

# Calculating Top-, Middle-, and Bottom-Box Scores for the Revised CAHPS® Hospice Survey, Beginning with Q2 2025 Decedents

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This document summarizes the steps that the Centers for Medicare & Medicaid Services (CMS) uses to calculate top-, middle-, and bottom-box CAHPS Hospice Survey measure scores for the revised version of the CAHPS Hospice Survey, which was introduced beginning with Q2 2025 decedents.

The revised CAHPS Hospice Survey introduces the following changes:

- A new composite measure of Care Preferences;
- A revised, single item Getting Hospice Care Training measure that is conceptually similar to the original Getting Hospice Care Training measure but substantively different in that it is composed of one summary item instead of several items; and
- A slightly revised version of the Hospice Team Communication measure that removes one item and makes slight wording changes.

Measure scores are calculated for each quarter of data using specifications that correspond to the version of the survey that was administered. Eight quarters of data are used to calculate scores for public reporting. Publicly reported scores are updated quarterly. Because the Care Preferences measure is new, and because the Getting Hospice Care Training measure is substantively changed, CMS will wait to introduce public reporting of these two measures until there are eight quarters of data from the revised survey. Public reporting of these measures is expected to begin with the February 2028 Care Compare refresh. CMS considers the changes to the Hospice Team Communication measure to be non-substantive (that is, changes do not meaningfully change the measure); therefore, the measure will continue to be publicly reported in the transition period between the original and revised surveys. During the transition period (beginning with the May 2026 Care Compare refresh and concluding with the November 2027 Care Compare refresh), scores will be calculated by combining scores from quarters using the original and revised survey.

## Step 1: Data Submission

A hospice's survey vendor submits CAHPS Hospice Survey data to the CAHPS Hospice Survey Data Warehouse.

## Step 2: Data Cleaning

CMS cleans the submitted CAHPS Hospice Survey data by removing incomplete surveys and surveys from ineligible respondents. Complete details regarding survey eligibility, as well as the definition of a “completed” survey, are located in the *Quality Assurance Guidelines*, available at: <https://hospicecahpsurvey.org/en/quality-assurance-guidelines/>. Additionally, if a response to a screener question indicates that the respondent was not eligible to answer subsequent, “dependent” question(s), responses are set to missing for the dependent questions. For example, if the response to Question 16, “While your family member was in hospice care, did they have any pain?” is “No,” responses for Question 17, “Did your family member get as much help with pain as they needed?”, are set to missing, even if the respondent provided responses to that question.<sup>1</sup>

## Step 3: Calculating Unadjusted Top- and Bottom-Box Scores

CMS calculates the “top-box” and “bottom-box” scores for the questions in the nine CAHPS Hospice Survey measures. The nine measures, and the questions that compose them, are shown in Appendix A of this document.

If a survey respondent does not respond to a question for which he or she is eligible, a score is not calculated for that respondent for that question. With one exception, all responses to questions for which a respondent is eligible are used in the score calculation. The exception is the Training Family to Care for Patient measure; this measure score is calculated only among those respondents who indicated that their family member received hospice care at home or in an assisted living facility.<sup>2</sup>

For all questions, the “top-box” score for each response is calculated as a “100” if the most positive response category(ies) for that question is selected or a “0” otherwise. The “bottom-box” score for each response is calculated as a “100” if the least positive response category(ies) for that question is selected or a “0” otherwise.

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<sup>1</sup> One question used in public reporting has a tailored non-applicable response. This question (Q24) asks if the hospice team taught the caregiver how to care for their family member. The tailored non-applicable response is, “I did not need this teaching.” Tailored non-applicable responses are set to missing and excluded from the denominator when CMS calculates scores. In this manner, those who indicate that the question is not relevant to them are considered non-respondents to the question for the purpose of calculating scores.

<sup>2</sup> In the CAHPS Hospice Survey Data Public Use File issued by CMS in December 2016, the national score for Getting Hospice Care Training includes respondents whose family members who received hospice care in all settings.

Different questions have different response options. Table 1 displays the different response scales and how each response is categorized as “top-box,” “middle-box,” or “bottom-box.”

