Appendix F – Guide to the National Quality Dashboards and Graphs

This appendix explains how to interpret the data visualizations (e.g., dashboards, graphs, maps) found throughout the report. Graphs at the beginning of each quality priority chapter represent all the measures included in the scope of data analysis. Additional data analysis resulted in other dashboards, graphs, and maps that pertain to the Key Indicators. *Methods* (Appendix D) describes the analysis methodology used to obtain the results in these visualizations. *Overview of CMS Measures Included in Analysis* (Appendix A) lists the measures used in the report, including measures for which data analysis was performed. Finally, *Analytic Results* (Appendix E) contains tables of analysis results of all measures for which a data analysis was performed.

NATIONAL QUALITY DASHBOARDS

Dashboards in each quality priority chapter highlight the results of data analysis performed on each Key Indicator at the national level. For illustrative purposes, Dashboard F-1 displays results for three Key Indicators. Dashboard rows are not meant to be aggregated and should be interpreted independently, as each represents a separate data set.

Dashboard F-1: Mortality[a]

Measure Name (NQF #)/ Program Use	Progress/ AAPC[b]	Most Recent # of Providers Included/ Type	Most Recent # of Patients Included/ Method	Baseline Result[c] / Year	Most Recent Result[c]/ Year	Achievable Result[d]
1 – 30-Day Mortality Following HF Hospitalization (NQF #0229) (↓ = Favorable)[e]						
Hospital: IQR, VBP	0.9%[b]	4,640 Hospitals	976,803 Population	11.1%[c] 2008	11.9%[c] 2015	6.6%[d]
2 – 30-Day Mortality Following AMI Hospitalization (NQF #0230) (↓ = Favorable)[e]						
Hospital: IQR, VBP	-2.1%[b]	4,365 Hospitals	494,752 Population	16.6%[c] 2008	14.3%[c] 2015	9.8%[d]
3 – 30-Day Mortality Following COPD Hospitalization (NQF #1893) (↓ = Favorable)[e]						
Hospital IQR	1.4%[b]	4,643 Hospitals	769,860 Population	7.8%[c] 2013	8.0%[c] 2015	3.7%[d]

[a] Additional information on how to read the dashboard is in *Guide to the National Quality Dashboards and Graphs* (Appendix F).

[b] Progress was measured using the average annual percentage change (AAPC), which was calculated using a linear trend model fit to the data series. The baseline and most recent year results are shown in the dashboard for informational purposes and cannot be used to replicate the trend model results.

Indicates an annual percentage change > 1% per year in a favorable direction.

Indicates an average annual percentage change <= 1% per year.

Indicates an annual percentage change > 1% per year in an unfavorable direction.

[c] The result represents the national average calculated from beneficiary-level data.

[d] The achievable result is the average performance rate across the highest-performing providers covering 10% of the eligible population, derived using the Achievable Benchmarks of Care (ABC™) methodology. Results may differ from benchmarks used by various CMS programs and do not reflect CMS-endorsed goals.

[e] Lower rates indicate better performance.

Above each row of results in the dashboard is the Key Indicator name and number. Multiple measure rows may be listed under a Key Indicator heading if results for multiple CMS programs or settings are included. The key in Table F-1 explains what each dashboard element represents.

