generally expressed support for the recently passed Improving Medicare Post-Acute Care Transformation (IMPACT) Act and its emphasis on quality monitoring. Moreover, panelists noted that accounting for provisions of the IMPACT Act will be critical to developing a new payment system. They also observed that while the IMPACT Act does not

require quality measures be included as part of a SNF therapy payment system, quality monitoring can be used to improve the likelihood that residents receive the services they require. On a related topic, panelists noted the difficulty of identifying overutilization and underutilization of therapy without accurate measures of resident outcomes. They recommended that CMS prioritize developing therapy-related outcome measures. Panelists also noted the importance of improving beneficiary engagement in their rehabilitative process by moving towards a system of patient-centered care.

In addition to suggesting new criteria, panelists also expressed strong support for Acumen's criteria related to coordination with other settings and payers. Panelists noted that the SNF setting is not independent of other post-acute care (PAC) settings, and development of a revised SNF therapy payment system should account for how significant changes will affect all PAC settings. Panelists also recommended considering the use of other existing assessment tools used in other settings.

The panelists also cautioned that all work done using the International Classification of Diseases, Ninth Revision (ICD-9) will need to be reevaluated once the International Classification of Diseases, Tenth Revision (ICD-10) codes are in use. This topic was discussed as it relates to the sub-criterion stating that measures must be reproducible, verifiable, and objective. Panelists noted that ICD-10 may change the information available about the relationship between therapy and observable health status, and opined that no model should be implemented without first investigating changes due to ICD-10.

Recommendations

- Consider the impacts of any changes to the current payment system on residents requiring maintenance therapy.
- Develop criteria to evaluate models on their ability to improve therapy-related outcomes.
- Check for consistencies between recommended system and other PAC settings.
- Test for consistency between recommended model developed using data from ICD-9 and data from ICD-10.

3.2 Session 3: Identifying Therapy Costs for Medicare Part A Stays

This session's objective was to understand the components of measuring therapy services and the impacts of each component on estimating the relationship between beneficiary characteristics and therapy use. This session consisted of three major topics:

- the implications of defining the unit of therapy as either per day, per stay, or per benefit period
- differences between measuring total therapy in minutes, charges, or costs

- whether to model the three therapy disciplines—physical, speech, and occupational therapy—separately or together

During this session, Acumen asked panelists to discuss the following questions:

- (i) Which therapy unit provides the most comprehensive measure of a beneficiary’s related SNF therapy services?
- (ii) Which payment unit is the most feasible in the Part A setting from an operational perspective?
- (iii) Should the three therapy disciplines be modeled together or separately?

3.2.1 Therapy Units

The project team opened the discussion of selecting an appropriate unit for measuring related SNF therapy costs by defining each of the units under consideration: per day, per stay, and per benefit period. The median and 95th percentile of therapy costs, charges, and minutes were then shown for per-day, per-stay, and per-benefit-period units to help illustrate the effects of the choice of unit on estimates of therapy costs. Therapy provided during the stay represents a lower-bound estimate of the total therapy services that a beneficiary received related to the same condition(s), while therapy provided during the entire benefit period represents an upper bound since it combines all stays within the same Medicare-defined benefit period. Acumen explained that therapy units can be used in two ways: (1) to find what characteristics determine therapy use as defined by a given unit and (2) as a potential unit of payment. Different units can be used for the two purposes, as they do not always need to be aligned. For example, if therapy minutes per day is selected as the payment unit, Acumen could either choose to find predictors of per day therapy use or it could choose to find the predictors for per stay therapy use and derive per-day utilization by dividing over the length of the stay. Acumen said it plans to use therapy minutes per stay and therapy minutes per benefit period as lower and upper estimates of related SNF therapy services provided, and to concurrently test per-day and per-stay units of payment. The remainder of this section summarizes panelists’ discussion related to the choice of therapy unit, as well as their recommendations.

Discussion

In general, panelists strongly supported using a per-day payment unit to avoid stinting (i.e., providing less care than clinically necessary). They said the payment unit needs to be flexible to accommodate changes in a beneficiary’s need for services during a stay. A panelist noted that the level of therapy provided is not consistent over a stay and can increase or decrease from day to day. Some panelists cautioned that efforts to capture changes in a beneficiary’s condition over a stay should be balanced against the goal of not increasing the existing assessment burden on facilities. They noted that there are already multiple required assessments—Start of Therapy, End of Therapy, Change of Therapy—that signal a change in

condition. These panelists opposed any additional assessments, and the majority of panelists expressed hope that a new payment model would eliminate redundant assessments. Panelists expressed concern about changing the payment unit without safeguards to maintain quality of care. Some panelists stated that moving from a per-day unit of payment to a per-stay or per-benefit-period unit would be premature without quality measures and monitoring in place. One proponent of a per-day unit said a per-diem payment system should be paired with quality measures to counterbalance incentives to lengthen stays.

Panelists discussed whether a per-stay or per-benefit-period unit more accurately captures therapy provided during a clinically relevant episode of care. Some panelists argued that a per-stay unit is more appropriate than a per-benefit-period unit, but they cautioned that no payment unit will perfectly match every beneficiary's care needs because there are many unknowns involved in predicting changes in a beneficiary's health status. Other panelists noted that selection of an appropriate payment unit depends on the specific characteristics of the beneficiary.

The panel warned that any sort of aggregated payment unit (e.g., per-stay) would incentivize care stinting (i.e., providing less care than clinically necessary). A per-stay payment system provides facilities with an incentive to reduce the length of stays. Panelists noted that the original RUGs were developed with consideration for not just Medicare, but all nursing home care. They explained that if the payment system moves to an episode or stay basis, this creates an incentive to end Medicare stays early for beneficiaries and transition them to long term care. The facility would receive the full stay payment from Medicare but continue to provide care to the beneficiary as a long-term-care resident and, in some cases, receive Medicaid payments. A few panelists raised concerns about the effect of an episode-based payment on beneficiary copayments for dual-eligible beneficiaries. They noted that under an episode-based payment, some days that would have been free for the beneficiary under the Medicare SNF benefit would be reclassified as Medicaid long-term care days if the Medicare episode is cut short; under this scenario, beneficiaries would have to pay Medicaid copays for those days. Other panelists noted that other Medicare settings reduce per-stay payments if a beneficiary's stay is less than the average stay length for that type of beneficiary. The panelists agreed that this approach would reduce the incentive to stint on care, but they noted that moving the Medicare system to an episode-based payment would make it incompatible with Medicaid and private insurance payments and could create unintended consequences for the larger system. Panelists generally agreed that if a goal of the payment redesign is to align Medicare and Medicaid nursing home care, then a per-day unit is the only choice compatible with this goal.

