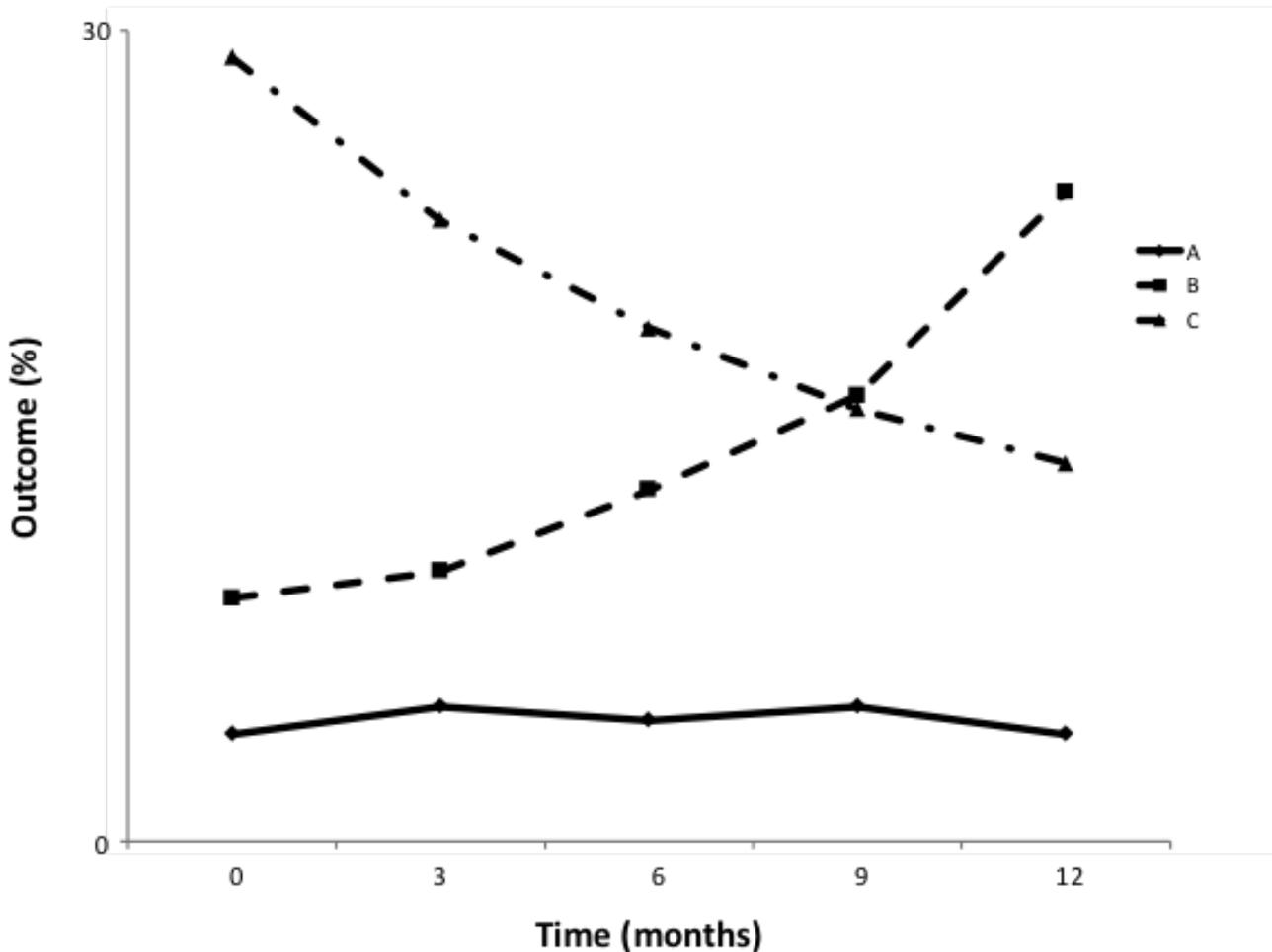


# Line Graphs

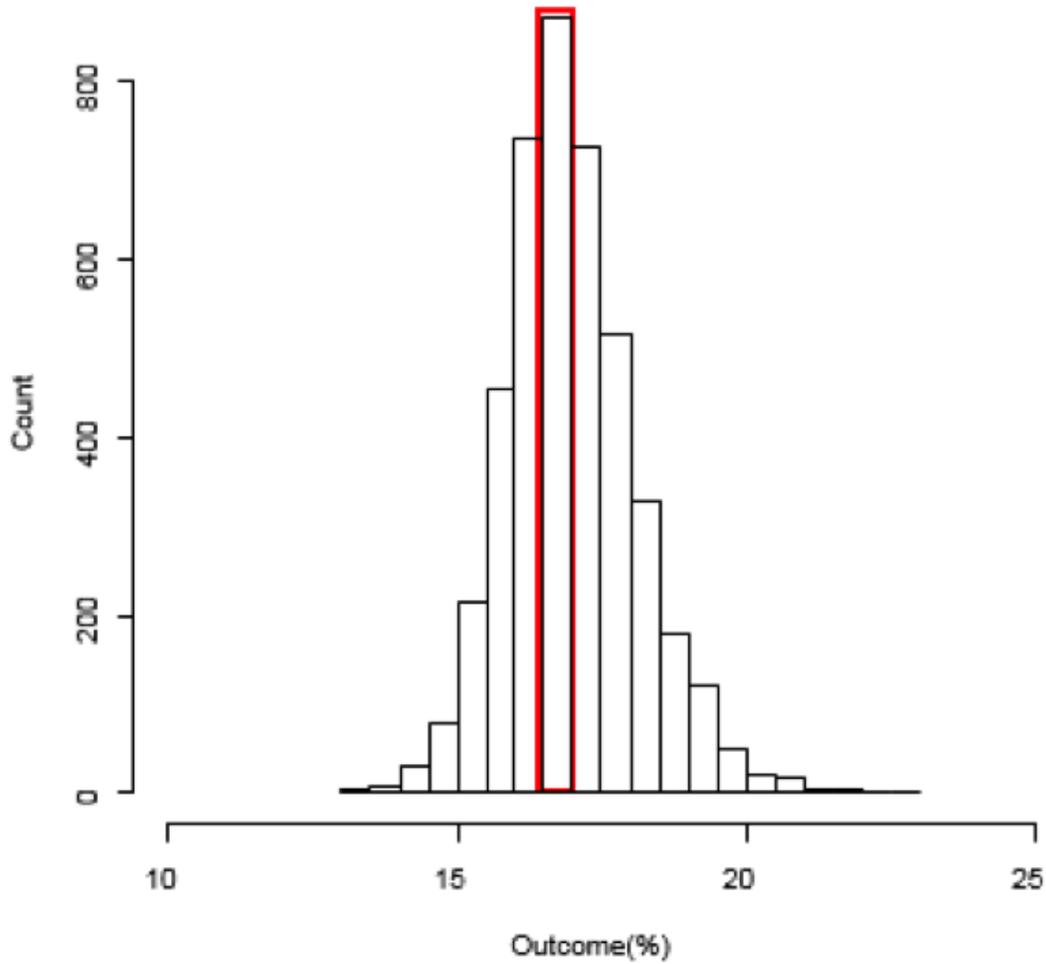
FIGURE I Example line graph.



A line graph visually represents the relationship between independent and dependent variables. In the *Chartbook* analyses, line graphs are typically used to show how an outcome rate (mortality/complication/readmission) or payment has changed over time. A line graph can illustrate whether the outcome rate or risk-standardized payment is increasing, decreasing, or remaining the same over a given time period. In the example displayed in Figure 1, line A illustrates an outcome rate that is not changing over time. Line B shows an outcome rate that steadily increases over time. Line C shows an outcome rate that steadily decreases over time.