Table F-1: National Quality Dashboard Key

Measure Name (NQF#)/ Program Use	This column displays the measure name, followed by the National Quality Forum (NQF) number in parentheses. In lieu of an NQF number, the dashboard will indicate "Not endorsed" if the measure never was endorsed. The direction of favorable performance (indicated by a ↓ or ↑ symbol) is shown after the measure name. Finally, abbreviations of the CMS quality program(s) for which the measure row is reported are listed under the measure name.
Progress/ AAPC	The icons and text shown below represent progress on the Key Indicator, based on an average annual percentage change analysis, which was calculated using a linear trend model fit to the data series.
	This indicates performance on the Key Indicator improved, based on an average annual percentage change > 1% per year in a favorable direction.
	This indicates performance on the Key Indicator showed no improvement or decline, based on an average annual percentage change <= 1% per year.
	This indicates performance on the Key Indicator declined, based on an average annual percentage change > 1% per year in an unfavorable direction.
Most Recent # of Providers Included/ Type	This column displays the number of providers whose patients are included in Key Indicator results for the most recent year. The type of provider (e.g., hospitals, contracts, clinicians) is listed under the number.
Most Recent # of Patients Included (or Respondents)/ Method	This column displays the number of patients included in the Key Indicator result for the most recent year. For CAHPS measures, this represents the number of survey respondents, and an alternate table label is used. The method of patient or respondent inclusion is listed under the number. "Population" indicates the result represents all individuals eligible for inclusion in the measure; "Sample" indicates a representative sample of all individuals eligible for inclusion in the measure. For surveys such as CAHPS, the number of respondents is the number of individuals in the sample who completed the survey.
Baseline Result/ Year	This column displays the initial national result for the Key Indicator and the calendar year, as early as 2006. The result could represent a national average calculated from beneficiary-level data, a simple average of provider-level data, or a weighted average of provider-level data.
Most Recent Result/ Year	This column displays the most recent national result for the Key Indicator and the calendar year, as late as 2015. The result could represent a national average calculated from beneficiary-level data, a simple average of provider-level data, or a weighted average of provider-level data.
Achievable Result	This column displays the national benchmark as calculated using the Achievable Benchmarks of Care (ABC™). The ABC methodology ranks providers in order of baseline performance rates from best to worst. Patient populations are summed, beginning with those of the best-performing providers, until at least 10% of the total patient population is included. The benchmark rate is then calculated as the provider performance rate for patients in this subset representing approximately 10% of the patient population.