Panelists also debated the effect of a new payment system on the overall level of payments for SNF therapy services. Some panelists expressed concern that a new payment

system would reduce overall payments. In response, several panelists noted that there are clear incentives in the current system for overutilization that need to be addressed. However, these panelists stated that changes to the payment incentives should be coupled with quality measures to ensure that quality of care is not negatively impacted. These panelists stated that payment reform would likely be based on current utilization levels, which means payment rates would not be set below current utilization levels but future growth in therapy utilization could be stemmed. Panelists discussed overutilization in Canada to identify lessons relevant to the U.S. SNF setting. A panelist noted that in Canada there was an increase over time in therapy utilization, but over this same period, both the characteristics of SNF beneficiaries and the outcomes that they experienced remained unchanged. Given this example, panelists recommended conducting similar studies of therapy utilization, beneficiary characteristics, and outcomes in the U.S. to better understand the relationship between changes in therapy over time and changes in the beneficiary population. Panelists posed the question of whether to develop an alternative payment system based on current SNF utilization patterns or on usage prior to the expansion in therapy provision, but they reached no consensus.

During the open discussion session at the end of the TEP, an observer expressed support for episode-based payments because they make providers accountable while leaving day-to-day decision-making to them. The observer argued that an episode-based model would position the SNF setting in line with future, large-scale payment reform.

Recommendations

- Use a per-day payment unit in the absence of quality monitoring.
- Use a per-stay unit rather than a per-benefit-period unit to measure a beneficiary's total therapy received during an episode of care.
- Minimize adverse impacts of the new system on beneficiaries' out-of-pocket costs.
- Consider payment system changes in the context of nursing home care broadly (e.g., Medicaid in addition to Medicare).

3.2.2 Therapy Utilization Measures

To illustrate various measures of therapy utilization, the project team presented data on total therapy costs, charges, and minutes by per-day, per-stay and per-benefit-period units. Data shared with panelists was drawn from charges and utilization days in SNF claims, cost-to-charge ratios (CCRs) from cost reports, and minutes from MDS assessment data. Estimates of therapy utilization differed widely across the three utilization measures based on the unit selected. Acumen informed the panelists of its intention to test therapy costs as the primary measure of utilization, while continuing to test the secondary measures at important stages of the modeling process to verify results. This section summarizes the TEP panel's discussion of these issues as well as their recommendations.

Discussion

Panelists generally agreed that costs (calculated from claim charges and cost report CCRs) are an appropriate measure of therapy utilization. Some remarked that minutes are more appropriate since they are the foundation of therapy costs. Panelists then discussed the potential problem of using minutes to measure utilization of group therapy. They noted that the relative frequency of group, concurrent and individual therapy changed drastically when CMS modified the therapy minute calculation and introduced weighting distinctions. After the change, minutes of group therapy minutes are only weighted as a fourth of an individual therapy minute. Similar adjustment was made for concurrent therapy. Panelists claimed that this change in payment policy has created a discrepancy between reported minutes and the cost of therapy, and therefore costs represent a more appropriate measure of therapy utilization. Acumen noted that the analysis used total minutes as reported on the Minimum Data Set (MDS) assessment to measure therapy utilization, rather than the adjusted minute count used for payment classification.

Some panelists discussed problems obtaining minutes and charges from current data sources, and they suggested that better reporting of minutes and charges would allow for better tracking of changes in therapy over time. Given the IMPACT Act's requirement to use a single assessment across settings, panelists argued that one consideration in the selection of such an assessment should be improving measurements of therapy. Panelists also discussed potential improvements to the MDS as well as other assessment tools used by third-party care coordination organizations. Panelists explained that some of these organizations are not only focusing on care in skilled nursing facilities but also on transitioning beneficiaries into the home health setting sooner. They noted that alternative data sources, such as the Continuity Assessment Record and Evaluation (CARE) tool and tools developed by RTI International, are becoming more widely used and that they may contain important information on utilization and on resident characteristics. In addition, panelists noted that Acumen should consider how the revised payment system and corresponding assessment tool will function in light of the other PAC settings. They noted that alignment in payment structures across PAC settings may also foster more compatible measures of therapy utilization and resident characteristics across settings.

Recommendations

- Continue using costs as main measure of therapy utilization.
- Consider alternative utilization measures from other existing assessment tools.

3.2.3 Therapy Discipline Options

The project team presented empirical results that showed physical therapy, occupational therapy, and speech therapy costs by per-day, per-stay and per-benefit-period units. These summary measures show that the three therapy disciplines are not equally used for SNF PPS

beneficiaries; physical and occupational therapy are much more common than speech therapy. The project team noted that physical and occupational therapy would likely drive any observed connections between beneficiary characteristics and therapy use if estimated using total therapy as a dependent variable. Acumen explained it plans to examine the relationship between resident characteristics and individual therapy disciplines and use total therapy as a baseline comparison. The remainder of this section describes panelists' discussions of modeling the three disciplines, as well as their recommendations.

Discussion

The panel remarked that Acumen's evaluation criteria group two, "Improves incentives to provide the appropriate level of care for individuals," implies that preference should be placed on separately estimating the use of each therapy discipline. Panelists noted that if detailed beneficiary characteristics are collected, and differences are observed in the resident characteristics associated with particular therapy disciplines, then therapy disciplines should be modeled separately.

Other panelists suggested that the choice between modeling total therapy and modeling separate disciplines would not impact the results. Because costs for all three disciplines are roughly linear, the combined effect of modeling the disciplines separately will generally match the model using only total therapy. Some panelists were concerned that combining the disciplines could reduce information about which characteristics are important predictors of each type of therapy. Panelists stated that predictors of speech therapy likely differ from predictors of physical and occupational therapy. One panelist noted that the panelist's previous research on this topic found similar estimates using combined and separate disciplines, but modeling the disciplines separately helped identify which beneficiary characteristics were most correlated with each discipline. This panelist used the same predictive characteristics across disciplines to examine the relationship between these characteristics and costs for each modality. Panelists agreed with this strategy and stated that as long as the same beneficiary characteristics are used to predict total costs, the result would be equivalent to predicting costs for each discipline separately and then combining them. Panelists called for careful consideration of the decision. They noted that while speech therapy is a small portion of total therapy, characteristics that are not predictive of physical or occupational therapy but that are predictive of speech therapy should be retained in the models.

