Technical Notes for CAHPS® Hospice Survey Star Ratings

February and May 2027 Public Reporting Periods

Overview of CAHPS Hospice Survey Star Ratings

The Centers for Medicare & Medicaid Services (CMS) has published CAHPS Hospice Star Ratings on its Care Compare website and the Provider Data Catalog (PDC) since August 2022. Star Ratings make it easier for consumers to use the quality information on the Compare websites and spotlight excellence in healthcare quality.

CMS calculates a Star Rating for each of the publicly reported CAHPS Hospice Survey family caregiver experience measures, as well as a Family Caregiver Survey Rating, which is a summary Star Rating that combines the individual measure Star Ratings. **Only the CAHPS Hospice Summary Star Rating is publicly reported on Care Compare and the PDC.**

CMS updates the CAHPS Hospice Star Ratings every other quarter (i.e., every 6 months). CAHPS Hospice Star Ratings are based on the same data that are used to create the CAHPS Hospice Survey measures reported on the Care Compare website, although the reporting periods may differ.

In this document, we explain how CMS calculates Star Ratings for each of the publicly reported measures and the Family Caregiver Survey Rating summary star. Appendix A contains the current cut point values for the assignment of Star Ratings for each of the publicly reported measures. Appendix B contains the average measure scores among hospices assigned to each star category. Appendix C briefly describes the clustering algorithm used to calculate cut points.

The Family Caregiver Survey Rating summary star for the February and May 2027 refreshes will be based on the caregiver-reported experiences of patients who died between April 1, 2024 and March 31, 2026 (Q2 2024 through Q1 2026).

CAHPS Hospice Survey Measures

CAHPS Hospice Survey measures are calculated using data from the CAHPS Hospice Survey, which is administered to caregivers of patients who die while receiving hospice care. The original CAHPS Hospice survey was used to calculate eight publicly reported CAHPS Hospice Survey quality measures. A revised version of the CAHPS Hospice Survey was introduced beginning with Q2 2025 decedents. The revised survey introduces one new measure (Care Preferences) and substantively revises one original measure (Getting Hospice Care Training).

Both the CAHPS Hospice Survey measures and the CAHPS Hospice Star Ratings are based on eight quarters of data. CMS will not publicly report the new Care Preferences measure or the substantively revised Getting Hospice Care Training measures until there are eight quarters of data from the revised version of the survey. The February 2026 Care Compare refresh was the

last refresh that used data from only the original survey for calculation of measure scores and Star Ratings. However, since Star Ratings are updated only every 6 months (rather than quarterly, like measure scores), Star Ratings calculated for the February 2026 Care Compare refresh were also reported for the May 2026 refresh.

Star Ratings for Care Compare refreshes for August and November 2026 and February, May, August, and November 2027 will be calculated using data from both the original and revised surveys. During this transition reporting period (August 2026 through November 2027 refreshes), Star Ratings will be calculated for the seven original measures that are not undergoing substantive specification changes in the revised survey; these Star Ratings will combine scores from quarters that fielded the original and revised survey.

The February 2028 Care Compare refresh will be the first refresh that will use data from only the revised survey. Starting with this refresh, Star Ratings will be calculated using nine publicly reported CAHPS Hospice measures, including the new Care Preferences measure and the substantively revised Getting Hospice Care Training measure. Additional details are noted below and are described in detail in the CAHPS Hospice Survey Quality Assurance Guidelines (available at: https://hospicecahpssurvey.org/en/quality-assurance-guidelines/).

Star Ratings are calculated for each of the publicly reported CAHPS Hospice Survey measures, which are as follows:

- CAHPS Hospice Survey Domain Measures
    - Communication with Family
    - Getting Timely Help
    - Treating Patient with Respect
    - Emotional and Spiritual Support
    - Help for Pain and Symptoms
    - Training Family to Care for Patient (excluded from Star Ratings for the August 2026 through the November 2027 Care Compare refreshes; returning in the February 2028 Care Compare refresh as a substantively respecified measure)[1]
    - Care Preferences (a new measure included starting with the February 2028 Care Compare refresh)
- CAHPS Hospice Survey Global Rating Measures
    - Rating of this Hospice
    - Willingness to Recommend this Hospice

[1] The May 2026 refresh did not report scores for Training Family to Care for Patient but calculation of summary Star Rating for this refresh included Star Ratings for this measure because Star Ratings are updated every 6 months and were not updated in May 2026.

