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Objectives

- How and why risk adjustments are used in quality reporting
- Examples of risk adjustments that increase and decrease your observed scores
- Insights on implications of risk adjustments
  - Social Determinants
  - Best Practices – Accuracy, Non-revenue OASIS items, Non-Medicare payers
- How should you use this information?
Here's everything you need to know about risk adjustments

Mystery Slide...

How and why risk adjustments are used in quality reporting
CMS Reported Scores

- Risk-adjusted outcomes are utilized by CMS in many different areas, including Home Health Compare, Quality of Patient Care star ratings, CASPER reports, Value-Based Purchasing calculations, and more.

CMS Reported Scores (cont.)

- Not every publicly reported outcome is utilized in every calculation.

- As shown below, the Quality of Patient Care Star Rating calculation and the Value Based Purchasing calculation both omit outcomes that are reported on Home Health Compare.

<table>
<thead>
<tr>
<th>Outcome Category</th>
<th>OBQI</th>
<th>Process Measures</th>
<th>Process Measures</th>
<th>OBQI</th>
<th>Risk-based Payment</th>
<th>Risk-based Payment</th>
<th>OBQI</th>
<th>Process Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Health Compare</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>CASPER</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>Quality of Patient Care Star Ratings</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>Value Based Purchasing</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
</tbody>
</table>

Risk Adjustment – Why is it done?

- The basic purpose of risk adjustment is to ensure a fair comparison of outcomes by taking into consideration patient characteristics at the start of a home care episode that may affect the likelihood of specific outcomes during this episode.

- Used for OBQI outcomes and adverse event outcomes.

- Not used for process measures.

- Each outcome has a unique risk model.

- Outcomes scores include Medicare, Medicare Advantage, Medicaid and Medicaid HMOs payers.

- Only exception is Claims-based measures.
Risk Adjustment – How is it done?

- A predicted value for a specific outcome is computed based on an analysis of the relationships between that outcome and its multiple risk factors in the reference group of patients.
- A formula then is developed that expresses the probability of the outcome as a mathematical function of the most relevant risk factors.
- Using this formula for each of a specific agency’s patients, the predicted value for the agency’s rate on a specific outcome measure can be estimated.
- The actual outcome rate achieved by the agency (its current observed value) then is compared to the national reference value.

Risk Adjustment – In English Please??

An adjustment made to your outcome scores by comparing your patient characteristics to national averages.

Risk-Adjustment Step-by-Step

1. Observed outcome rate is calculated for all eligible patients
   \[ \text{Agency(observed)} = \frac{\#\text{achieving outcome}}{\#\text{eligible for outcome}} \]
2. For each of the same patients, a predicted outcome is calculated based on statistical risk model and patient condition at admission.
3. Predicted outcomes are averaged across all the patients served in a 12 month period.
   \[ \text{Agency(predicted)} = \frac{\text{Sum of predicted probability}}{\#\text{eligible for outcome}} \]
4. National observed and predicted rates are calculated aggregating across all patients served by any HHA.
5. Agency rate is risk adjusted by adding to the observed rate the difference between the national predicted rate and agency predicted.
   \[ \text{Agency(risk adjusted)} = \text{Agency(observed)} + (\text{National(predicted)} - \text{Agency(predicted)}) \]
Logistical regression

Logistical regression is a statistical technique commonly used to analyze the relationship between multiple predictors (in this case, risk factors) and a yes/no outcome (in this case, improved/not-improved).

Using this technique, a predictive model was constructed for each outcome based on an analysis of risk factors and outcomes using reference group data.

The predictive model is a mathematical formula that reflects the influence of multiple risk factors on a particular outcome.

Risk Model using Logistical Regression

OASIS risk factors are patient characteristics identified at SOC or ROC.

There are 320 possible risk factors, ranging from 33 to 119 for the 7 Home Health Compare outcomes:

- Ambulation: 102
- Bathing: 114
- Bed Transferring: 99
- Pain: 69
- Dyspnea: 83
- Oral Medications: 119
- Surgical Wounds: 33

Each risk factor has an associated coefficient that can either raise or lower the likelihood of the patient improving for the outcome in question.

The larger the coefficient value for the risk-factor, the bigger the impact (positive or negative) it will have on your risk-adjusted score.