Recommendations

- Examine beneficiary characteristics' predictive ability for each therapy discipline separately before removing characteristics from the combined model.

3.3 Session 4: Understanding and Addressing Special Subpopulations

This session's objective was to identify and examine differentiating characteristics and therapy service patterns for special SNF subpopulations. As two examples, Acumen began by presenting information on how residents with prior long-term care and those in hospital-based facilities differ from other SNF residents. The project team demonstrated that these two subpopulations have different therapy usage patterns and characteristics relative to the general SNF population. During this session, Acumen asked panelists to consider the following questions:

- (i) How do residents with prior long-term-care stays differ from other residents?
- (ii) How do cost structures differ between hospital-based and freestanding facilities?
- (iii) Are there any additional subpopulations that should be considered separately in relation to therapy services?

3.3.1 Total Therapy Costs and Payment Units

The TEP discussed the unit that should be used to calculate therapy costs for special subpopulations of residents. Earlier in the day, Acumen had asked panelists to consider using a per-stay or per-benefit measure of utilization, and a per-day or per-stay payment unit. As noted above, in Section 3.2.1, panelists generally supported using a per-day payment unit, with some reservations. This section summarizes the discussion of which units would be most appropriate to measure costs and utilization for special subpopulations, as well as the panel's recommendations.

Discussion

The panel discussed the merits of using a per-day or per-stay payment unit, and a per-stay or per-benefit-period unit of therapy measurement for hospital-based facilities and beneficiaries with prior long-term care. Specifically, panelists noted that transfers from hospital-based to freestanding facilities should often be considered one continuous period of care, suggesting that a per-benefit-period unit would be most appropriate for this subpopulation. Some were concerned by the implication that some beneficiaries could be paid based on a per-stay or per-day unit while others in special subpopulations could be paid on a per-benefit-period basis. Acumen clarified that the research unit used to model therapy costs and utilization to design a new payment system would not necessarily be the same unit used to determine payment in the system that is ultimately recommended or adopted. The panelists discussed various options to address varying needs in the unit of therapy measurement. One panelist argued that the per-benefit-period measure is only relevant in the context of site-specific (i.e., SNF) payment for PAC, and if CMS moves towards a site-neutral payment that covers all services, the need for a per-benefit-period payment unit would be eliminated. Others suggested that rather than making specific modifications for special populations in the payment system, Acumen could consider other

adjustments to compensate facilities for the treatment of these beneficiaries, such as outlier payments. Hospital-based facilities, for example, generally have lower therapy usage than freestanding facilities. A resource-utilization-based adjustment could compensate for these differences.

Recommendations

- Consider transfers between hospital-based and freestanding facilities as related care.
- Consider using resource-utilization-based pricing adjustments to accommodate hospital-based populations within the payment system.

3.3.2 Facility Access and Beneficiary Complexity

The TEP panelists discussed concerns surrounding facility access and beneficiary complexity, specifically in the context of special subpopulations. This section summarizes those concerns.

Discussion

Panelists were concerned that singling out special subpopulations for the purpose of setting payment could have negative effects on quality of care, and they emphasized the importance of accounting for the complexity and characteristics of these populations. One panelist warned that research indicating that beneficiaries with prior long-term-care stays receive limited benefit from therapy might lead CMS to adopt a payment system that would result in reduced access to therapy for these residents. The panel described the different therapy utilization patterns of certain subpopulations. For example, residents returning to long-term care after their SNF stay may not have the same therapy goal of complete functional independence as residents returning to their home. Residents who experience an acute episode in the SNF that requires returning to the hospital may require therapy upon return to the SNF to return to their functional level prior to the second acute episode. One panelist cautioned against the assumption that short stays are characteristic of treatment in hospital-based facilities. The panel further noted that geographic variation may affect service utilization. For example, certain PAC markets may only have a hospital-based SNF and no inpatient rehabilitation facility (IRF), leading to shorter stays at the SNF. Consequently, the services beneficiaries receive may be driven by the availability of different types of PAC facilities in the area, which may limit access, rather than by patient need.

For the two subpopulations discussed, residents with prior long-term care and residents in hospital-based facilities, panelists suggested characteristics that may measure these residents' complexity, such as attributes of their qualifying inpatient stay, resident information from other prior Medicare utilization, number of comorbidities, discharge destinations, and beneficiary engagement and support. Many agreed that current data does not capture beneficiary

engagement and support as accurately and objectively as possible. One panelist noted that engagement can come from both the beneficiary and the support system surrounding the beneficiary, and the panel discussed the possibility of exploring measurable differences between English-speaking beneficiaries and other residents to attempt to measure support. A panelist cautioned against incorporating socioeconomic status, because research has shown that beneficiaries from all socioeconomic backgrounds do better in higher quality nursing homes with better staffing. Lower-income beneficiaries, however, are often steered to lower-quality nursing homes with lower staffing, leading to worse outcomes. The panelist was concerned that accounting for socioeconomic status would not take into account the complexity of the issue.

The panelists also emphasized that it is critical for a payment system to account for the costs associated with treating all beneficiaries, not just those falling into designated subpopulations. Identifying predictors of cost for all populations requires looking beyond therapy to other factors that contribute to medical complexity.

Recommendations

- Investigate characteristics that could contribute to complexity of residents with prior long-term care or stays in a hospital-based facility, including:
 - attributes of prior inpatient stay and other prior Medicare utilization
 - number of comorbidities
 - discharge destinations
 - beneficiary engagement and support
- Investigate other possible data sources or the addition of data measures that could more accurately measure patient engagement and support.
- Avoid including socioeconomic status as a predictor of therapy costs.

3.3.3 Additional Subpopulations for Consideration

After presenting the two examples of residents with prior long-term care and stays at hospital-based facilities, Acumen asked panelists for suggestions of other special subpopulations that should be considered in developing a SNF therapy payment system. This section summarizes their discussion.