**Table 1. “Top-Box,” “Middle-Box,” and “Bottom-Box” Score Crosswalk to Response Scales on the Revised CAHPS Hospice Survey, Beginning with Q2 2025 Decedents**

<b>Response Scale</b>	<b>Top-Box Response (most positive)</b>	<b>Middle-Box Response</b>	<b>Bottom-Box Response (least positive)</b>
Never/Sometimes/Usually/Always	Always	Usually	Never; Sometimes
No/Yes, Somewhat/Yes, Definitely	Yes, Definitely	Yes, Somewhat	No
Definitely No/Probably No/Probably Yes/Definitely Yes	Definitely Yes	Probably Yes	Probably No; Definitely No
Rating 0-10, where 10 is the most positive	9 or 10	7 or 8	0-6
Too Little/Right Amount/Too Much*	Right Amount	N/A*	Too Little **

\*The response options for this response scale are grouped into top- and bottom-box scores only.

\*\*Prior to Q3 2018, the bottom box for this response scale was defined as ‘too little’ and ‘too much’. Beginning with Q3 2018 decedent data, the bottom box is defined as ‘too little;’ responses of ‘too much’ are not included in scoring.

To calculate the unadjusted “top-box” score for each hospice, the numerator is the number of respondents who selected the most positive response category(ies) for that question and the denominator is the total number of respondents to that question. To calculate the unadjusted “bottom-box” score for each hospice, the numerator is the number of respondents who selected the least positive response category(ies) for that question and the denominator is the number of total respondents to that question.<sup>3</sup>

However, official scores are adjusted for mode of survey administration and case mix (see steps 4 and 5).

## Step 4: Adjusting for Mode of Survey Administration

CMS applies survey mode adjustment to adjust responses for the effect of mode of survey administration.

Beginning with Q2 2025 decedents, hospices participating in national implementation of the CAHPS Hospice Survey may choose from one of four modes of survey administration: Mail Only, Telephone Only, Mixed Mode (mail with telephone follow-up) or Web Mail (email

<sup>3</sup> Bottom-box scores are calculated differently for the Emotional and Spiritual Support measure because the three questions that compose that measure have response options Too Little/Right Amount/Too Much, for which no middle-box score is defined. The calculation of the bottom-box scores for these questions and the overall composite measure parallels the method for calculating middle-box scores for all other measures (described in steps 7 and 8 below).

invitation to a web survey, with mail follow-up). CMS conducted a randomized mode experiment in 2021 to assess the effect of mode on response rates and response patterns, and to determine whether survey mode adjustments were needed to fairly compare CAHPS Hospice Survey results for hospices that used different modes of data collection. The experiment found significant effects of survey mode on responses to several outcomes; therefore, to ensure fair comparisons across hospices, CAHPS Hospice Survey scores must be adjusted for mode of survey administration, which can affect scores but is not related to quality of hospice care.

In making mode adjustments, it is necessary to choose one mode as a reference point. One can then interpret all adjusted scores from all modes as if respondents had been surveyed in the reference mode. For the revised CAHPS Hospice Survey beginning with Q2 2025 decedents, the Mail Only mode is used as the reference mode; thus, surveys conducted using the Mail Only mode are not adjusted further for mode.<sup>4</sup> Surveys conducted using the Telephone Only mode and Mixed Mode, and surveys conducted using the Web Mail mode from hospices with email addresses for at least 20% of their sampled caregivers, are adjusted according to the difference in mode effects between that mode and the Mail Only mode, as estimated through linear regression in the 2021 CAHPS Hospice Survey Mode Experiment. For the Mixed and Web Mail modes, there is a single adjustment regardless of whether an individual responded by mail, phone or web (i.e., the adjustment is for the overall administration mode, not the mode in which the individual responds). Surveys conducted using the Web Mail mode in hospices with email addresses available for less than 20% of their sampled caregivers are not adjusted (i.e., treated the same as those surveyed using the Mail Only mode), as the vast majority of respondents from such a hospice would only be able to respond via mail and therefore the Mail Only mode better reflects the true mode of administration.