Example: Below are the risk-factor coefficients for the Ambulation outcome that have the largest positive and negative impact on how likely a particular patient is to improve in Ambulation.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulation: able to walk only with supervision or assistance</td>
<td>0.184</td>
</tr>
<tr>
<td>Bathing: unable to do personal hygiene activities</td>
<td>-0.439</td>
</tr>
</tbody>
</table>

Translation: A rating of “3” for Ambulation at SOC/ROC (Able to walk only with the supervision or assistance of another person at all times) would indicate that the patient is more likely to improve, whereas a rating of “6” for Bathing (Unable to wash, bathe, dress, use bathroom, or perform any other self-care activities) would indicate that the patient is less likely to improve in Ambulation.
• The coefficient values for each of the risk factors that are present for a specific patient are totaled up and contribute to a single predicted improvement score for the patient.
• The higher the predicted improvement score, the more likely that the patient is to improve, and vice versa.
• The predicted improvement scores for each individual patient are used to calculate your agency predicted score.
• Therefore, having a large population of patients with high patient predicted values will result in your risk-adjusted score being lower than your observed score, and vice-versa.

Takeaway Regarding Risk-Factors
• What does this tell us about risk-adjustment?
• For nearly all of the HHC outcomes, the single biggest factor by far that causes your final risk-adjusted score to be lowered is the severity of the rating for the outcome at SOC/ROC.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Top Risk Factor</th>
<th>CASIX Value</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulation</td>
<td>Ambulated, cannot walk, or walk with assistance</td>
<td>2.49</td>
<td>2.49</td>
</tr>
<tr>
<td>Bathe</td>
<td>Bathe, needs assistance, felled, bed or chair by another</td>
<td>0.45</td>
<td>0.45</td>
</tr>
<tr>
<td>Bed Thrusting</td>
<td>Bed thrashing, bed trashing</td>
<td>1.34</td>
<td>1.34</td>
</tr>
<tr>
<td>Bath</td>
<td>Frequency of Bath, Cleanest</td>
<td>0.90</td>
<td>0.90</td>
</tr>
<tr>
<td>Pressure</td>
<td>Pressure Ulcers, All sites</td>
<td>1.03</td>
<td>1.03</td>
</tr>
<tr>
<td>Vital Signs</td>
<td>Vital Signs, Not Measured, Unstable</td>
<td>1.49</td>
<td>1.49</td>
</tr>
<tr>
<td>Surgical Wounds</td>
<td>Surgical Wounds, Number of therapy visits, Total</td>
<td>3.69</td>
<td>3.69</td>
</tr>
</tbody>
</table>

Examples of risk adjustments that increase and decrease your observed scores.
Analysis of Risk-Adjustment Impact

- To demonstrate the impact of the SOC/ROC rating on your risk-adjustment, we looked at data for 2017 and compared the risk-adjusted Ambulation scores for 2 providers.

- Both providers had roughly the same number of episodes, but Agency 1 had an observed score that was nearly 40% higher.

<table>
<thead>
<tr>
<th>Provider</th>
<th>Episodes</th>
<th>Outcome Adjusted</th>
<th>Agency Observed Score</th>
<th>Agency Risk-Adjusted Score</th>
<th>Risk-Adjusted Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency 1</td>
<td>1,469</td>
<td>1,502</td>
<td>96.8%</td>
<td>100.8%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Agency 2</td>
<td>1,457</td>
<td>1,577</td>
<td>35.0%</td>
<td>30.0%</td>
<td>-5.0%</td>
</tr>
</tbody>
</table>

- However, that same agency saw a 17% drop in their Ambulation score after being risk-adjusted, whereas Agency 2 saw a 17% increase.

- What caused this drastic adjustment for each provider?

Analysis of Risk-Adjustment Impact

- For Agency 1, the percentage of episodes that were rated a “3” at SOC/ROC was 23.6% HIGHER than the SHP average.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>SOC/ROC Rating</th>
<th>Episodes</th>
<th>Outcome Adjusted</th>
<th>Agency Observed Score</th>
<th>Agency Risk-Adjusted Score</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>2</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>3</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>4</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>5</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>6</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
</tbody>
</table>

- For Agency 2, the percentage of episodes that were rated a 3 at SOC/ROC was 51.9% LOWER than the SHP average.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>SOC/ROC Rating</th>
<th>Episodes</th>
<th>Outcome Adjusted</th>
<th>Agency Observed Score</th>
<th>Agency Risk-Adjusted Score</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>2</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>3</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>4</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>5</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>6</td>
<td>Ambulation 3</td>
<td>2</td>
<td>30</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
</tbody>
</table>

Analysis of Risk-Adjustment Impact

- Over the last two years, the % of episodes rated a “2” for Ambulation at SOC/ROC has decreased (from 24.1% to 16.5%), and the % of episodes rated a “3” has increased (from 53.4% to 63.7%).