Discussion

One panelist suggested considering subpopulations defined by short rehabilitation stays, discharge to the community, hospitalizations interrupting the SNF stay, multiple therapy modalities, self-reported expectation of functional recovery, and high number of medical comorbidities. The panelist specified that these subpopulations would probably not be incorporated as categories into a payment system, but that they should be investigated to help

identify what characteristics associated with the subpopulations cause them to have different cost patterns of cost. Some asked why the subpopulations listed would not be considered for inclusion, and the panelist responded that a new payment system should not incorporate elements unrelated to clinical need as much as possible. For example, if residents with prior long-term care are reimbursed differently than others, the system could incentivize providers to take prior long-term care into account when accepting new residents.

Acumen clarified that subpopulations will be used to identify predictors of complexity rather than identify groups to be included explicitly in the payment model. One panelist cautioned Acumen to consider the potential differences in data collected for different types of subpopulations before drawing conclusions about their relative costliness, using hospital-based and freestanding facilities as an example of two facility types that exhibit a wide range of data collection disparities.

Recommendations

- Investigate other subpopulations to help identify cost predictors, for example:
 - short rehabilitation stays
 - discharge to the community
 - hospitalizations interrupting the SNF stay
 - multiple therapy modalities
 - self-reported expectation of functional improvement
 - high number of medical comorbidities
- Avoid incentivizing patterns of care unrelated to clinical need through inclusion of specific subpopulations in the model.
- Account for differences between freestanding and hospital-based facilities.

3.4 Session 5a: Selecting Beneficiary Characteristics Predictive of Therapy Utilization

This session's objective was to understand the ability of current SNF beneficiary characteristics to predict therapy costs and the limitations of those characteristics' ability to predict length of stay. The project team summarized the data sources used to construct variables representing beneficiary characteristics and the variable selection process thus far. Panelists were shown comparisons of therapy costs and length of stay for different beneficiary characteristics, including stays with different SNF principal diagnoses and qualifying inpatient stay diagnoses. Acumen asked panelists to consider the following questions:

- (i) What approaches are most effective for identifying the clinical condition(s) underlying the need for therapy?

- (ii) What are the advantages and limitations of using ADLs to predict therapy utilization?
- (iii) Are there combinations of diagnoses and/or comorbidities that work well to predict therapy utilization?
- (iv) Which characteristics measured by the MDS should be included or excluded from a payment model?

3.4.1 Clinical Condition

Acumen asked TEP panelists to discuss how to accurately identify the clinical condition underlying the need for therapy. The project team presented a comparison of the most common SNF principal diagnoses and qualifying inpatient stay diagnoses, demonstrating that the qualifying inpatient stay is more specific than the diagnoses from the SNF claims. However, the acute diagnosis from the inpatient stay may not be representative of PAC service use or the reason the patient required PAC. This section summarizes the panel's discussion on the topic, as well as their recommendations.

Discussion

The TEP panelists agreed that cross-walking diagnoses across care settings is difficult and asked if a post-acute diagnosis for SNFs could be developed that would be used for resident classification. The IRF setting was discussed as an example of the difficulty of comparing different types of diagnosis information. IRFs use both etiological diagnoses and impairment groups based on the admission diagnosis; these two sources of condition information often do not match. The panelists expressed a range of opinions on whether the inpatient or post-acute diagnosis would be most helpful for determining the amount of therapy someone would receive, both from the care plan and payment system perspectives.

Many panelists discussed the problems raised by including diagnosis in a payment system. Panelists cautioned that while the diagnosis could be predictive in development of the payment system, it may be difficult to determine whether the diagnosis recorded in the claim captures the main reason for care or a coexistent degree of medical complexity. Many warned of confusion in the field about coding the admitting or principal diagnosis, and they explained that it is difficult to insure accuracy of diagnoses across care settings. Therefore, even if diagnoses are predictive, they may not be practical to include in a payment system.

Panelists differentiated between the utility of a primary diagnosis for use in a payment system versus in a care plan. They noted that a payment system does not require the immediate flow of information across settings; a SNF stay's payment could be later adjusted based on the final diagnostic information from the prior acute care hospitalization. This led panelists to question whether SNFs have access to inpatient diagnosis information, with some stating that using diagnosis information from the inpatient stay might create incentives for SNFs to deny care to residents known to generate low payment, leading to access constraints. Panelists felt that

including the inpatient diagnosis (or other inpatient stay information) would substantially increase the data collection and transfer burden. The discussion closed with comments expressing optimism that the implementation of ICD-10 will help improve coding and data flow across care settings.

Recommendations

- Proceed with caution, if at all, when deciding whether to include qualifying inpatient stay diagnoses in therapy payment models.
- Consider developing a PAC primary diagnosis that would be used for patient classification.

3.4.2 ADLs and Other Functional Measures

Acumen presented the TEP panelists with empirical results comparing total therapy costs per stay to the beneficiary's starting total late-loss ADL score. The figure illustrates that therapy costs are lower for residents with very high or very low ADL scores. Therapy costs are higher for residents with middle ADL scores, showing a parabolic relationship between functional status and therapy use. The TEP panelists were asked to discuss advantages and limitations of using ADLs to predict therapy utilization, particularly focusing on ADL characteristics such as self-performance versus support, used for payment versus not used for payment, and ambulatory versus other items. This section summarizes their discussion as well as their recommendations.

Discussion

Panelists were initially concerned about the use of a summary scale to measure ADL function. Acumen constructed the total late-loss ADL score on a scale from 1 to 24, based on the raw ADL scores collected on the MDS. Including a numeric summary scale in a regression assumes that the effects of a change in functional ability occur equally across the entire scale, which may not be accurate. Panelists encouraged Acumen to look at all available ADL scale options, and investigate each measure individually.

The panel discussed other sources of functional measures. Panelists suggested looking into work being done with ADLs by both RTI International and the CARE tool. Many providers are now integrating the CARE tool into their assessments; combining both approaches could provide more informative functional measures. One panelist noted that the National Outcomes Measurement System (NOMS) data could be beneficial for speech therapy prediction.

Additionally, the panelists provided specific suggestions for improving the functional measures. Panelists stated that the self-performance ADL measures would be more informative than support measures, and one panelist noted that certain functional measures are facility dependent and therefore not as accurate as other measures. Panelists also agreed that improvements could be made to the functional measures to make them more inclusive. For

example, current functional measures are not as predictive of speech therapy as they are of physical or occupational therapy, and do not represent measures that could be used to assess life skills. A beneficiary could be highly functional on the total late-loss ADL score, but be unable to go home because she cannot function alone in the kitchen. The panelists recommended that measures to assess these skills be included.

