

Cost By Day of the Week Study

Performing a Cost-by-Day-of-the-Week Study

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The Days impact, based on the default values that we normally use, shows that April 2013 health care claims should be 5.2% higher than April 2012, in addition to trend. This is due to Good Friday falling in March 2013 and April 2012 along with there being five Mondays and Tuesdays this year compared to five Sundays and Mondays last year. Good Friday reduced April 2012 costs by roughly half of a normal day while Good Friday had no impact on April 2013. Monday and Tuesday each have days value of 1.3, meaning costs for these two days are 30% higher than an average day. while Sunday has a Day's value of 0.3. Replacing one of the five Sundays in 2012 with an extra Tuesday in 2013 gives an extra $(1.3 - 0.3 =) 1.0$ days of health care costs in 2013. The number of Days units in April 2012 becomes $28 + 0.3 + 1.3 - 0.5 = 29.1$. The number of Days units in April 2013 is $28 + 1.3 + 1.3 = 30.6$. This implies the Days impact is $30.6 / 29.1 = 1.052$ or an increase in costs of 5.2%.

So why do we use 1.3 for the value for Monday and 0.5 for the Good Friday reduction? Can all of the Days values used in the default calculations be used by any entity trying to estimate monthly incurred claims? Using the default is better than not using any adjustment at all but each entity should perform a Days study on its own. As an example, the default Saturday cost value is 0.4, meaning that Saturday is 60% less than an "average" day. The reason for this is that most doctors' and dentists' offices are closed on Saturday and elective surgeries are generally not performed, just to give some examples. But the relationship by day does vary slightly across the country as the dynamics and practice patterns in the different regions vary. Also, the holiday impact could vary as certain holidays have more importance in some areas than these same holidays in other areas. Only an entity performing its own study would give comfort to the accuracy of the Days' values.

Performing the Analysis

The first step in performing the Day-of-the-Week analysis is to develop incurred claims by day. Using incurred claims for a year should be sufficient. Every day should have at least three months of claims payments. For example, if calendar year 2012 is being analyzed then December 31, 2012 incurred claims should include January 2013, February 2013, and March 2013 paid claims.

The analysis will look at each week separately, getting days' relationships to the average daily cost for each day of that week. Because comparisons of claims are made on such a short-term basis, no claims reserve need be added to the claims. For example, the week of April 21, 2012 to April 27, 2012 would have each of the days compared to the average daily cost for that week. Generally the claims reserve would not affect the relationship of the costs between days of the same week. The average claims for the seven-days would be calculated by summing the claims and dividing by 7. If total claims for the week were \$70 then the average daily claims would be $(\$70 / 7 =) \10 . If Monday's claims were \$13 then the calculated Days' impact for Monday for that week would be 1.3, or 30% increase from the average daily claims.

It would be more accurate to put each day's incurred claims on a per member per month basis in the calculation. In the absence of a daily membership count the use of the monthly membership count can be applied to each day. The study can be done without membership although that would eliminate many weeks in the calculation, namely any week that might have membership changes in it, such as the first of each month.

The reason that each week needs to be reviewed separately is that there will be factors that impact the costs of various days that are not related to the day of the week and summing all costs for each day to an annual total and then comparing would not give an accurate result. Monday is a good example as there are holidays that reduce claims on those specific Mondays. Also, fee schedule changes affect costs and if the change impacts in the middle of the week then it will affect the days study. Adjustment would need to be made for known fee schedule or other operational adjustment made during any week.

Looking at each week should show reasonably consistent results by day of the week, with the exception of certain major holidays or some other operational change such as fee schedule changes. Also, in areas of the country where claims are affected by bad weather such as bad snow storms, information can be incorporated to determine these impacts. For example, the default assumes bad snow storms dropping 8 inches of snow or more reduces costs by 0.5 days.

Once the day of the week portion of the Days study impact are known then the impact of holidays can be determined. Once the holiday impacts are known then the weather impact can be determined.

The study should be repeated every few years as relationships may change over time.