Risk Adjustment Models for OASIS-Based Outcome Measures

Background

The Centers for Medicare & Medicaid Services (CMS) maintains, re-evaluates and implements changes to the OASIS data item set and also develops, implements, maintains and re-evaluates quality measures that are reflective of quality of care provided by home health agencies (HHAs) in the home setting.

For outcome measures, the re-evaluation process includes evaluating and updating, as needed, the risk adjustment models used to adjust for patient characteristics at admission, to ensure they are adequately robust and allow for valid comparison across providers. OASIS-based home health outcome measures are risk-adjusted using OASIS items that are statistically significant and clinical relevant predictors of the outcome.

In the CY2018 Home Health Prospective Payment System (HH PPS) final rule (82 FR 51715), CMS finalized removal of 70 data elements from 24 OASIS items collected at the start or resumption of a care episode, some of which were used in the risk adjustment models for OASIS-based outcome measures. As a result, the risk adjustment models require recalibration to include only OASIS items that will be present on OASIS-D, which has an effective date of January 1, 2019. More information on item removals by OASIS data collection time point is available here.

The following activities were done to update the risk adjustment models:

- Reviewed model risk adjustment factor (covariate) definitions to identify those not supported by OASIS-D;
- Refined additional risk adjustment factors as needed, based on statistical, clinical and other input;
- Recalibrated risk adjustment model parameters using revised candidate adjusters;
- Conducted clinical and technical reviews to retain risk adjustment factors that were statistically and clinically meaningful; and
- Tested new risk adjustment model performance against current models.

CMS solicited public comment on the resulting updated risk adjustment model. Proposed risk factors and estimated coefficients were publicly posted from September 4, 2018 to October 4, 2018. CMS requested:

- Feedback on updated risk adjustment model parameters and risk adjustors.
- Input to inform future risk adjustment model re-evaluation and refinement.

CMS received two comments on the posted risk models. These are summarized below with our responses and final decision. Verbatim comments are included at the end of this document.

Comment Summaries and Responses

1. <u>Comment:</u> Both commenters recommended the inclusion as risk factors social determinants of health that may impact the outcomes. The commenters noted the potential complexities in

properly adjusting for social determinants of health without unintentionally exacerbating disparities. The commenters suggested using NQF's recent studies in this area and encouraged responsive consideration of future developments and strategies for incorporating social determinants.

Response: We appreciate these comments and agree that exploring strategies for identifying and incorporating relevant social determinants of health are important analyses. We refer the commenter to the CY 2019 Home Health Proposed Rule (83 FR 32439 through 32440) for a discussion of incorporation of social determinants of health based on the findings of the NQF and other studies. There, we discussed the possible use of stratification and alignment with other programs and note that we will continue to work with the public and key stakeholders to identify policy solutions to address the goal of health equity for all beneficiaries while minimizing unintended consequences. We also note the inclusion as a risk factor of beneficiary payment source serves as proxy for Medicaid dual eligibility, which has been identified as an important social risk factor.

2. Comment: Both comments addressed inclusion or exclusion of certain risk factors, including encouraging the incorporation of frailty as a risk factor. One commenter asked why acute care as a patient source is not a risk factor given its role in the home health payment model. The same commenter also asked why nutrition was not a risk factor and noted that the number of therapy visits should not be included as a risk factor.

    Response: We understand frailty to be referring to the inclusion of Hierarchical Condition Categories (HCCs), which are used to risk adjust patients covered by Medicare Advantage plans and Medicaid Program of All-Inclusive Care for the Elderly (PACE). We did consider the use of HCC flags in place of the home care diagnoses in testing alternative risk adjustment models. They were ultimately not selected for the final model because a large proportion of home health beneficiaries were not flagged for any HCC conditions. This is because the HCC flags used for MA and PACE incorporate a year's worth of diagnoses from other inpatient and outpatient settings. Currently, available data are limited to diagnoses present on the OASIS assessment at the time of home health admission.

    Regarding the inclusion of an acute care admission source, we refer the commenter to Risk Factor #4 (SOC/ROC and admission source) and #5 (post-acute facility admission source). These risk factors allow for differential effects of patients entering from an acute care setting versus a post-acute care setting versus the community. For nutrition, we refer the commenter to Risk Factor #6 (IV Therapies). This risk factor includes an indicator for whether the patient is receiving nutrition or infusion therapy.

    The number of anticipated therapy visits at SOC/ROC is included as an indicator for the scope of a patient's condition and need for care. OASIS has a limited number of indicators for the severity of disease and symptom burden, and our goal is to use of all available relevant data to its best effect. Prediction models are re-estimated from time-to-time to ensure that the predictive

power of individual risk factors such as this one continue to be meaningful and statistically significant.

