

Monthly Incurred Estimates

Listed below are the articles posted on this web site regarding the estimation of monthly incurred claims. They are listed in order from most recent to earliest posting date.

2016 Monthly Day-of-the-Week Adjustments

By Jeff Adams

February 2, 2016

Health care costs vary depending on the day of the week, which is important whenever trying to estimate incurred claims for periods less than a year, such as monthly claims estimates included in a financial forecast. This article gives general monthly day-of-the-week adjustments for a block of business which includes full medical benefits. It is highly recommended that a full Days' Study be done for particular blocks of business as days' impacts may vary by area and by type of benefit.

Why Costs Vary by Day of the Week

Generally, health care costs are greater on weekdays than on weekends. The level of this variation is dependent on the plan. For example, for full medical plans, primary care physician costs on Sunday are minimal since doctors' offices are not usually open on Sunday. Similarly, dental offices are generally closed on Sundays and many are closed on Saturdays also. Hospital inpatient costs are still incurred on the weekend as patients remain in the hospital. Emergency room visits continue through the weekend, especially considering the closed physician offices. Costs for some items such as surgeries may be performed earlier in the week causing Monday, Tuesday, and Wednesday to have costs just slightly higher than Thursday and Friday.

A detailed Days' Study should be performed on the particular block of business for which they will be used but the table below lists sample factors for a block of comprehensive medical benefits is shown below:

| <u>Day</u> | <u>Factor</u> |
|------------|---------------|
| Monday | 1.300 |
| Tuesday | 1.300 |
| Wednesday | 1.300 |
| Thursday | 1.200 |
| Friday | 1.200 |
| Saturday | 0.400 |

| | |
|---------------|--------------|
| <u>Sunday</u> | <u>0.300</u> |
| Average | 1.000 |

Again, factors for a block of business may differ significantly from those shown above. Even factors for similar comprehensive medical plans may vary depending on the specific environment surrounding provider services for the particular block of business being studied.

Holiday Impact on Health Care Costs

Major holidays may see substantially reduced costs for similar reasons that Saturday and Sunday costs may be low. Provider facilities may be closed on these days and members may not wish to have procedures done on those days, due to travel or other obligation, even if a facility is open. The specifics of the holidays for which costs are affected and the magnitude of the adjustment will vary by region and plan. Sample adjustments would be to reduce costs 50% for the following holidays: New Year's Day, Good Friday, Memorial Day, Fourth of July, Labor Day, Thanksgiving, and Christmas Day. If the holiday falls on a weekend then the adjustment would be made to incurred claims on the preceding Friday.

An adjustment for a four-day holiday weekend may be warranted in some situations also. For example, generally the day after Thanksgiving can see a reduction in costs by 50%. If the Fourth of July falls on a Tuesday or Thursday then members tend to have less services on the corresponding weekday that would make up a four-day weekend. The four-day weekend would include Monday if the Fourth of July fell on a Tuesday or Friday if the Fourth of July fell on a Thursday. Christmas and New Year's Days may have a similar four-day weekend effect although the magnitude may not be as substantial. One 50% reduction may be sufficient if Christmas and New Year's fall on Tuesdays or Thursdays. Remember that New Year's Day is exactly one week after Christmas Day so if December 31 is a Monday then so is December 31. Due to the subjectivity and possible variation in this four-day adjustment it is strongly recommended that claims not be adjusted unless a Days' Study for the particular block of business is performed and the Four-Day Weekend impact verified. If the holiday falls on the weekend then no Four-Day Weekend adjustment would be made.

Impact of Severe Weather on Health Care Costs

Severe weather, such as heavy snow storms, may affect health care costs. Elective procedures such as some doctor and emergency room visits may be canceled due to severe weather. In some cases more expensive procedures may be postponed. Although some procedures may be postponed for a few days, other procedures will not be rescheduled and will result in a reduction in overall health care costs. When the severe weather occurs at the end of a month then some of the costs may be put off until the following month. A detailed study should be performed to find adjustment factors for specific areas for severe weather such as snow storms, hurricanes, etc. As an example, snow storms in Upstate New York that are 8 inches or greater have the impact of reducing health care costs by roughly 50% of a day if they occur on a weekday. Health care costs on a weekend are low, comparatively, so the impact of severe weather on a weekend may not be significant.

2016 Monthly Factors

The table below shows the monthly attributes and the resulting Days Units for each month:

| <u>Month</u> | <u>5 Days Occuring</u> | | | <u>Holidays</u> | <u>4-Day Wknd?</u> | <u>Days Units</u> | <u>Average For Month</u> | <u>Days Impact</u> |
|--------------|----------------------------|---|---|-----------------|------------------------|-----------------------|------------------------------|------------------------|
| Jan-16 | F | S | U | New Years | Yes | 28.9 | 31 | -6.8% |
| Feb-16 | M | | | | | 29.3 | 28.25 | 3.7% |
| Mar-16 | T | W | H | Good Friday | | 31.3 | 31 | 1.0% |
| Apr-16 | F | S | | | | 29.6 | 30 | -1.3% |
| May-16 | U | M | T | Memorial Day | | 30.4 | 31 | -1.9% |
| Jun-16 | W | H | | | | 30.5 | 30 | 1.7% |
| Jul-16 | F | S | U | Fourth of July | | 29.4 | 31 | -5.2% |
| Aug-16 | M | T | W | | | 31.9 | 31 | 2.9% |
| Sep-16 | H | F | | Labor Day | | 29.9 | 30 | -0.3% |
| Oct-16 | S | U | M | | | 30.0 | 31 | -3.2% |
| Nov-16 | T | W | | Thanksgiving | Yes | 29.6 | 30 | -1.3% |
| Dec-16 | H | F | S | Christmas | | 30.3 | 31 | -2.3% |

The table above is helpful in forecasting when used in conjunction with a seasonality study (along with possible other adjustments such as severe weather) in order to break down annual claims into monthly incurred claims. It can also be used in trend analysis if used in conjunction with an updated seasonality study. Note that the Average For Month in the table above are not adjusted for holiday impacts.

The table below gives a month-on-month comparison of current year Days Units to prior year Days Units:

| <u>Month</u> | <u>Current Year Days Units</u> | <u>Prior Year Days Units</u> | <u>% Change</u> |
|--------------|--|--|---------------------|
|--------------|--|--|---------------------|

| | | | |
|--------|------|------|-------|
| Jan-16 | 28.9 | 29.8 | -3.0% |
| Feb-16 | 29.3 | 28.0 | 4.6% |
| Mar-16 | 31.3 | 30.9 | 1.3% |
| Apr-16 | 29.6 | 30.0 | -1.3% |
| May-16 | 30.4 | 29.4 | 3.4% |
| Jun-16 | 30.5 | 30.6 | -0.3% |
| Jul-16 | 29.4 | 31.2 | -5.8% |
| Aug-16 | 31.9 | 30.0 | 6.3% |
| Sep-16 | 29.9 | 30.1 | -0.7% |
| Oct-16 | 30.0 | 30.8 | -2.6% |
| Nov-16 | 29.6 | 28.6 | 3.5% |
| Dec-16 | 30.3 | 31.3 | -3.2% |

These impacts can be used if analyzing trends or adjusting trends that are being used to develop incurred claims for a month in the current year by using the same month in the prior year as a base and trending it forward. Remember that impacts can be double in years where a Leap Year is involved in the calculations, such as in 2016 and 2017.

Determination of which of the tables above to be used is dependent on how the impacts will be used in calculations and analyses.

