Skilled Nursing Facility Payment Models

Nursing Component Technical Expert Panel Summary

February 2016

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

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

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 nursing and NTA 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). The TEP meeting summarized in this report was held in order to identify and assess potential improvements to the nursing component of the SNF PPS, with panelists providing comments and recommendations on payment alternatives for SNF nursing, NTA, and medical social services. The SNF Payment Models Nursing Component TEP was held on November 19, 2015 at the CMS headquarters in Baltimore, Maryland, and the discussion focused on the results of Acumen's work to date.

Beginning in 1998, Medicare has paid for services provided by SNFs under the Medicare Part A benefit on a per diem basis through the SNF PPS. Recommendations to change the reimbursement model have come from multiple sources, including the Medicare Payment Advisory Commission (MedPAC), the Office of the Inspector General (OIG), and research conducted by The Urban Institute that was commissioned by CMS. These reports advocate for a new payment model to promote individualized care for residents by using specific patient characteristics and care needs to ensure accurate payments for all services. To address these opportunities for improvement, CMS is considering alternative payment approaches to strengthen the overall SNF PPS system. The project aims to:

- Develop potential payment alternatives for SNF services that promote payment accuracy and positive resident outcomes
- Assess the impact of alternative payment models on SNF residents, SNF providers, and the overall Medicare system
- Recommend adjustments 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. Finally, the report 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 payment models TEP on the nursing component. Section 2.1 summarizes the objectives and scope of the TEP, Section 2.2 describes the structure of the TEP, Section 2.3 describes the materials provided to panelists, and 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:

- Review and discuss implications of research on the nursing component of SNF payments.
- Evaluate alternative approaches to payment for SNF nursing and NTA services.
- Provide recommendations for the further exploration and development of SNF nursing payment approaches.

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

In addition to researching alternative approaches for the SNF PPS nursing component, the project team is also investigating alternative methods for paying for SNF services more broadly. However, this TEP was focused on research into the nursing payment component. As other aspects of the payment system are investigated in the future, Acumen will facilitate additional opportunities for expert feedback.

2.2 Structure

The TEP was held on November 19, 2015, from 9:30 a.m. to 5:00 p.m., at CMS headquarters in Baltimore, Maryland. The TEP was organized into a series of topic-specific discussion sessions. Throughout the day, panelists engaged in a structured discussion about SNF payments guided by a moderator unaffiliated with the project team. To motivate the discussion, Acumen project team members presented empirical results pertaining to specific aspects of payment and the moderator guided the discussion. Table 1 shows the agenda for the day of the TEP.

Table 1: TEP Agenda

Session	Time	Topic
Session 1	9:30 to 9:45 AM	Introductions and Project Overview
Session 2	9:45 to 11:00 AM	Options for Revising Nursing Index
Break	11:00 to 11:15 AM	N/A
Session 3	11:15 to 12:15 PM	Considering Non-Therapy Ancillary Services as a Separate Payment Component
Lunch	12:15 PM to 1:15 PM	N/A
Session 4	1:15 to 2:15 PM	Effects of Introducing NTA Payment Component
Break	2:15 to 2:30 PM	N/A
Session 5	2:30 to 4:00 PM	Options for Revising the Case-Mix Classification System
Session 6	4:00 to 5:00 PM	Open Discussion

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, a logistics document, the presentation slides, and a background document. The agenda outlined the scheduled discussion sessions, with a description of the objective of the session, the discussion topics, and 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 independent researchers and representatives from provider and consumer stakeholder organizations.

Table 2 lists the TEP panelists and their organizational affiliation in alphabetical order. Observers also attended in person or via webinar from OIG, MedPAC, the Government Accountability Office (GAO), and the Assistant Secretary for Planning and Evaluation (ASPE). Observers were invited to offer comments during the open discussion portion at the end of the day.

Table 2: TEP Panelists

Name	Organizational Affiliation
Rochelle Archuleta *MSHA, MBA*	Director of Policy, American Hospital Association
Joanne Wisely *CCC-SLP, ACE*	Vice President for Regulation and Compliance, Genesis Rehab Services, Member, National Association for the Support of Long-Term Care
Toby Edelman *JD*	Senior Policy Attorney, Center for Medicare Advocacy
Bowen Garrett *PhD*	Senior Fellow, The Urban Institute
Judi Kulus *RN, MAT, RAC-MT, C-NE*	Vice-President of Curriculum Development, American Association of Nurse Assessment Coordination
Susan Levy *MD*	President-Elect, The Society for Post-Acute and Long-Term Care Medicine
Kathleen Niedert *PhD, RD, CSG, NHA*	Executive Director, Parkview Campus, Fellow, Academy of Nutrition and Dietetics

Name	Organizational Affiliation
Michael Plotzke *PhD*	Senior Associate, Health Economist, Abt Associates
Mary Powell *RN, MSN, MBA*	Director of Nursing, Douglas County Health Center, Member, Association for Rehabilitation Nurses
Nicole Steck-Waitt *RN*	Senior Clinical Director of Nursing, Future Care Northpoint
Rachel Werner *MD, PhD*	Associate Professor of Medicine, Division of General Internal Medicine, Senior Fellow, Leonard Davis Institute of Health Economics, University of Pennsylvania
Nanci Wilson *RPT, DPT, CCI, HHA*	Vice President of Research and Development, Plum Health Care Group