- This has resulted in an overall increase in Observed scores, but an overall decrease in Risk-Adjusted scores.
Patient Predicted Scores

- As shown in the table below, the outcomes being achieved in “real-life” match the Patient Predicted values calculated from the CMS risk-factors.
- Essentially, we see that improved outcomes have higher average Patient Predicted values than stabilizations or declines, showing that the patients that are improving are typically the patients that are expected to improve.

<table>
<thead>
<tr>
<th>Average Patient Predicted</th>
<th>Ambulation at Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 1 2 3 4 5 6</td>
</tr>
<tr>
<td>1</td>
<td>62.9% 35.6% 31.2% 29.1% 27.8% 26.2% 27.9%</td>
</tr>
<tr>
<td>2</td>
<td>60.0% 61.9% 45.0% 38.9% 32.9% 33.3% 35.2%</td>
</tr>
<tr>
<td>3</td>
<td>65.1% 85.5% 80.4% 73.9% 73.9% 66.6% 59.3%</td>
</tr>
<tr>
<td>4</td>
<td>76.3% 74.9% 69.6% 62.1% 62.7% 53.8% 54.2%</td>
</tr>
<tr>
<td>5</td>
<td>72.3% 69.4% 62.7% 54.1% 55.3% 49.7% 54.6%</td>
</tr>
<tr>
<td>6</td>
<td>24.8% 22.7% 19.9% 15.4% 16.2% 12.1% 13.7%</td>
</tr>
</tbody>
</table>

Insights on implications of risk adjustments

- Outcome rates presented on the CASPER Outcome Report and Home Health Compare are both adjusted to take into account differences in patient case mix among home health agencies.
- However, on the CASPER Outcome Report, the agency outcome value is the actual (observed, non-risk-adjusted) outcome rate achieved by that agency’s patients, and the national value is adjusted by applying a risk adjustment factor based on the difference between that agency’s patients and the national home health patient population.

\[
\text{National (risk adjusted)} = \text{National (observed)} + (\text{Agency (predicted)} - \text{National (predicted)})
\]
Difference between CASPER and HHC

- For Home Health Compare, the actual national value is reported, and each agency's outcome value is adjusted using the same risk adjustment factor (in reverse) as is used on the CASPER Outcome Report.
- Because both reports use the same risk adjustment factor, the difference between the agency value and the national value should be similar on both reports.

Social Risk Factor Framework

CY 2019 OASIS-D

- Effective January 2019, 33 OASIS measures will be eliminated.
- CMS will likely be required to update the regression models used in the risk adjustments.
- Examples Include:
  - IADL Assistance: Caregiver currently provides
  - Conditions Prior to Treatment: Intractable pain
  - Prior Functioning: Needed assistance with transfer
  - Risk for Hospitalization: History of falls
  - Use of Telephone: Able to make and answer calls
How should you use this information?

OASIS Accuracy
- OASIS accuracy is key to financial success
  Outcomes can only improve when SOC assessment accurately reflects patient frailty and disability
- Enhance OASIS education
  Repeat education at specified intervals
  Validate knowledge received and retained
  Utilize OASIS Q & As

OASIS Scrubbing
- Have OASIS review staff and clinicians review and resolve OASIS scrubbing alerts
- Track and monitor alert utilization
- Look at Outcome alerts to proactively identify improvement opportunities and verify OASIS accuracy
It is important to resolve both the SHP critical and potential OASIS alerts regularly for all patients.

- The SHP resolution rate for potential alerts is typically less often, but these inconsistencies can impact your risk adjustments.
- Certain OASIS items can affect the predicted improvement rates for your patients depending on how scored and influence the risk adjustments positively or negatively.
- Managing alerts for all Medicare and Medicaid patients will help ensure the accuracy is applied consistently in the risk models.

The examples below demonstrate just a few of the SHP “Potential” OASIS alerts that could impact your risk-adjustment.

The $1,000,000 question: How do I “fix” my risk adjustment?

Answer: You don’t! Your risk-adjustment isn’t “right” or “wrong”, it simply uses your OASIS answers to determine how likely your patients are to improve.

Instead, focus on OASIS accuracy and do the best that you can to ensure that your assessments accurately represent the clinical condition of your patients.
Questions?

Thank You for Attending!

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Demystifying Home Health Risk Adjustments

Winning Wednesday Webinar Series