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Improving Medicare Advantage Star Ratings: An Analytical Framework

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The Centers for Medicare & Medicaid Services (CMS) uses a five-star rating scale to measure the quality of Medicare Advantage plans. The competitiveness of a Medicare Advantage plan revolves around its ability to attain and maintain a Medicare star-rating level greater than or equal to four. Any rating level beneath that could call into question the sustainability of the plan, primarily because low-rated plans do not receive bonus payments from CMS.[1]

The level of a plan's quality and performance is indicated by its star rating, which ranges from one star (poor) to five stars (excellent). To calculate the star ratings, CMS assesses contracts on five broad categories:[2]

- Outcomes that reflect improvement in members' health
- Intermediate outcomes that reflect action taken to improve members' health
- Patient experience measures that reflect members' experience of the care they received
- Access measures that indicate potential barriers to timely care
- Process measures that capture services helping monitor, maintain or improve members' health status.

Within each category are a number of individual measures that CMS evaluates and assigns a score.

This article outlines an analytical framework that can help a star manager implement a quantitative approach to developing a value score for each improvement measure. The proposed framework constitutes a five-step approach applied to each measure:

1. Review the current star-rating level.
2. Measure travel distance to the next star-rating level.
3. Estimate the probability of success to move to next star-rating level.
4. Develop value scores for each measure.
5. Prepare a schedule targeting measures for improvement.

THE STAR-RATING SYSTEM

For each measure, CMS reports a numerical score that captures the level of performance in that measure. The score is then converted to a rating using predetermined thresholds or cut points.

CMS also reports two summary ratings[3] for Medicare Advantage plans—one for Part C and another for Part D. The rating is calculated as a weighted average of the measure scores. The weights used to calculate the summary ratings vary by measure. For the 2018 contract year, Medicare Advantage contracts were measured on a maximum of 48 measures, out of which three measures are common to both Part C and Part D.

Data Sources

The data used to calculate the scores for each measure comes from four different sources:

- Healthcare Effectiveness Data and Information Set (HEDIS)
- Survey data collected from the Health Outcomes Survey (HOS)
- Survey data collected from Consumer Assessment of Healthcare Providers and Systems (CAHPS)
- Medicare Beneficiary Database Suite of Systems (MBDSS)

To calculate the summary and the overall ratings, the process measures are weighted at one and the outcome measures are weighted at three; whereas the experience and access measures are weighted at 1.5. The quality improvement measure has a weight of five.

THE STAR-RATINGS REPORTING TIMELINE

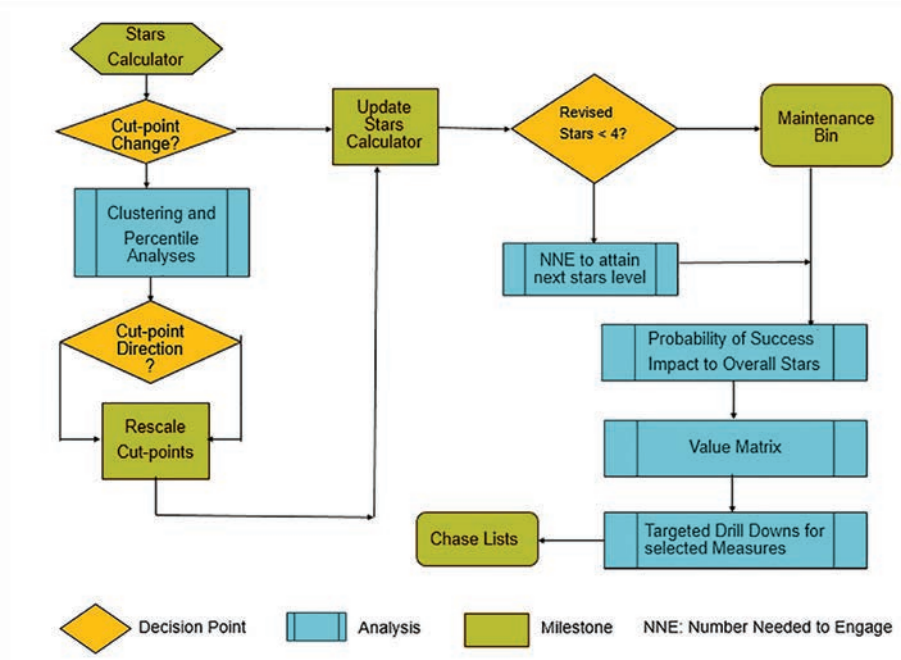
CMS reports the overall ratings, the summary ratings, and the star ratings separately for each measure by contract in October every year. The star ratings reported in October 2017 are the star ratings used for 2018, but the bonus payment on which the star rating is based occurs in 2019.