# Histograms

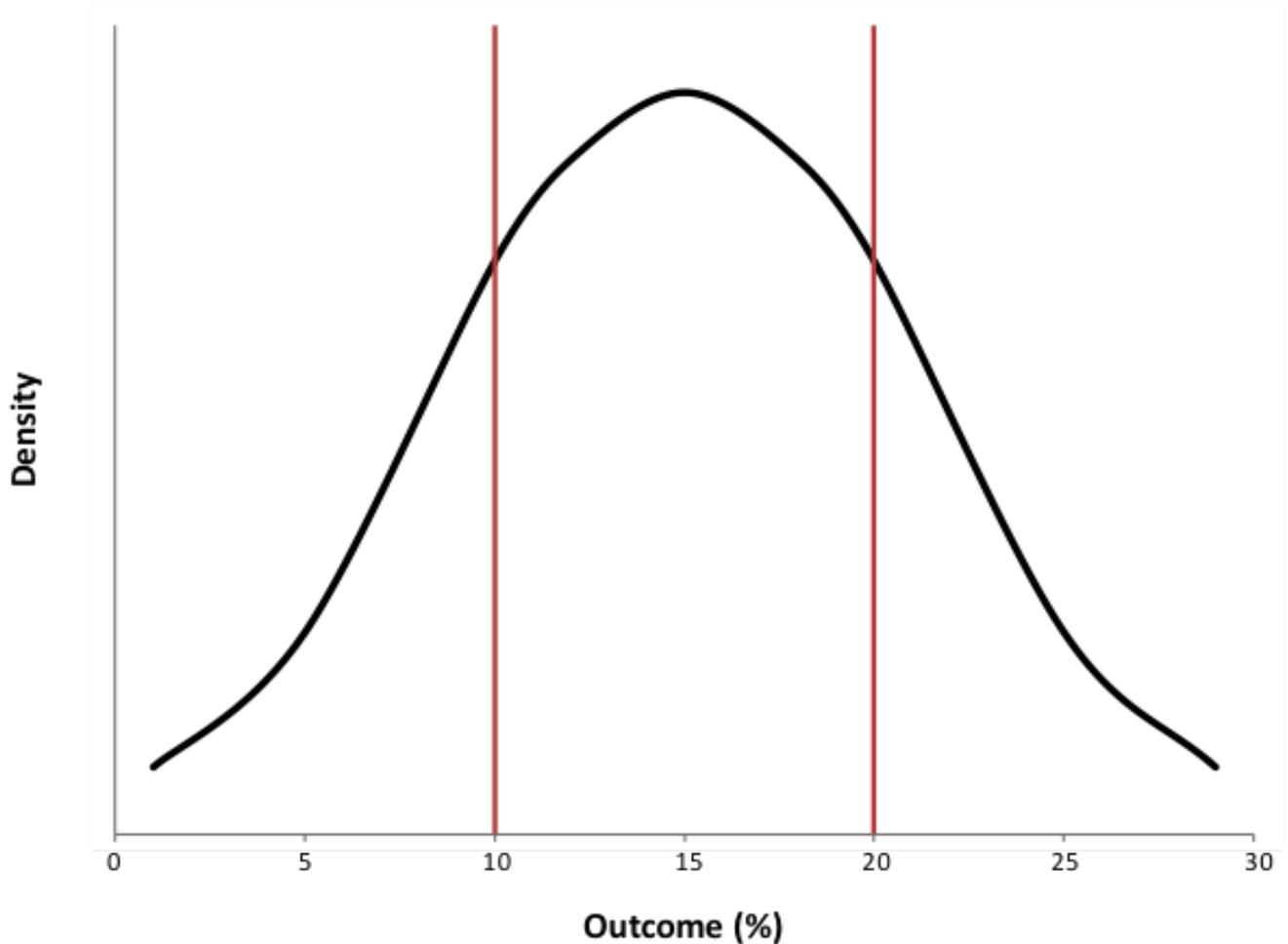
FIGURE 2 Example histogram.



A histogram displays the distribution of a continuous variable. The width of each column represents a range of values in the outcome, and the height of each column represents the number of units that are captured within the range. In the *Chartbook* analyses, a histogram typically shows the range of an outcome along the x-axis and the unit of analysis is typically a count of hospitals along the y-axis. For example, in Figure 2, the highest column, outlined in red, displays that there were more than 800 hospitals that had an outcome between 16.5% and 17.0%.

