



THE CAHPS CLINICIAN & GROUP SURVEY DATABASE

How Results Are Calculated

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How Results Are Calculated

This document provides an overview of how the results displayed on the CAHPS Clinician & Group Survey (CG-CAHPS) Database Web site <https://www.cahpsdatabase.ahrq.gov> are calculated. The analysis and reporting methods described in this document pertain to the results displayed on both the public Online Reporting System (ORS) and the private site available only to practice sites or groups that submit data to the CAHPS Database (ORS Submitters Site).

Levels of Results

CAHPS Clinician & Group Survey (CG-CAHPS) data are submitted and results are calculated at three levels: respondent, practice site, and group.

- **Respondent:** A *respondent* is defined as an individual patient who has completed or partially completed a CG-CAHPS survey. Respondent-level survey results are calculated across all respondents in the database, ignoring their association with a particular practice site or group.

Respondent-level results are calculated for the following measures reported in the Online Reporting System (ORS):

- Top Box Scores (with the exception of the Percentiles listed under top box scores)
- Frequencies
- Barcharts

- **Practice Site:** A *practice site* is an ambulatory care facility in a specific location. It can be considered as a medical office. Each practice site located in a building containing multiple medical offices is considered a separate practice site. Providers in a single practice site should share administrative and clinical support staff. Practice site-level survey results are calculated across the respondents within a specific practice site.

Practice site-level results are calculated for the following measures reported in the ORS:

- Percentiles (with the exception of the CAHPS DB Overall column, which provides the respondent-level results for comparison purposes)
- Statistical comparisons of Practice Site results reported on the ORS Submitter's Site

- **Group:** A *group* can be defined as a medical group, health system, State organization, or some other grouping of practice sites. A group is not a vendor organization. Group-level survey results are calculated across the respondents within a specific group, ignoring practice site associations.

Group-level results are calculated for the following measures reported in the ORS:

- Statistical comparisons of Group results reported on the ORS Submitter's Site

Reporting and Inclusion Rules for the Database

Both complete and partial complete records are included in the 2014 CG-CAHPS Database results. A complete record has responses for 50 percent or more of the key items and a response for one or more core composites or rating items. A partial complete record has responses for one or more core composites or rating items. Key items and composites can be found in the Fielding the CG-CAHPS Surveys guidelines <https://cahps.ahrq.gov/surveys-guidance/cg/index.html>.

In order to create the most comprehensive set of comparative results possible from the various versions of CG-CAHPS that were submitted, results for the core survey measures have been combined as follows:

- Adult 12-month and 6-month core survey results have been combined for versions with and without the Adult PCMH supplemental items
- Child 12-month and 6-month core survey results have been combined for versions with and without the Child PCMH supplemental items

Data Adjustments

CAHPS survey results can be adjusted to account for factors outside the control of groups or practices that may affect scores. Without an adjustment, differences between practice sites, groups or other entities could be due to differences in external factors rather than to true differences in performance. CAHPS data are most commonly adjusted for respondent characteristics (i.e., case-mix adjustments), but also can be adjusted for other factors such as the survey administration mode.

- **Case-mix adjustments.** CG-CAHPS practice-site and group mean scores are case-mix adjusted before conducting statistical difference testing that is available only on the ORS Submitter's site. The mean scores are case-mix adjusted using the following respondent characteristics: respondent age, education, and self-reported physical and mental health status. No top box scores or percentiles presented on the ORS are case-mix adjusted.
- **Survey mode adjustments.** CG-CAHPS surveys can be administered using different modes, including mail (the most common method), telephone, interactive voice response (IVR), and Web/Internet. The influence of administration mode on CG-CAHPS scores has not been determined, and therefore the current data are not adjusted by survey mode. However, the vast majority of the Adult surveys in the current database were collected using a single mode (e.g., mail administration or IVR), and therefore the influence of other survey modes on the results are likely to be minimal.

Frequencies

Frequencies provide the number and percentage of respondents answering each response option for the items on the survey. The frequencies can be calculated in two ways: excluding missing values from the calculation of percentages or including them. The ORS allows the user to view frequency results either way. The ORS also provides two-way frequencies or cross-tabs of items on the survey by other items, practice site characteristics and/or respondent demographics.

Top Box and Barchart Proportional Scores

Top box scores are created by calculating the percentage of survey respondents who chose the most positive score for a given item response scale. There are several different response scales used on the CG-CAHPS surveys. Table 1 displays the different response scales and how the options are categorized for top box and proportional scoring as shown on the ORS Barcharts tab.

Table 1. Top Box and Proportional Score Crosswalk to Response Scales

Response Scale	Lower Proportion	Middle Proportion	Top Box Score
Never, Sometimes, Usually, Always	Never, Sometimes	Usually	Always
Not at all, A little, Some, A Lot	Not at all	A little, Some	A lot
No, Yes	No	--	Yes
No, Yes somewhat, Yes definitely	No	Yes somewhat	Yes definitely
0-10	0-6	7-8	9-10
More than 7 days, 4 to 7 days 2 to 3 days, One day, , Same day,	More than 7 days	4 to 7 days, 2 to 3 days,	One day, Same day,

The top box score is calculated by aggregating results across respondents. For example, in a sample of 10 respondents, if 4 out of 10 respondents answered “Always” to a particular item, the top box score for that item would be 40 percent [i.e., $(4 \div 10) * 100 = 40\%$]. Because these calculations are made across all respondents, top box scores are not case-mix adjusted for patient characteristics.