For some HOS measures, the measure scores are calculated by following a cohort of members from 2014 to 2016.[4] It is important to note the lag between the incentive year and the

Table 1
CMS Star-Rating System Timeline

Data Collection Year	2013	2014	2015	2016	2017	2018
Star Year	2015	2016	2017	2018	2019	2020
Incentive Payment Year	2016	2017	2018	2019	2020	2021

Figure 1
Flow Diagram Showing Processes and Decision Points



data collection year. Table 1 shows the various elements of the star-ratings timeline.

ROADMAP TO IMPROVED STAR RATINGS

The steps and decision points in the suggested star-rating improvement framework are depicted in Figure 1.

Review the Current Star Ratings

The first step in an effective star rating management strategy is to create an interactive star calculator in Excel or other similarly capable program to allow the manager to see how scores change for each measure and how those changes impact the overall star level.

Measure the Travel Distance to Next Star-Rating Level

CMS establishes cut points[5] for each measure that dictate what star level is assigned to the measure. For example, if the cut point for a certain measure is 84 percent, then an 83 percent compliance score would earn four stars while 84 percent compliance would be a five-star rating.

A cluster methodology can be used to analyze and predict cut points for most star measures.

Run the set of scores for Medicare Advantage contracts available through the CMS star-rating database,[6] through a clustering algorithm using SAS software to recreate historical cut points from previous years through the most recent year (Table 2).

Table 2
2018 Cut Points From SAS Output of Clustering Algorithm and CMS Colorectal Cancer Screening

Star	Actual	Calculated
1-Star	<54%	<54%
2-Star	54% to <63%	54% to <64%
3-Star	63% to <72%	64% to <74%
4-Star	72% to <80%	74% to <80%
5-Star	≥80%	≥80%

Table 3
Colorectal Cancer Screening Cut-Point Projections for 2019–2020

	CMS Cut Points						Projected Cut Points			
	2016 Stars		2017 Stars		2018 Stars		2019 Stars		2020 Stars	
Star	Cut Point	Percentile	Cut Point	Percentile	Cut Point	Percentile	Cut Point	Percentile	Cut Point	Percentile
2-Star	51%	7%	55%	12%	54%	6%	58%	8%	59%	8%
3-Star	63%	28%	62%	25%	63%	21%	66%	25%	67%	25%
4-Star	71%	61%	71%	60%	72%	54%	75%	58%	76%	58%
5-Star	78%	90%	81%	92%	80%	87%	82%	90%	83%	90%

Data from: Centers for Medicare and Medicaid Services (CMS). 2015–2018 Star Ratings and Display Measures. *CMS.gov*, *https://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovGenIn/PerformanceData.html.*

Table 4
Projected Cut Points for Colorectal Cancer Screening

		Projected Cut Points (2020)			
Measure	Eligible Population	2 Star	3 Star	4 Star	5 Star
Colorectal Cancer Screening	11,200	59%	66%	74%	83%

Note that the results of running the algorithm may not produce the exact cut points reported by CMS. That is because CMS makes additional adjustments that it does not make available to the public. The star manager can compare the difference between the calculated cut points and the official CMS cut points over a period of years. Cluster methodology cannot be readily used to project to 2020 because the 2018 measurement period data is not available to the plans until October 2019.

The scores in the 10th, 25th, 50th, 75th and 90th percentiles can be examined over time to detect any significant pattern change for the most recent star ratings year 2018. Alternately, the cut points for 2019 and 2020 are projected by analyzing historical percentiles corresponding to the cut points established by CMS (Table 3).

Estimate the Likelihood of Moving to the Next Star-Rating Level

For each measure, the revised star-rating level is calculated using the position of the current score under the projected cut point levels. If the revised star level is five, then the particular measure should be monitored and maintained.

For measures in which the revised star level is four or less, calculate the number needed to engage (NNE) and monitor the number on a monthly basis. The NNE is the number of members that would need to be engaged in order to maintain the current five-star rating or attain the next star-rating level. The NNE is calculated using the number already compliant (NAC) and number needed to be compliant (NNC).