3 DISCUSSION AND RECOMMENDATIONS

This section summarizes the discussions held during the TEP and highlights the recommendations provided by panelists. The TEP included a brief introductory session, four discussion sessions covering topics related to developing an alternative SNF payment system, and an open discussion session at the end of the day for observers to offer their feedback. For the four content sessions (Sessions 2-5), 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 content sessions, summarized below:

- Session 2: Options for Revising Nursing Index
- Session 3: Considering Non-Therapy Ancillary Services as a Separate Payment Component
- Session 4: Effects of Introducing NTA Payment Component
- Session 5: Options for Revising the Case-Mix Classification System

3.1 Session 2: Options for Revising Nursing Index

This session's objective was to identify strategies to revise nursing case-mix indexes in an alternative payment system. This session of the presentation consisted of three major topics:

- motivation to evaluate nursing costs
- measurement of resident-specific nursing costs
- options for revising nursing index

Acumen said the project is exploring alternative case-mix classification systems, with a focus on options that modify reimbursement for therapy and NTA services. Because the current payment system uses therapy provision as a determinant of both therapy and nursing payment, revisions to therapy reimbursement would likely require recalculation of nursing case-mix indexes. Next, the project team discussed possible sources of resident-specific nursing costs, which would be used to recalculate nursing indexes. Resident-specific nursing costs are difficult to identify on SNF claims because there is little variation in nursing claim charges across patients. Acumen presented three options for adjusting the nursing indexes and asked panelists to consider the following questions:

(i) Are nursing costs homogenous across residents, or is the limited variation in charges a result of billing patterns? If there is variation in nursing costs, what resident characteristics drive this variation?

(ii) Are Non-Rehabilitation RUGs an appropriate classification system to reflect differences in nursing service use for the overall SNF population?

(iii) Is the composition of the resident population the main driver of variation in nursing costs across facilities?

(iv) How have clinical practices changed since the 2006-2007 STRIVE study?

3.1.1 Homogeneity of Nursing Charges and Determinants of Nursing Costs

Acumen explained that it was difficult to identify resident-specific nursing costs because there is almost no variation in nursing charges on SNF claims. This trend holds throughout a stay, across stays within providers, and between rehabilitation and non-rehabilitation stays. Panelists were asked to discuss possible reasons for this phenomenon and possible drivers of variation in nursing costs.

Discussion

Participants discussed the relationship between revising the nursing index and other potential revisions to the payment system. They pointed out that prior research had identified NTA services and therapy as areas of improvement within the payment system, but that nursing payment had not been the focus of prior analyses of the SNF PPS. A participant asked if the investigations into the nursing component were only a result of exploring NTA services or therapy. One panelist said the therapy and nursing components did not have to be linked; one could be adjusted without affecting the other. Acumen said that in addition to the interactions between nursing, NTA services, and therapy, developing a new case-mix classification system and possible changes in clinical practices or the resident population were two additional motivations to re-examine the nursing component.

TEP participants said there is significant variation in nursing costs across patients but that this variation is not reflected on SNF claims. One panelist said the data tends to be more accurate when it is linked to payment, and suggested that nursing charges may be less accurate because charges are not linked to payment. Panelists suggested various factors that contributed to variation in nursing costs, including: diagnosis, drugs for chronic conditions, malnutrition, dementia, skin conditions, functional status, co-morbidities, medical complexity, cognitive needs, mood, mental health, depression, and intravenous procedures. One panelist said if the skillsets of the nursing staff do not match the needs of the resident population in a facility, costs may be even higher.

Recommendations

- Consider the following factors in predicting nursing resource use: principal diagnosis, drugs for chronic conditions, malnutrition, dementia, skin conditions, functional status, co-morbidities, medical complexity, cognitive needs, mood, mental health, depression, and intravenous procedures.

3.1.2 Options for Calculating New Nursing Indexes

As mentioned above, Acumen presented three options to calculate nursing indexes: (i) assigning all residents to non-rehabilitation RUGs for nursing payment purposes, (ii) linking facility-level variation in nursing costs to differences in the resident population across facilities, and (iii) using data from the Staff Time and Resource Intensity Verification (STRIVE) study to calculate nursing indexes for new case-mix groups. Panelists discussed advantages and limitations of each approach.

Discussion

Panelists discussed the motivation for assigning all residents to non-rehabilitation RUGs. One panelist asked if the goal of this strategy was to limit covariation between therapy use and nursing payment. Acumen said a central motivation for this strategy was that more resident characteristics are factored into determining non-rehabilitation nursing indexes in comparison to nursing indexes for rehabilitation residents. Additionally, small sample sizes were used to calculate nursing indexes for some rehabilitation case-mix groups so nursing indexes for non-rehabilitation case-mix groups may be more precise. One panelist said it may not make sense to group rehabilitation residents into non-rehabilitation RUGs if the variation in nursing costs in the STRIVE data was not similar for both types of residents.