Summary

Days Unit impacts are an important part of analyzing and using monthly trends. The impact for a given month in a Leap Year can be as much as 9% or as much as 5% in a non-Leap Year. The mechanics of using these Days impacts may depend on whether an up-to-date seasonality study has been done. Without a seasonality study, the first table above may be impractical to use. Before using Days impacts, a detailed analysis should be performed to determine the actual factors for the block of business for which these factors will be used.

Please contact Adams Actuarial LLC if you have any questions or if you would like a Days Study to be performed on your block of business.

2015 Monthly Day-of-the-Week Adjustments

By Jeff Adams

February 19, 2015

Health care costs vary depending on the day of the week, which is important whenever trying to estimate incurred claims for periods less than a year, such as monthly claims estimates included in a financial forecast. This article gives general monthly day-of-the-week adjustments for a block of business which includes full medical benefits. It is highly recommended that a full Days' Study be done for particular blocks of business as days' impacts may vary by area and by type of benefit.

Why Costs Vary by Day of the Week

Generally, health care costs are greater on weekdays than on weekends. The level of this variation is dependent on the plan. For example, for full medical plans, primary care physician costs on Sunday are minimal since doctors' offices are not usually open on Sunday. Similarly, dental offices are generally closed on Sundays and many are closed on Saturdays also. Hospital inpatient costs are still incurred on the weekend as patients remain in the hospital. Emergency room visits continue through the weekend, especially considering the closed physician offices. Costs for some items such as surgeries may be performed earlier in the week causing Monday, Tuesday, and Wednesday to have costs just slightly higher than Thursday and Friday.

A detailed Days' Study should be performed on the particular block of business for which they will be used but the table below lists sample factors for a block of comprehensive medical benefits is shown below:

| <u>Day</u> | <u>Factor</u> |
|---------------|---------------|
| Monday | 1.300 |
| Tuesday | 1.300 |
| Wednesday | 1.300 |
| Thursday | 1.200 |
| Friday | 1.200 |
| Saturday | 0.400 |
| <u>Sunday</u> | <u>0.300</u> |
| Average | 1.000 |

Again, factors for a block of business may differ significantly from those shown above. Even factors for similar comprehensive medical plans may vary depending on the specific environment surrounding provider services for the particular block of business being studied.

Holiday Impact on Health Care Costs

Major holidays may see substantially reduced costs for similar reasons that Saturday and Sunday costs may be low. Provider facilities may be closed on these days and members may not wish to have procedures done on those days, due to travel or other obligation, even if a facility is open. The specifics of the holidays for which costs are affected and the magnitude of the adjustment will vary by region and plan. Sample adjustments would be to reduce costs 50% for the following holidays: New Year's Day, Good Friday, Memorial Day, Fourth of July, Labor Day, Thanksgiving, and Christmas Day. If the holiday falls on a weekend then the adjustment would be made to incurred claims on the preceding Friday.

An adjustment for a four-day holiday weekend may be warranted in some situations also. For example, generally the day after Thanksgiving can see a reduction in costs by 50%. If the Fourth of July falls on a Tuesday or Thursday then members tend to have less services on the corresponding weekday that would make up a four-day weekend. The four-day weekend would include Monday if the Fourth of July fell on a Tuesday or Friday if the Fourth of July fell on a Thursday. Christmas and New Year's Days may have a similar four-day weekend effect although the magnitude may not be as substantial. One 50% reduction may be sufficient if Christmas and New Year's fall on Tuesdays or Thursdays. Remember that New Year's Day is exactly one week after Christmas Day so if December 31 is a Monday then so is December 31. Due to the subjectivity and possible variation in this four-day adjustment it is strongly recommended that claims not be adjusted unless a Days' Study for the particular block of business is performed and the Four-Day Weekend impact verified. If the holiday falls on the weekend then no Four-Day Weekend adjustment would be made.

Impact of Severe Weather on Health Care Costs

Severe weather, such as heavy snow storms, may affect health care costs. Elective procedures such as some doctor and emergency room visits may be canceled due to severe weather. In some cases more expensive procedures may be postponed. Although some procedures may be postponed for a few days, other procedures will not be rescheduled and will result in a reduction in overall health care costs. When the severe weather occurs at the end of a month then some of the costs may be put off until the following month. A detailed study should be performed to find adjustment factors for specific areas for severe weather such as snow storms, hurricanes, etc. As an example, snow storms in Upstate New York that are 8 inches or greater have the impact of reducing health care costs by roughly 50% of a day if they occur on a weekday. Health care costs on a weekend are low, comparatively, so the impact of severe weather on a weekend may not be significant.

2015 Monthly Factors

The table below shows the monthly attributes and the resulting Days Units for each month:

| 5 Days | 4-Day | Days | Average | Days |
|---------------|--------------|-------------|----------------|-------------|
|---------------|--------------|-------------|----------------|-------------|

| <u>Month</u> | <u>Occurring</u> | | | <u>Holidays</u> | <u>Wknd?</u> | <u>Units</u> | <u>For Month</u> | <u>Impact</u> |
|--------------|------------------|---|---|-----------------|--------------|--------------|------------------|---------------|
| Jan-15 | H | F | S | New Years | Yes | 29.8 | 31 | -3.9% |
| Feb-15 | | | | | | 28.0 | 28.25 | -0.9% |
| Mar-15 | U | M | T | | | 30.9 | 31 | -0.3% |
| Apr-15 | W | H | | Good Friday | | 30.0 | 30 | 0.0% |
| May-15 | F | S | U | Memorial Day | | 29.4 | 31 | -5.2% |
| Jun-15 | M | T | | | | 30.6 | 30 | 2.0% |
| Jul-15 | W | H | F | Fourth of July | | 31.2 | 31 | 0.6% |
| Aug-15 | S | U | M | | | 30.0 | 31 | -3.2% |
| Sep-15 | T | W | | Labor Day | | 30.1 | 30 | 0.3% |
| Oct-15 | H | F | S | | | 30.8 | 31 | -0.6% |
| Nov-15 | U | M | | Thanksgiving | Yes | 28.6 | 30 | -4.7% |
| Dec-15 | T | W | H | Christmas | | 31.3 | 31 | 0.1% |

The table above is helpful in forecasting when used in conjunction with a seasonality study (along with possible other adjustments such as severe weather) in order to break down annual claims into monthly incurred claims. It can also be used in trend analysis if used in conjunction with an updated seasonality study. Note that the Average For Month in the table above are not adjusted for holiday impacts.

The table below gives a month-on-month comparison of current year Days Units to prior year Days Units:

| <u>Month</u> | <u>2015 Days Units</u> | <u>2014 Days Units</u> | <u>% Change</u> |
|--------------|--------------------------------|--------------------------------|---------------------|
| Jan-15 | 29.8 | 31.3 | -4.8% |
| Feb-15 | 28.0 | 28.0 | 0.0% |

| | | | |
|--------|------|------|-------|
| Mar-15 | 30.9 | 30.0 | 3.0% |
| Apr-15 | 30.0 | 30.1 | -0.3% |
| May-15 | 29.4 | 30.3 | -3.0% |
| Jun-15 | 30.6 | 29.6 | 3.4% |
| Jul-15 | 31.2 | 31.3 | -0.3% |
| Aug-15 | 30.0 | 29.9 | 0.3% |
| Sep-15 | 30.1 | 30.1 | 0.0% |
| Oct-15 | 30.8 | 31.7 | -2.8% |
| Nov-15 | 28.6 | 27.7 | 3.2% |
| Dec-15 | 31.3 | 30.9 | 1.3% |

These impacts can be used if analyzing trends or adjusting trends that are being used to develop incurred claims for a month in the current year by using the same month in the prior year as a base and trending it forward. Remember that impacts can be double in years where a Leap Year is involved in the calculations, such as in 2016 and 2017.