3. Comment: One commenter noted that behavioral symptoms are not a covariate for many models. The same commenter noted that presence or absence of caregiver was not a risk factor in the surgical wound measure.

   Response: All risk factors listed in the document were initially used in the risk adjustment models. If none of the covariates under a risk factor was statistically significant at the $p < 0.001$ significance level, the risk factor was excluded and the model was re-run. Thus, the data indicated that the behavioral symptoms and caregiver presence were not statistically significant risk factors in the preliminary models. We acknowledge that the commenters concern that these risk factors play a role in their daily care of home health patients. Also note that because M2102 (Care Management), which is used for determining assistance, underwent major changes in OASIS D, the risk adjustment models were limited by which M2102 components will remain. We will continue to monitor the performance of the risk adjustment model and update in the future as needed.

4. Comment: Both commenters noted that maintenance measures would be more appropriate for HHAs that serve high proportions of patients for whom improvement is not expected. One commenter also noted that patients who transfer to hospice care should be excluded from the measure specifications.

   Response: We appreciate these comments and understand the need to develop measures geared towards maintenance. CMS is currently exploring options such as new measures, stratification, or exclusions as noted by the commenters.

5. Comment: A commenter recommended that risk adjustment models with c-statistics lower than 0.7 should be reevaluated and improved.

   Response: The c-statistic measures goodness of fit and a value of 0.7 or greater generally indicates a good fit. A value of 0.5 indicates that the model performance is the same as under random chance and lower than 0.5 indicates poor fit. While we endeavor for all risk adjustment models to result in a c-statistic of 0.7 or greater, several of the measures display c-statistics slightly below (e.g., 0.692 for Improvement in Confusion Frequency and 0.642 for Improvement in Status of Surgical Wounds). We note that the models all have c-statistics greater than 0.640 and that there is general improvement in the model fit in contrast to the current risk adjustment model.

6. Comment: One commenter asked why the model estimates indicate that patients with a very low functional status would be risk adjusted down, which is counter to the commenter's experience as a clinician.

Response: We understand the commenter to be referring to the sign on the coefficient estimate for M1800 items such as bathing and lower and upper body dressing. For these risk factors, patients in the most dependent state (highest coding) are associated with a lower likelihood of improvement on some of the measures. Note that the negative coefficient would ultimately result in a positive boost to the risk adjusted measure performance for HHAs that serve high proportion of these patients. That is, the data show that improvement in certain measures is less likely for patients in the lowest functional category and the risk adjustment model will compensate by adjusting upwards the measure value for HHAs that care for these patients. We will continue to monitor the performance of the risk adjustment model and make updates as needed.

Final Decision

The update risk adjustment models as posted are finalized and will be applied to OASIS-based outcome measures calculated from episodes starting January 1, 2019. CMS will continue to monitor and analyze the data and update the risk adjustment models as needed.

Name	Organization	Comment
Sharon L. Dunn, PT, PhD, President	American Physical Therapy Association	**Risk Adjust Social Determinants of Health** APTA recommends Abt and CMS incorporate social determinants of health data into the risk adjustment process, which will better allow CMS to predict potential outcomes across the Medicare beneficiary population. There has been an increasing focus on social determinants of health due to the significant influence they have on health, health care outcomes, and spending. "Social determinants include a broad array of social and environmental risk factors such as poverty, housing stability, early childhood education, access to primary care, access to healthy food, incarceration and discrimination." (Medicaid and Social Determinants of Health: Adjusting Payment and Measuring Health Outcomes https://www.healthmanagement.com/wp-content/uploads/SHVS_SocialDeterminants_HMA_July2017.pdf. Accessed October 3, 2018) To develop an accurate risk adjustment model, it is imperative that Abt and CMS risk adjust for the social determinants of health that may impact outcomes outside of the traditional health care continuum. APTA is encouraged by the National Quality Forum's (NQF) efforts to examine whether measures should be risk adjusted for socioeconomic status and other factors and recommend CMS and Abt use NQF's findings as a guide for future risk adjustment. APTA recognizes that adjusting for social determinants of health in certain outcome measures is a complex issue. The lack of adjustment for social determinants in outcome measures utilized in value-based payment programs and models negatively impacts providers and facilities in certain geographic areas where the incidence of specific social risk factors are highest. However, we also acknowledge that implementing adjustments for social determinants of health may increase health disparities by essentially masking these factors. Currently, the home health outcome measures are not adjusted for social determinants, which has led to reduced payments for providers and facilities caring for some of the nation's most vulnerable patient populations. In addition to financial repercussions, publicly reported outcome measures can be misleading to consumers. We also have concerns that improperly risk adjusting outcomes could lead to certain HHAs actively selecting patients who are more likely to show improvement in key metrics, and avoiding patients who are less likely to contribute to positive outcomes. APTA strongly believes that the understanding of social determinants of health and their impact on the delivery and receipt of health care services will continue to evolve over time. Therefore, we encourage CMS and Abt to be responsive to future developments and strategies that provide solutions for the risk adjustment of social determinants in the home health setting. **Incorporate Frailty as Risk Factor** APTA also recommends Abt and CMS risk adjust for frailty. Medicare Advantage and the Medicaid Program of All-Inclusive Care for the Elderly (PACE) already take into account frailty. Moreover, research has shown that a risk adjustment model without frailty systematically underestimates expenditures for the frail elderly and might therefore induce risk selection against this group. Appropriate risk adjustment is critical to ensuring beneficiary health status is fully captured and resources are appropriately allocated to treat and manage beneficiary care. (Medicare Risk Adjustment for the Frail Elderly. Kautter, J., Ingber, M., Pope, G. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4195052/. Accessed September 27, 2018.) Therefore, APTA recommends CMS risk adjust for frailty in the home health setting. **Promote Delivery of Maintenance Therapy** Per the OASIS-D Guidance Manual, "OASIS-based quality measures can be used for quality improvement efforts that home health agencies (HHAs) can employ to assess and improve the quality of care they provide to patients. CMS provides HHAs with numerous quality measure reports including outcome, process, potentially avoidable event, patient-related characteristic, and patient tally reports..." "Some patients are excluded from the improvement or the stabilization computations. Any patient whose status at start (or resumption) of care is optimal for the health attribute under consideration is excluded from the improvement computation. Such a case is excluded because the patient could not possibly show improvement, since he/she is as "good" as they can possibly be for this attribute. All the patients included in the improvement