Several panelists said the resident population and requirements for providers have changed substantially since the STRIVE study was conducted and therefore it may not be appropriate to use STRIVE data to develop new nursing indexes. In particular, participants stated that residents had become notably more acute upon admission, with higher numbers of comorbidities. Additionally, panelists said greater demands placed on facilities by Accountable Care Organizations (ACOs) and more extensive documentation requirements have also increased facility costs. Panelists attributed the increasing resident acuity in part to changes in hospital discharge practices. They said that hospitals are discharging patients sooner, resulting in individuals who are sicker at SNF admission. As a result, SNFs have been treating more patients who require intravenous procedures. Panelists said this is occurring because hospitals are discharging patients while they still require intravenous care, a practice that was less common several years ago, they said. In summary, some panelists consider that the case mix has changed in recent years and therefore STRIVE data may not be representative of current resident groups. Dementia, mood problems, behavioral issues, and mental health issues including depression were all noted as complicating factors in treatment that may be more common among SNF residents

today. One participant said some providers will admit individuals with mental health issues in the expectation that they will be able to participate in therapy. Because of the mental health issues, some of those residents are unable to participate in therapy, resulting in high treatment costs for the facility and low reimbursement (because non-therapy patients generally are associated with lower payments).

Considering the changes described above, some panelists connected quality of treatment to incentives for adequate nursing care. They said the current system disincentivizes nursing care, potentially leading to quality issues, nursing shortages, and adverse events. Panelists asked if there was more recent data available to re-calculate nursing indexes. They also stated that the resident classification system should be revisited because of changes in the resident population. The project team stated that it may be possible to determine relative resource intensity of current residents using STRIVE data for residents with similar characteristics. One participant suggested a technical variation on that approach: combining variation in nursing+routine charges at the facility level and variation in nursing minutes from the STRIVE study to construct a variable that could be used to estimate resident-level nursing resource use. Other panelists cautioned, however, that because of changes in clinical practices, residents with the same conditions may require more care today and therefore it may not be accurate to assume similar resource use for the same type of resident from STRIVE to 2015.

Recommendations

- When deciding whether to assign residents to non-rehabilitation RUGs, determine whether variation in nursing costs in the STRIVE study was similar for rehabilitation and non-rehabilitation residents.
- Investigate the ways in which resident characteristics, particularly indicators of acuity, have changed over time, and what implications this has for using STRIVE data.
- Examine whether inpatient discharge practices have changed and how this might affect SNF resident characteristics and acuity.
- Examine how clinical practices have changed since the STRIVE study when considering whether to use STRIVE data to recalculate nursing indexes.
- Consider the feasibility of combining facility-level variation in nursing+routine charges with resident-level variation in nursing staff time from the STRIVE study to construct a variable that could be used to estimate resident-level nursing resource use.

3.2 Session 3: Considering Non-Therapy Ancillary Services as a Separate Payment Component

This session's objective was to discuss the possible creation of a separate NTA component within the SNF PPS. This session of the presentation consisted of three major topics:

- the motivation for considering a separate NTA component
- measuring NTA costs in SNF administrative data
- examining the source of NTA costs and the timing of NTA costs over the course of a SNF stay

Acumen said the motivation for considering a separate NTA component is that current nursing component indexes were based only on variation in nursing time and do not factor in variation in NTA costs. Claims charges could be used to derive resident-specific NTA costs, given that there is variation in NTA charges. SNF data show that there is little correlation between nursing indexes and NTA costs.

Therefore, a separate NTA component could better account for variation in NTA costs and improve payment accuracy. The project team also discussed the major components of NTA costs. NTA costs are composed primarily of drug costs, which are heavily concentrated at the beginning of a SNF stay. During this session, Acumen asked panelists to discuss the following questions:

(i) In introducing a separate NTA component into payment, is it appropriate to focus on drug costs?

(ii) What types of drugs drive variation in drug costs? Are there important categories of drugs not included in Section N of the MDS? What is the source of large variation in drug costs within Section N categories?

(iii) Why are NTA costs concentrated at the beginning of a stay? Does the frontloading of drug costs reflect billing practices or actual service use patterns? Can any unused prescription drugs be returned to the pharmacy? Do residents bring long-term prescription drugs to the SNF, or do facilities always fill a new prescription? Should stay length be considered as a determinant of NTA payment in an alternative system? (e.g. block pricing)

3.2.1 Factors Contributing to NTA Costs

As discussed above, NTA costs are composed primarily of drug costs. Although certain classes of drugs are listed on the MDS, many types of drugs are not listed on the MDS assessment form. Even for patients with the same combinations of drugs, drug costs per day can vary widely, according to Acumen's analysis of MDS data and drug charges from claims. Some residents have very high drug costs despite not listing any medications on the MDS. Acumen explained that a very small portion of the SNF population has very high NTA costs. To prevent outliers from driving results, the study population excludes the 0.5% of stays with the highest NTA charges as well as providers in the top 1% and bottom 1% of NTA cost-to-charge ratios. After these restrictions, less than 2% of stays had NTA costs per day higher than $400. Panelists were asked to discuss key drivers of variation in NTA costs.

