NCCI Holdings, Inc.

NCCI RESEARCH BRIEF

July 2012

by Jim Davis

Workers Compensation Claim Frequency—2012 Update

Overview

The Great Recession of 2007–2009 was the most serious and long lasting economic contraction since the Great Depression. The recession and its tepid recovery had a considerable influence on workers compensation claim frequency.

Claim frequency for workers compensation injuries increased 3% in 2010, marking the first increase since 1997. Claim frequency declined in 2011, albeit by a modest 1%. NCCI will continue to monitor the situation closely to see whether frequency will return to its historical long-term rate of decline.

This research brief is subdivided into three sections. The first section is based on NCCI's aggregate Financial Call data, which provides the latest available frequency information (through Accident Year 2011). Sections two and three are based on NCCI's ***Statistical Plan*** data. Though not as recent as financial data, ***Statistical Plan*** data contains detailed policy information that allows us to analyze frequency in more detail (e.g., by claim characteristics and by employer characteristics).

Key Findings

2011 Overall Trends

- Prior to the 2010 uptick of 3%, claim frequency had been declining at an average rate of more than 4% per year since 1990. According to preliminary estimates, lost-time claim frequency once again declined in 2011 by 1%.
- For indemnity and medical combined, the average cost per lost-time claim increased 3.2% in 2011.

Frequency per Payroll vs. Frequency per Premium

- Claim frequency measured relative to payroll (frequency per payroll) varies far more by class than frequency measured relative to premium (frequency per premium)
- Hence, changes in industry mix typically have a greater impact on frequency per payroll than on frequency per premium measures
- The decline in the construction industry resulting from the recession put downward pressure on frequency per payroll and upward pressure on frequency per premium

Frequency Changes by Claim and Employer Characteristics

- Based on ***Statistical Plan*** data, over the latest five complete policy years, which reflect data through policy year expiring (PYE) 2010:
  - Frequency declined for all industry groups, geographic regions, employer sizes, and claim types
  - Claims that are more likely to develop exhibited a larger percentage frequency decline than those considered not likely to develop
  - Claims involving injuries to the lower back declined at a higher-than-average rate, whereas the frequency of injuries to the arm or shoulder declined at a lower-than-average rate
  - Percentage frequency declines were successively smaller as size of loss increases
  - Percentage frequency declines were relatively consistent by type of injury

I. 2011 Overall Trends

As communicated at NCCI's ***Annual Issues Symposium 2012***, Exhibit 1 indicates that after increasing in 2010 for the first time in 13 years, lost-time claim frequency declined once again in 2011, by 1%. Though modest in comparison to the annual rate of decline in prior years, this suggests that the 2010 uptick may have been the result of recession-related factors such as an increase in new hires as the recovery began to take hold and a possible influx of small lost-time claims.

Prior to the 2010 uptick, injury rates had fallen nearly 57% from 1990 through 2009, an average decrease of more than 4% per year, with the only other increases occurring in 1994 and 1997. It remains to be seen whether frequency will resume this long-term rate of decline.

Exhibit 1 is based on NCCI's Financial Aggregate Data Call, representing experience for NCCI-affiliated carriers. The results for Accident Year 2011 are preliminary.

As measured here, accident year frequency for a given year is the number of lost-time claims per $1 million of earned pure premium adjusted to current average weekly wages and current voluntary loss cost levels.

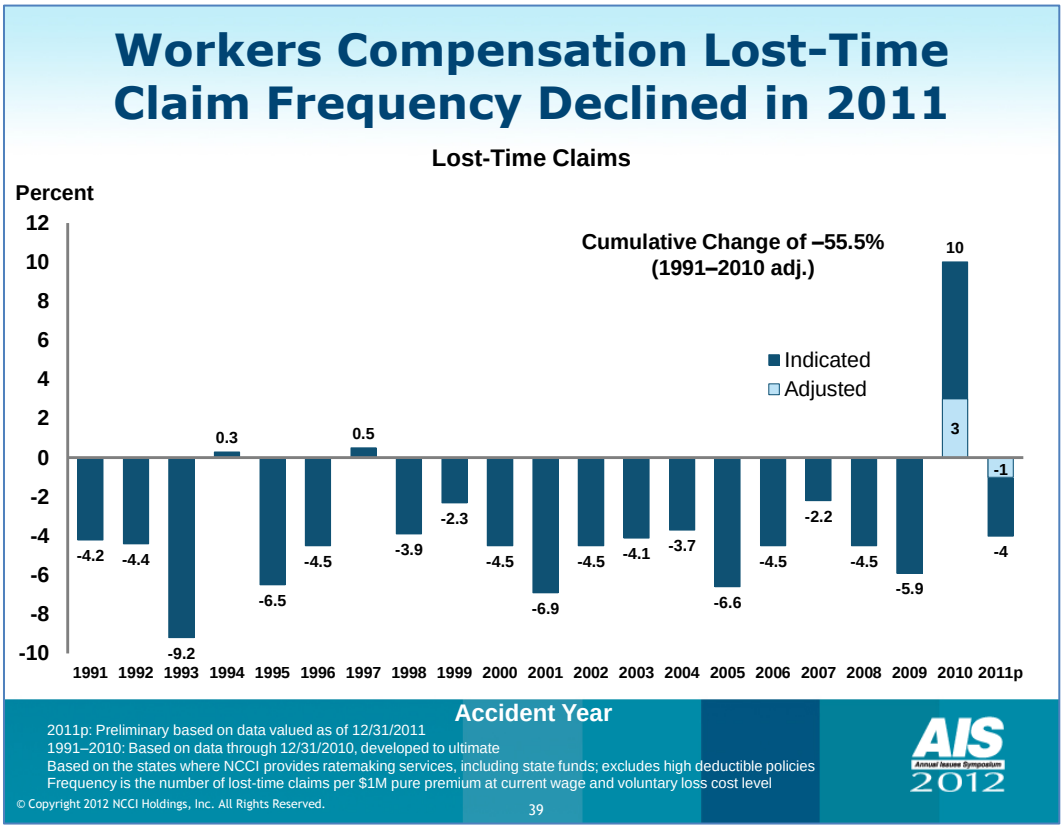

Exhibit 1: Lost-Time Claim Frequency Declined in 2011

The most recent recession is now viewed by most economists as the most severe economic downturn since the Great Depression. NCCI determined that several distortions in the data, stemming from the recession and subsequent recovery, had a significantly greater effect on

workers compensation frequency than would be expected in a normal economy.

NCCI's standard calculation yielded an increase in frequency in 2010 of 10% and, based on a preliminary analysis, a decrease in frequency of 4% in 2011. However, NCCI identified three recessionary factors that were distorting the standard frequency measure: change in industry mix, change in hours worked per week, and change in premium audits. Once adjustments were made for these factors, frequency was still up 3% in 2010 and declined by 1% in 2011.

The first recessionary factor analyzed was a shift in industry mix away from the construction sector in 2010, which continued in 2011. The contracting industry group generally has a lower frequency per premium than all industries combined. (See section below titled Frequency per Payroll vs. Frequency per Premium.) Hence, a decline in contracting puts upward pressure on overall frequency per premium.

The second factor studied was an increase in average weekly hours worked[1] in 2010 and 2011. Following decreases in 2008 and 2009 as a result of the recession, average weekly hours for all private employment increased during the recovery by approximately 0.6% in 2010 and 0.3% in 2011. An increase in hours worked per week is expected to generate an increase in claims, which, without a corresponding increase in number of workers, will put upward pressure on frequency.

NCCI estimates that the two factors above contributed approximately one percentage point to the indicated decline in frequency of 4% in 2011. That is, absent these two factors, the indicated decline would have been 5%.