NNC = Eligible members × projected five-star cut point for 2020

Using Table 4, then:

11,200 × .83 = 9,296
NNE = NNC – NAC

Assuming NAC = 8,000

9,296 – 8,000 = 1,296

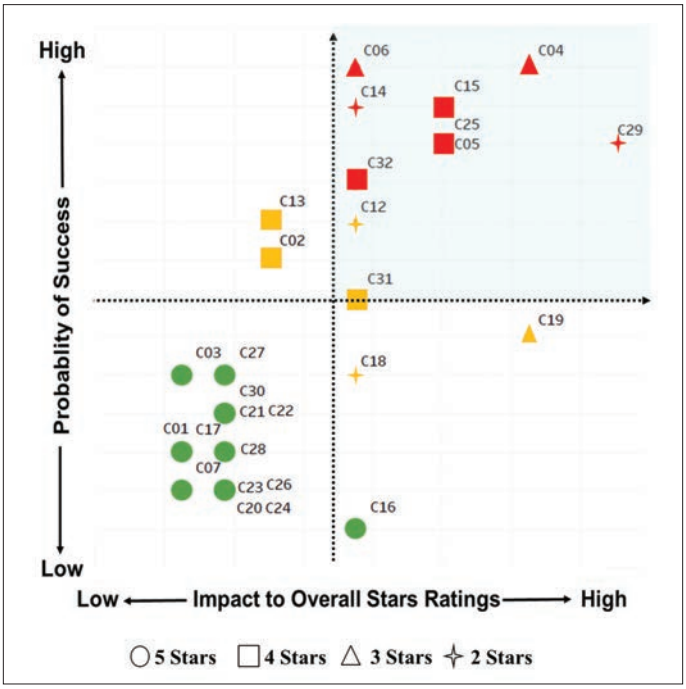
The number of eligible members could change each month as certain members are excluded from a measure, including members that are transferred to hospice or pass away. The list of eligible members needs to be updated monthly.

Additionally, the star-ratings administrator should keep a running list of eligible members that are already compliant with the screening. Since some of the colorectal cancer screenings have a three- to 10-year look-back period, every effort must be made to gather screening information from medical records to update the list of members that are compliant. Once the baseline list of compliant members is established, the remaining members are flagged for follow-up.

Develop Value Scores for Each Measure

For each measure with a current star rating at four or below, the value of moving to the next star level is figured as a function of the measure's weight and the current star level. Generally, the higher the weight, the greater the value of working to get to the next star-rating level. The higher the current star rating, the lower the impact of moving to a higher star-rating level. These

Figure 2
Value Matrix of Part C Measures



two elements are factored into developing a quantitative score for each measure, as shown in Figure 2.

Develop the Value Set of Measures for Meaningful Engagement

The final step involves developing a scatter plot using all of the information from the prior steps. The scatter plot (Figure 2) shows the probability of success of the engagement effort to move to a higher star rating (Y-axis) and the value of moving to the next star rating (X-axis). Ideally, the manager selects the measures with a high probability of success and a high engagement value.

The decision boundaries will allow the points (one for each measure) to be separated into four different classes:

- Low value, low probability of success (lower, left quadrant)
- Low value, high probability of success (upper, left quadrant)
- High value, low probability of success (lower, right quadrant)
- High value, high probability of success (upper, right quadrant)

The position of each measure on the chart is used to identify the measures for which the return on investment (ROI) is likely to be the highest. A target schedule showing the focus measures is created with the highest priority allocated to the measures located in the upper, right quadrant.

For each prioritized measure, targeted drill downs and analyses are performed to prepare member chase lists for follow up treatment and/or clinical intervention.

CONCLUSION

There are several practical approaches to developing a targeting schedule that identifies the measures most likely to improve. While not all approaches are alike, the goal is the same: Attain a higher star-rating level.

The approach outlined in this article attempts to ensure that the star-ratings manager takes into account all available information while applying the relevant data in a structured form and logical manner in order to improve the robustness of their existing star-rating models, and seek out newer and advanced ways to assist in attaining their common goal. ■

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ENDNOTES

1 Centers for Medicare and Medicaid Services (CMS). 2018 Advance Notice. *CMS.gov*, February 1, 2017. *https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Announcements-and-Documents-Items/2018Advance.html* (accessed August 17, 2018).

2 Centers for Medicare and Medicaid Services (CMS). Medicare 2018 Part C and D Star Ratings Technical Notes. September 6, 2017, *https://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovGenIn/Downloads/2018-Star-Ratings-Technical-Notes-2017_09_06.pdf* (accessed August 17, 2018).

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4 Centers for Medicare and Medicaid Services (CMS). 2017. *Medicare Health Outcomes Survey Performance Measurement Report.* July 2017.

5 Centers for Medicare and Medicaid Services (CMS). 2015–2018 Star Ratings and Display Measures. *CMS.gov*, *https://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovGenIn/PerformanceData.html* (accessed August 17, 2018).

6 Ibid.