Discussion

TEP participants focused on drugs as the primary driver of NTA costs. Panelists identified numerous drugs that could contribute to high NTA costs but were not reflected on the MDS, including: anti-hypertensives, pain management, cancer drugs, cardiac drugs, dialysis treatments, and renal drugs. Acumen said it might still be possible to account for the costs of some of these residents by identifying the conditions linked to these drugs. Additionally, facilities record costs for those drugs on claims. One panelist suggested looking at residents' qualifying inpatient stay diagnoses to determine which drugs might be missing from the MDS. A panelist said residents with zero drugs on the MDS and high drug costs may have costly comorbidities. Another panelist asked whether requiring facilities to record National Drug Codes (NDCs), which identify specific medications as well as information such as dosage, strength, and formulation, would be too onerous. One participant said NDCs would provide greater detail on resident drug use and be worth the cost to implement them if sufficient justification were provided. Panelists said all NTA costs, including respiratory and other NTA costs, should be included in the analysis, not just drug costs. One participant said enteral and parenteral nutrition, as well as malnutrition, failure to thrive, and dehydration, are related to high NTA costs.

There was lengthy discussion over where respiratory services were captured in the data and whether they were fully reflected in the project team's data. Part of the confusion arose from the fact that respiratory services can be administered by a specialized respiratory therapist or by nursing staff, so these services could be reflected in data as nursing staff time or as an NTA service. One panelist also cautioned that respiratory services may not be completely captured on SNF claims. Acumen said the nursing staff time associated with administering respiratory services would already be captured under the nursing component, while the cost of an oxygen tank, for example, would be captured as an NTA service and could be paid for with a separate NTA component.

Finally, participants discussed residents with very high NTA costs. Panelists recommended that Acumen take a closer look at the criteria used to exclude high-cost outliers and the characteristics of these residents. One panelist questioned whether the restrictions used by Acumen could exclude some residents that have very high but valid NTA costs. The panelist said that prior research excluded observations three standard deviations away from the mean on a log scale, and suggested this might be a more appropriate exclusion point. Another participant asked whether excluding residents with very high NTA costs would limit access for costly beneficiaries. One panelist said access could be addressed by implementing an outlier policy. Another panelist asked whether Acumen examined the diagnoses of the 2% of residents with NTA costs per day higher than $400.

Recommendations

- Consider drugs that are not included on the MDS as possible drivers of NTA costs.
- Examine residents' inpatient diagnoses to help identify drugs missing from the MDS.
- Consider benefits of requiring facilities to record NDCs associated with specific drugs.
- Consider enteral and parenteral nutrition, malnutrition, failure to thrive, and dehydration as drivers of high NTA costs.
- Include all NTA costs, including respiratory and other NTA costs, in the analysis.
- Ensure that all respiratory services are fully accounted for in the data.
- Consider using a less-restrictive exclusion point for residents with very high NTA costs.
- Examine the diagnoses of residents with very high NTA costs per day.

3.2.2 Patterns of Drug Costs

As mentioned above, drug costs are concentrated at the beginning of SNF stays. Different drugs on the MDS assessment show different patterns of utilization over the course of a stay. Most show constant use over a stay, while some, such as injections and antibiotics, are more commonly used at the beginning of a stay. Panelists were asked to explain these patterns and discuss implications for payment.

Discussion

Panelists said the observed patterns of drug billing and use are consistent with clinical practices. Certain types of residents, such as post-surgical patients, tend to have high drug costs at the beginning of a stay. This can be reflected in higher use of post-surgical drugs, such as antibiotics and anticoagulants, at the beginning of the SNF stay. Drugs for chronic conditions, such as eye drops and topical medications, also tend to be ordered at the beginning of a SNF stay and used throughout the stay. Some drugs are wasted because it is difficult to predict how long a resident will be in a facility. Some of those drugs can be returned to the pharmacy if part of the prescription remains unused at the time of discharge, depending on state regulations. Unused drugs that cannot be returned, such as narcotics, will have to be paid for by the facility. In some facilities, drugs are only taken out of the pharmacy to administer each individual dose, which should eliminate the problem of unused drugs, but this type of system is not always available. Panelists also explained that at times facilities may order too many daily doses of a drug, in other cases, too few daily doses. Ordering too few daily doses can end up being more expensive given the fixed costs associated with filling out a prescription, while ordering too many daily doses results in more unused drugs. Certain drugs may also be dispensed in blister packs, which may

limit facilities' ability to order varying doses of those medications. Participants said that all these factors contribute to the frontloading of drug costs.

Panelists cited changes in hospital practices as an additional reason for frontloaded drug costs. A panelist said beneficiaries who would have stayed longer in the hospital 10-15 years ago are now admitted to SNFs with expensive drugs prescribed at their inpatient stay. The SNF is then responsible for the cost of these drugs until the medications are changed or they are no longer clinically necessary. Further, panelists said residents are entering facilities sicker, so it is common for them to have multiple changes of drugs within a short window at the beginning of their stay. These changes result in high, frontloaded drug costs for the facility because it has to absorb the cost of multiple prescriptions during a short period of time at the beginning of a stay. Antibiotics and anticoagulants (commonly administered to post-surgical patients) were mentioned as examples of drugs that are commonly adjusted at the beginning of a SNF stay.