The third factor, the impact of audit premiums, had by far the largest impact on the 2010 and 2011 changes in frequency. Under more stable economic conditions, premium audits typically produce additions to premium. However, during the recession, it became apparent that estimated payrolls overstated final payroll and, therefore, audits resulted in return premiums. This change in the direction of premium audits had a significant impact on the calendar year earned premiums, which are used in the denominator of the NCCI accident year frequency calculation.

[1] US Bureau of Labor Statistics, Current Employment Statistics (CES).

Exhibit 2 shows the dramatic impact that the recession had on premium audits. Most notably, the declines in premium audit adjustments that occurred during 2010 stemmed from policies with effective dates from late 2008 through late 2009. Following the recession, the premium audits have begun to rise toward historical levels.

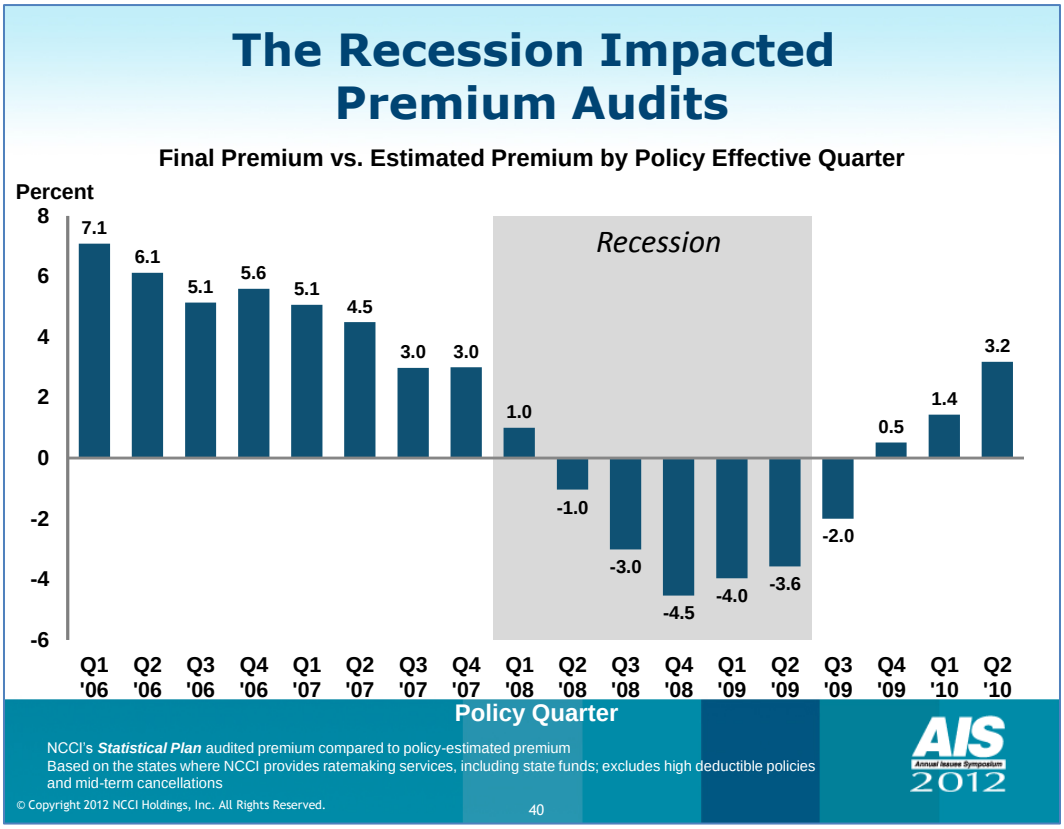

Exhibit 2: Recession Impacted Premium Audits

Audit premium adjustments booked (and earned) in 2010 from 2008 and 2009 policies were significantly lower than anticipated as a result of the recession. NCCI estimates that the Calendar Year 2010 premium *understated* the premium on actual exposures earned by 4%. In contrast, the Calendar Year 2009 premium *overstated* the premium on actual exposures earned by 2%. These distortions combined to produce a six-percentage-point overstatement in the claim frequency change for 2010 over 2009, as measured using calendar year earned premium.

Similarly, NCCI estimates a four-percentage-point understatement of the frequency change for 2011. This is based on the 4% understatement of Calendar Year 2010 earned premium noted above, coupled with NCCI's estimate that distortions to Calendar Year 2011 earned premium are minimal.

As displayed in Exhibit 3, the change in frequency from AY 2009 to AY 2010 of +10% reduces to +3% after adjusting for the three economic factors described above. Similarly, the change in frequency from AY 2010 to AY 2011 of –4% becomes –1% after these adjustments.

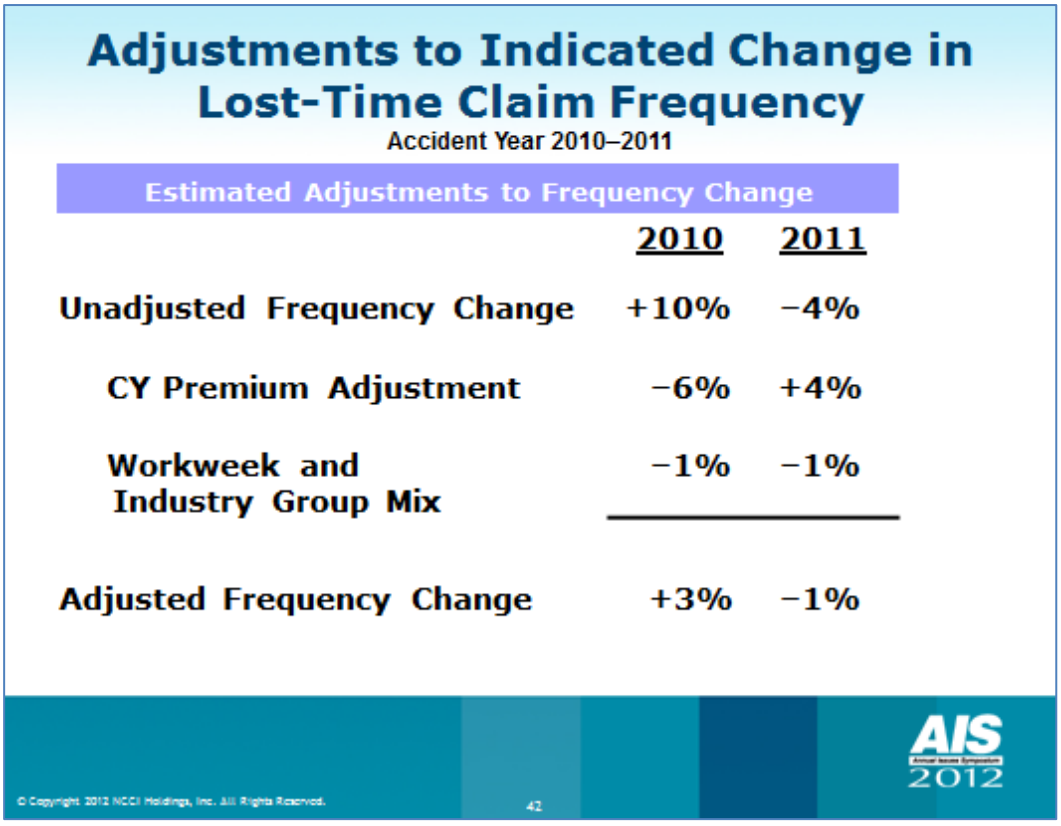

Exhibit 3: Frequency Changes Adjusted for Recessionary Influences

Exhibit 4 provides an alternate view of the frequency changes displayed in Exhibit 1. Specifically, the exhibit shows the relative changes in frequency level, indexed to 2001.