Given a composite with five items, where each item has four response options, the scores for that composite are equal to the proportion of responses (excluding missing data) in each response category. The following steps show how those proportions are calculated:

Step 1 – Calculate the proportion of cases in each proportional score category for each question:

- P1 = Item proportion of respondents who answered “never” or “sometimes”
- P2 =Item proportion of respondents who answered “usually”
- P3 =Item proportion of respondents who answered “always” (this is the top box score)

Step 2 – Combine responses from the questions to form the composite

Calculate the average proportion responding to each category across the questions in the composite. For example, for the “Getting Timely Appointments, Care and Information” composite (five questions), calculations would be as follows¹:

¹ Note: If a practice site or group is missing an item from a composite for all respondents, the proportional score is still calculated on the remaining items, dividing by the number of items for which there are responses.

$$PC1 = \text{Composite proportion who responded "never" or "sometimes" for each item} = (P1_Q1 + P1_Q2 + P1_Q3 + P1_Q4 + P1_Q5) / 5$$

$$PC2 = \text{Composite proportion who responded "usually" for each item} = (P2_Q1 + P2_Q2 + P2_Q3 + P2_Q4 + P2_Q5) / 5$$

$$PC3 = \text{Composite Top box proportion who responded "always" for each item} = (P3_Q1 + P3_Q2 + P3_Q3 + P3_Q4 + P3_Q5) / 5$$

As shown in steps 1 and 2, composite top box scores are calculated by averaging the top box scores on the items within the composite. Each item in a composite is equally weighted. For example, the “Helpful, Courteous, and Respectful Office Staff” composite has two items. If the top box score for the first item is 85 percent and the second item is 95 percent, the composite score would be 90 percent (i.e., [85 percent + 95 percent] ÷ 2 = 90 percent). The same method is used for the other proportional scores.

The PCMH supplemental item “Providers Discuss Medication Decisions” composite has 3 items that use two different response scales (Yes/No and A lot/Not at all). An example of how to create this composite’s top box and proportional scores is provided in Table 2.

Table 2. Example of Calculation of “Providers Discuss Medication Decisions” Composite Top Box and Proportional Scores

Response Scale	Q29	Q30	Q31	Composite Proportional Score
A lot or Yes (Top Box Score)	65%	55%	80%	66.67% =[65%+55%+80%]/3
Some or A little	25%	40%	0%	21.67% =[25%+40%+0%]/3
Not at all or No	10%	5%	20%	11.67% =[10%+5%+20%]/3

Percentiles

Percentile scores are calculated at the practice-site level and represent the percentage of practice sites that scored at or below a particular top box score for an item or composite. For example, the 75th percentile is the top box score at or below which 75 percent of all practice site top box scores fall. Percentiles range from 0 to 100. The 90th, 75th, 50th, and 25th percentiles are presented for all composites and items. As top box scores are not case-mix adjusted for patient characteristics at the respondent level, percentiles are similarly not adjusted at the practice site level to facilitate comparisons on the ORS.

Group and Practice Site Performance Measures

On the ORS Submitter's Site, statistical tests (t-tests) are used to determine whether a group or practice site's mean item or composite mean score is significantly above or below the overall database mean item or composite score calculated at the group or practice site level, respectively. These statistical tests are based on a group or practice site's case-mix adjusted mean item or composite score, rather than the top box scores or proportional scores represented in the bar charts. If a group or practice site's mean item/composite score is significantly higher or lower than the overall database mean, an 'up' (↑) or 'down' (↓) arrow is assigned, respectively. If there is no significant difference between the group or practice site and overall database mean, no arrow is assigned. Because the statistical tests are based on group and practice site case-mix adjusted means, and compare to the database group or practice site case-mix adjusted mean (without that given group or practice site included in the overall database average), the results may not always appear to be completely in line with top box scores or proportional scores represented by the bar charts.

Database Suppression Rules

In the CAHPS Database Online Reporting System (ORS), there are circumstances under which certain item/composite scores, practice site/group results, or reporting categories are suppressed (i.e., 'NA' is displayed). These instances of data suppression and/or exclusion are due to one or more of the following factors: (1) too few respondents answering an item, (2) a practice site (or group) having too few completed surveys, or (3) too few practices and/or respondents for a particular reporting category. The rules for data suppression and exclusion are described below.

1. Item Suppression.

- a. If there are fewer than five valid responses available for any given item, the item's results are suppressed.
- b. For the two and three-way frequency tables, if one of the items is a demographic or practice site characteristic and there are fewer than five valid responses for any of that item's response categories, all frequency table results are suppressed.

2. Practice Site/Group Suppression.

- a. If there are fewer than 10 completed surveys for a given practice site or group, the practice site or group is excluded from percentile calculations and the practice site's or group's results are suppressed on the submitter's site.
- b. When the values for any one of the respondent characteristics such as respondent age, education, or self-reported health status used in the case-mix adjustments are missing for all respondents in a practice site or group, the practice site's or group's results are excluded from the analyses and therefore not shown on the ORS Submitter's Site.

3. Reporting Category Suppression.

- a. When displaying scores by practice site characteristics (e.g., practice ownership/affiliation), a particular characteristic's results are suppressed if there are fewer than five practice sites and/or fewer than 300 completed surveys available for that characteristic.