Recommendations

- Consider moving away from a summary scale for ADLs.
- Evaluate each functional measure individually and compare multiple ADL scale options.
- Explore combining information from CARE and RTI studies.
- Select self-performance ADLs over support measures.
- Include functional measures that are more representative of speech therapy.
- Include other life skill measures of function.

3.4.3 Comorbidity Groupings

Acumen asked panelists if there are particular groupings of diagnoses and comorbidities that work well to predict SNF therapy utilization. While there is literature on comorbidity groupings for the Medicare population more generally, there is less information on comorbidity groupings that are predictive of SNF costs specifically. This section summarizes panelists' discussion and recommendations.

Discussion

The panelists agreed that conditions should be grouped to help simplify the payment system and associated coding practices. Panelists noted that the count of a beneficiary's comorbidities can sometimes be more informative than the actual conditions. One example used during the discussion was the IRF PPS system which accounts for patient severity by tying payment to specific combinations of comorbidities. When a panelist questioned the ability of a group of comorbidities to predict therapy costs, others explained that risk profiles (categories of patients with similar expected resource use) in combination with comorbidities could provide the information necessary to begin predicting therapy needs. This discussion led panelists to suggest utilizing risk profiles to augment the current categorizations of beneficiary complexity. Panelists clarified that the risk profile may not predict the exact discipline of therapy needed, but rather information such as intensity or length of therapy. Some panelists acknowledged that other payment systems that increase payment for the presence of comorbidities, such as IRF, do not seek to predict type or volume of therapy.

Recommendations

- Investigate the use of risk profiles in combination with comorbidities to predict therapy needs.
- Consider the number of comorbidities as a predictor.

3.4.4 Additional Beneficiary Characteristics

The TEP panelists were asked to discuss specific beneficiary characteristics currently measured by the MDS that are particularly important to the prediction of therapy utilization or to identify measures that should be excluded based on their quality or implicit incentives for a payment system. Additionally, Acumen solicited recommendations for measures that are not currently collected that should be considered for future data collection. This section summarizes the TEP's suggestions.

Discussion

Panelists began by suggesting the need to exclude service-based variables (e.g., catheter use) because of the possibility of creating adverse incentives. The panel recommended first testing the predictive power of all variables prior to beginning the process of selecting specific variables because it is likely that not all of the variables will prove to be statistically meaningful predictors of therapy costs.

Panelists discussed whether a resident's degree of cognitive function, which can influence treatment and is correlated with other functional measures, should be considered as a separate element in designing therapy payment, or whether it is sufficiently captured by other functional metrics. One panelist said selecting appropriate variables to predict therapy would depend on whether the payment unit is per day or per stay.

Panelists also recommended considering the inclusion of quality measures, stating that quality and payment should not be in competition with one another. The impact of including a measure in a payment system that also serves as a quality measure must be considered when deciding whether the measure would be suitable for payment purposes. For example, if level of pain were used as a quality metric, providers might face incentives to provide less therapy than needed because residents' measured pain could increase with the amount of therapy provided. These opposing incentives could create a challenge for providers.

Finally, panelists discussed contradictions between choosing characteristics for a payment system as opposed to a care plan. Panelists argued that ultimately the goal should be to give clinicians the tools they need to come up with an individualized care plan, and have a payment system in place that accurately reimburses the provider for that care. One panelist noted that the interactions between resident characteristics are important, because when a care

plan is being developed, a clinician does not look at one metric in isolation, but rather analyzes information on a range of beneficiary characteristics that interact with one another.

Recommendations

- Do not include service-based measures in the model.
- Consider cognitive function as a predictor of therapy.
- Consider including quality measures in the payment system, while taking incentives into consideration.
- Investigate the interaction between characteristics considered for determining payment.
- Test predictive power of all variables before final selection.

3.5 Session 5b: Identifying Limitations of Current Data and Models

This session's objective was to discuss the feasibility of using existing data sources to predict therapy costs and length of stay. The distribution of per-stay therapy costs is right-skewed; moreover, the distribution is bimodal, with a substantial subset of stays having zero therapy costs. Acumen's preliminary MDS-based model had limited ability to predict per-stay and per-day therapy costs. The predictive power improved substantially for per-stay costs when Acumen added a variable capturing the change in the beneficiary's functional ability over the course of the stay. However, this variable functioned as a proxy for length of stay because beneficiaries are more likely to show variation in functional scores when they have a longer stay and undergo multiple assessments. As cost per stay is highly dependent on length of stay, a variable that relies on the presence of multiple assessments is likely to have high predictive power, even if it does not cause variation in cost. Acumen continues to explore beneficiary characteristics available in current data sources that can reliably predict therapy cost drivers like length of stay. To assist in this pursuit, Acumen asked panelists to consider the following questions:

- (i) Are there characteristics that identify beneficiaries requiring little to no therapy or beneficiaries who will have short stays?
- (ii) Are there benefits or limitations associated with using characteristics measured at the start of the SNF stay to predict therapy costs?
- (iii) Are there MDS items or other characteristics predictive of length of stay?

3.5.1 Modeling Therapy Costs

Acumen described the structure of current models used to predict therapy costs from baseline information about beneficiaries available at the start of the SNF stay. These models predicted costs using variables related to medical condition, functional status, cognitive status, medical complexity, and impairments. Moreover, Acumen showed how predicted costs

compared to actual costs. Panelists raised several concerns about Acumen’s approach to predicting per-stay and per-day therapy costs. This section summarizes those concerns, as well as recommendations.

Discussion

Panelists noted that the predictive power of the model may be a product of the large number of variables included, rather than of the actual relationships between those variables and therapy costs. One approach recommended by panelists to address this concern is to run the model on a validation sample. Acumen explained that the model was tested on a validation sample, yielding similar results, but these were not included in the TEP presentation. The validation sample results, panelists explained, would greatly aid them in interpreting the models. Panelists also recommended checking whether individual variables included in the model had the expected relationship to therapy costs; if the variables generally had the expected relationship to costs, this would provide evidence in favor of the validity of the model.