Panelists discussed whether block pricing was an appropriate strategy to account for the frontloaded pattern of drug costs. One panelist said that without block pricing, facilities may be underpaid at the beginning of a stay and overpaid at the end of a stay. One participant asked whether time-variable pricing should be pursued for other components of the payment system. Another participant said this approach was being considered for NTA costs because of the prominence of frontloaded NTA drug costs. Others asked how facilities would respond to block pricing and whether it would result in shorter stays.

Recommendations

- Examine whether there have been changes in drugs administered in SNFs linked to changes in hospital discharge practices. Also investigate whether there are trends in the number of changes in medications early in a SNF stay and whether these might contribute to frontloaded drug costs.
- Consider if block pricing is an appropriate strategy to account for frontloading of drug costs, and explore the impact of potential behavioral responses.

3.3 Session 4: Effects of Introducing NTA Payment Component

The session's objective was to examine approaches for constructing a possible NTA payment component. This session of the presentation consisted of two primary topics:

- the methodology for introducing a separate NTA payment component under the current RUG system
- assessing the impact of a new NTA component on payment accuracy

Acumen explained that although the project scope includes examining alternative approaches to case-mix classification, modeling a separate NTA component within the existing classification system allows a direct comparison between payment accuracy in the current

payment system and in a system with an independent NTA component. To remain within statutory authority, a new NTA base rate would have to be based on the percentage of nursing component costs contributed by NTA services on 1995 cost reports, approximately 43%. The project team introduced two metrics to measure payment accuracy: margins and the fraction of stays with negative profits. Panelists were asked to consider the following questions for discussion:

(i) Is the methodology used to calculate NTA indexes appropriate?

(ii) What refinements could be introduced?

(iii) What metrics should be used to evaluate the effects of introducing an NTA component?

3.3.1 Methodology for Introducing an NTA Component

Acumen explained how the new nursing and NTA base rates were calculated, based on 1995 cost reports information as required by the statute. Next, the project team explained the derivation of the new NTA indexes, which were computed by dividing the average NTA costs for each RUG by the average NTA costs for the study population. To calculate these indexes, Acumen used NTA cost data from fiscal year 2014 and a study population excluding outliers and stays with missing or inconsistent data. Participants were asked to provide feedback on this methodology and offer potential refinements.

Discussion

Discussion focused on the methodology to calculate new payment indexes and how medical social services should be accounted for in the payment system. One panelist asked about study population restrictions and suggested the project team consider whether costs were justifiable for high-cost outliers. One panelist asked whether it was appropriate to introduce a separate NTA component without addressing medical social services, which include assessing a resident's social and emotional factors related to their illness, taking action to resolve problems in those areas, and considering the resident's home and community environment and financial resources in making discharge decisions. Panelists were asked whether it was necessary to account for medical social services separately, and Acumen pointed out that medical social services are included in the nursing component and were included in the calculation of the nursing base rate. Another participant said residents with very high nursing costs may also have high costs for medical social services. Acumen stated that if residents with high nursing utilization also have high use of medical social services, this should already be reflected in higher payments under the nursing component.

Panelists discussed the possibility that there were two broad profiles of residents with respect to NTA resources: residents who have higher, frontloaded costs, and are typically post-surgical; and residents who have lower costs, a more even distribution of costs over the stay, and who are being treated for non-surgical reasons. Some panelists said the payment system should

attempt to account for these differences. Acumen said it might be possible to incorporate these differences into the payment system, for example, by having an NTA index vary both over the course of a stay and based on the type of resident.

Recommendations

- Examine whether costs for outliers are reasonable.
- Examine whether medical social services are appropriately accounted for under the current nursing component indexes.
- Examine potential changes to the payment system that account for different resident profiles (e.g. high-cost and low-cost). Consider the feasibility of varying payment indexes over the course of a stay to account for these differences.

3.3.2 Assessing the Impact of a New NTA Component

Acumen pointed out that under the current payment system, some RUGs have very high average margins per day, while others have costs that exceed payments. There is also variation across RUGs in the percentage of stays with negative profits. Introducing a separate NTA component leads to more homogenous margins and a more even percentage of negative-profit stays across RUGs, improving payment accuracy. Participants were asked to discuss the implications of introducing a separate NTA component.

Discussion

Panelists discussed payment accuracy and how introducing an NTA component would affect provider behavior. One panelist said it was encouraging that payment accuracy could be improved simply by introducing a new NTA component and that this was the best possible approach under current constraints. The panelist suggested using more recent data to re-calculate the metrics used by the project team to estimate payment accuracy (margins and negative profits). Another panelist asked how introducing an NTA component and recalculating payment indexes would impact provider behavior. The participant cautioned that providers could respond in unanticipated ways, and that behavioral changes would have to be monitored to ensure quality was not adversely affected. Another participant said payment accuracy is paramount and that short-term behavioral responses can be managed. One panelist said introducing an NTA component should not be punitive to providers, but that it should be addressed as a correction to the current payment system.