The mode effects for top-box scores for each question are derived from the coefficients for the dummy variables for mode in models regressing the top-box score on three dummy variables (one for each mode, with Mail Only as the reference), dummy variables for hospice, and case-mix adjusters. These coefficients estimate the remaining difference between Mail Only mode and each of the other modes after case-mix adjustment. The mode adjustments are equal to -1 times the coefficients. The use of Mail Only mode as the reference mode does not indicate that this mode is preferable to other approved modes in any way. Mode adjustments for bottom-box scores were derived in similar fashion for all questions except those with response options Too Little/Right Amount/Too Much, for which no middle-box score is defined.

Appendix B of this document presents the mode adjustments derived from the 2021 CAHPS Hospice Survey Mode Experiment for each CAHPS Hospice Survey question relative to the Mail Only mode for top- and bottom-box scoring. As an example, suppose a respondent surveyed

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<sup>4</sup> For the original CAHPS Hospice Survey administered for Q2 2015 through Q1 2025 decedents, the reference mode was Telephone Only; for the revised survey, beginning with Q2 2025 decedents, the reference mode was switched to Mail Only, as most surveys are currently completed in the Mail Only mode.

using the Telephone Only mode selects “Definitely Yes” for the Willing to Recommend this Hospice question and thus receives a top-box score of “100.” This score would be adjusted to 100.20% (i.e., 100% + 0.20%) in order to account for the fact that 100.20% is the corresponding expected score for that question had the survey been conducted in Mail Only mode.

### Step 5: Adjusting for Case Mix

To ensure that comparisons between hospices reflect differences in performance rather than differences in patient and/or caregiver characteristics, CMS adjusts responses for “case mix” (i.e., variations of such characteristics across hospices). The case-mix adjustment model includes the following variables:

- response percentile (calculated by ranking lag time—that is, days between death and survey response—among respondents for each hospice in each quarter, then dividing by total sample size; for caregivers surveyed in the web-mail mode and whose family member’s hospice had valid email addresses available for 20% or more of their sampled caregivers, response percentile is further stratified by caregiver email address availability)
- decedent age
- payer for hospice care
- primary diagnosis
- length of final episode of hospice care
- respondent age
- respondent education
- relationship of decedent to caregiver
- language

The CAHPS Hospice Survey website (<https://hospicecahpssurvey.org/en/scoring-and-analysis>) presents more information regarding case-mix adjustment, including the case-mix adjustment factors for each CAHPS Hospice Survey measure for each quarter. Top-box and bottom-box scores are case-mix adjusted for all questions except for those with response options Too Little/Right Amount/Too Much, for which only top-box scores are case-mix-adjusted (since bottom-box scores for these questions are calculated as 100 – top-box score, as described in step 7).

### Step 6: Calculating Composite Measure Scores from Question Scores

Steps 1 through 5 result in mode- and case-mix adjusted top-box hospice-level scores for each question and bottom-box scores for all questions except those with response options Too Little/Right Amount/Too Much. For single-question measures, the hospice-level top-box and bottom-box measure scores are simply equal to the adjusted question score calculated in Step 5.

For all multi-question measures except Emotional and Spiritual Support, the hospice-level top- and bottom-box scores are calculated as the average of the hospice-level top- and bottom-box scores, respectively, for the questions that compose the measure. Bottom-box scores are calculated differently for the Emotional and Spiritual Support measure, as described in step 7.

### **Step 7: Calculating Top-Box and Bottom-Box Mean Scores for Each Hospice, State, and for All Hospices Nationwide**

Steps 1 through 6 are conducted separately for each of the quarters of data included in a given reporting period.

For each CAHPS Hospice Survey measure, CMS calculates a mean top-box score for each hospice using a weighted average of top-box scores across all quarters of data in the reporting period. Specifically, for each hospice, each quarter is weighted according to the number of decedents/caregivers responding for that score. A mean bottom-box score is calculated for each measure (except the Emotional and Spiritual Support composite) in a similar way. For the Emotional and Spiritual Support composite, CMS calculates a mean bottom-box score as  $100 - \text{top-box score}$ . Top-box measure scores are calculated and publicly reported for hospices that had a minimum of 30 completed questionnaires during the reporting period.