Moreover, panelists were concerned about potential endogeneity problems associated with the variable based on change in the beneficiary’s functional ability over the stay. Beneficiaries coded as having only one assessment on this variable have shorter stays, by definition, than other beneficiaries. Since per-stay costs are driven in part by length of stay, the predictive power of this variable may be due in large part to its function as a length-of-stay proxy rather than its ability to measure of changes in functional status. Panelists recommended conducting separate analyses for beneficiaries who had one versus multiple assessments to assess the true relationship between therapy costs and changes in functional status over a stay.

Finally, panelists noted that given the large number of beneficiaries with zero therapy costs, predicting costs using a two-stage model may be advised. Panelists suggested first predicting the receipt of any therapy and then running the model only on beneficiaries expected to receive any therapy.

Recommendations

- Run model on validation sample.
- Conduct separate analyses for beneficiaries with one and multiple assessments.
- Use a two-stage model that separates out beneficiaries not expected to receive any therapy services.

3.5.2 Accounting for High-Cost Outliers

Panelists discussed the benefits and drawbacks of including an outlier payment mechanism in a revised SNF therapy payment system. This section summarizes these discussions, as well as panelist recommendations. This topic was also covered in Session 6, described in this report in Section 3.6.

Discussion

Some panelists suggested that CMS consider the appropriateness of providing additional reimbursement under a stay-based system for high-cost outlier beneficiaries. To assess the merits of instituting an outlier payment, panelists suggested identifying beneficiaries in the top ten percent of costs and examining whether Acumen's models would predict that these beneficiaries would incur such high costs. Some panelists suggested that the models would be unable to identify high-cost-outlier beneficiaries, and this may indicate that the volume of services these beneficiaries receive may not be clinically appropriate. Should the results of these analyses cast doubt on the appropriateness of the level of services provided to high-cost outlier beneficiaries, some panelists suggested CMS should consider forgoing an outlier adjustment to create incentives against providing excessive levels of therapy. Other panelists suggested that Acumen should similarly examine the characteristics of beneficiaries receiving no therapy, to determine whether these beneficiaries may be underserved.

During the open discussion session, one observer recommended that Acumen investigate options for using data sources not impacted by the payment incentives of the SNF PPS, such as data from prior to the implementation of the SNF PPS or Medicare Advantage data. The observer noted that current data from the SNF setting may be of limited use in identifying appropriate levels of therapy provision because provision is substantially affected by the existing payment incentives.

Recommendations

- Study the characteristics of the top 10 percent of high-cost beneficiaries.
- Test the ability of Acumen's models to predict costs for high-cost beneficiaries.

3.5.3 Accounting for Variation in Therapy Intensity across the Stay

Panelists discussed the appropriateness and feasibility of varying payment across a SNF stay to account for changes in the intensity of therapy provided to beneficiaries. This section summarizes these discussions and recommendations for moving forward. This topic was also covered in Session 6, described in this report in Section 3.6.

Discussion

Some panelists noted that the existing SNF PPS incentivizes the provision of high-intensity therapy across a stay, which may not be appropriate for all beneficiaries. For some beneficiaries, panelists noted, it may be advisable for SNFs to taper the intensity of therapy over the course of the stay as the beneficiary becomes more independent. Panelists suggested that decisions about revising the payment system to incentivize tapering the level of therapy across a stay must be evidence-based, and additional data analysis would likely be required to specify such a tapering mechanism correctly.

Other panelists cautioned that reductions in payments across a stay may disincentivize the provision of maintenance therapy. These panelists cautioned that maintenance therapy may be just as intensive as rehabilitative therapy in terms of the amount of therapist time required to deliver therapy. Moreover, they argued that maintenance therapy is often inappropriately viewed as passive and as of less value than rehabilitative therapy. In response to the panelists concerned about the potential under-provision of maintenance therapy, other panelists argued that studying the utilization patterns of therapy in the SNF setting is challenging because the provision of therapy is substantially driven by the incentives of the existing SNF PPS. A panelist noted that prior research has shown that chain-affiliated facilities generally provide the highest intensity of therapy relative to other SNFs.

Recommendations

- Investigate the feasibility and appropriateness of reducing reimbursement across a stay to account for tapering of the intensity of therapy.

3.5.4 Predicting Length of Stay and Intensity of Therapy Services

Acumen highlighted the importance of predicting length of stay to the accuracy of predicting overall costs. Panelists discussed several factors that may predict a beneficiary's length of stay or the intensity of therapy received across a stay. They also discussed the feasibility of including these factors as variables in a new payment system for SNF therapy services. This section summarizes those discussions and related recommendations.

Discussion

One panelist noted that while the variable used by Acumen to measure change in functional status across a stay may be useful for understanding the factors affecting length of stay, it is unclear whether such a variable would be feasible to use in a future SNF therapy payment system. Since payment would depend on the trajectory of a beneficiary's functional status across the stay, a facility would have limited information about expected reimbursement for that beneficiary until the end of the stay. Future investigations would be needed to assess the possibility of using this variable to set payment.

Another panelist noted that in prior research, one indicator of a beneficiary's expected volume of therapy services is whether the beneficiary qualifies for a rehabilitation RUG. This translates to an indication of whether the beneficiary received a minimum number of therapy minutes in a week. While this indicator is not a precise measure of a beneficiary's expected level of therapy, it distinguishes between beneficiaries expected to receive minimal levels of therapy across the stay and those expected to receive more extensive therapy.

Based on prior research, other panelists suggested additional characteristics associated with varying levels of therapy. One panelist noted that beneficiaries receiving only one discipline of therapy generally have shorter stays than beneficiaries receiving multiple

disciplines. Another panelist noted that beneficiaries using relatively little therapy across a stay tend to have only one condition upon admission to the SNF, and that this condition is relatively stable and non-complex. Conversely, this panelist noted, a beneficiary may use very little therapy if the beneficiary's condition is so unstable and complex that the benefits of providing therapy are substantially outweighed by the costs.

Finally, panelists debated the feasibility of including a measure of home support in a future SNF therapy payment system. Some panelists noted that in the managed care setting, beneficiaries who have caregivers at home are shifted out of the SNF setting and back to their home at 75 percent of their function, on the assumption that the caregiver and home health services can return the beneficiary to 100 percent of function at a lower cost than would be incurred in the SNF. The panelists argued that collecting information on home support in the fee-for-service SNF setting would help inform predictions about length of stay. However, other panelists suggested that in the context of a payment system, SNFs would have a disincentive to report a beneficiary's home support since increased reliance on care in the home would result in lower utilization of SNF therapy services. In response to these concerns, some panelists suggested pairing a measure of available home support with increased auditing of SNF data, to allow CMS to investigate whether SNFs are reporting information accurately.