Given the payment system could be made more accurate by increasing complexity, panelists were asked to consider the tradeoff between complexity and accuracy. Several panelists said it is important for providers to be able to determine how much Medicare will pay for a given resident so the facility can adjust its cost structure and staffing appropriately. Panelists said it was standard practice in many facilities to use patient diagnostic information and other characteristics to estimate what payment a resident is likely to generate prior to admission. One

participant said even in the case of a complex payment formula, software could be developed to calculate expected payment rate for a given resident. One panelist said although CMS does not have statutory authority for an outlier policy, measuring how well a new payment system accounts for high-cost outliers could be a useful metric. Another participant suggested updating the estimated indexes to reflect current data, then estimating the impact based on provider type (e.g., hospital-based, free-standing or swing bed), resident conditions, and other relevant distinctions.

Panelists said it was important for a payment system to incentivize adequate respiratory care. It was mentioned that the current payment system accounts for certain respiratory services and that those elements could be maintained to a new system. Acumen also pointed out that residents who are receiving respiratory care would likely generate higher payments compared to the average resident if a separate NTA component were introduced, providing incentives to adequately provide this service. A panelist pointed out, however, that the NTA indexes for some special services case-mix groups would be lower than the nursing component indexes associated with those groups. Acumen responded that in this particular case, it was true that relative nursing costs were higher than relative NTA costs, resulting in a lower NTA index relative to the associated nursing index, but that in other cases, introducing a separate NTA component would result in a higher NTA index for a given RUG than the nursing component index for that RUG. While panelists said it was important to incentivize adequate respiratory care, they also cautioned against over-incentivizing particular services, for example, oxygen therapy.

Recommendations

- Consider potential behavioral responses of SNF providers to introducing an NTA component. Consider mechanisms to ensure facilities continue to provide quality care after implementation of payment revisions.
- Consider tradeoff of complexity and accuracy in a payment system.
- Examine how well the new payment system accounts for high-cost outliers.
- Estimate the impact of introducing an NTA component on each provider type (e.g., hospital-based, free-standing, or swing beds), resident condition, condition severity, and other relevant distinctions.

3.4 Session 5: Options for Revising the Case-Mix Classification System

The objective of this session was to discuss options for revising the case-mix classification system, with a focus on incorporating resident clinical characteristics in the first stage of case-mix classification. This session of the presentation consisted of three primary topics:

- provide the motivation for revising the existing case-mix classification system

- describe the clinical complexity of the SNF population and the implications for segmentation of the case-mix classification system
- present four options for using clinical information in a first-stage segmentation of a revised case-mix classification system

Acumen explained that the existing classification system emphasizes the provision of therapy services. Only 6% of SNF utilization days are in RUGs that incorporate specific clinical information for case-mix classification. The remaining 94% of utilization days are in RUGs that only use therapy minutes and ADL score to determine payments. Using clinical information for an initial split of residents could better account for variation in costs of care. However, there are tradeoffs associated with using greater or lesser clinical detail in the first stage of case-mix classification. Acumen presented four options that would use clinical characteristics to initially split SNF residents into case-mix groups. The SNF population would fit into these proposed groupings to various degrees. The following questions were proposed for discussion:

(i) What criteria are applicable for determining which case-mix classification option is pertinent for the SNF setting?

(ii) What are the advantages and disadvantages of adapting a classification system from another care setting versus creating a new classification system specifically for SNFs? How well does the SNF population align with other post-acute care (PAC) or inpatient settings?

(iii) What are the benefits and limitations of using information from the qualifying inpatient stay to classify residents?

(iv) How could the "Inpatient Clinical Categories" option be adapted to better predict treatment costs, while keeping the number of categories small?

3.4.1 Information Used to Classify Residents

Acumen explained that the various resident classification systems the project team had examined used diagnosis as a first-level split. In particular, the "inpatient clinical categories" option developed by Acumen clinicians used the diagnosis from the qualifying inpatient stay as a first-level split. Panelists were asked to discuss the advantages and drawbacks of using the qualifying inpatient stay diagnosis, and diagnosis information more broadly, to classify residents.

Discussion

TEP participants questioned whether inpatient diagnosis was an appropriate criterion for a first-level split and offered criteria that could be used in addition to or instead of diagnosis to classify residents. One panelist said it could be impractical to use the inpatient diagnosis if the three-day hospital stay requirement is eliminated for SNF residents. Panelists also said that residents admitted from home might have different characteristics than residents admitted directly from the qualifying inpatient stay. Others said that by the time residents arrive in a SNF, other conditions may be more relevant to their care than their inpatient diagnosis. TEP

participants and the project team discussed moving away from a classification system based on therapy utilization. Panelists proposed various factors that could be used to separate residents based on acuity and the need for skilled nursing services, including functional score, prior hospitalizations, prior post-acute care admissions, number of days spent in intensive care, number of body systems treated in the SNF, and number of chronic conditions or comorbidities. Panelists said a separate category could be added to a case-mix system for residents admitted directly from home. Acumen said further case-mix splits can incorporate other resident characteristics that may be relevant to SNF treatment.