		computation had the potential to show improvement; the percentage (and the actual number of cases) listed at the end of the bar actually did improve."(OASIS-D Guidance Manual Effective January 1, 2019 https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/Downloads/draft-OASIS-D-Guidance-Manual-7-2-2018.pdf. Accessed September 28, 2018.) APTA appreciates that CMS excludes patients who do not have the potential to improve from the OASIS-based quality measure improvement computations. Maintenance therapy provides stabilization for patients, preventing a decline in their condition while optimizing function. Without appropriately excluding all applicable patients, HHAs will be penalized for delivering skilled maintenance therapy, thus incentivizing agencies to further decrease the already minimal amount of maintenance therapy being delivered in the home health setting. With a rapidly growing aged population, maintenance therapy will only become more critical in helping patients uphold their health and quality of life. It is imperative that CMS prioritize efforts to ensure HHAs are appropriately incentivized and encouraged to provide skilled maintenance therapy to Medicare beneficiaries in the future.

Bud Langham, Chief Clinical Officer	Encompass Health	1. We believe risk adjustment factors should accurately reflect the true risk presented by the patient within the context of their biopsychosocial needs. With the increasingly significance placed on home health outcomes, CMS should exercise caution that risk adjustment adequately compensates for the true risks of patients in order to prevent agencies from selecting certain patients over others, sometimes called "cherry picking".
		2. Patients who cannot improve or do not have a goal to improve should be excluded from outcome reporting or should be reported separately in a "stabilization" category. Current outcomes bias agencies against caring for patients who are chronic or require maintenance care.
		3. Patients who transfer to hospice care while on service should be excluded from outcomes reporting. Improvement is not a goal for the patients, instead the goal is comfort, dignity, and a good death.
		4. CMS must find a reasonable method to adjust for social determinants of health. The impact of the variables is substantial and not currently addressed in the model.
		5. Frailty and other key frailty indicators should have a significant role as a risk adjustment variable.
		6. C-stats below 0.7 should be reevaluated as not being robust or accurate enough to be included.
		7. We have several specific questions about the model:
		    a. We don't believe that the number of therapy visits should be a risk adjustment covariate
		    b. We don't understand how the presence or absence of a caregiver is not considered for the surgical wound improvement measure.
		    c. We don't understand how behavioral symptoms isn't a covariate for so many measures. We see the impact everyday with our patients.
		    d. Why is acute care as a patient source not a risk factor when PDGM research shows a link between resources consumed and patients who come from an inpatient setting?
		    e. Why is nutrition not a risk factor?
		    f. Why do patients who present with a very low functional status initially are risk adjusted down so aggressively? It isn't logical for clinicians who see these patients.
		In general we are asking for robust and accurate risk adjustment in home health outcomes. We believe that risk adjustment should reflect the true risk presented by the patient. To do this you must include more detailed information about their social determinants of health. CMS has considered the distressed communities index previously, please continued this effort. Risk adjustment should also not discourage agencies from admitting discreet populations of patients due to their low potential to generate a positive outcome.