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The measure scores used to determine Star Ratings represent the proportion of respondents who gave the most favorable response(s) for each measure, also known as the top-box scores. All scores are adjusted for the case mix of the hospice and mode of survey administration. Detailed information regarding the content and calculation of CAHPS Hospice Survey measures is available at: https://hospicecahpssurvey.org/en/public-reporting/scoring-and-analysis/.

Minimum Number of Respondents for Public Reporting of the Family Caregiver Survey Rating Summary Star Rating

A hospice must be eligible for public reporting of CAHPS Hospice Survey quality measures and have at least 75 respondents (completed surveys) over the given eight-quarter period in order to receive a CAHPS Hospice Survey Star Rating. A hospice with fewer than 75 respondents will not receive a Star Rating; however, their measure scores may be used to determine Star Ratings cut points and may be publicly reported on Care Compare.

Steps to Calculate Star Ratings for each CAHPS Hospice Survey Quality Measure

1. Split the eight quarters of data into four six-month (2-quarter) periods of time. For the February and May 2027 public reporting periods, which are based on caregiver-reported quality of care for patients that died between April 1, 2024 and March 31, 2026, the quarters are split into the following four six-month periods of time.
    a. Quarter 2, 2024 to Quarter 3, 2024: April 1, 2024 to September 30, 2024
    b. Quarter 4, 2024 to Quarter 1, 2025: October 1, 2024 to March 31, 2025
    c. Quarter 2, 2025 to Quarter 3, 2025: April 1, 2025 to September 30, 2025
    d. Quarter 4, 2025 to Quarter 1, 2026: October 1, 2025 to March 31, 2026
2. Within each six-month period:
    a. Create six-month hospice-level scores for each CAHPS Hospice measure as the weighted average of the mode and case-mix adjusted top-box scores from the 2 quarters using measure-specific sample sizes as weights.
    b. For each measure, assign cut points (also called boundaries or thresholds) to receive a one, two, three, four, or five-star rating for each of the CAHPS Hospice Survey measures that are publicly reported for the given refresh using hospices with at least 30 respondents across the six-month period for the measure, by applying statistical methods that utilize relative distribution and clustering.
        i. The cut points within each six-month period for each of the CAHPS Hospice Survey measures are determined by applying a clustering algorithm to the individual measure scores. Conceptually, the clustering algorithm identifies the 'gaps' in the data and creates five categories such that scores of hospices in the same category are as similar as possible, and scores of hospices in different categories are as different as possible. This

clustering algorithm is the same one employed by CMS to determine Medicare Part C and Part D Star Ratings and Hospital CAHPS Star Ratings. The variance in measure scores is separated into within-cluster and between-cluster sum of squares components. The algorithm develops clusters that minimize the variance of measure scores within the clusters. More specifically, the clustering algorithm minimizes the within-cluster sum of squares for each of the five clusters. The cut points are derived from the range of scores per cluster. The four cut points for the six-month period for each measure are then identified as the minimum score used for the second to fifth highest clusters (i.e., the four clusters with the largest scores). Additional information about the clustering method can be found in Appendix C.

c. Calculate an adjustment factor between scores used in clustering and all scores projected to be reported when data is rolled across eight quarters for each CAHPS Hospice Survey measure.
    i. Classify hospices as having a high or low sample size for the given measure
        1. Hospices with a low sample size (LowN) are those that do not have enough respondents for the measure within the six-month period to be used in determining cut points for that period (Step 2b) but do have enough respondents that they are projected to receive a score for the measure over the eight quarters used to calculate the reported CAHPS Hospice Survey measure score. These are defined as hospices with at least eight respondents overall and between 3 and 29 respondents for the given measure within the six-month period.
        2. Hospices with a high sample size (HighN) are hospices with enough respondents for the measure within the six-month period to be used in determining cut points for that period (Step 2b). These are defined as those with at least 30 respondents for the given measure across the six-month period.
    ii. Calculate the adjustment factor by subtracting the mean score pooling hospices classified as having low and high sample sizes (LowN and HighN hospices; Steps 2ci1 and 2ci2) from the mean score amongst hospices classified as having a high sample size (HighN hospices; Step 2ci2).