During the open discussion portion of the TEP, one observer argued that a measure of functional change over a stay should not be excluded from consideration as a payment model variable due to the inability of providers to predict reimbursement for beneficiaries in advance. The observer said that a PPS need not provide SNFs with information about reimbursement levels at the start of the stay, and noted that the hospital PPS sets payment based on discharge diagnosis. Moreover, the observer concurred with panelists who suggested using the number of therapy disciplines or presenting conditions to identify high- and low-cost beneficiaries, arguing that the same approach has been effective in earlier research.

Recommendations

- Consider the feasibility and appropriateness of including the following variables in a SNF therapy payment system:
 - Change in function across a stay
 - Eligibility for rehabilitation RUG
 - Number of therapy disciplines
 - Number and complexity of presenting conditions in the SNF
 - Home support

3.6 Session 6: Exploring Additional Patterns in Therapy Utilization

This session's objective was to understand the effects of therapy utilization patterns that are less common or difficult to predict at the start of the stay on payment accuracy. Panelists were provided with charts showing that among the three-quarters of beneficiaries with no change in RUG across a stay, the average number of minutes of therapy provided per day was relatively consistent across the stay; by contrast, among the one-quarter of stays with at least one change in RUG over the stay, the average minutes of therapy declined primarily at scheduled PPS assessment windows. Moreover, Acumen explained that there is a small percentage of stays with very high therapy costs, and models based on beneficiary characteristics may not predict costs for these unusual cases as well as they do for other stays. During the discussion portion of the session, Acumen asked panelists to consider the following questions:

- (i) Are there characteristics associated with changes in RUG levels across a stay?
- (ii) Are there types of beneficiaries who exhibit a pattern of therapy use across a stay other than stable or declining utilization?
- (iii) What options exist for addressing declining therapy utilization in setting payment for SNF therapy services?
- (iv) Are there common characteristics among high-cost therapy beneficiaries?
- (v) Are there options beyond outlier payments for addressing high-cost cases?

3.6.1 Changes in Therapy Intensity across a Stay

Panelists discussed the different patterns of therapy utilization across a stay, including the beneficiaries with a stable estimate of therapy minutes per day across their stays and beneficiaries with a declining estimate of therapy minutes per day. As noted above, Acumen presented charts showing that declining therapy minutes were associated with SNF stays with at least one change in RUG, while stable therapy minutes were associated with stays in which the RUG level was unchanged. These patterns were consistent across stays of different lengths. This section summarizes panelist discussion on this topic, as well as panelist recommendations.

Discussion

Panelists disagreed about the potential causes of the different patterns of therapy utilization across the stay. Some panelists argued that the three-quarters of beneficiaries with no change in RUG across the stay and with a stable number of therapy minutes per day are evidence of potential fraud among SNFs; these panelists argued that many beneficiaries would be expected to improve in function across the stay, leading to less of a need for therapy over time. By contrast, other panelists argued that the pattern of uniformly high levels of therapy across a stay is consistent with sound clinical practice. These panelists explained that in the SNF setting, high-intensity therapy is used to help restore the beneficiary's function on a relatively rapid timeline to allow the beneficiary to return home as soon as possible. One panelist said that the

pattern of consistently high levels of therapy across a stay may correspond to beneficiaries who will eventually return home, while the pattern of declining therapy utilization may be consistent with long-term care beneficiaries who are slowly transitioning from receiving physical therapy to receiving support from nurses and aides.

Some panelists suggested that understanding the trends in therapy intensity across a stay may require examining outcomes associated with SNF stays. Some panelists argued that high-intensity therapy may allow beneficiaries to return home and engage in self-care, and these outcomes may have been unlikely in the absence of therapy. Panelists noted that observing these post-SNF outcomes may require accessing additional data sets not currently used in Acumen's analyses. Moreover, panelists said CMS should adopt policies that encourage greater coordination between therapists and nurses to support the transition from the SNF to the home setting.

Panelists noted that any examination of changes in therapy utilization for the purpose of designing a payment system should place a substantial emphasis on the individual needs of SNF beneficiaries. These panelists emphasized that a revised payment system should allow SNFs to provide a level of therapy intensity targeted to the beneficiary's individual needs.

Recommendations

- Examine outcomes associated with SNF stays, including ability to recover function and engage in self-care after discharge to the home setting.
- Examine association between patterns of therapy utilization and discharge setting (i.e., home versus long-term care).
- Develop payment system that allows SNFs to target therapy intensity based on the needs of beneficiaries.

3.6.2 High-Cost Stays

Panelists discussed factors associated with high-cost SNF stays in response to empirical results presented by Acumen. Acumen explained that total therapy costs in the 95th percentile of stays are roughly four times higher than at the 50th percentile; moreover, costs for stays in the 99th percentile are about six times higher than at the 50th percentile. Costs for these outlier stays are driven by physical and occupational therapy. Moreover, Acumen's preliminary MDS-based model under-predicts costs for high-cost therapy stays. This section summarizes discussions about factors associated with high-cost stays, as well as related recommendations.

Discussion

Panelists noted that among beneficiaries receiving physical and/or occupational therapy, those also receiving speech therapy are more likely to be higher-cost beneficiaries. Beneficiaries with cognitive issues or problems with speech or swallowing are often sicker than other beneficiaries, the panelists noted, and they may consequently require longer stays.

Moreover, panelists noted that beneficiaries with very high-cost stays may be different from other beneficiaries and Acumen should consider excluding them from modeling. In their own research, some panelists generally excluded such individuals because the presence of outliers distorted regression coefficients, leading to results that do not represent the general population. The inclusion of outliers may lead to models that consistently over-predict cost for a majority of the population, while still under-predicting the cost of the outliers. The panelists also suggested examining the MDS assessments of these high-cost beneficiaries to verify that their assessments were consistent with a need for high-intensity therapy services.

Recommendations

- Examine whether receipt of speech-language therapy or having specific cognitive issues or problems with speech or swallowing, alone or interacting with other characteristics, are predictive of increased therapy.
- Exclude high-cost outliers from modeling efforts.