## Density Plots

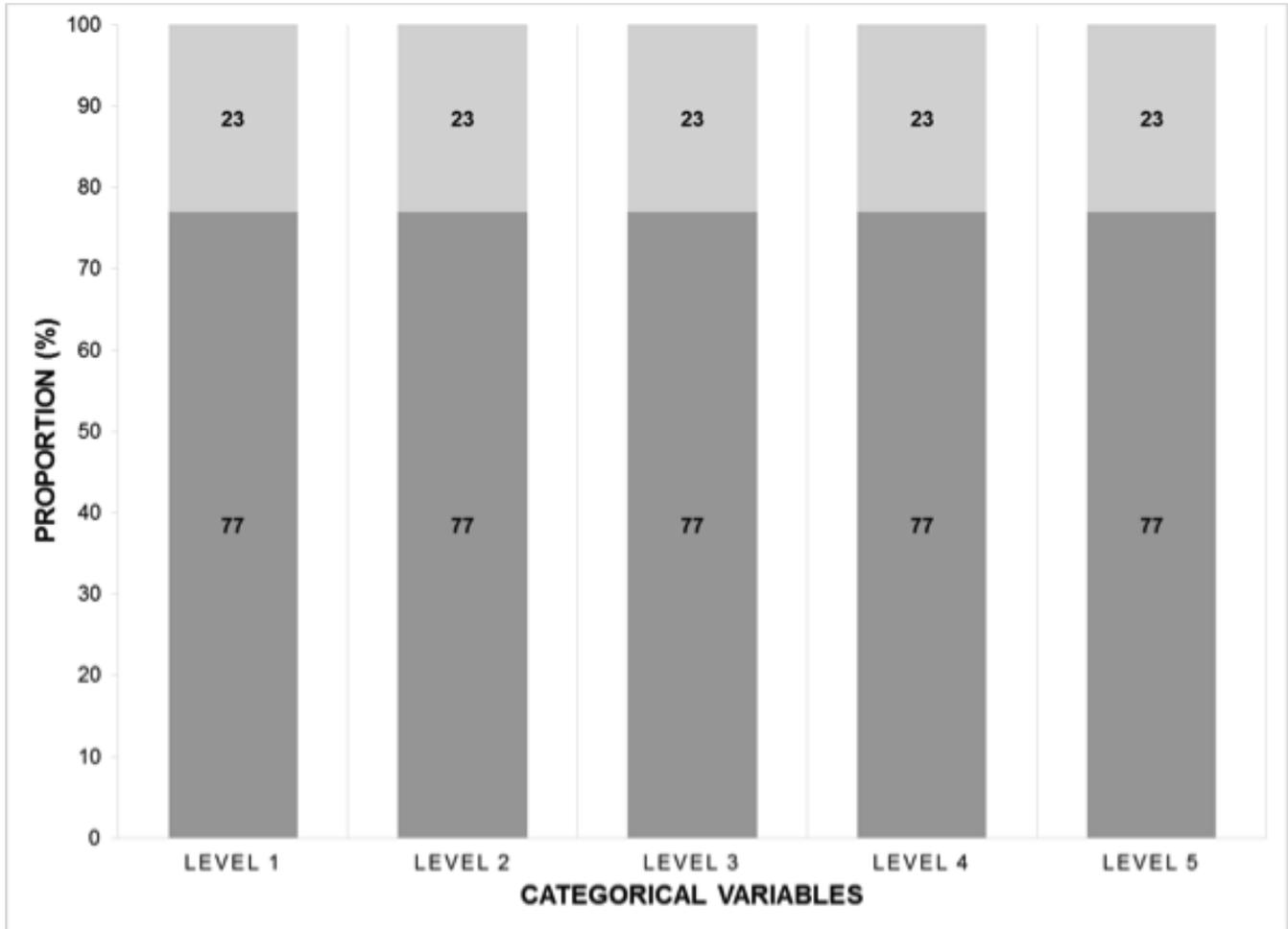
**FIGURE 3** *Example density plot.*



A density plot shows the estimate of an unobservable underlying probability density function. In the *Chartbook* analyses, we present and interpret the density plots in a similar fashion to histograms. In the example shown in Figure 3, the horizontal axis (x-axis) shows the outcome rate or payment and the vertical axis (y-axis) shows the density. For the outcome shown in this example, the majority of hospitals had a risk-standardized outcome rate between 5% and 25%. If you calculate the area under the curve between the two vertical red lines shown on the figure at 10% and 20%, you could estimate the proportion of hospitals that have outcome rates between 10% and 20%.

## Stacked Bar Charts

FIGURE 4 Example line graph.



A stacked bar chart shows a sum of values as a column or bar, including the individual subgroups within the sum. Subgroups of data within the bar allow for comparisons of the relative contribution of each subgroup to the bar and the overall chart. In the example shown in Figure 4, the horizontal axis (x-axis) shows the categorical variables in five separate groups. The vertical axis (y-axis) shows the proportion (%) of the total bar and the proportion that each subgroup makes up of the total bar. For each of the five categorical variables shown in this example (levels 1 through 5), one subgroup made up 77% of the total bar, and the other subgroup made up 23% of the total bar. Each bar totaled 100%. For this example, the proportional contribution of the two subgroups was the same for all categorical variables.