PERCENTRANK.INC Function Notes

The PERCENTRANK.INC function within Excel returns the rank of a value in a data set as a percentage of the data set.

When working with this function, Excel tends to have a problem with duplicated values within the data set, especially when the data set is small. This tends to be most evident when the highest value is duplicated. Instead of both values receiving 100% for being the top place value, Excel has difficulty in placing that value in the proper percentile. Thus to not exclude from one percentile to the next, Excel takes half of the duplicated figures within the formula to calculate.

See the Excel document titled Percent Rank Function Example for three different scenarios using the data set of 87, 66, 45, 40, 33, 28, 20, 17, 10, and 8.

In scenario 1, the function PERCENTRANK.INC calculates as follows (for place value 40, there are 6 values below and 3 values above. The calculation would be (6/(6+3) = 66.6%).

In scenario 2, we duplicate the top value by changing 66 to 87. Once the top value is duplicated, Excel does not know how to classify the amount in a percentile range. Our research indicated that Excel takes half of the duplicated values and includes them in the formula. (For place value 87, there are 8 values below, and half of the duplicated value is taken so 1 in this instance is above place value 87). The calculation would be (8/(8+1)=88.8%).

In scenario 3, we also changed values 45 and 40 to 87 as well. Based on our research, the calculated amount should calculate as (6/6+2) which gives the total of 75%. How Excel calculates in scenario 3 is actually (6/(6+3) which gives the total of 66.6%. So it appears Excel calculates based on the last duplicate by taking the number of values below the last duplicate, and then the number of values above the last duplicate. This concept still works if the values were mixed and not sorted from largest to least as they are in the scenarios.

Since the data set we are working with for Nursing Facilities is large, there appears to be no effect to the calculation of the Long Stay Hospitalization percentages from this function to what is seen on the quarterly quality measure handout for individual providers.