APPENDIX A: DISCUSSION OBJECTIVES AND QUESTIONS

A.1 Session 2: Evaluating Therapy Payment Alternatives

Session Objective:

Identify and define the characteristics of a successful therapy payment alternative for the Skilled Nursing Facility Prospective Payment System (SNF PPS)

Session Discussion Questions:

- Do the six criteria groups outlined in the presentation (and previously published project report) capture the full range of characteristics of a successful therapy payment system alternative?
 - Are there additional criteria or criteria groups to add that would capture important aspects of a therapy payment system alternative?
- One criterion states that “reproducible, verifiable, and objective characteristics” should be used to determine therapy payments.
 - What qualifies beneficiary characteristics as reproducible, verifiable, and objective?
 - How do these standards align with the criterion that payment systems be based on “evidence-based resident characteristics predictive of therapy utilization?”
- Another criterion states that the payment system must improve the “overall predictability of the payment system” and help reduce “system complexity.”
 - What are ways to measure performance on this criterion from an operational perspective? From a therapist’s perspective?
- Another criterion evaluates a payment system based on whether it “improves consistency with other Medicare benefits.”
 - Are there systems—Part B therapy, inpatient rehabilitation facility PPS, home health PPS, acute hospital PPS—that should be weighed more heavily when evaluating performance on this criterion?

A.2 Session 3: Identifying Therapy Costs for Part A Stays

Session Objective:

Understand components of measuring therapy services and their impact on estimating the relationship between resident characteristics and therapy use

Session Discussion Questions:

- Which therapy unit provides the most comprehensive measure of a beneficiary’s related SNF therapy services: a per-stay unit or a per-benefit-period unit?

- Are there reliable indicators that signal a resident is being treated for a different condition than when he/she was first admitted to a SNF during the benefit period?
- How do days spent outside of an institution between SNF stays or transfers between providers affect the definition of related therapy services?
- Which payment unit—per day, per stay, per benefit period—best fits the patterns of therapy provision in the SNF Part A setting from an operational perspective?
 - What are the implications of the choice of payment unit for access to therapy services vs. appropriate therapy provision? For payment accuracy vs. payment system complexity?
 - Which payment unit is most compatible with the overall trends in payment for Medicare post-acute care?
- Are the costs that factor into providing physical, occupational, and speech therapy different enough to suggest modeling the disciplines separately?
 - What specific resident characteristics are expected to be particularly important to one discipline but not to others?

A.3 Session 4: Understanding and Addressing Special Subpopulations

Session Objective:

Identify and examine differentiating characteristics of therapy service provision for special SNF subpopulations

Session Discussion Questions:

- In which ways do SNF beneficiaries with a prior history of long-term care in a nursing home differ from typical SNF beneficiaries?
 - Are there defining characteristics of these beneficiaries with a prior history of long-term care in terms of therapy use?
- In which ways are the cost structures for therapy expected to differ between hospital-based facilities and freestanding facilities (e.g., type of staff)?
 - How do the beneficiaries at hospital-based facilities typically differ from those at freestanding facilities in terms of resident characteristics?
 - Should any of these resident profiles be considered separately in relation to therapy services specifically?
- Are there any additional beneficiary or provider subpopulations that should be considered separately in relation to therapy services?

A.4 Session 5a: Selecting Beneficiary Characteristics Predictive of Therapy Utilization

Session Objective:

Explore beneficiary characteristics available in current data for predicting therapy costs in the SNF population and their relative strengths and weaknesses

Session Discussion Questions:

- What are the most accurate ways of identifying the clinical condition underlying the need for therapy?
 - Primary diagnoses from qualifying inpatient stay claims? Primary diagnoses from SNF claims? Other approaches?
 - Does this method change for stays in a benefit period that have intervening hospitalizations?
- What are the advantages and limitations of using ADLs to predict therapy utilization? In particular, consider the following dimensions of ADLs:
 - Self-performance vs. support
 - Payment vs. non-payment items
 - Ambulatory vs. other (e.g., eating)
- Are there particular groupings of conditions that work well to predict the impact of comorbidities on SNF therapy utilization?
- Are there specific beneficiary characteristics measured by the MDS that are believed to be important to therapy use and that should be included in the model? Are there reasons to consider excluding any MDS variables from the model (e.g., might lead to adverse incentives)?
 - Are there measures not currently collected that may be indicative of type and/or intensity of therapy utilization that should be considered for future collection?

A.5 Session 5b: Identifying Limitations of Current Data and Models

Session Objective:

Understand capability of current SNF beneficiary characteristics to predict therapy costs and limitations of baseline characteristics' ability to predict length of stay

Session Discussion Questions:

- Are there resident characteristics that reliably identify beneficiaries who will receive little to no therapy? Beneficiaries who will have extremely short stays?
 - Are there characteristics that are currently only observable to facilities that should be collected by CMS to support payment?
- What are the advantages and limitations of using beneficiary characteristics from the start of a stay to predict therapy costs?

- What types of health events or status changes are most influential on a beneficiary's care while in a SNF? What are effective ways to capture these changes?
- Most studies of therapy payment system alternatives use an assessment-based proxy to capture the effect of length of stay on SNF costs. Are there items on the MDS expected to be predictive of length of stay?
 - Are there beneficiary characteristics that could be collected upon admission to the SNF that would serve as good predictors of length of stay?

A.6 Session 6: Exploring Additional Patterns in Therapy Utilization

Session Objective:

Understand effects on payment accuracy of therapy utilization patterns that are less common or difficult to predict at the start of the stay

Session Discussion Questions:

- What characteristics distinguish beneficiaries who change therapy levels during a stay (e.g., from Rehabilitation Very High to Rehabilitation High) from those who do not?
- Are there types of beneficiaries who follow a different pattern of therapy utilization not observed in the broader SNF population (i.e., pattern other than stable or declining therapy use across a stay)?
 - What are options for identifying this subpopulation?
- What are options for addressing the pattern of declining therapy utilization in terms of payment?
 - Can these shifts be mapped to changes in beneficiary characteristics?
 - How could this information best be incorporated into the choice of payment unit?
- Are there beneficiary characteristics that are expected to be common across high-cost therapy cases?
 - Are there ways to identify that a beneficiary will be a high cost therapy case near the beginning of the stay?
 - Are there uncollected measures that are associated with high therapy cost beneficiaries?
- Other than an outlier payment, are there other possible mechanisms for addressing high cost therapy cases?