NCCI's economic research has long shown that an economic recovery will place upward pressure on claim frequency, particularly if the recovery is strong with large gains in employment. The current recovery has been much more modest, and although it officially began in the third quarter of 2009, it has taken longer to take hold. The unemployment rate has finally begun a slow steady decline, approaching 8% at the time of this writing, down from its peak of 10.0% in 2009. With workers returning to the workforce as the recovery continues, the potential for further increases in claim frequency will remain a concern for the industry. NCCI will continue to monitor the situation closely.

On average, frequency declines have more than offset increases in claim severity (in excess of wage inflation), contributing to cumulative decreases in loss costs in NCCI states over the last 20 years.

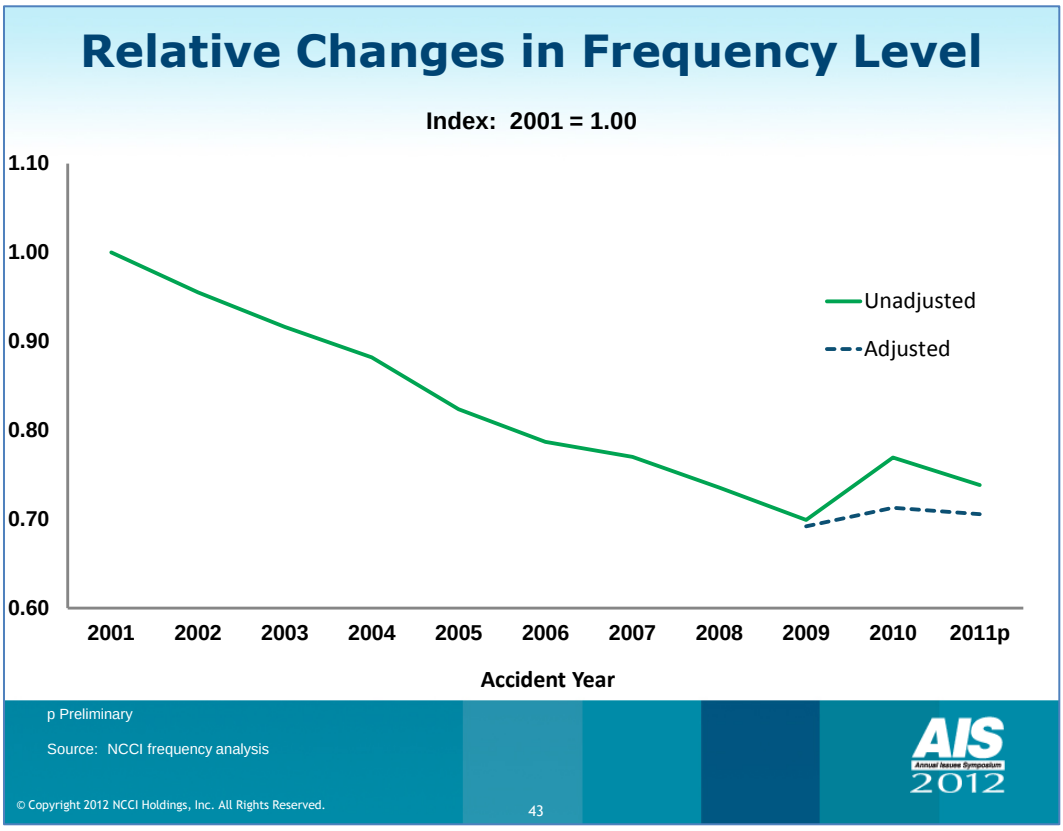

Exhibit 4: Relative Changes in Frequency Level

Several factors may have contributed to the abrupt halt in 2010 in the long-term decline in frequency:

- The increase was influenced by the firming job market and modest increase in employment since the start of the recovery in the middle of 2009. New hires generally have higher claim frequency than longer-term employees.
- Some have suggested that workers, fearful of losing their jobs, may have postponed filing workers compensation claims, but now appear less hesitant to file claims as the economy has

shown signs of modest improvement. While the extent to which this phenomenon has occurred is unclear and cannot be confirmed by NCCI, it may have contributed to the observed increase in claim frequency in 2010.

- There is evidence of an influx of small lost-time claims in 2010.

Last year, NCCI suggested that an influx of small claims might have contributed to the 2010 increase in frequency. Lending support to this argument was the fact that average claim costs remained relatively flat in 2010. For indemnity and medical combined, the change in average lost-time claim costs was 0% for 2010.

This year, we performed additional research that confirms this hypothesis. Using ***Statistical Plan*** data reported to date (policies effective through July 2010 and accidents through year-end 2010), we are able to compare claim trends by size.

Exhibit 5 indicates that lost-time claim frequency increased by 4% for accidents occurring in 2010 vs. 2009. This is consistent with the results that we have observed in the aggregate Financial Call data. In contrast, small lost-time[2] claim frequency increased by 6% during this period. It appears that this increase was a reversal of the significant drop in small claim frequency from 2007 to 2009. From 2007 to 2009, lost-time claim frequency decreased 8%, while small lost-time claim frequency exhibited a sharper decline of 11%.

These frequency changes by size of claim may have been influenced by the recent recession through changes in claiming behavior. As the recession deepened in 2008 and 2009, small claim frequency dropped more rapidly than larger claim frequency. As the modest recovery started, the frequency of smaller claims increased as the workforce stabilized and began to grow in 2010.

This pattern also lends support to the theory that individuals with less serious injuries may have been less inclined to file workers compensation claims in 2009 out of fear of losing their jobs, or not having jobs to return to. In 2010, with a recovering economy, rebounding 401(k) plans, increased job security, and less fear of layoffs, workers may have begun to file claims that, absent the recession, they might otherwise have filed in 2009. NCCI cannot confirm this theory, which remains conjecture at this time.

Exhibit 5 also displays a sharp decline in medical-only claim frequency over the 2007 to 2009 period of 12% (vs. 8% for all lost-time claims) followed by a 3% increase in 2010 (vs. 4% for all lost-time claims). It follows that the medical-only share of total claims has been decreasing over the entire three-year period, and would, therefore, not explain the 2010 spike in lost-time frequency.

[2] Small lost-time claims are defined as less than or equal to $2,000 at 1st report in 2010 dollars.

