



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 in the Private Feedback Reports in Excel® available only to practice sites or groups that submit data to the CAHPS Database.

Reporting and Inclusion Rules for the Database

Both complete and partial complete records are included in 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 composite 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 results possible from the various versions of CG-CAHPS that were submitted, results for the core survey measures have been combined as follows:

- Adult 3.0 core survey results have been combined for versions with and without the Adult PCMH supplemental items (2016 and 2017 CG-CAHPS Databases)
- Child 3.0 core survey results have been combined for versions with and without the Child PCMH supplemental items (2016 CG-CAHPS Database only)
- Adult 2.0 core survey results have been combined for 12-month and 6-month versions with and without PCMH items (2016 CG-CAHPS Database only)

Levels of Results

CAHPS Clinician & Group Survey (CG-CAHPS) Database 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
- Frequencies
- Bar Charts (found in the Report Builder tab)

- **Practice Site:** A *practice site* is an ambulatory care facility or medical office in a specific location. 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:

- Percentiles (with the exception of the CAHPS DB Overall column, which provides the respondent-level results for comparison purposes) on the ORS
- Statistical comparisons of Practice Site results reported in the Private Feedback Reports in Excel

- **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:

- Statistical comparisons of Group results reported in the Private Feedback Reports in Excel[®]

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, statistical differences between practice sites or groups could be due to differences in external factors rather than to true differences in performance. The CG-CAHPS practice and group level data were adjusted for respondent characteristics (i.e., case-mix adjustments). CG-CAHPS practice site and group mean scores are case-mix adjusted before conducting statistical difference testing that is available only in the Private Feedback Reports in Excel[®]. 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 since they are calculated ignoring practice site or group affiliation.

TYPES OF RESULTS

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. For 2016 Adult 3.0 Combined and 2016 Child 3.0 Combined results, the ORS also provides two-way frequencies or cross-tabs of items on the survey by other items, such as practice site characteristics and/or respondent demographics.

Top Box and Bar Chart Proportional Scores

Top box scores are created by calculating the percentage of survey respondents who chose the most positive response option for a given item response scale. Several different response scales are 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.

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

Response Scale	Lower Proportion	Middle Proportion	Top Box Score
Dichotomous	No	--	Yes
Global rating	0-6	7-8	9-10
3-point response scale	No	Yes, somewhat	Yes, definitely
4-point response scale	Never, Sometimes or Definitely no, Somewhat no	Usually or Somewhat yes	Always or Definitely yes
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

Note: The top box and bar chart proportional scoring results exclude missing in the calculation of percentages.

Calculating proportional scores for an individual survey item: A proportional score is calculated by aggregating results across respondents for the practice site, group, or database. 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., $(4 \div 10) \times 100 = 40\%$].

Calculating top box and other proportional scores for a composite measure: The scores for a composite measure are equal to the average or mean of the proportion of responses (excluding missing data) in each response category across the items in the composite. The following steps show how proportions for composite measures are calculated:

- Step 1 – Calculate the proportion of cases in each proportional score category for each question in a composite.
- Step 2 – Calculate the average proportion responding to each category across the questions in the composite.

As shown in Table 2, top box scores for composite measures are calculated by averaging the top box scores for the items within the composite. This methodology can be applied to any of the CAHPS composites. 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.

Table 2. Sample Calculation of Top Box and Proportional Scores

Survey: CAHPS Clinician and Group Survey 3.0
 Composite Measure: Getting Timely Appointments, Care, and Information

Items in Composite	Response Scale	Lower Proportion (Never, Sometimes)	Middle Proportion (Usually)	Top Box Score (Always)
Got appointment for urgent care as soon as needed	Never, Sometimes, Usually, Always	12%	20%	68%
Got appointment for check-up or routine care as soon as needed		7%	21%	72%
Got answer to question during regular office hours on same day		16%	23%	61%
Composite Proportional Score	--	$12\% = (12\% + 7\% + 16\%) / 3$	$21\% = (20\% + 21\% + 23\%) / 3$	$67\% = (68\% + 72\% + 61\%) / 3$

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.

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. 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

In the Private Feedback Reports in Excel®, 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, a numerical value is assigned, 'up' (3) or 'down' (1). If there is no significant difference between the group or practice site and the overall database mean, a value of (2) 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) and in the private reports, 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 -way frequency tables, if one of the items is a demographic (Age, Gender, Education, Race, Hispanic, Parent age in the Child survey or Parent Gender in the Child Survey) or practice site characteristic (Region, Provider Specialty/Type, Survey Completion Mode or Providers Working per Week) 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 in the Private Feedback Reports in Excel®.
- 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 in the Private Feedback Reports in Excel®.

3. Reporting Category Suppression.

- a. When displaying scores by practice site characteristics (e.g., region), 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.