CMS also calculates state and national averages for each measure in the reporting period by averaging measure scores across all hospices that had a minimum of 30 completed questionnaires during that reporting period.

Scores are rounded to the nearest whole number on a 0-100 scale, using normal rounding rules.

### **Step 8: Calculating Middle-Box Mean Scores for Each Hospice, State, and for All Hospices Nationwide**

For each CAHPS Hospice Survey measure (except Emotional and Spiritual Support, for which there is no middle-box score), CMS calculates a middle-box score for each hospice as  $100 - \text{top-box score} - \text{bottom-box score}$ .

CMS also calculates state and national average middle-box scores for each measure (except Emotional and Spiritual Support) as  $100 - \text{state or national average of top-box scores} - \text{state or national average of bottom-box scores}$ .

## Appendix A. CAHPS Hospice Survey Measures and Questions, Beginning with Q2 2025 Decedents

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### Composite and question

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#### Communication with Family

- Q6 How often did the hospice team let you know when they would arrive to care for your family member?
- Q8 How often did the hospice team explain things in a way that was easy to understand?
- Q9 How often did the hospice team keep you informed about your family member's condition?
- Q15 How often did the hospice team listen carefully to you when you talked with them about problems with your family member's hospice care?
- Q25 While your family member was in hospice care, how often did the hospice team listen carefully to you?

#### Getting Timely Help

- Q5 How often did you get the help you needed from the hospice team during evenings, weekends, or holidays?
- Q7 When you or your family member asked for help from the hospice team, how often did you get help as soon as you needed it?

#### Treating Patient with Respect

- Q10 How often did the hospice team treat your family member with dignity and respect?
- Q11 How often did you feel that the hospice team really cared about your family member?

#### Emotional and Spiritual Support

- Q27 Support for religious, spiritual, or cultural beliefs may include talking, praying, quiet time, or respecting traditions. While your family member was in hospice care, how much support for your religious, spiritual, or cultural beliefs did you get from the hospice team?
- Q28 While your family member was in hospice care, how much emotional support did you get from the hospice team?
- Q29 In the weeks after your family member died, how much emotional support did you get from the hospice team?

#### Help for Pain and Symptoms

- Q17 Did your family member get as much help with pain as they needed?
- Q19 How often did your family member get the help they needed for trouble breathing?
- Q21 How often did your family member get the help they needed for trouble with constipation?
- Q23 How often did your family member get the help they needed from the hospice team for feelings of anxiety or sadness?

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**Composite and question (cont'd)**

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**Training Family to Care for Patient**

- Q24      Hospice teams may teach you how to care for family members who need pain medicine, have trouble breathing, are restless or agitated, or have other care needs. Did the hospice team teach you how to care for your family member?

**Care Preferences**

- Q12      Did the hospice team provide care that respected your family member's wishes?
- Q13      Did the hospice team make an effort to listen to the things that mattered most to you or your family member?

**Rating of this Hospice**

- Q30      Using any number from 0 to 10, where 0 is the worst hospice care possible and 10 is the best hospice care possible, what number would you use to rate your family member's hospice care?

**Willing to Recommend this Hospice**

- Q31      Would you recommend this hospice to your friends and family?
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## Appendix B. Mode Adjustments for Top- and Bottom-Box scores (Mail Only as Reference Mode), Beginning with Q2 2025 Decedents