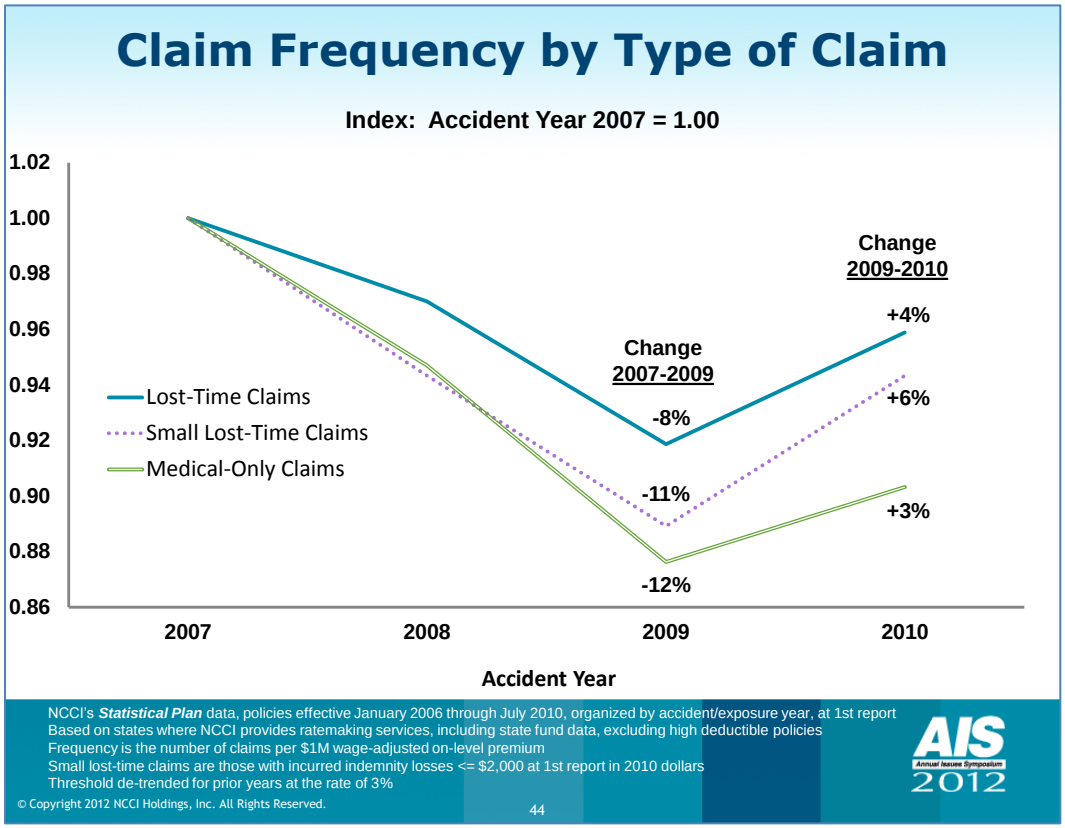

Exhibit 5: Claim Frequency Changes by Type of Claim

Exhibit 6 displays the average indemnity claim costs since 1991, along with the corresponding year-to-year changes. NCCI estimates that the average indemnity claim cost increased 2% in 2011. The 2010 increase in small lost-time claims noted above contributed to the 2.8% decrease in the average indemnity claim cost in 2010.

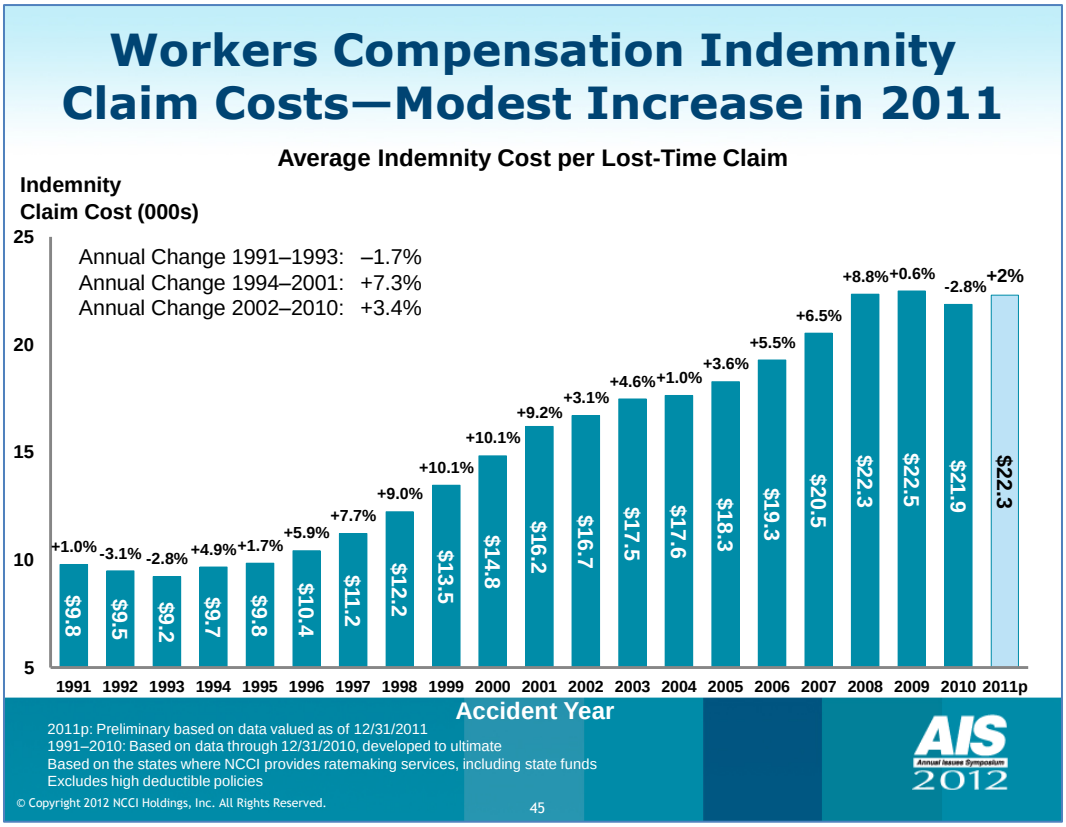

Exhibit 6: Change in Average Indemnity Cost per Lost-Time Claim

Similarly, Exhibit 7 shows that the average medical claim cost per lost-time claim increased by 4% in 2011. This follows a modest 1.3% increase in 2010, the smallest increase in medical costs associated with lost-time claims since 1993.

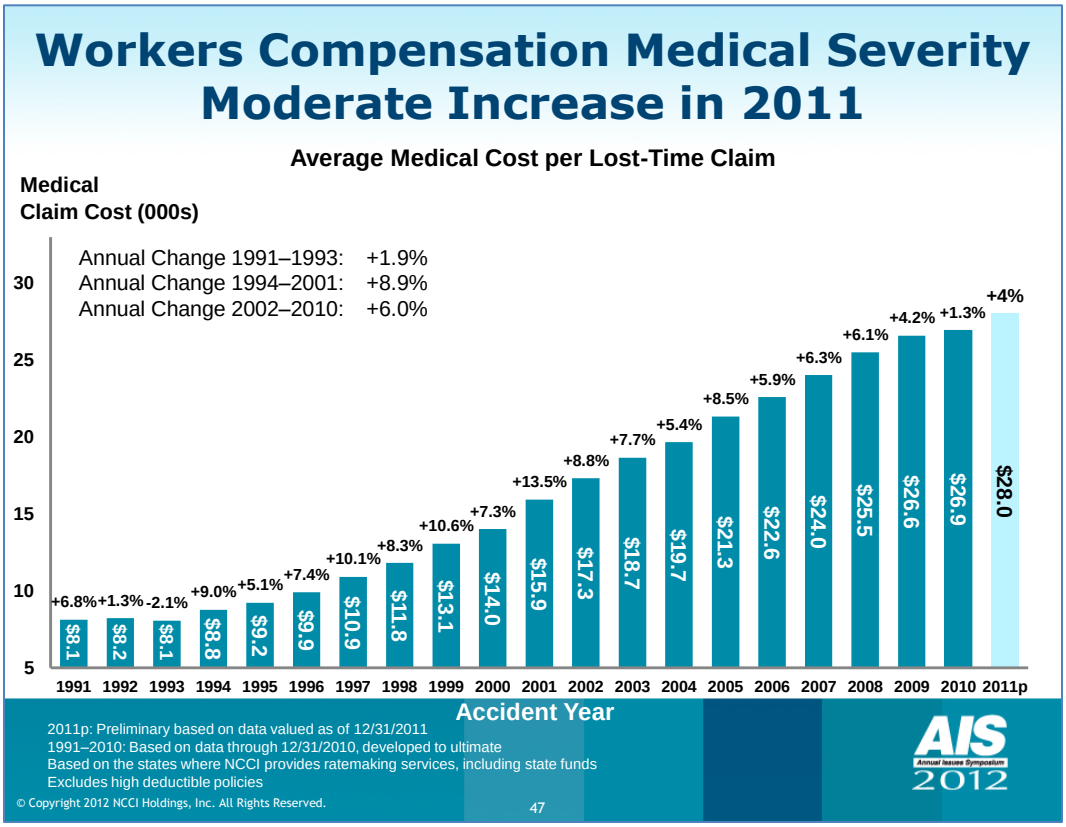

Exhibit 7: Change in Average Medical Cost per Lost-Time Claim

Exhibit 8 indicates that the growth in workers compensation average medical costs lagged the Medical Consumer Price Index (CPI) in 2010, but once again exceeded the Medical CPI in 2011. The Medical CPI is a measure of "price" inflation for all forms of healthcare and does not capture changes in utilization. Historically, increases in utilization (e.g., changes in number and types of treatments per claim, and changes in claim diagnosis) contributed significantly to the differences between changes in medical severity and the Medical CPI. Since 2001, the impact of utilization has subsided somewhat, primarily because the number of treatments per claim has remained fairly steady.[3]

While the underlying drivers of medical costs remain, the moderate growth observed in recent years may have been due to recessionary factors, such as the increase in small claims noted above and a decline in the construction industry, for which claim severity is approximately 50% higher than for all industries combined. Absent such shifts in the mix of claims, NCCI anticipates that the growth in workers compensation medical costs will continue to exceed the Medical CPI in years to come.