3. Combine the cut points and adjustment factors derived from the four six-month time periods to determine the final cut points used to assign Star Ratings to each eight-quarter CAHPS Hospice Survey measure score.

a. Calculate the mean of each of the four cut points for each measure across the four six-month time periods.
b. Calculate the mean of the adjustment factors for each measure across the four six-month time periods.
c. Subtract the averaged adjustment factors (Step 3b) from each averaged cut point (Step 3a) for each measure, and round these values to the nearest whole number. These values will be used as the final cut points, or the minimum values needed, for each measure to get two, three, four, and five stars using the eight-quarter CAHPS Hospice Survey measure score. A one-star rating is assigned to any rolled-up score strictly lower than the cut point to get a two-star rating. The final cut points used in the February and May 2027 public reporting periods are provided in Appendix A.

An example of how to calculate the adjustment factor

The following is an example of how to calculate the adjustment factor within a 6-month period between scores used in clustering and all scores projected to be reported when scores are rolled across eight quarters (step 2c) for one measure. For the purpose of illustration, we have rounded estimates in this calculation to the fourth decimal place, but in practice, these calculations are performed without any rounding.

HighN Hospices *(hospices with at least 30 respondents for the given measure across the six-month period)*		**LowN Hospices** *(hospices projected to have a publicly reported score for the given measure using eight quarters but have less than 30 respondents within the six-month period)*		**LowN and HighN Hospices** *(pooled)*		**Adjustment Factor within the 6-month Period**
Number of Hospices	**Average Score**	**Number of Hospices**	**Average Score**	**Number of Hospices**	**Average Score**	
1600	84.9876	1400	83.1234	3000	84.1176	84.9876 - 84.1176 = 0.8700

1. Calculate the average of the 6-month adjusted hospice scores amongst HighN hospices. *Do not round this average.*
    a. In this example, the average of the 6-month adjusted hospice score amongst HighN hospices is 84.9876.
2. Calculate the average of the 6-month adjusted hospice score amongst HighN hospices and LowN hospices pooled together. *Do not round this average.*
    a. In this example, the average of the 6-month adjusted hospice scores amongst HighN and LowN hospices pooled together is 84.1176.

   b. This is equivalent to (1600*84.9876 + 1400*83.1234)/3000 = 84.1176
3. Calculate the adjustment factor within the 6-month period by subtracting the mean score pooling LowN and HighN hospices from the mean score amongst HighN hospices. *Do not round this average.*
   a. In this example, the adjustment factor within the 6-month period is 84.9876 - 84.1176 = 0.8700

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An example of how to combine the cut points and adjustment factors to determine the final cut points

The following is an example of how to combine the cut points and adjustment factors derived from the four six-month time periods to determine the final cut points used to assign Star Ratings (Step 3) for one measure. For the purpose of illustration, we have rounded estimates in this calculation to the fourth decimal place, but in practice, these calculations are performed without any rounding until the final step.