Determination of which of the tables above to be used is dependent on how the impacts will be used in calculations and analyses.

Summary

Days Unit impacts are an important part of analyzing and using monthly trends. The impact for a given month in a Leap Year can be as much as 9% or as much as 5% in a non-Leap Year. The mechanics of using these Days impacts may depend on whether an up-to-date seasonality study has been done. Without a seasonality study, the first table above may be impractical to use. Before using Days impacts, a detailed analysis should be performed to determine the actual factors for the block of business for which these factors will be used.

Please contact Adams Actuarial LLC if you have any questions or if you would like a Days Study to be performed on your block of business.

By Jeff Adams February 3, 2014

Health care costs vary depending on the day of the week, which is important whenever trying to estimate incurred claims for periods less than a year, such as monthly claims estimates included in a financial forecast. This article gives general monthly day-of-the-week adjustments for a block of business which includes full medical benefits. It is highly recommended that a full [Days' Study](#) be done for particular blocks of business as days' impacts may vary by area and by type of benefit.

Why Costs Vary by Day of the Week

Generally, health care costs are greater on weekdays than on weekends. The level of this variation is dependent on the plan. For example, for full medical plans, primary care physician costs on Sunday are minimal since doctors' offices are not usually open on Sunday. Similarly, dental offices are generally closed on Sundays and many are closed on Saturdays also. Hospital inpatient costs are still incurred on the weekend as patients remain in the hospital. Emergency room visits continue through the weekend, especially considering the closed physician offices. Costs for some items such as surgeries may be performed earlier in the week causing Monday, Tuesday, and Wednesday to have costs just slightly higher than Thursday and Friday. A detailed Days' Study should be performed on the particular block of business for which they will be used but the table below lists sample factors for a block of comprehensive medical benefits is shown below:

| <u>Day</u> | <u>Factor</u> |
|---------------|---------------|
| Monday | 1.300 |
| Tuesday | 1.300 |
| Wednesday | 1.300 |
| Thursday | 1.200 |
| Friday | 1.200 |
| Saturday | 0.400 |
| <u>Sunday</u> | <u>0.300</u> |
| Average | 1.000 |

Again, factors for a block of business may differ significantly from those shown above. Even factors for similar comprehensive medical plans may vary depending on the specific environment surrounding provider services for the particular block of business being studied.

Holiday Impact on Health Care Costs

Major holidays may see substantially reduced costs for similar reasons that Saturday and Sunday costs may be low. Provider facilities may be closed on these days and members may not wish to have procedures done on those days, due to travel or other obligation, even if a facility is

open. The specifics of the holidays for which costs are affected and the magnitude of the adjustment will vary by region and plan. Sample adjustments would be to reduce costs 50% for the following holidays: New Year's Day, Good Friday, Memorial Day, Fourth of July, Labor Day, Thanksgiving, and Christmas Day. If the holiday falls on a weekend then the adjustment would be made to incurred claims on the preceding Friday.

An adjustment for a four-day holiday weekend may be warranted in some situations also. For example, generally the day after Thanksgiving can see a reduction in costs by 50%. If the Fourth of July falls on a Tuesday or Thursday then members tend to have less services on the corresponding weekday that would make up a four-day weekend. The four-day weekend would include Monday if the Fourth of July fell on a Tuesday or Friday if the Fourth of July fell on a Thursday. Christmas and New Year's Days may have a similar four-day weekend effect although the magnitude may not be as substantial. One 50% reduction may be sufficient if Christmas and New Year's fall on Tuesdays or Thursdays. Remember that New Year's Day is exactly one week after Christmas Day so if December 31 is a Monday then so is December 31. Due to the subjectivity and possible variation in this four-day adjustment it is strongly recommended that claims not be adjusted unless a Days' Study for the particular block of business is performed and the Four-Day Weekend impact verified. If the holiday falls on the weekend then no Four-Day Weekend adjustment would be made.

Impact of Severe Weather on Health Care Costs

Severe weather, such as heavy snow storms, may affect health care costs. Elective procedures such as some doctor and emergency room visits may be canceled due to severe weather. In some cases more expensive procedures may be postponed. Although some procedures may be postponed for a few days, other procedures will not be rescheduled and will result in a reduction in overall health care costs. When the severe weather occurs at the end of a month then some of the costs may be put off until the following month. A detailed study should be performed to find adjustment factors for specific areas for severe weather such as show storms, hurricanes, etc. As an example, snow storms in Upstate New York that are 8 inches or greater have the impact of reducing health care costs by roughly 50% of a day if they occur on a weekday. Health care costs on a weekend are low, comparatively, so the impact of severe weather on a weekend may not be significant.

2014 Monthly Factors

The table below shows the monthly attributes and the resulting Days Units for each month in 2014:

| <u>Month</u> | <u>5 Days Occurring</u> | | | <u>Holidays</u> | <u>4-Day Wknd?</u> | <u>Days Units</u> | <u>Average For Month</u> | <u>Days Impact</u> |
|--------------|-------------------------|---|---|-----------------|--------------------|-------------------|--------------------------|--------------------|
| Jan-14 | W | T | F | New Years | | 31.3 | 31 | 1.0% |
| Feb-14 | | | | | | 28.0 | 28.25 | -0.9% |
| Mar-14 | S | U | M | | | 30.0 | 31 | -3.2% |
| Apr-14 | T | W | | Good Friday | | 30.1 | 30 | 0.3% |
| May-14 | H | F | S | Memorial Day | | 30.3 | 31 | -2.3% |

| | | | | | | | | |
|--------|---|---|---|----------------|------|------|-------|-------|
| Jun-14 | U | M | | | 29.6 | 30 | -1.3% | |
| Jul-14 | T | W | H | Fourth of July | 31.3 | 31 | 1.0% | |
| Aug-14 | F | S | U | | 29.9 | 31 | -3.5% | |
| Sep-14 | M | T | | Labor Day | 30.1 | 30 | 0.3% | |
| Oct-14 | W | H | F | | 31.7 | 31 | 2.3% | |
| Nov-14 | S | U | | Thanksgiving | Yes | 27.7 | 30 | -7.7% |
| Dec-14 | M | T | W | Christmas | Yes | 30.9 | 31 | -0.3% |

The table above is helpful in forecasting when used in conjunction with a seasonality study (along with possible other adjustments such as severe weather) in order to break down annual 2014 claims into monthly incurred claims. It can also be used in trend analysis if used in conjunction with an updated seasonality study.

The table below gives a month-on-month comparison of 2014 Days Units to 2013 Days Units:

| <u>Month</u> | <u>2014 Days Units</u> | <u>2013 Days Units</u> | <u>% Change</u> |
|--------------|--------------------------------|--------------------------------|---------------------|
| Jan-14 | 31.3 | 30.8 | 1.6% |
| Feb-14 | 28.0 | 28.0 | 0.0% |
| Mar-14 | 30.0 | 29.4 | 2.0% |
| Apr-14 | 30.1 | 30.6 | -1.6% |
| May-14 | 30.3 | 31.2 | -2.9% |
| Jun-14 | 29.6 | 28.7 | 3.1% |
| Jul-14 | 31.3 | 30.9 | 1.3% |
| Aug-14 | 29.9 | 30.8 | -2.9% |
| Sep-14 | 30.1 | 29.1 | 3.4% |

| | | | |
|--------|------|------|-------|
| Oct-14 | 31.7 | 31.8 | -0.3% |
| Nov-14 | 27.7 | 28.6 | -3.1% |
| Dec-14 | 30.9 | 30.4 | 1.6% |

These impacts can be used if analyzing trends or adjusting trends that are being used to develop incurred claims for a month in 2014 by using the same month in 2013 as a base and trending it forward. Remember that impacts can be double in years where a Leap Year is involved in the calculations, such as in 2016 and 2017.