Recommendations

- Consider alternatives to inpatient diagnosis in the event that the three-day hospital stay is eliminated as a requirement for SNF admission.
- Explore alternatives to using inpatient diagnosis to determine the primary reason for SNF care.
- Consider factors such as functional score, prior hospitalizations, prior post-acute care admissions, number of days spent in intensive care, number of body systems treated in the SNF, and number of chronic conditions or comorbidities to separate residents based on acuity and the need for skilled nursing services.
- Consider accounting for residents admitted directly from home in the classification system.

3.4.2 Evaluating Potential First-Level Classification Splits

Acumen discussed various criteria for evaluating potential first-stage classification splits. For example, whether the first split allows for further divisions to place residents into narrower, more homogenous case-mix groups. It is also important that the categories chosen are an appropriate depiction of variation in the SNF population. Panelists were asked to discuss which criteria are most important when selecting a first-level split, and a classification system in general.

Discussion

Panelists focused on clinical logic and predictive ability as key criteria for choosing a case-mix classification system. One panelist asked if clinicians would be comfortable with a complex case-mix system that assigned risk scores based on a large set of regression coefficients, or whether clinicians would prefer a smaller set of discrete classification groups. Another participant said even the current system is not clinically meaningful. Panelists also discussed the ability of potential case-mix systems to predict resource use as another important criterion. One panelist asked for the highest R-squared value obtained in the project team's regressions, using a large set of resident demographic and clinical characteristics. Acumen said it had obtained a pseudo-R-squared (a measure of how well the population fits the statistical model) of 0.20 for NTA costs using a Poisson regression that included this large set of explanatory variables. The

panelist said that although the first split, using a small number of discrete classification groups, does not currently explain much variation in costs, introducing interaction terms could increase the explanatory power of the model and get closer to the highest R-squared values the project team has obtained using the large set of resident characteristics. Acumen explained that the project team plans to test interaction terms. A participant said it was important to examine the ability of potential classification systems to predict all SNF costs. Another panelist said it was important to evaluate potential classification systems using both statistical methods and clinical logic. One participant cautioned that it is important to strike a balance between capturing an appropriate level of clinical detail in the payment system and minimizing the data collection burden on SNF providers.

Recommendations

- Consider both clinical logic and statistical fit when evaluating potential classification systems.
- Test whether the addition of interaction terms increases the explanatory power of potential case-mix groups.
- Consider the appropriate level of clinical detail in the classification system and how this might affect the data collection burden on providers

3.4.3 Using Resident Scores or Discrete Case-Mix Groups

Acumen explained that current RUGs group together residents with varying diagnoses and number of comorbidities, as well as different costs. Using clinical conditions to classify residents could result in more homogenous case-mix groups. However, there are thousands of combinations of health conditions, so it is necessary to determine the appropriate level of clinical detail in a classification system. Panelists discussed possible solutions to the challenge of selecting the appropriate level of clinical detail.

Discussion

Discussion focused on whether the payment system should assign individual resident scores or place residents into discrete case-mix groups. One panelist stated that instead of assigning residents to discrete case-mix groups, each resident could receive an individual score that would capture more clinical detail. Other participants said this system would be similar in some respects to Medicare Advantage and the home health system. One panelist pointed out the home health system is a hybrid classification system in that it both assigns scores for individual patients and places patients in discrete categories. One panelist said the home health system has experienced similar problems related to the over-provision of therapy, while another said Medicare Advantage had experienced similar issues related to "gaming" of elements tied to payment. A panelist suggested there might be less potential for "gaming" if diagnoses and medication were used for payment, while others expressed skepticism that these elements could

not be manipulated for payment purposes. One participant said incentives for over-provision of certain services are not an inherent problem with resident scores or case-mix groups. The participant said using statistical-based techniques was the best approach to group residents and that there will always be scope for manipulation of elements linked to payment. One participant asked if the project team was open to using different classification systems for different components of the payment system. Acumen said the team had not committed to a particular approach and was open to a hybrid classification system that would combine resident scores and case-mix groups.

Recommendations

- Consider developing individual resident scores or a hybrid system that uses both resident scores and case-mix groups.

4 NEXT STEPS

Acumen is using the feedback received at the nursing component TEP to inform its ongoing work to develop alternative approaches to the SNF payment system. Acumen is planning one additional TEP focusing on general changes to the payment system and will provide other engagement opportunities to share future progress and obtain feedback from stakeholders and researchers in post-acute care. The following list describes ongoing and future analyses Acumen plans to explore based on recommendations described in Section 3 of the Technical Expert Panel Summary Report:

Options for Revising Nursing Indexes

- Investigate the ways in which resident characteristics, particularly indicators of acuity, have changed over time, and what implications this has for using STRIVE data in future analyses.
- Examine whether inpatient discharge practices have changed over time and how this might affect SNF resident characteristics and acuity.
- Consider how clinical practices could have changed since the STRIVE study when determining whether to use STRIVE data to recalculate nursing indexes.
- Consider the following factors in predicting nursing resource use: diagnosis, drugs for chronic conditions, malnutrition, dementia, skin conditions, functional status, comorbidities, medical complexity, cognitive needs, mood, mental health, depression, and intravenous procedures.
- When deciding whether to assign residents to non-rehabilitation RUGs for nursing payment purposes, determine whether variation in nursing costs in the STRIVE study was similar for rehabilitation and non-rehabilitation residents.
- Explore currently available data sources that are more recent than the STRIVE study to recalculate nursing indexes.
- Consider the feasibility of combining facility-level variation in nursing+routine charges with resident-level variation in nursing staff time from the STRIVE study to construct a variable that could be used to estimate resident-level nursing resource use.