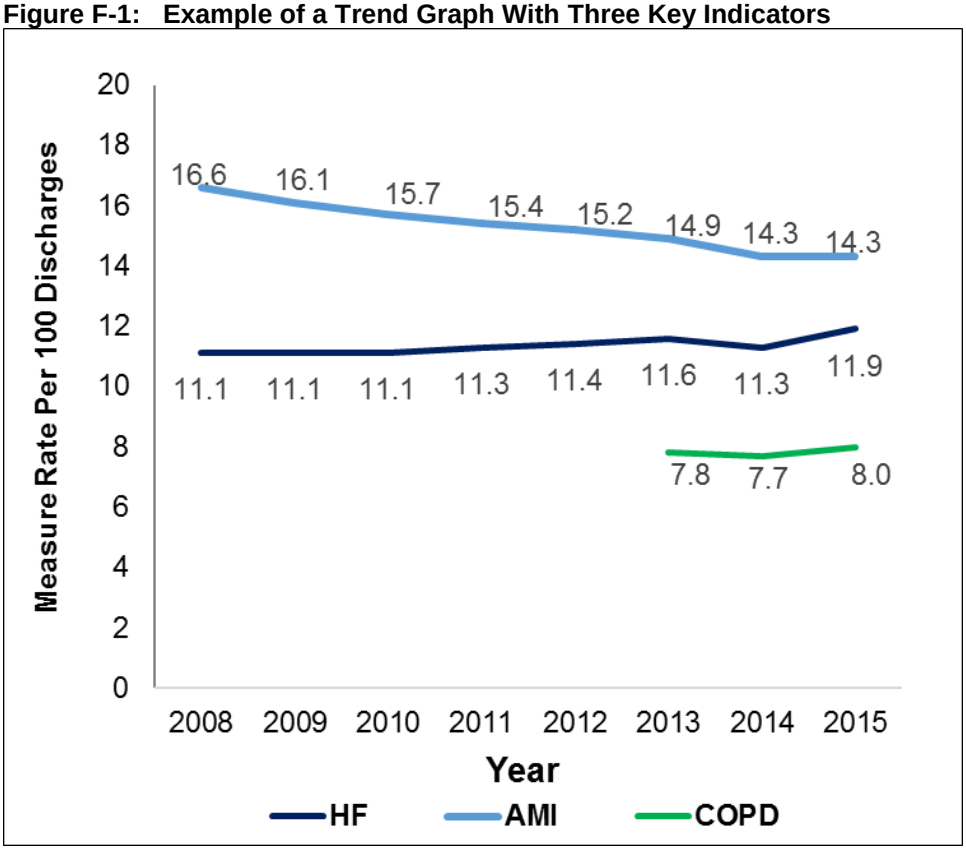
KEY INDICATOR VISUALIZATIONS

Three primary types of Key Indicator visualizations appear in each quality priority chapter of this report: a national trend line graph (either at the overall or disparity category level), a national point-in-time disparity vertical bar graph, and a national disparity map. This report includes a subset of these possible visualizations, focused on results of the most interest for discussion, to provide details of the Key Indicator results and expand upon the dashboards.

National Trend Graphs

National trend graphs appear in each quality priority chapter for the Key Indicators. These graphs depict changes to Key Indicator results over time, including the baseline year and result and the most recent year and result from the associated dashboard. Figure F-1 is an example of an overall trend graph for illustrative purposes.

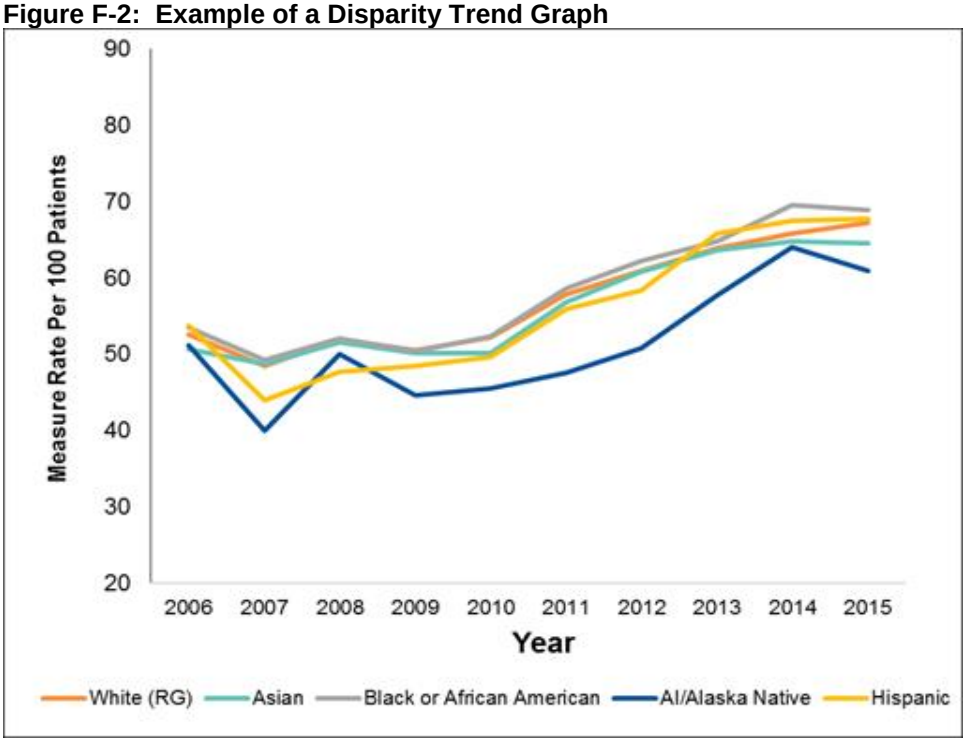
Figure F-1: Example of a Trend Graph With Three Key Indicators



In Figure F-1, a label on the data point of the trend line shows the Key Indicator result for that year. Trend lines for multiple Key Indicators or for Key Indicators in multiple settings may be included on one graph to better compare results. Each label on the x-axis represents a calendar year, which is the period of analysis. The y-axis label states what the results represent. In this example, the results represent rates per 100 hospital discharges. The legend indicates the Key Indicator represented for each line. In some cases, as with COPD in this example, the time series reported may be shorter than for other Key Indicator measures.