Determination of which of the tables above to be used is dependent on how the impacts will be used in calculations and analyses.

Summary

Days Unit impacts are an important part of analyzing and using monthly trends. The impact for a given month in a Leap Year can be as much as 9% or as much as 5% in a non-Leap Year. The mechanics of using these Days impacts may depend on whether an up-to-date seasonality study has been done. Without a seasonality study, the first table above may be impractical to use. Before using Days impacts, a detailed analysis should be performed to determine the actual factors for the block of business for which these factors will be used.

Please contact Adams Actuarial LLC if you have any questions or if you would like a Days Study to be performed on your block of business.

Estimated Incurred December 2013 *By Jeff Adams December 27, 2013*

December tends to be the most important month as it is, more often than not, the end of the fiscal year. Developing a good December claims reserve is important for many reasons. This year the Days' Study shows that December 2013 will be a high month due to the distribution of days.

December 2012 had five Saturdays, Sundays, and Mondays. Christmas and New Year's Day fell on Tuesdays, implying that Christmas and New Year's Eve fell on Mondays and could result in lower claims costs for both of those days as each would be part of a four-day weekend. In 2013, Christmas Eve and New Year's Eve are on Tuesday with no corresponding adjustment for being part of a four-day weekend. Note that there is some subjectivity to the four-day weekend adjustment but it is recommended to be a half-day of claims for Christmas Eve and New Year's Eve combined.

December 2012 had 29.0 day units comprised of 28 days (four weeks) plus 0.400 (a fifth Saturday) plus 0.300 (a fifth Sunday) plus 1.300 (a fifth Monday) less 0.500 (Christmas Day holiday adjustment) less 0.500 (adjustment for the fact that Christmas Eve and New Year's Eve are part of four-day weekends). December 2013 has 1.400 more day units than December 2012 due to the replacement of the fifth Saturday with a fifth Tuesday ($0.900=1.300-0.400$) and elimination of the 0.500 reduction for the four-day weekends. This means that December 2013 should be approximately 4.8% higher than December 2012 in addition to trend.

There were some bad winter storms across the United States this month, with freezing rain and snow. To the extent that there were more major storms this year than last year, a reduction in claims may be made. For example, in Upstate New York, claims can be reduced for snowstorms producing eight inches of snow or more on any given day. This adjustment would be different for other areas of the country.

Estimated Incurred November 2013
By Jeff Adams December 2, 2013

Some areas of the country may have an adjustment due to the major storm that passed through the country in November 2013. In Upstate New York it takes about eight inches of snow to affect health care costs. The adjustment that I usually make would be a reduction in health care costs by 50% of a day's costs if snowfall of at least 8 inches falls on any given day of the month. Multiple major snowfalls within a month may mean multiple adjustments but generally the adjustment for consecutive days of snowfall is less than 50% per day. A detailed historic study should be performed before this adjustment is to be made, although just the knowledge of major snowfalls affecting health care costs may help understanding reasons why claims came in different than expected. Remember also that "snow days" last year may mean higher trends if those snow days do not recur this year.

From the Days Study perspective, November 2013 has five Saturdays versus five Thursdays in November 2012. This means a reduction in costs of $(1.200 - 0.400 =) 0.800$ days of health care costs from last year, ignoring trend. Roughly trending November 2012 and then reducing the result by approximately 2.7% would give an incurred estimate for November 2013, although the actuary should look at changes in many other dynamics such as seasonality changes such as those due to benefit changes or abnormally high or low instances of viral infections in 2012 or 2013.

Keep in mind that December 2013 will require a substantial increase due to the Days Impact so it is best to be a little conservative in the November 2013 incurred estimate rather than aggressive.

Estimating Incurred October 2013
By Jeff Adams November 5, 2013

There is minimal adjustment for the October 2013 Days impact. October 2013 has five Thursdays versus five Mondays in October 2012. The substitution of a Thursday value of 1.200 for a Monday value of 1.300 means a net reduction of 0.100 Days Units. This is a 0.3% reduction when divided by the 31.9 Days Units in October 2012. This is a very slight reduction and not much assistance for those who understated September 2013 incurred claims due to the lack of use of the [Days Study](#).

If you have performed an up-to-date detailed seasonality study then you will be able to more accurately estimate October 2013 from earlier months in 2013. October is generally a large incurred month and can be the largest incurred months of the year on a paid basis if deductibles are large. This is the month in which we start to get viral infections and other cold weather illnesses. The Seasonality study will guide you as to what to expect from a "normal"

October. Also remember that there are always random fluctuations in each month due to the number of large claims and high or low claim months due to outbreaks of diseases, weather issues, deductibles, out-of-pocket maximums, and other impacts. The actuary has to not only worry about situations arising in the current months but situations in the months from which the actuary is trending.

Estimating Incurred September 2013

By Jeff Adams October 7, 2013

The August 2013 Days adjustment was a reduction of 2.8%. As often happens, that means that the September 2013 Days adjustment is an increase of 3.2% to normal 2013 over 2012 trend. This extra load is due to there being five Mondays in September 2013 instead of the five Saturdays in 2012. That means one of last year's Saturday Day value of 0.400 will be replaced by this year's Monday Day value of 1.300. You can see the [Days Study](#) for more details.

If you have performed a detailed seasonality study then you will be able to more accurately project how September would compare to earlier months of 2013. Remember that there are always random variations in each month due to the number of large claims. There may also be high or low claim months due to outbreaks of diseases, weather, deductibles, out-of-pocket maximums, and other impacts.

Estimating Incurred August 2013

By Jeff Adams August 30, 2013

For those who did not use the Day-of-the-Week impact in July incurred estimates will have a chance to rectify this in August financial statement. August 2013 incurred claims can be adjusted down about 3% to reflect that there is one less Wednesday and one more Saturday in August 2013 than in August 2012. Wednesdays have a cost-day value of 1.300 (30% higher than an average day and Saturdays have a cost value of 0.400 (60% less than an average day). This gives a 0.9 cost-day decrease from August 2012 to August 2013 or roughly a 3% decrease. This adjustment excludes normal trends.

A [Days Study](#) should be performed based on actual historic data for the segment to which these adjustments will be applied. A detailed [trend study](#) should also be performed on each category for which a separate trend will be used. Seasonality studies should also be performed as costs vary by month of the year.

Estimating July 2013 Incurred Claims

By Jeff Adams July 29, 2013

July 2013 looks to be a high incurred month as compared to July 2012. In addition to normal 2013 over 2012 trend, July 2012 incurred claims per cost unit (such as members) per month would need to be increased by the Days Study adjustment of 3.3% and possibly an additional adjustment for higher than normal respiratory issues in some areas of the country due to higher

than average amounts of rain received in those areas.

As discussed in prior articles, incurred claims for a month such as July 2013 can be estimated in one of two methods: 1) Trending, with adjustments, from July 2012 and 2) Trending from a more recent period such as March 2013 through May 2013 and adjusting for seasonality and for other adjustments.

Both methods above have strengths and weaknesses. Unless a good seasonality study has been performed, Method 2 might lead to inaccurate results. Since good seasonality studies are rare, trending forward from the same calendar month of the prior year, with adjustments, is often recommended. The actuary will need to decide the most appropriate method, remembering that appropriate use of the chosen method is as important as the method type used.