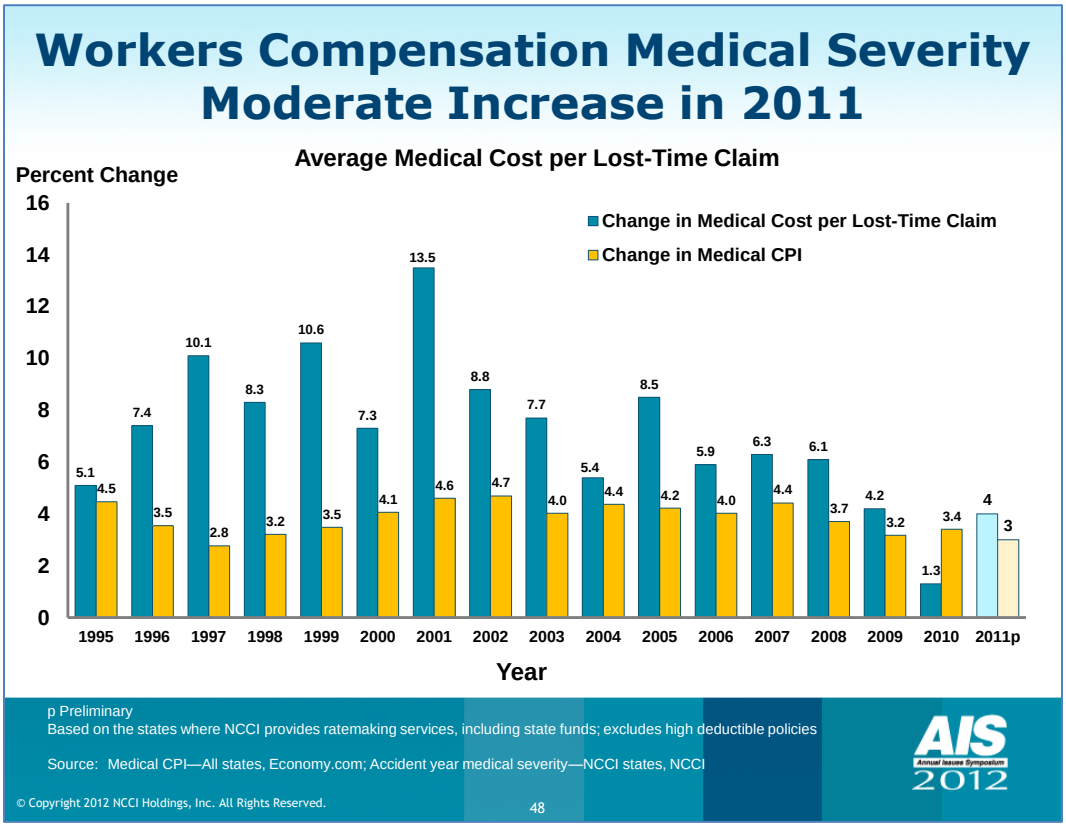

Exhibit 8: Workers Compensation Medical Cost Changes Relative to the Medical CPI

[3] See 2010 NCCI report, *Significant Changes in the Factors Driving Medical Severity; 1996–2001 vs. 2001–2006*, by Tanya Restrepo and Harry Shuford, NCCI 2010, available on **ncci.com.**

II. Frequency per Payroll vs. Frequency per Premium

The analyses discussed in the remainder of this paper are based on ***Statistical Plan*** data in states for which NCCI provides ratemaking services (excluding West Virginia).[4] Though not as recent as financial data, ***Statistical Plan*** data contains detailed information by policy that allows us to perform a variety of analyses.

The term "frequency" can be defined in many different ways. In this section, we examined two frequency measures for policy years expiring (PYE) 2006 through 2010. For this analysis, PYE 2010 was the latest policy year available from the ***Statistical Plan*** data. We explore how shifts in industry mix can have much different effects on these measures. The frequency measures used in this section are as follows:

> **Frequency per Payroll**—Lost-time claims at 1st report[5] per $1 million payroll, adjusted for changes in QCEW[6] average weekly wage by state through PYE 2010
>
> **Frequency per Premium**—Lost-time claims at 1st report per $1 million manual premium (rate times payroll), adjusted (on-leveled) to PYE 2010 average carrier rates by class and state, and adjusted for changes in average weekly wages

Note that the change in frequency per payroll is identical to the change in frequency per premium at the state and class level. This is due to the fact that we have adjusted (on-leveled) premiums to a current average carrier rate. Hence, when calculating a change in frequency per premium for a given class and state, the average rate cancels yielding the change in frequency per payroll.

[4] West Virginia became an NCCI state effective July 1, 2006.

[5] 1st report is valued 18 months after policy effective month.

[6] US Bureau of Labor Statistics: Quarterly Census of Employment and Wages.

On Exhibit 9, we have plotted the above frequency measures for two diverse classes, with frequency per premium on the horizontal axis and frequency per payroll on the vertical axis. The chart is divided into four quadrants.[7] The frequencies have been indexed to the average frequency for all classes in all NCCI states.

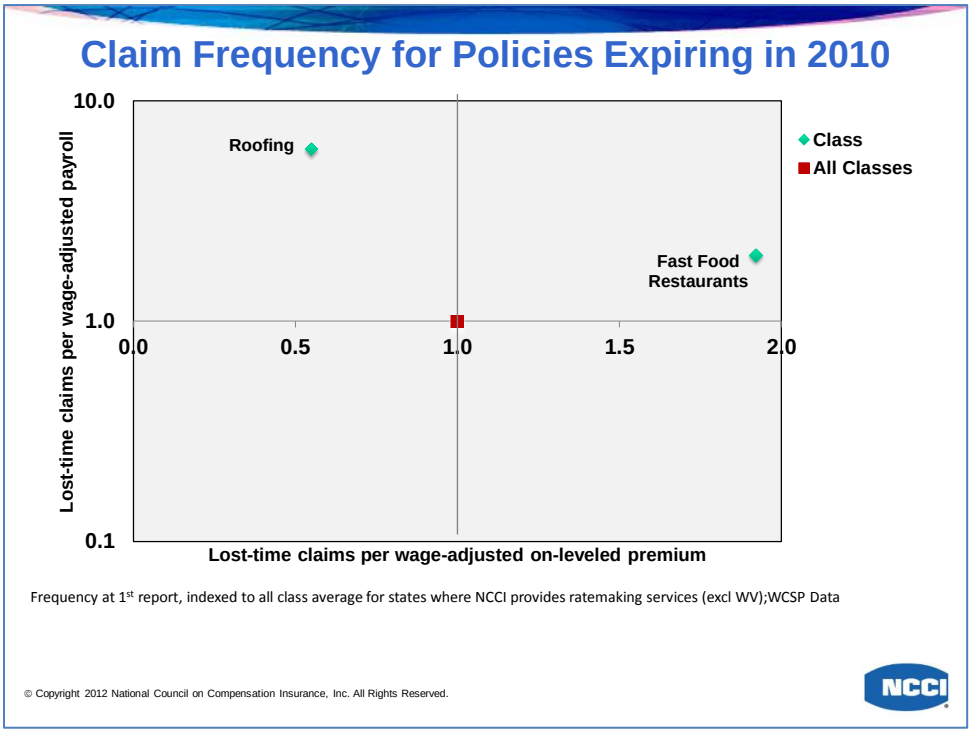

Exhibit 9: Frequency per Premium vs. Frequency per Payroll

The Roofing class appears in the upper-left quadrant. While this class has a very high frequency per payroll relative to all other classes, as expected, it has a relatively low frequency per premium. This is true for most construction classes because the high frequency per payroll is reflected via higher premiums. However, claim severity, which is also a component of premium, is also very high for the construction industry (about 50% higher than that of all industries). Hence, the ratio of claims to premium is low for this industry.