An additional graph of the overall national trend may be included in a quality priority chapter to elaborate upon notable trend findings for specific disparity categories. Figure F-2 is an example focusing on race/ethnicity for illustrative purposes.

Figure F-2: Example of a Disparity Trend Graph

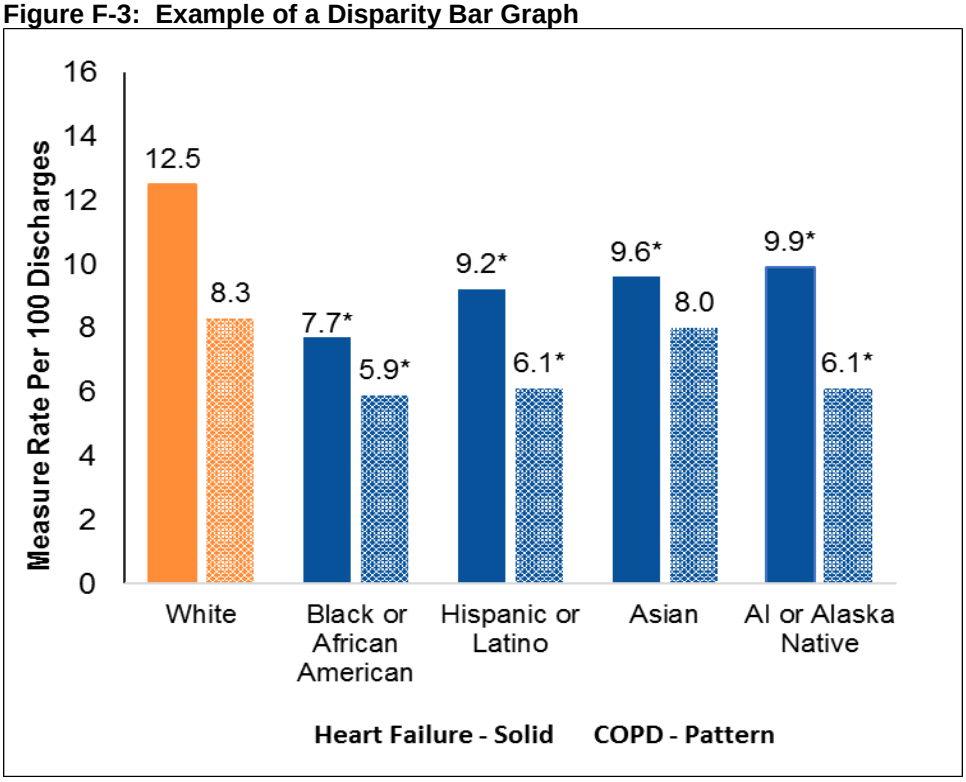


In Figure F-2, each line represents a group within the disparity category (e.g., age, race/ethnicity, income); the number of lines corresponds to the number of groups being reported for a particular Key Indicator measure, where sample size limitations are met. Each label on the x-axis represents a calendar year, which is the period of analysis. The y-axis label states what the results represent. In this example, the results represent rates per 100 patients. The legend indicates the group represented by each line. Of note, these analysis findings identified steady improvement in screening rates across all racial and ethnic groups, with generally lower performance for the American Indian (AI)/Alaska Native group over time.

National Disparity Graphs

National disparity graphs for Key Indicators appear in each quality priority chapter where disparities were observed. The graphs represent the magnitude of difference between the reference group and the comparison groups in the most recent year for each disparity variable. Figure F-3 is an example focusing on race/ethnicity for illustrative purposes.