Star	6-month Period	Cut Points from each 6-month Period	Averaged Cut Point	Adjustment factor from each 6-month Period	Averaged Adjustment Factor	Adjusted Cut Point *(unrounded)*	Adjusted Cut Point *(rounded)*
2	1	70.1234	(70.1234+72.3456+73.0123+72.1234)/4 = 71.9012	0.8700	(0.8700+0.9876+1.2345+0.5678)/4 = 0.9150	71.9012 - 0.9150 = 70.9862	71
	2	72.3456		0.9876			
	3	73.0123		1.2345			
	4	72.1234		0.5678			
3	1	77.1234	(77.1234+78.5678+76.9876+77.3456)/4 = 77.5061	0.8700	(0.8700+0.9876+1.2345+0.5678)/4 = 0.9150	77.5061 - 0.9150 = 76.5911	77
	2	78.5678		0.9876			
	3	76.9876		1.2345			
	4	77.3456		0.5678			
4	1	80.9876	(80.9876+82.3456+81.1234+84.0123)/4 = 82.1172	0.8700	(0.8700+0.9876+1.2345+0.5678)/4 = 0.9150	82.1172 - 0.9150 = 81.2022	81
	2	82.3456		0.9876			
	3	81.1234		1.2345			
	4	84.0123		0.5678			
5	1	85.6789	(85.6789+86.9876+84.1234+87.9876)/4 = 86.1944	0.8700	(0.8700+0.9876+1.2345+0.5678)/4 = 0.9150	86.1944 - 0.9150 = 85.2794	85
	2	86.9876		0.9876			
	3	84.1234		1.2345			
	4	87.9876		0.5678			

1. Calculate the mean of each of the four cut points across the four six-month time periods. *Do not round this average.*
    a. In this example, the averaged cut point to receive a 2-star rating is approximately (70.1234+72.3456+73.0123+72.1234)/4 = 71.9012. The averaged cut points to receive 3-star, 4-star, and 5-star ratings are approximately 77.5061, 82.1172, and 86.1944, respectively.
2. Calculate the mean of the adjustment factors across the four six-month time periods. Note this calculation does not vary by cut point. *Do not round this average.*

   a. In this example, the averaged adjustment factor is approximately (0.8700+0.9876+1.2345+0.5678)/4 = 0.9150
3. Subtract the averaged adjustment factors from each averaged cut point, and round these values to the nearest whole number
   a. In this example, the adjusted cut point to receive a 2-star rating is approximately 71.9012 - 0.9150 = 70.9862, which rounds to 71. The adjusted cut points to receive 3-star, 4-star, and 5-star ratings are 77, 81, and 85, respectively. A one-star rating is assigned to any rolled-up score strictly less than 71.

Family Caregiver Survey Rating

CMS uses the Star Ratings for each of the publicly reported CAHPS Hospice Survey measures to calculate a Family Caregiver Survey Rating, which is a summary Star Rating that is calculated as the weighted average of the Star Ratings for each of the CAHPS Hospice Survey quality measures noted previously. The two CAHPS Hospice Global Rating measures (Rating of this Hospice and Willingness to Recommend the Hospice) each receive a weight of ½, and all other included measures receive a weight of 1.

The Star Ratings (domain measure Star Ratings and average of the Star Ratings for the two global measures) are averaged to form the Family Caregiver Survey Rating Average. In the final step, normal rounding rules, as shown in the below table, are applied to arrive at the Family Caregiver Survey Rating (1, 2, 3, 4, or 5 stars).

Family Caregiver Survey Rating Average ***(unrounded)***	**Family Caregiver Survey Rating** ***(rounded)***
≥1.00 and <1.50	1
≥1.50 and <2.50	2
≥2.50 and <3.50	3
≥3.50 and <4.50	4
≥4.50 and ≤5.00	5

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An example of the calculation of the Family Caregiver Survey Rating

The following is an example of how to calculate the Family Caregiver Survey Rating for a hospice with the Star Ratings shown in the following table for each of the CAHPS Hospice Survey measures.

	CAHPS Hospice Survey Quality Measure Star Ratings *(unweighted)*	**CAHPS Hospice Survey Quality Measure Star Ratings, *(weighted)***	**Family Caregiver Survey Rating Average, *only original survey (unrounded)***	**Family Caregiver Survey Rating, *only original survey (rounded)***	**Family Caregiver Survey Rating Average, *transition period (unrounded)***	**Family Caregiver Survey Rating, *transition period (rounded)***	**Family Caregiver Survey Rating Average, *only revised survey (unrounded)***	**Family Caregiver Survey Rating, *only revised survey (rounded)***
CAHPS Hospice Domain Measures			(4+3+4+4+5 +3+3.5)/7 = 3.7857	4	(4+3+4+4+5 +3.5)/6 = 3.9167	4	(4+3+4+4+5 +3+4+3.5)/8 = 3.8125	4
Communication with Family	4	4						
Getting Timely Help	3	3						
Treating Patient with Respect	4	4						
Emotional and Spiritual Support	4	4						
Help for Pain and Symptoms	5	5						
Training Family to Care for Patient	3	3						
Care Preferences	4	4						
CAHPS Hospice Global Rating Measures								
Rating of this Hospice	4	(4+3)/2 = 3.5						
Willingness to Recommend this Hospice	3							