Considering NTA Services as a Separate Payment Component

- Examine the characteristics of residents with very high NTA costs per day.
- Investigate enteral and parenteral nutrition, malnutrition, failure to thrive, and dehydration as potential drivers of NTA costs.
- Examine residents' inpatient diagnoses to help identify drugs missing from the MDS, which may contribute to high NTA drug costs for some residents.

- Consider using a less-restrictive exclusion point for high-cost outliers.
- Ensure that all respiratory services are accounted for in the data.
- Actively explore block pricing as a strategy to account for frontloading of drug costs, and analyze the impact of potential behavioral responses on length of stay and quality of care.
- If permitted by the STRIVE data, examine whether medical social services costs correlate with nursing costs, which would help determine whether social services are appropriately accounted for under the current nursing component indexes.
- Consider potential behavioral responses of SNF providers to introducing an NTA component. Consider mechanisms to ensure facilities continue to provide quality care after implementation of payment revisions.
- Consider tradeoff of complexity and accuracy in a payment system.
- Examine how well the new payment system accounts for very-high-cost stays.
- Estimate the impact of introducing an NTA component on different subpopulations, such as provider type (e.g., hospital-based, free-standing or swing-beds), resident conditions, and other relevant distinctions.

Options for Revising the Case-Mix Classification System

- Consider both clinical logic and statistical fit when evaluating potential classification systems.
- Consider the appropriate level of clinical detail in the classification system and how this might affect the data collection burden on providers.
- When designing a resident classification system, consider alternatives to inpatient diagnosis as a basis for classification in the event that the three-day hospital stay is eliminated as a requirement for SNF admission.
- Explore alternatives to using inpatient diagnosis to determine the primary reason for SNF care.
- Consider developing high-detail resident scores or a hybrid system that uses both resident scores and case-mix groups to classify residents.
- Consider factors such as functional score, prior hospitalizations, prior post-acute care admissions, number of days spent in intensive care, number of body systems treated in the SNF, number of chronic conditions, and number of comorbidities to separate residents based on acuity and the need for skilled nursing services.
- Consider accounting for residents admitted directly from home in the classification system.
- Test whether the addition of interaction terms increases the ability of potential case-mix groups to predict costs for SNF residents.

APPENDIX A: DISCUSSION OBJECTIVES AND QUESTIONS

A.1 Session 2: Options for Revising Nursing Index

Session Objective:

Examine administrative data on nursing costs and explore options for updating nursing indexes

Session Discussion Questions:

- Are nursing costs homogeneous across residents, or is the limited variation in charges a result of billing patterns?
    - If there is variation in nursing costs, what resident characteristics drive this variation?
- Are Non-Rehabilitation RUGs an appropriate classification system to reflect differences in nursing service use for the overall SNF population?
- Is the composition of the resident population the main driver of variation in nursing costs across facilities?
- How have clinical practices changed since the 2007 STRIVE study?

A.2 Session 3: Considering Non-Therapy Ancillary Services as a Separate Payment Component

Session Objective:

Discuss creation of a separate NTA component in SNF PPS payment, with a focus on drug costs

Session Discussion Questions:

- In introducing a separate NTA component into payment, is it appropriate to focus on drug costs?
- What types of drugs drive variation in drug costs?
    - Are there important categories of drugs not included in Section N of the MDS?
    - What is the source of large variation in drug costs within Section N categories?
- Why are NTA costs concentrated at the beginning of the stay?
    - Does the frontloading of drug costs reflect billing practices or actual service use patterns?
    - Can any unused prescription drugs be returned to the pharmacy?
    - Do residents bring long-term prescription drugs to the SNF, or do facilities always fill a new prescription?
    - Should stay length be considered as a determinant of NTA payment in an alternative system? (e.g. block pricing)

A.3 Session 4: Explore Introducing NTA Payment Component

Session Objective:

Examine approaches for constructing a separate NTA payment component

Session Discussion Questions:

- Is the methodology used to calculate NTA indexes appropriate?
- What refinements could be introduced?
- What metrics should be used to evaluate effects of introducing an NTA component?

A.4 Session 5: Options for Revising the Case-Mix Classification System

Session Objective:

Discuss options for revising the RUG case-mix classification system, with focus on incorporating resident clinical characteristics in the first stage of case-mix classification

Session Discussion Questions:

- What criteria are applicable for determining which case-mix classification option is pertinent for the SNF setting?
- What are the advantages and disadvantages of adapting a classification system from another care setting versus creating a new classification system specifically to SNFs?
    - How well does the SNF population align with other PAC or inpatient settings?
- What are the benefits and limitations of using information from the qualifying inpatient stay SNF to classify residents?
    - How could Inpatient Clinical Categories be adapted to better predict treatment costs, while keeping number of categories small?