Both methods require an analysis of differences between the base period which is to be trended and the estimation period. For example, this year appears to have a significant amount of respiratory disease due to damp weather in many areas of the country. To the extent that this is greater than the respiratory issues in July 2012, the July 2012 to July 2013 trend would need to be adjusted upwards. Other adjustments, such as for the number of large claims, may also need to be made.

Trending July 2012 and including an upwards adjustment of 4% may be warranted. This would include the 3.3% Days Study adjustment since July 2013 has an additional Friday and one less Sunday than July 2012. Sunday has the least amount of incurred claims of any day of the week and a Days value of 0.300. The 1.200 Days value for Friday results in an increase of $1.200 - 0.300 = 0.900$ in the number of "Cost Days" cost in July 2013. The additional 0.7% would be the increase due to the respiratory disease increase seen in parts of the country. A detailed Days Study and seasonality study should be performed to obtain more accurate results for your particular situation.

Estimating June 2013 Incurred Claims

By Jeff Adams July 1, 2013

For those who are still trying to recover from high incurred claims in April, June brings good news. June can be historically a good month but 2013 will also be a good month compared to June 2012. June 2013 has an extra Sunday in it versus June 2012's extra Friday. That means a reduction of $(1.200 - 0.300 =) 0.900$ day units or a reduction of about 3.1% versus the normal trend that would be used.

Allergies are an issue this year but they were an issue last year so the impact depends on your area of the country. Make sure that you fully recognize incurred claims this month because July may be somewhat unforgiving (3%) and any shortage in the current month financials will complicate an already-tight month of July.

Estimating May 2013 Incurred Claims

By Jeff Adams May 31, 2013

Estimating May 2013 incurred claims is fairly straight-forward as compared to the estimation of April 2013. Due to the impact of April not having Good Friday and having a fifth Tuesday,

April 2013 incurred claims should end up being about 5% higher than April 2012 in addition to trend. For example if your normal trend from April 2012 to April 2013 would have been 10% then April 2013 incurred claims would be 15%, roughly, higher than April 2012, including the 5% Days impact. Remember to recognize the higher April 2013 incurred claim levels in your May 2013, they will not go away if you ignore them!

May 2013 has little adjustment from May 2012. May 2013 has five Wednesdays, Thursdays, and Fridays while May 2012 had five Tuesdays, Wednesdays, and Thursdays. Both Mays had one holiday, namely Memorial Day. Allergy issues are severe in 2013 but they were also severe in 2012. That means the only difference between May 2012 and May 2013, other than the trend, is that we need to adjust for eliminating a Tuesday (1.300) and adding a Friday (1.200). That 0.100 day reduction equates to a 0.3% reduction in trend. For example, a 10% trend excluding the Days impact would become a 9.7% impact including both trend and the Days impact.

As always, adjustments would need to be made for abnormal changes in provider contracting, utilization management practices, and systems updates impacting claims. In the absence of these the actuary would be safe using a normal trend to go from May 2012 to May 2013. The actuary could reduce the trend by 0.3% but due to regional variations in the Days impact it may be wise to just use trend.

Estimating March 2013 Incurred Claims
By Jeff Adams April 2, 2013

March is generally one of the highest incurred months of the year. One obvious reason is that March is one of seven months that has 31 days. Other reasons may depend on the benefits being analyzed. As stated often, a detailed study should be done to determine the exact monthly seasonality as it will vary by the set of benefits, payor, or provider being analyzed. For example, a pharmaceutical valuing seasonality will probably show the number of days in the month as the major component of its seasonality while a physician group valuing seasonality will have this as a factor along with other seasonal factors such as viral diseases occurring in winter, etc. Physician and dental services would be more impacted by the Days of the Week impact than pharmaceutical. More specific instructions as to how to do the seasonality and Days of the Week studies will follow in future articles.

March 2013 incurred claims can be obtained through different methods. The two major methods, trending forward incurred claims from the prior March and trending forward incurred claims from a period other than the prior March.

Trending from March 2012 to March 2013

The precise calculation adjustments for estimating the March 2013 incurred claims depend on the method of calculation. For example, many estimates would be obtained by performing a detailed study of expected annual trends for months prior to March 2013 and then using this trend to trend March 2012 incurred claims forward into March 2013.

For many medical benefits, March 2013 is the first month in which 2013 over 2012 trends can realistically be analyzed. January 2013 has three months of paid claims (January, February, and March 2013) and may be sufficiently complete to warrant trend analysis. Care should be taken, however, as monthly incurred estimates for many medical benefits after three months of paid claims may still deviate by several percent from later, more accurate, estimates that use several more months of paid claims data. For some benefits, such as prescription drugs, February 2013 may be used in trend analysis if accompanied by a Days of the Week adjustment. If a Days analysis has not been done then trend analysis should not be done on any period less than six months, especially given the impact of the Leap Day, February 29, 2012.

The Days study for March 2013 shows that, for a medical benefit, the anticipated March 2013 over March 2012 trend should be lowered by 2.9% due to the impact of Good Friday being in March this year and the fact that March has one more Saturday and one less Thursday than March 2012. As an example, if the analysis of the annual trends shows that an annual trend of 9% annual trend is warranted then this should be lowered by 2.9% to give an adjusted trend of roughly 6%. As always, this Days adjustment may be substantially different for other types of benefits. For example, pharmacy may have a smaller adjustment since pharmacies are open on both Good Friday and Saturdays. The reduction for dental may be greater if the dentists' offices are closed on both Good Friday and Saturdays. A detailed Days of the Week study should be done in order to accurately estimate the impact on all blocks of business.

The trend used to adjust March 2012 claims to March 2013 should also take into account any abnormal situations in either month. For example, if claims in March 2012 were artificially low due to a major snow storm in that month and no such event happened in March 2013 then the trend may need to be increased by 1.5% or so.

When trending from March 2012 to March 2013, care should also be taken to adjust for the unit cost increase specific to March 2013 over March 2012. This means the trend analysis should be based on trends excluding the Unit Cost Index, as described in previous articles. Once the non-Unit Cost trend has been obtained then the March 2013 over March 2012 increase in Unit Cost Index would be applied to this trend to obtain the total trend. If no schedule of allowance or chagemaster increase occurred in March 2012 or March 2013 then the unit cost increase for March 2013 over March 2012 will be similar to the Unit Cost increase for February 2013 over February 2012. The section below shows a sample calculation that shows how this works.

Estimating March 2013 Incurred Claims Based on Months Other than March 2012

Starting from an experience period other than March 2012 in order to obtain March 2013 incurred claims can be a little tricky as it involves the use of seasonality in addition to the use of trend and the Days adjustment. For example, an actuary may use November 2012, December 2012, and January 2013 to estimate March 2013 incurred claims since it may be felt that this period contains many of the environmental changes (such as utilization management changes, processing changes, etc.) that are not included in March 2012.