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NOTES: The February 2026 Care Compare refresh was the last refresh using data from only the original survey for the calculation of measure scores. The May 2026 refresh was the last refresh using data from only the original survey for the calculation of Star Ratings because Star Ratings are updated every 6 months; scores used data from both the original and revised survey because scores are updated quarterly. The transition period refers to the August 2026 through November 2027 Care Compare refreshes, when data from both the original and revised surveys will be used for the calculation of scores and Star Ratings and the Training Family to Care for Patient measure will not be used for Star Rating calculations. The February 2028 Care Compare refresh will be the first refresh using data from only the revised survey and using the Care Preferences measure for Star Rating calculations.

1. Average the Star Ratings for Rating of this Hospice and Willingness to Recommend this Hospice. *Do not round this average.*
    a. In this example, the average of the Star Ratings for CAHPS Hospice Global Rating Measures = (4+3)/2 = 3.5.
2. Calculate the Family Caregiver Survey Rating by averaging the domain measure Star Ratings and the average of the Star Ratings for the CAHPS Hospice Global Rating Measures. In this example:
    a. When data from only the original survey is used in the calculation of Star Ratings (through the May 2026 Care Compare refresh), the Family Caregiver Survey Rating = (4+3+4+4+5+3+3.5)/7 = 3.7857
        i. The Care Preferences measure will not be publicly reported, and Star Ratings will not be calculated for this measure.
    b. In the transition period (August 2026 through November 2027 Care Compare refreshes), the Family Caregiver Survey Rating = (4+3+4+4+5+3.5)/6 = 3.9167.
        i. The Training Family to Care for Patient and Care Preferences measures will not be publicly reported, and Star Ratings will not be calculated for these measures.
    c. When data from only the revised survey is used in reporting (starting with the February 2028 Care Compare refresh), the Family Caregiver Survey Rating = (4+3+4+4+5+3+3.5+4)/8 = 3.8125
        i. All nine measures will be publicly reported, and stars will be calculated for all nine measures.
3. Lastly, round the Family Caregiver Survey Rating Average by using the rounding table above to produce the Family Caregiver Survey Rating.
    a. In this example, the hospice's Family Caregiver Survey Rating rounds to four stars in all three scenarios.

Appendix A: CAHPS Hospice Survey Star Rating Cut Points for the February 2027 Reporting Period

	1 Star	2 Stars	3 Stars	4 Stars	5 Stars
Domain Measures					
Communication with Family	<72	≥72 to <79	≥79 to <83	≥83 to <88	≥88
Getting Timely Help	<67	≥67 to <74	≥74 to <80	≥80 to <85	≥85
Treating Patient with Respect	<84	≥84 to <88	≥88 to <91	≥91 to <94	≥94
Emotional and Spiritual Support	<85	≥85 to <89	≥89 to <91	≥91 to <94	≥94
Help for Pain and Symptoms	<67	≥67 to <73	≥73 to <78	≥78 to <84	≥84
Global Rating Measures					
Rating of this Hospice	<73	≥73 to <79	≥79 to <84	≥84 to <89	≥89
Willingness to Recommend this Hospice	<70	≥70 to <78	≥78 to <84	≥84 to <90	≥90

Appendix B: Average Measure Scores Among Hospices Assigned to Each Star Category for the February 2027 Reporting Period