The Fast Food Restaurant class has slightly higher-than-average frequency per payroll, but significantly higher-than-average frequency per premium. This is due to a relatively low severity, in contrast with the Roofing class. The low severity might be attributable to lower average wages, relatively younger employees (who tend to heal faster), and a higher proportion of relatively minor injuries. The relatively high frequency may be the result of less experienced workers who tend to have higher injury rates.

[7] The vertical axis is on a log scale.

Exhibit 10 plots the frequency measures for the largest 50 classes in terms of premium volume in PYE 2010. Most of these classes have higher-than-average frequency per payroll and, therefore, appear in the upper quadrants. The reason that so many classes have higher-than-average frequency per payroll is that the average of all classes is greatly influenced by the clerical office class (Code 8810), which has extremely low frequency per payroll, as well as very high payroll volume.

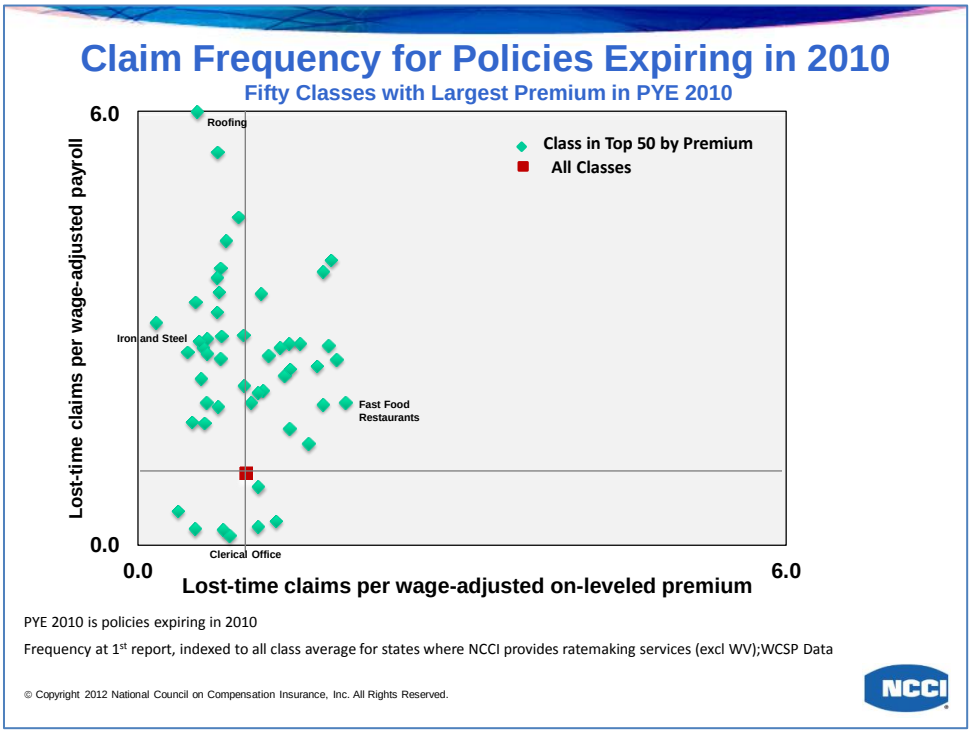

Exhibit 10: Top 50 Classes by Premium

Frequency per $1 million wage-adjusted payroll in PYE 2010 varies considerably for the 50 classes displayed. For example, Contracting classes (e.g., Roofing, Carpentry) have very high frequency per payroll, whereas Office & Clerical classes have very low frequency per payroll. For the largest 50 classes in terms of premium volume, frequency per payroll for the highest frequency class (Roofing) is approximately 46 times the frequency per payroll of the lowest frequency class (Clerical Office). Hence, a change in industry (or class) mix can have a significant impact on overall frequency per payroll for all classes combined.

In contrast, frequency per premium varies considerably less by class. For the largest 50 classes in terms of premium volume, frequency per premium for the highest frequency class (Fast Food Restaurants) is only 11 times the frequency per premium of the lowest frequency class (Iron or Steel Erection). Therefore, a change in industry (or class) mix would not be expected to have a significant impact on overall frequency per premium for all classes combined.

As noted earlier, since claim frequency is reflected in premiums charged, differences in frequency per premium between classes are primarily due to varying severity between classes and have little to do with claim frequency itself. Varying rate adequacy by class would also impact this measure to

the extent that premiums do not accurately reflect the underlying frequency and severity of the class in a given time period.

Exhibit 11 contains the frequency measures for the 50 largest classes by premium volume underlying Exhibit 10.

Frequencies for Largest 50 Classes

Based on Premium Volume for Policies Expiring in 2010

Class		Frequency per Payroll	Frequency per Premium
8810	Clerical office employees, NOC	0.13	0.85
8017	Store, retail NOC	1.63	1.40
8380	Automobile service or repair center	2.15	1.16
8742	Salespersons, collectors or messengers	0.22	0.79
9082	Restaurant, NOC	1.96	1.71
7229	Trucking, long distance hauling only	4.57	0.93
7228	Trucking, local hauling only	3.53	0.75
7219	Trucking, NOC	4.25	0.81
7380	Drivers, chauffeurs & their helpers, NOC	3.50	1.14
5190	Electrical wiring, within buildings & drivers	1.70	0.61
5183	Plumbing NOC & drivers	1.99	0.63
8833	Hospital, professional employees	0.81	1.11
3724	Machinery or equipment erection or repair NOC	1.72	0.50
8829	Convalescent or nursing home, all employees	2.81	1.50
8018	Store, wholesale NOC	2.81	1.40
5645	Carpentry, detached one or two family dwellings	5.48	0.74
8868	College, professional employees	0.34	1.28
9014	Buildings, operation by contractor	2.76	1.32
5403	Carpentry NOC	3.39	0.54
9015	Buildings, operation by owner or lessee of mgt. firm	2.64	1.21
8832	Physician & clerical	0.25	1.11
7720	Police officers & drivers	1.99	1.05
5537	Heating, ventilation, AC, and refrigeration systems	2.91	0.78
9083	Restaurant, fast food	1.99	1.92
5551	Roofing, all kinds & drivers	6.04	0.55
9052	Hotel, all other employees	2.78	1.77

Class		Frequency per Payroll	Frequency per Premium
5606	Contractor, executive supervisor	0.48	0.37
6217	Excavation & drivers	2.32	0.58
8835	Nursing, home health, public and traveling	2.36	1.36
8033	Store, meat, grocery & provision stores	2.58	1.84
3632	Machine shop NOC	2.22	0.98
5213	Concrete construction NOC	2.69	0.46
9101	College, all other employees	3.81	1.71
5474	Painting or paperhanging, NOC and drivers	2.88	0.64
9403	Garbage, ashes or refuse collection & drivers	3.86	0.76
5221	Concrete or cement work	2.60	0.76
7403	Aircraft or helicopter operation	3.98	1.79
5506	Street or road construction, paving or repaving	2.76	0.60
8232	Lumberyard new materials only	2.93	0.98
5022	Masonry NOC	3.73	0.73
8107	Machinery dealer NOC	1.93	0.74
5040	Iron or steel, erection, frame structures	3.10	0.17
7600	Telephone or telegraph co, all other employees	2.46	1.41
4484	Plastics mfg, molded products, NOC	2.13	1.11
5437	Carpentry, installation of cabinet work	3.25	0.73
5538	Sheet metal work, NOC	2.84	0.57
8601	Architect or engineer	0.23	0.53
8006	Gas station, self-service and convenience	2.50	1.66
8008	Store, clothing, wearing apparel or dry goods, retail	1.41	1.58
5445	Wallboard installation within buildings & drivers	2.67	0.64
	Minimum	0.13	0.17
	Maximum	6.04	1.92
	Ratio of Maximum to Minimum	46.1	11.5