The actuary would need to perform the following steps to obtain March 2013 incurred claims:

1. Developing November 2012, December 2012, and January 2013 incurred claims by using a reserve model on claims incurred in these months using paid claims through March 2013.
2. Updating the Unit Cost Index to make sure it includes November 2012, December 2012, January 2013, and March 2013 factors.
3. Updating the monthly membership counts to make sure it includes November 2012, December 2012, and January 2013 membership.
4. Obtaining seasonality factors reflecting the portion of calendar year claims that would normally be incurred in November, December, and January such as 8.0%, 7.5%, and 9.1%, respectively. A seasonality factor for March also needs to be obtained, such as: 8.5% of annual incurred claims normally occur in March. The adjustment factors would be $(.01 \times \text{the } \%) / (1/12)$ for each month, leaving 1.080, 0.960, 0.900, and 1.092 for the four months.
5. Dividing the Incurred Claims obtained in 1 above by the Unit Cost Index from 2 above to remove any difference in monthly incurreds due to provider fee schedule changes.
6. Dividing 5 above by the membership in 3 above to obtain a Incurred Claim PMPMs for November 2012, December 2012, and January 2013.
7. Dividing 6 above by the monthly seasonality in 4 above to remove the impact of seasonality from the monthly incurred estimated PMPMs.
8. A representative PMPM should be chosen for the November 2012 through January 2013 time period. This can be obtained by taking a straight average of the PMPMs in 7 above for November 2012, December 2012, and January 2013 or can be a weighted average based on membership.
9. An annual trend rate, excluding the impact of fee schedule or other unit cost increases, since this will be added back in using the Unit Cost Index, should be determined that will be representative of the annual trends for late 2012 and the first quarter of 2013.
10. The annual trend from 9 above will be applied to the average PMPM for November 2012 through January 2013 to obtain a March 2013 trended PMPM. This would be applied from midpoint to midpoint. The midpoint of November 1, 2012 to January 2013 is December 16 and the midpoint of March 1 to March 31 is March 16. December 16 to March 16 is three months so the November 2012 to January 2013 average PMPM would be trended by $(1 + \text{annual trend})^{(3/12)}$.
11. The PMPM from 10 would then be multiplied by the March 2013 membership, seasonality adjustment, Unit Cost Index Factor, and the Days adjustment, if applicable, to obtain the March 2013 final incurred estimate.

Here is a sample calculation:

| <u>Month</u> | <u>Paid through Mar-13</u> | <u>Completion Factor</u> | <u>Incurred Claims</u> | <u>Members</u> | <u>Unit Cost Index</u> | <u>Seasc Fa</u> |
|--------------------------|----------------------------|--------------------------|------------------------|----------------|------------------------|-----------------|
| <i>Historic Months -</i> | | | | | | |

| | | | | | | | |
|--------------------------|-----------|-------|-----------|-----|-------|-------|-----|
| Nov-12 | \$120,732 | 0.897 | \$134,595 | 837 | 1.233 | 0.960 | \$1 |
| Dec-12 | \$113,774 | 0.885 | \$128,558 | 861 | 1.234 | 0.900 | \$1 |
| Jan-13 | \$149,218 | 0.836 | \$178,490 | 942 | 1.284 | 1.092 | \$1 |
| | | | | | | | |
| <i>Projected Month -</i> | | | | | | | |
| Mar-13 | | | | 948 | 1.287 | 1.060 | |

In this example we will take a straight average of the three months to obtain the PMPM to be used as the base November 2012 through January 2013 PMPM. This gives us $(135.85+134.44+135.14) / 3 = 135.14$. The \$135.14 Net PMPM for November 2012 to January 2013 is the starting point to which Unit Cost Index, Seasonality, Days, trend, and membership adjustments will be made.

Since the Unit Cost Index and Seasonality factors have been taken out of the Net PMPM entirely then they need to be multiplied back in. This will then be multiplied by the March 2013 members. The net result is $\$135.14 \times 1.287 \times 1.060 \times 948 = \$174,774$, this being the untrended incurred claims. If we assume the trend analysis shows that a 9% annual trend is appropriate then trending from midpoint of the experience period to midpoint of the estimation period gives $\$174,774 \times 1.09^{(3/12)} = \$178,580$.

The final adjustment would be an adjustment for the Day-of-the-Week impact. The adjustments in the previous paragraph are based on an average year and average months within that year. Each year is different due to the number of each day of the week in the periods being analyzed. In previous write-ups we have shown the days impacts to be 0.993, 0.957, and 1.030 for November 2012, December 2012, and January 2013, respectively, for an average of 0.994 for the experience period. The Days adjustment factor for March 2013 is 0.971. This leaves the Days adjustment factor to go from the experience period to March 2013 to be $0.971 / 0.994 = 0.977$. The final March 2013 incurred estimated is, thus, $\$178,580 \times 0.977 = \$174,473$.

Summary

These are two of the more prominent methods for estimating incurred claims. The various methods have strengths and weaknesses depending on the underlying information available and the type of benefit being analyzed. Please contact Jeff Adams at jeff.adams@health-actuary.com if you have any questions or comments.

Estimating February 2013 Incurred Claims
By Jeff Adams **February 24, 2013**

Estimating February incurred claims can be almost as difficult as estimating January incurred claims. The main difference is that much of the analysis, such as analyzing provider/payor contracts, benefit changes, and demographic changes have already been reviewed as part of the January estimation. The problem is that there is not enough actual information in yet for January to know if these analyses were accurate. As discussed in last month's incurred estimation narrative, January 2013 was expected to be high as compared to January 2012 with a simple trend forward to 2013. With February paid claim information January 2013 only has two months of paid claims and its estimate is still subject to fluctuation. In the absence of good information to the contrary, January 2013 assumptions should probably be left in place for the estimation of February 2013 incurred claims.

One reason January 2013 was expected to be high was the high frequency of flu and other illnesses this year. The frequency peaked early in February, earlier than usual. February 2012 was very warm in many parts of the country and there may not have been a high prevalence of these diseases last year. Historic studies of flu and respiratory disease frequency in February could allow use of a "normal" frequency of respiratory diseases versus the frequency seen in February 2012.

The days analysis will show a lowering of the trend since last February 2012 had 29 days and this February 2013 has 28. February 2012 had five Wednesdays versus four of every other day of the week. The total days units for February 2012 is, therefore, $28 + 1.3$ (the day unit value of a Wednesday). Since February 2013 has four of every day then its day unit value is 28. The factor to apply to trend for the impact of the days factor is $28.0 / 29.3 = 0.956$ or a 4.4% cost reduction. In areas where snowstorms have occurred there may be decreases due to the affect of bad snowstorms on health care costs. Similarly, if snowstorms occurred last year and not this year then trends may need to be increased this month to offset the artificially low February 2012 claims.

The day adjustment for February 2013 is a 4.4% reduction but that does not include any adjustments for the flu or snow or ice storms. Also, remember that there was a significant increase in costs in January due to the days factor and the high frequency of flu and other viral diseases. Do not decrease your February 2013 incurred claims if you have not fully reflected the abnormally high January adjustment. Understating incurred claims can, in certain situations, put an organization in a hole out of which it may take years to dig.

Estimating January 2013 Incurred Claims

By Jeff Adams

January 28, 2013

January can be the most difficult month for which to estimate incurred claims due to the changes in the health care environment as of the first of each year. Many policyholders gain and lose coverage or switch to different policies. Provider contracts generally change financial terms as of the January 1 or provider chargemasters may be changed. Many other more subtle factors may cause changes to costs for the month. It is important to apply all that we know especially since, as much as we try, we will not know all the changes that occur in January when we calculate the accruals for the January financial statement. If we do a good job finding and evaluating the known changes and estimating their impact, hopefully the changes that we find later will be insignificant. Always keep in mind that actuarial estimates are very difficult and are our best estimates given the data available. It is not an embarrassment to be off on the estimates, as long as the reason is not negligence. Events happen that alter the environment that cannot be anticipated. We must learn from these events and go on.