	1 Star	2 Stars	3 Stars	4 Stars	5 Stars
Domain Measures					
Communication with Family	68.9	75.7	80.7	84.7	89.5
Getting Timely Help	63.0	70.8	76.7	81.8	87.1
Treating Patient with Respect	80.9	86.1	89.2	92.1	95.2
Emotional and Spiritual Support	82.3	86.9	89.6	92.1	95.0
Help for Pain and Symptoms	64.2	70.3	75.2	80.2	86.0
Global Rating Measures					
Rating of this Hospice	68.9	75.9	81.4	85.9	91.0
Willingness to Recommend this Hospice	65.3	74.7	81.0	86.6	92.5

Appendix C: Individual Measure Star Assignment Process[2]

Below are detailed steps taken by the clustering algorithm to develop cut points within each six-month period for each individual measure. For each measure, the clustering method does the following:

- Produces the individual measure distance matrix.
- Groups the measure scores into a preliminary set of clusters.
- Selects five clusters.

1. Produce the individual measure distance matrix.
For each pair of hospices j and k (j>=k) among the n hospices with six-month measure score data and at least 30 respondents across the six-month period, compute the Euclidian distance of their measure scores (i.e., the absolute value of the difference between the two measure scores). Enter this distance in row j and column k of a distance matrix with n rows and n columns. This matrix can be produced using the DISTANCE procedure in SAS as follows:

```
proc distance data=inclusterdat out=distancedat method=Euclid;
var interval(measure_score);
id CCN;
run;
```

In the above code, the input data set, inclusterdat, is the list of hospices with top-box scores for a particular measure and at least 30 respondents across the six-month period. Each record has a unique identifier, CCN. The option method=Euclid specifies that distances between hospice measure scores should be based on Euclidean distance. The input data contain a variable called measure_score. In the var call, the parentheses around measure_score indicate that measure_score is considered to be an interval or numeric variable. The distances computed by this code are stored to an output data set called distancedat.

2. Create a tree of cluster assignments.
The distance matrix calculated in Step 1 is the input to the clustering procedure. The stored distance algorithm is implemented to compute cluster assignments. The following process is implemented by using the CLUSTER procedure in SAS:

a. The input measure score distances are squared.

[2] The information presented in this document will allow a hospice to replicate their Family Caregiver Survey Rating and Star Ratings for individual CAHPS Hospice Survey quality measures based on the hospice's measure scores and the cut points presented in Appendix A. However, replication of the cut points is not possible because hospice scores and respondent totals for each individual quarter are not publicly available.

b. The clusters are initialized by assigning each hospice to its own cluster.
c. In order to determine which pair of clusters to merge, Ward's minimum variance method is used to separate the variance of the measure scores into within-cluster and between-cluster sum of squares components.
d. From the existing clusters, two clusters will be selected for merging to minimize the within-cluster sum of squares over all possible sets of clusters that might result from a merge.
e. Steps c and d are repeated to reduce the number of clusters by one until a single cluster containing all hospices results.

The result is a data set that contains a tree-like structure of cluster assignments, from which any number of clusters between one and the number of hospice measure scores could be computed. The SAS code for implementing these steps is:

```
proc cluster data=distancedat method=ward outtree=treedat noprint;
id CCN;
run;
```

The *distancedat* data set containing the Euclidian distances was created in Step 1. The option *method=ward* indicates that Ward's minimum variance method should be used to group clusters. The output data set is denoted with the outtree option and is called *treedat*.

3. Select five clusters from the tree of cluster assignments.
The process outlined in Step 2 will produce a tree of cluster assignments, from which the desired number of clusters (five) is selected using the TREE procedure in SAS as follows:

```
proc tree data=treedat ncl=5 horizontal out=outclusterdat noprint;
id CCN;
run;
```

The input data set, treedat, is created in Step 2 above. The syntax, ncl=5, denotes that 5 is the desired number of clusters.

Cut Points
The cluster assignments produced by the above approach have cluster labels that are unordered. The concluding step after applying the above steps to all six-month hospice measure scores is to order the cluster labels so that the highest cluster reflects the cluster with the best performance and the lowest category reflects the cluster with the worst performance. The four cut points for the six-month period for each measure are then identified as the minimum score used for the second to fifth highest clusters (i.e., the four clusters with the largest scores).