Figure F-3: Example of a Disparity Bar Graph

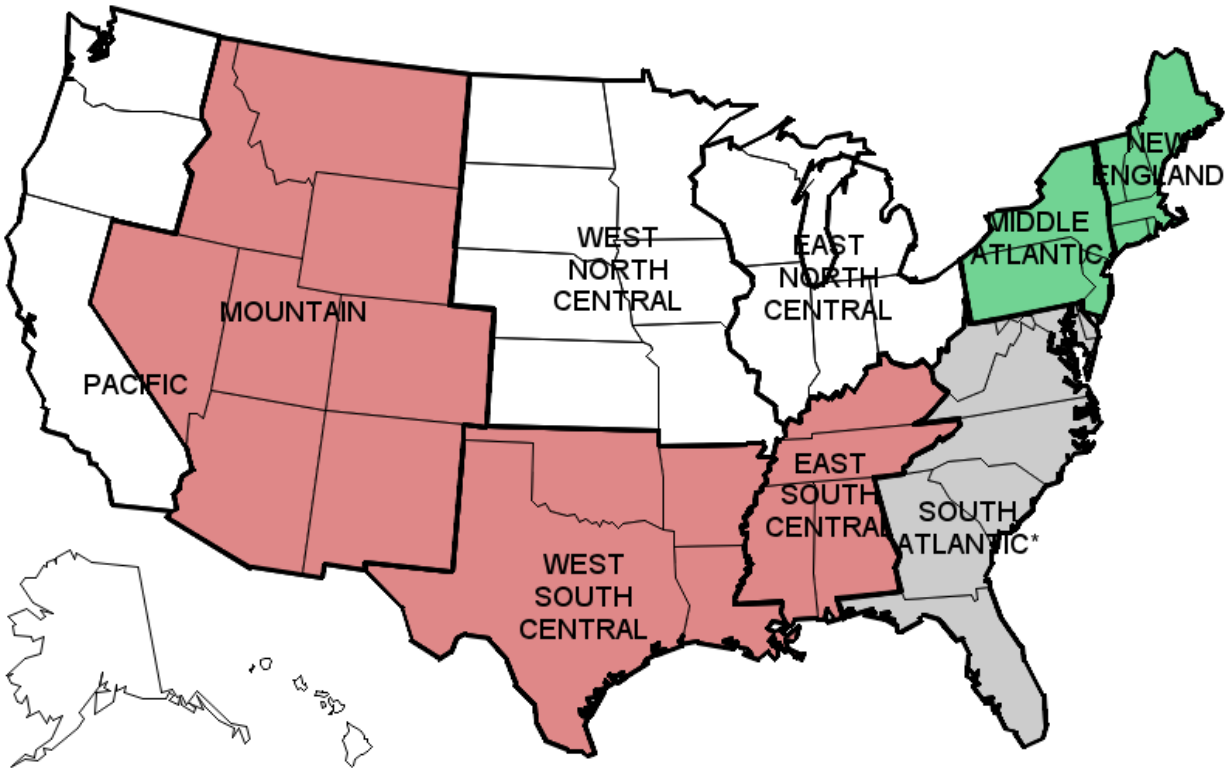


In Figure F-3, the Key Indicator disparity results for each disparity category are shown as a vertical bar graph for two Key Indicators. The orange bars indicate the reference group, and the blue bars indicate the comparison groups. Each x-axis label represents a specific group. The y-axis label states what the results represent. In this example, the results represent rates per 100 hospital discharges. The legend indicates the Key Indicator measure represented for each set of bars delineated by the pattern fill of the bar. The bar labels indicate the result for each group for each Key Indicator measure. Labels that include an asterisk (*) indicate a significant difference between the comparison group and reference group. This significant difference is noted where the comparison group rate exhibits a significant difference ($p < .05$) from the reference group rate ≥ 0.10 (i.e., 10%).

National Disparity Maps

To better represent geographically based disparities, a map rather than a bar graph is used to display the results for each quality priority chapter. Figure F-4 is an example focusing on census division for illustrative purposes.

Figure F-4: Example of a Geographic Disparity Map



In Figure F-4, regional disparities are noted among the nine U.S. census divisions. The South Atlantic division (shaded in gray with an asterisk) is the reference group, and the rest of the divisions, regardless of color, are the comparison groups. Divisions shaded in green have significantly higher performance results than the reference group, and those shaded in red have significantly lower performance results than the reference group. Divisions that are not shaded exhibit no significant differences between the reference and comparison groups.