Frequency at 1st report, indexed to all class average for states where NCCI provides ratemaking services (excl WV);WCSP Data

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Exhibit 11: Frequency Measures for Top 50 Classes by Premium

Exhibit 12 displays the changes in lost-time frequency by NCCI Industry Group from PYE 2006 to PYE 2010. During this period, which spans the recent recession, payroll volume decreased in both the Construction and Manufacturing sectors.

Frequency Change by Industry Group

For Policies Expiring in 2006 versus 2010

(1)	(2)	(3)	(4)	(2)-(4)	(3)-(4)
Industry Group	**Frequency Per Wage Adjusted Payroll**	**Frequency Per Wage Adjusted On-Leveled Premium**	**Frequency Adjusted for changes in Industry Mix***	**Impact of Mix Adjustment on Frequency Per Payroll**	**Impact of Mix Adjustment on Frequency Per Premium**
Manufacturing	-21.3%	-19.6%	-16.8%	-4.6%	-2.8%
Contracting	-24.1%	-22.1%	-16.5%	-7.7%	-5.6%
Office & Clerical	-14.9%	-15.7%	-15.9%	1.1%	0.3%
Goods & Services	-10.9%	-9.8%	-10.9%	0.0%	1.1%
Miscellaneous	-12.0%	-11.5%	-9.1%	-2.9%	-2.4%
ALL	**-19.6%**	**-12.9%**	**-13.3%**	**-6.3%**	**0.5%**

* Mix adjusted changes in frequency per wage adjusted payroll and in frequency per wage adjusted on-leveled premium are identical

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Exhibit 12: Changes in Frequency From PYE 2006 to PYE 2010

- As shown in Columns 2 and 3, the overall changes in frequency per payroll and frequency per premium over the period are considerably different, at –19.6% and –12.9%, respectively. Note, however, that the changes in the two measures are somewhat closer together by Industry Group (e.g., –14.9% and –15.7% for the Office & Clerical group). This is not unexpected for two reasons: First, the classes within each Industry Group are, by definition, more homogeneous than classes across all Industry Groups. Second, as noted earlier, the changes in the two measures are identical at the state and class level.

- In Column 4, we have adjusted for changes in industry mix. Using the frequency per payroll measure, we recalculated the countrywide PYE 2010 frequency per payroll as a weighted average of the PYE 2010 frequencies by class and state using payroll from PYE 2006 as weights. In other words, Column 4 indicates what the changes by Industry Group and total would have been if the payroll volume by class and state stayed the same from PYE 2006 to PYE 2010.

  After adjustment for industry mix, the overall change in frequency per payroll increased from –19.6% to –13.3%. This is due to the fact that the share of payroll declined in the high frequency per payroll Construction and Manufacturing sectors and increased in the low frequency per payroll Office & Clerical sector. (See Exhibit 13 below.) Together, these changes in industry mix

combined to put downward pressure on overall frequency.

- Column 4 also represents the "mix-adjusted" change in frequency per premium. (See Appendix for proof that the mix-adjusted change in frequency per payroll is equal to the mix-adjusted change in frequency per premium.)

  We recalculated the countrywide 2010 frequency per premium as a weighted average of the PYE 2010 frequencies by class and state using premium from PYE 2006 as weights. Thus, Column 4 indicates what the changes by Industry Group and total would have been if the premium volume by class and state stayed the same from PYE 2006 to PYE 2010.

  After adjustment for industry mix, the overall change in frequency per premium decreased from –12.9% to –13.3%. As expected, the effect of changing industry mix was minimal.

We performed a similar analysis for PYE 2009 to 2010. Exhibit 13 displays the changes in lost-time frequency by NCCI Industry Group from PYE 2009 to PYE 2010. As shown in Columns 2 and 3, the changes in frequency per payroll and frequency per premium over the period are –2.5% and +1.3%, respectively.

Using the same approach as described above, we have adjusted for changes in industry mix. As shown in Column 4, if the payroll volume by class and state had remained the same from PYE 2009 to PYE 2010, the change in frequency per payroll would have been 0.0%. From PYE 2009 to PYE 2010, the share of payroll declined in the high frequency per payroll Construction and Manufacturing sectors and increased in the low frequency per payroll Office & Clerical sector, but to a lesser degree than from PYE 2006 to PYE 2010. These changes in industry mix combined to put downward pressure on overall frequency per payroll.

Frequency Change by Industry Group

For Policies Expiring in 2009 versus 2010

(1)	(2)	(3)	(4)	(2)-(4)	(3)-(4)
Industry Group	**Frequency Per Wage Adjusted Payroll**	**Frequency Per Wage Adjusted On-Leveled Premium**	**Frequency Adjusted for changes in Industry Mix***	**Impact of Mix Adjustment on Frequency Per Payroll**	**Impact of Mix Adjustment on Frequency Per Premium**
Manufacturing	-2.5%	-1.8%	0.1%	-2.7%	-2.0%
Contracting	-2.5%	-1.6%	-0.6%	-1.8%	-0.9%
Office & Clerical	-0.4%	-0.8%	-1.2%	0.8%	0.4%
Goods & Services	0.2%	0.5%	0.2%	-0.1%	0.3%
Miscellaneous	-0.7%	0.3%	0.8%	-1.5%	-0.5%
ALL	**-2.5%**	**1.3%**	**0.0%**	**-2.5%**	**1.4%**

* Mix adjusted changes in frequency per wage adjusted payroll and in frequency per wage adjusted on-leveled premium are identical

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Exhibit 13: Changes in Frequency From PYE 2009 to PYE 2010

The Appendix contains the frequency measures underlying the Industry Group changes displayed in Exhibits 12 and 13 above.

Exhibit 14 shows how the distribution of payroll by Industry Group shifted from PYE 2006 to PYE 2010 and from PYE 2009 to PYE 2010, corresponding with Exhibits 12 and 13, respectively.

Countrywide Shifts in Industry Mix

Industry Group	Payroll Distribution			Payroll Shift From PYE	
	PYE 2006	PYE 2009	PYE 2010	2006 to 2010	2009 to 2010
Manufacturing	9.8%	8.8%	8.4%	**-1.4%**	**-0.4%**
Contracting	7.6%	7.3%	6.3%	**-1.3%**	**-0.9%**
Office & Clerical	58.6%	60.1%	61.0%	**2.4%**	**0.9%**
Goods & Services	18.6%	18.5%	18.9%	**0.3%**	**0.4%**
Miscellaneous	5.4%	5.3%	5.3%	**0.0%**	**0.1%**
ALL	100.0%	100.0%	100.0%		

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Exhibit 14: Shifts in Payroll Distribution by Industry Group

Average Weekly Hours

In this section, we will examine how another factor, average hours worked per week, can have an impact on claim frequency. A simple example will illustrate. Suppose from one year to the next, the number of employees remains constant, but average weekly hours (AWH) increases. Further, suppose that this increase in exposure generates a proportional increase in the number of claims. It follows that a measure of frequency per worker would show an increase. However, an alternative measure—frequency per worker hour—would indicate no change in frequency.