Question Number	Survey Question	Survey Mode	Top-Box Mode Adjustment	Bottom-Box Mode Adjustment
Q5	How often did you get the help you needed from the hospice team during evenings, weekends, or holidays?	Telephone Only	-7.00	4.32
		Mixed Mode	3.02	-1.97
		Web Mail	1.35	-1.03
Q6	How often did the hospice team let you know when they would arrive to care for your family member?	Telephone Only	-4.41	-2.85
		Mixed Mode	-2.58	0.07
		Web Mail	1.19	-0.83
Q7	When you or your family member asked for help from the hospice team, how often did you get help as soon as you needed it?	Telephone Only	-1.86	-2.75
		Mixed Mode	-0.87	-2.80
		Web Mail	1.97	-1.55
Q8	How often did the hospice team explain things in a way that was easy to understand?	Telephone Only	0.47	-2.42
		Mixed Mode	-0.05	-1.28
		Web Mail	0.08	0.28
Q9	How often did the hospice team keep you informed about your family member's condition?	Telephone Only	-1.58	-2.53
		Mixed Mode	-0.46	-0.51
		Web Mail	-1.00	-0.20
Q10	How often did the hospice team treat your family member with dignity and respect?	Telephone Only	0.20	-1.23
		Mixed Mode	-0.49	-0.20
		Web Mail	0.47	0.02
Q11	How often did you feel that the hospice team really cared about your family member?	Telephone Only	-1.00	-1.79
		Mixed Mode	0.30	-0.07
		Web Mail	1.37	0.07
Q12	Did the hospice team provide care that respected your family member's wishes?	Telephone Only	0.15	-0.48
		Mixed Mode	0.11	0.30
		Web Mail	1.10	0.20
Q13	Did the hospice team make an effort to listen to the things that mattered most to you or your family member?	Telephone Only	0.21	-0.30
		Mixed Mode	-0.86	0.00
		Web Mail	-1.21	0.39
Q15	How often did the hospice team listen carefully to you when you talked with them about problems with your family member's hospice care?	Telephone Only	-0.33	-4.53
		Mixed Mode	-0.94	-2.30
		Web Mail	0.61	-1.32
Q17	Did your family member get as much help with pain as they needed?	Telephone Only	-0.30	-0.03
		Mixed Mode	0.45	-1.00
		Web Mail	4.51	-0.43
Q19	How often did your family member get the help they needed for trouble breathing?	Telephone Only	-3.68	-2.15
		Mixed Mode	-2.61	-0.23
		Web Mail	-1.56	-0.04
Q21	How often did your family member get the help they needed for trouble with constipation?	Telephone Only	-0.96	-2.02
		Mixed Mode	-2.58	0.02
		Web Mail	-0.29	-2.44
Q23	How often did your family member get the help they needed from the hospice team for feelings of anxiety or sadness?	Telephone Only	1.60	-1.76
		Mixed Mode	2.23	0.28
		Web Mail	2.51	0.27

Question Number	Survey Question	Survey Mode	Top-Box Mode Adjustment	Bottom-Box Mode Adjustment
Q24	Hospice teams may teach you how to care for family members who need pain medicine, have trouble breathing, are restless or agitated, or have other care needs. Did the hospice team teach you how to care for your family member?	Telephone Only	-1.32	1.46
		Mixed Mode	-3.23	-0.92
		Web Mail	-2.99	0.70
Q25	While your family member was in hospice care, how often did the hospice team listen carefully to you?	Telephone Only	0.61	-2.60
		Mixed Mode	-1.29	-0.56
		Web Mail	0.33	-0.16
Q27	Support for religious, spiritual, or cultural beliefs may include talking, praying, quiet time, or respecting traditions. While your family member was in hospice care, how much support for your religious, spiritual, or cultural beliefs did you get from the hospice team?	Telephone Only	3.57	N/A
		Mixed Mode	0.44	N/A
		Web Mail	-0.32	N/A
Q28	While your family member was in hospice care, how much emotional support did you get from the hospice team?	Telephone Only	3.88	N/A
		Mixed Mode	0.58	N/A
		Web Mail	-0.60	N/A
Q29	In the weeks after your family member died, how much emotional support did you get from the hospice team?	Telephone Only	5.54	N/A
		Mixed Mode	1.24	N/A
		Web Mail	1.42	N/A
Q30	Using any number from 0 to 10, where 0 is the worst hospice care possible and 10 is the best hospice care possible, what number would you use to rate your family member's hospice care?	Telephone Only	4.27	-1.88
		Mixed Mode	2.36	-0.90
		Web Mail	0.76	-0.86
Q31	Would you recommend this hospice to your friends and family?	Telephone Only	0.20	-1.20
		Mixed Mode	0.89	-0.95
		Web Mail	0.67	-0.29

'Mixed Mode' refers to mail with telephone follow-up.