The Days adjustment for January 2013 is a 3.0% increase over January 2012. This is due to the fact that January 2013 has five Tuesdays, Wednesdays, and Thursdays compared to five Sundays, Mondays, and Tuesdays in January 2012. We are basically substituting a 1.300 cost day for the Sunday cost day value of 0.400. This 0.900 day increase represents a 3.0% increase in total costs for the month. As often is the case, however, it is not that straightforward. January 1, 2012 was on a Sunday. The holiday effect of reducing January claims due to the New Year holiday by 0.500 cost days is not possible since the total cost value of a Sunday is only 0.400 (Sundays' costs are 40% of an "average" day). Arguably there would be minimal adjustment in January 2012 due to New Years Day as the cost reduction might have occurred on Friday December 30, 2011. As a result, it can be argued that the days' adjustment might be closer to a 1.5% increase from January 2012 to January 2013. The days adjustment implies that if January 2013 incurred claims are obtained by trending January 2012 forward then the trend used should be increased by 1.5% or 3.0% depending on the intended conservativeness.

When estimating incurred claims for a month it may be necessary to adjust for specific events occurring in that month. For example, January 2013 has shown incidence of flu and viral infection substantially higher than previous years. Application of an annual trend would not adjust for this inflated level of these illnesses in this particular month. This is a situation where a study of monthly seasonality would be very useful. Quantity and type of claims vary by month of the year. January tends to be one of the highest months due to winter illnesses such as flu and viral infections. It is possible that people postpone more elective medical procedures until after the holidays and there is a resulting rush to have these procedures performed in January. A study of monthly seasonality would show the types of services and conditions that occur in January and can give an idea of the expected costs of respiratory illnesses in a normal January. This study would probably have shown that January 2012 had lower than average cases of flu and viral infections and may have encouraged the actuary to

increase annual trends into 2013 as a result, although this would spread the impact over the entire year and might not have a substantial impact on incurred claims estimates for any given month. News reports, flu prescription drug data, and other information should indicate the level of excess flu and viral infection claims in January over an "average" January. If available this should be added into the January incurred claim estimate.

Other information can also be used to adjust incurred claims estimates. Inpatient pre-authorization files can be used if they are properly maintained and analyzed. Use of this data is usually more of a general directional guide than an item that can be input into a formula to determine incurred claims. It cannot be assumed that this file will include all inpatient claims but it can assist in assessing whether inpatient claims will be above-average, average, or below-average. In some cases the pre-authorization file can be inclusive enough to apply a percent, such as 10%, for missing claims although other analysis would need to be performed before a final estimate is obtained. Likewise, prescription drug information is received and paid much quicker than other claims and may be used to assess claims levels for items such as flu and viral infection.

Quantifying trends and using them properly is critical in obtaining an accurate incurred claims estimate for any month and January 2013 is no exception. If January 2012 is used as the basis for January 2013 incurred claims then one year of trend is applied. If any other month or combination of months is used then a combination of trend and seasonality needs to be used. For example, if the quarter July through September 2012 and five months of trends are used to obtain an estimate of January 2013 incurred claims then the result may be an understatement of the incurred claims depending on the seasonality of January versus July, August, and September. Often these three months are significantly lower than January. As in most things in health care, substantial variation exists across the marketplace so a seasonality study should be performed by each entity. Provider fee schedules also tend to change in January so using five months of trend would underestimate the impact of these fee schedule changes.

Trends should be obtained by analyzing at least two components: unit cost (provider fee schedules) and other (utilization and mix of services). It is also helpful to break down the other into utilization and mix of services if the utilization data is reliable. Use of unreliable utilization data can cause substantial problems and is worse than not using utilization data at all. Monthly unit cost indices should be developed for the previous 36 months, using one of those months as the 1.000 or base month. Each subsequent month would be adjusted if provider schedules changed for any portion of the providers with possible claims in that segment of business. For example, if the Physician Index was 1.000 in December 2010 and fees for physicians representing 50% of the claims in that claims bucket had schedule of allowance increases of 3% on January 1, 2011 then the January 2011 Physician Index would be $1.000 \times (0.030 \times 0.500) = 1.015$. These unit cost indices would be continued into the future using the latest possible information available. Historic trends could then be broken

into unit cost and utilization/mix of services or even finer categories. Since future unit cost increases can be estimated based on negotiated contracts and anticipated contracts then the use of this index to trend forward lessens a portion of the trend variability. These indices can also be used by the various areas within the actuarial and underwriting units for increased accuracy and consistency. Utilization and mix of services would then be analyzed to obtain a projected future trend for these components.

A Benefit Value Index may be helpful also. Employers and individuals tend to purchase lower benefits as costs continue to rise. Thus, a 6% trend might have been 9% if there had been no benefit buy-downs. To the extent that the buy-downs are consistent from year to year, this index might not be necessary but if the data is available it may assist in accurate incurred claims estimation.

If demographics were to significantly change then this would be incorporated also. This might happen if significantly different benefits were offered or a substantial new group or segment of employees was gained or lost.

What does this all mean? As an example, let's say we use the full 3.0% days impact. Let's say we also use 2% as the impact of the flu and viral disease incidences in January 2013 above and beyond what was seen in January 2012. That would imply that if trending forward from January 2012, 5% would be added to the trend. The Unit Cost portion of the trend would be the Provider Index value for January 2013 divided by the Provider Index value for January 2012. The utilization and mix of services portion of the trend would be one year of trend based on the analysis of prior total trend less the unit cost portion and adjusting for any known differences in the historic trends versus the expected trend from January 2012 to January 2013, such as for demographics, etc.

The calculations, if using a period other than January 2012 as the base, can be significantly more difficult due to the impact of seasonality on the individual months. If another period is used then, as part of the analysis of the trend, trend and seasonality differences for the second portion of the year versus the first portion of the year should be analyzed to determine if the trend is changing or the differences in incurred levels are a result of seasonality. More detailed narratives can be obtained from Adams Actuarial LLC upon request.

The bottom line is that analysis of any possible changes from the period being trended from versus the period being trended to is necessary. To be a number-cruncher and just use formulae will cause problems. Seasonality by month and by day are important factors when obtaining incurred claims for a period less than a year or if the base period is less than a

year. The old rule of trending from midpoint to midpoint might be useful in some situations but is not the most accurate method in many others. January is the month that normally requires the most analysis and ingenuity due to the amount of changes taking place in that month.

In summary, January 2013 incurred claims should be increased by at least 3% over a trended January 2012. Many will want to increase this even more for additional conservatism on the impacts of the days factor and flu incidences. It is best to slightly overstate claims rather than understate them, although it is best to estimate them exactly! So, the bad news is that January incurred claims need to be increased but the good news is that there will be a little relief in February.

Also, if anybody has estimate the impact of the incidences of flu and other respiratory disease in January 2013 I would love to hear from you as I have no information on it to date. Also, I have not seen a good, detailed seasonality study to date so let me know if you have one of these.

December 2012 Monthly Incurred Claims
By Jeff Adams January 2, 2013

December can be one of the lowest incurred months in a calendar year and this year should reveal that December is even lower cost than usual. If December 2012 incurred claims are determined by trending forward from December 2011, a downward adjustment of 4% can be justified. For example, if the normal trend is 9% then the December 2012 over December 2011 adjusted trend is $(9\% - 4\% =) 5\%$. Of course, conservatism is warranted if you have not performed your own Days Study as understatement of incurred claims can cause significant long-term difficulties.

December 2012 has four weeks plus an extra Saturday, Sunday, and Monday. This implies that there are $28 + 0.4 + 0.3 + 1.3 = 30.0$ cost days. Additionally Christmas falls on a Tuesday so the Days are adjusted by the "Major Holiday" reduction of 0.5 for an adjusted total of 29.5. Also, Christmas is located on a Tuesday, which means there will be a reduction of claims on Monday, December 24th also. The model uses a reduction of 0.5 for the "four-day holiday" but this adjustment should not be made unless the data in your particular study verifies this adjustment. The total December 2012 Adjusted Days Cost Units including the Four-Day Holiday is 29.0.

December 2011 had an extra Thursday, Friday, and Saturday resulting in $28 + 1.2 + 1.2 + 0.4 = 30.8$. Christmas is on Sunday and this results in the "Major Holiday" reduction of 0.5, although this savings would theoretically be from Friday, Saturday, and Sunday. The total December 2011 Adjusted Days Cost Units is 30.3.

The resulting Days Unit Adjustment Factor is $29.0 / 30.3 = 0.957$. This is a $(100\% \times (1 - 0.957) =) 4.3\%$ reduction in trend. Note that this includes the "Four-Day Holiday" adjustment. If you have not performed a study on your own data to verify this then you should probably not use it, although this may mean that you have a little conservatism in your cost estimates. Without the "Four-Day Adjustment" the adjustment factor would be 0.973 with a trend reduction of 2.7%.

Finally, there was a major winter storm in many parts of the country in late December 2012. This may result in additional reductions in claims costs. For Upstate New York this adjustment would be -0.500 if any weekday had a snowfall of 8 inches or more. Thus, for Upstate New York the Days Units would be $29.0 - 0.5$ or 28.5, resulting in a final trend reduction of 5.9%. This weather reduction may not be made unless you have performed your own study since results vary by specific region of the country.

The figures above represent those for a standard health insurance company or HMO. If the data is hospital data only, physician data only, prescription drug data only, dental data, etc. then you will need to perform your own study before using any adjustment factors. Additionally, even insurers, HMOs, and other such entities should perform studies as the factors may vary by the dynamics of the region in which the entity operates. Also, changes in health care access may cause factors to change over time.

Bottom line, without performing your own study you can reduce your December trend by 2.7% to reflect the days impact. Generally an adjustment for Christmas Eve is warranted changing this reduction to 4.3% but this adjustment should not be made unless you have performed your own days study. Likewise a weather adjustment should not be made unless you have performed your own study. I recommend that you perform your own study to assist you in forecasting, budgeting, and monthly financial statement preparation. These studies are not overly difficult to perform. Feel free to contact me if you need assistance.

By Jeff Adams

December 4, 2012

It does not seem possible but it is already December, all signs point to it: We have had our first snow, days are short, a cold wave is coming, and my Beloved Buffalo Bills are once again out of the playoff hunt. This article will briefly discuss November incurred claims, since it is a non-event as far as the Days analysis goes, and will also discuss the importance of accurate monthly estimates and briefly how to obtain an accurate estimate.

The days study shows that the trend from November 2011 into November 2012 should be reduced by 0.7% in order to adjust for the Days impact, a fairly insignificant adjustment. November had five Thursdays and Fridays while November 2011 had five Tuesdays and Wednesdays. Since Thursdays and Fridays are just slightly lower cost than Tuesdays and Wednesdays then this results in a slight adjustment downward.

Accurate estimation of monthly incurred claims can be critical for a variety of reasons, including maintaining the financial stability of a company. Accurate monthly estimates allow for better monitoring of the variances of the financial statements from the budget, quicker and more accurate reactions to changes in trends, and more accurate rating.

The most visible direct impact of accurate monthly incurred estimates is more stable and reliable monthly financial statements. Failure to accurately estimate incurred claims on a monthly basis can lead to unknown variances to budgets and adjustments to the financial statements due to overstated or understated incurred claims appearing in prior statements. As an example, many of you who do not use the Days impact in setting monthly incurred claims have probably underestimated your October 2012 incurred claims in your October 2012 financial statement as the Days study showed an additional 6.3% should have been added to trend to estimate the October incurred claims. This shortfall in the October incurred estimate will now appear as a prior period adjustment in the November 2012 statement, assuming you acknowledge the shortfall.

Additionally, an accurate budget may show financial gains in some months and losses in other months due, in part, to claims variability by month. Accurate monthly incurred estimates in both the financial statement and budget can show significant variations from budget almost immediately instead of waiting a few months and hoping the difference goes away. The sooner issues are identified the sooner they can be resolved, saving the company from unnecessary losses.

Timely trend analysis is dependent on accurate monthly incurred estimates also. If the monthly trends are accurate you may have actionable trend analyses with only three months

of trends or less. If a company does not use Days methodology then 2012 would be a difficult year to analyze trends without eight or nine months of trend. The Leap Day in 2012 can double the Days impact in some months. You can perform a quick analysis to prove to yourself that the Days analysis works. Use the factors in the following table as part of your trend analysis:

| <u>Trend From</u> | <u>Trend To</u> | <u>Adjustment</u> |
|-------------------|-----------------|-------------------|
| January 2011 | January 2012 | 1.027 |
| February 2011 | February 2012 | 1.046 |
| March 2011 | March 2012 | 0.969 |
| April 2011 | April 2012 | 1.000 |
| May 2011 | May 2012 | 1.030 |
| June 2011 | June 2012 | 0.970 |
| July 2011 | July 2012 | 1.034 |
| August 2011 | August 2012 | 0.994 |
| September 2011 | September 2012 | 0.943 |
| October 2011 | October 2012 | 1.063 |
| November 2011 | November 2012 | 0.993 |
| December 2011 | December 2012 | 0.970 |
| July 2011 | | |

For example, chances are that you overstated your September 2012 financial statement incurred claims, maybe by as much as $(100\% \times (1 - 0.943) =) 5.7\%$ and understated October incurred claims by as much as 6.3%. Likewise, by adjusting 6.3% out of the October 2012

over October 2011 observed trend, the 6.3% "known" increase from can be taken out of the otherwise abnormally high trend to obtain a more realistic representation of trend.

By applying the factors above you can now look at trends on a more short-term basis and be more reactive to possible problem areas. With November paid claim information you should now be able to analyze the third quarter 2012 trends.

Proper monthly incurred estimation is important in rating when the experience-period used in rating is less than a year. In order to annualize these experience-period claims you must adjust for seasonality differences by month. Accurate seasonality by month should include at least the following factors:

1. Changes in facility and provider payment schedules.
2. Days adjustment factor as discussed above.
3. Normal seasonality based on prior experience. Many factors can cause claims to vary by month. These include deductibles lessening months earlier in the benefit year, elective procedures more likely to be performed in certain months, and illnesses such as flu are more likely to occur in late autumn or winter.
4. Any other known change in population, benefits, claims processing procedures, or utilization management .

Doing your own analysis, such as a Days study is important. You obtain more accurate results and learn more from the process. Do not rely on a consultant to do these services for you, although we would be more than happy to do them. I prefer to assist the company so they maintain the knowledge and use it on an ongoing basis.

Feel free to contact me if you have any questions or comments.

Days Study Shows Incurred October 2012 Claims Will Be High

By Jeff Adams

November 19, 2012

Health actuaries - don't underestimate October 2012 incurred claims. October has 5 Mondays, Tuesdays, and Wednesdays and these happen to be the highest cost days of the week. Weekdays tend to have three to four times the amount of claims as weekend days, although

that does depend on the type of claim at which you are looking. For example, drug stores tend to be open on Sunday and physician/dentists' offices do not, thus affecting the distribution of claims by day of the week. October 2011 had five Saturdays, Sundays, and Mondays so was relatively lower cost than October 2012. In addition to perceived 2012 over 2011 trend you should increase your October incurred estimate by 6.3%. Contact me if you need additional information.