During the five years preceding 2007, average weekly hours remained relatively stable. However, due to the recent recession, AWH has been more volatile subsequent to 2007. In most states, the average number of hours worked per week declined from 2007 through 2009, but increased from 2009 through 2011.

Exhibit 15 displays the change in frequency in NCCI states from PYE 2009 to PYE 2010 along with some related statistics.

- Column 10 displays the change in frequency per wage-adjusted payroll of –2.5%. This is equivalent to the change in frequency per worker[8] in Column 11.

- An alternative measure, frequency per worker-hour, is generally not distorted by changes in AWH. This is because both numerator and denominator are directly correlated with changes in AWH. An exception is that frequency per worker-hour may increase if AWH reaches very high levels. For example, increased overtime could lead to worker fatigue and, in turn, a higher probability of an accident. Column 12 displays the change in frequency per worker-hour of –3.0%, which is slightly below the change in frequency per worker.[9]

- The increase in AWH of +0.6% placed upward pressure on the number of claims without impacting the number of workers. Hence, the change in frequency per worker in PYE 2010 is slightly higher than the change in frequency per worker-hour.

[8] Number of workers was derived as summation by state of payroll divided by state average weekly wage (from the Quarterly Census of Employment and Wages) times 52.

[9] Change in frequency per worker hour equals the change in frequency per worker divided by the change in AWH: (1–.025) / (1 + .006) – 1 = .970 (i.e., –3.0%).

Countrywide Changes in Frequency Per Worker and Per Worker-hour

(1)	(2)	(3)	(4) (2)x(3)x52	(5)	(6) (3)x(5)	(7) (4)x(5)	(8)	(9)	(10)	(11)	(12)
									<<< **Frequency** >>>		
PYE	Workers (millions)	Avg Weekly Hours	Total Hours (billions)	Avg Hrly Wage	Avg Wkly Wage	Payroll ($billions)	Wage Adjusted Payroll ($billions)	Lost Time Claims	per $M WA Payroll	per 100k Workers	per 1M Hours
2009	48.6	34.72	87.8	$23.38	$811.81	2,053	2,080	421,427	0.203	866.6	4.800
2010	46.9	34.91	85.2	$23.56	$822.64	2,008	2,008	396,693	0.198	844.9	4.654
Change	-3.5%	0.6%	-2.9%	0.8%	1.3%	-2.2%	-3.5%	-5.9%	**-2.5%**	**-2.5%**	**-3.0%**

NCCI States

PYE – policies expiring in

WA - Adjusted to PYE 2010 Average Wage Level

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Exhibit 15: Countrywide Changes in Frequency

Class Contribution

We performed a "class contribution" analysis on the PYE 2009 to PYE 2010 change in frequency per payroll of –2.5% and found that, for the most part, the change was not driven by any particular class. The class with the largest impact was Retail Stores (Class Code 8017). This class, which comprises more than 2% of countrywide payroll in PYE 2010, experienced an increase in frequency per payroll of +0.8%. By excluding this class, the effect was minimal as the overall change in frequency decreased slightly from –2.5% to –2.7%.

III. Frequency Changes by Claim and Employer Characteristics

For this analysis, we used the ***Statistical Plan*** data, which allows us to break down the claim frequency results in great detail. In this section, we will examine the overall frequency decline of –19.6% from PYE 2006 to PYE 2010 by various claim characteristics as well as by various employer characteristics.

For this historical analysis, unless otherwise noted, frequency is defined as reported lost-time claims as of 1st report[10] per $1 million in wage-adjusted payroll. While it is not uncommon for claims to be reported subsequent to 1st report, this paper is confined to changes in frequency observed at 1st report.[11]

Claim Frequency by Size of Loss

Exhibit 16 displays changes in lost-time claim frequency by size of loss. Each claim cost represents undeveloped paid losses plus case reserves as of 1st report. For this initial snapshot, we did not account for medical or wage inflation. Hence, a migration of claims over time from the low to high ranges distorts the results. For example, a $49,000 claim in 2006 would fall in the $10K to $50K range. A comparable claim in 2010 would likely cost more than $50,000, just due to inflation, and would, therefore, appear in the next higher size of loss range ($50K to $250K). Thus, Exhibit 16 is presented only for comparison with Exhibit 17, in which we adjust all claims to current inflation level.

[10] 1st report is 18 months after policy effective date for ***Statistical Plan*** data.

[11] Approximately 95% to 98% of claims are reported as of 1st report.

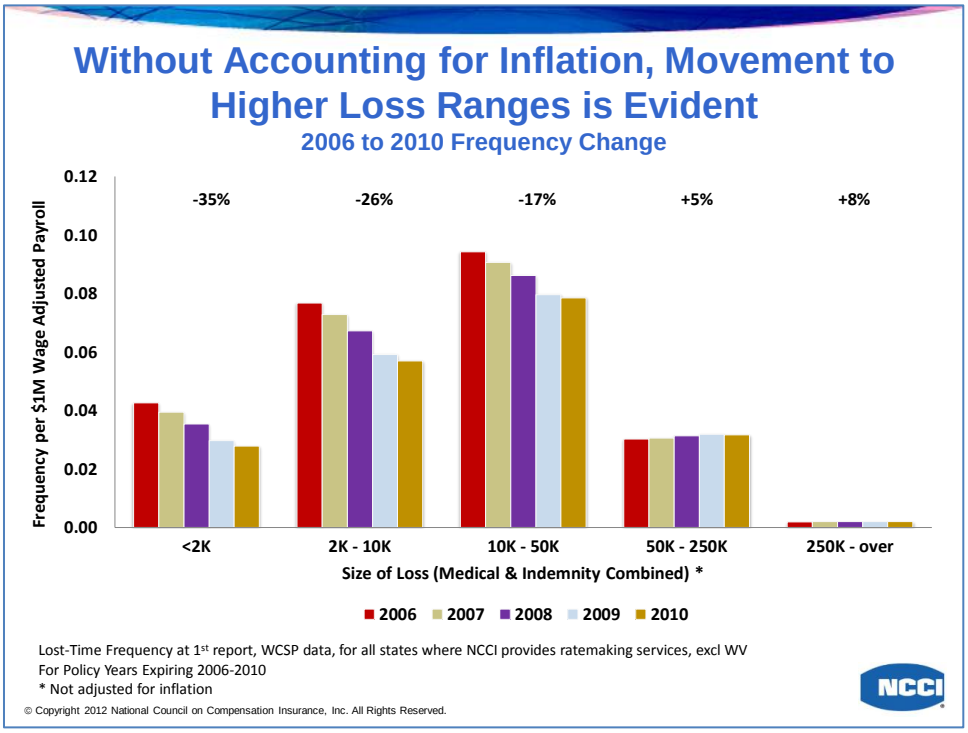

Exhibit 16: Claim Frequency by Size of Loss

Claim Frequency by Size of Loss After Adjusting for Inflation

As shown in Exhibit 17, after accounting for wage and medical cost inflation, declines in claim frequency over the period become successively lower at higher claim sizes. Specifically, these declines range from 27% for the smallest claim size grouping to 14% for the largest claim size grouping. This pattern was driven primarily by the changes that occurred from PYE 2008 and 2009. (See Exhibit 18 below.)

For this snapshot, claims in PYE 2006 through 2009 were adjusted to the 2010 inflation level. Specifically, the indemnity portion of each claim was adjusted for changes in countrywide average wages using Quarterly Census of Employment and Wages data. The medical portion of each claim was adjusted using the countrywide Medical CPI.[12] Note that we did not adjust for changes in utilization, which would include the following:

- Changes in the number of treatments per claim
- Changes in the types of treatments per claim
- Changes in the claim diagnoses

We also did not account for other possible contributing factors, such as changes in industry mix.

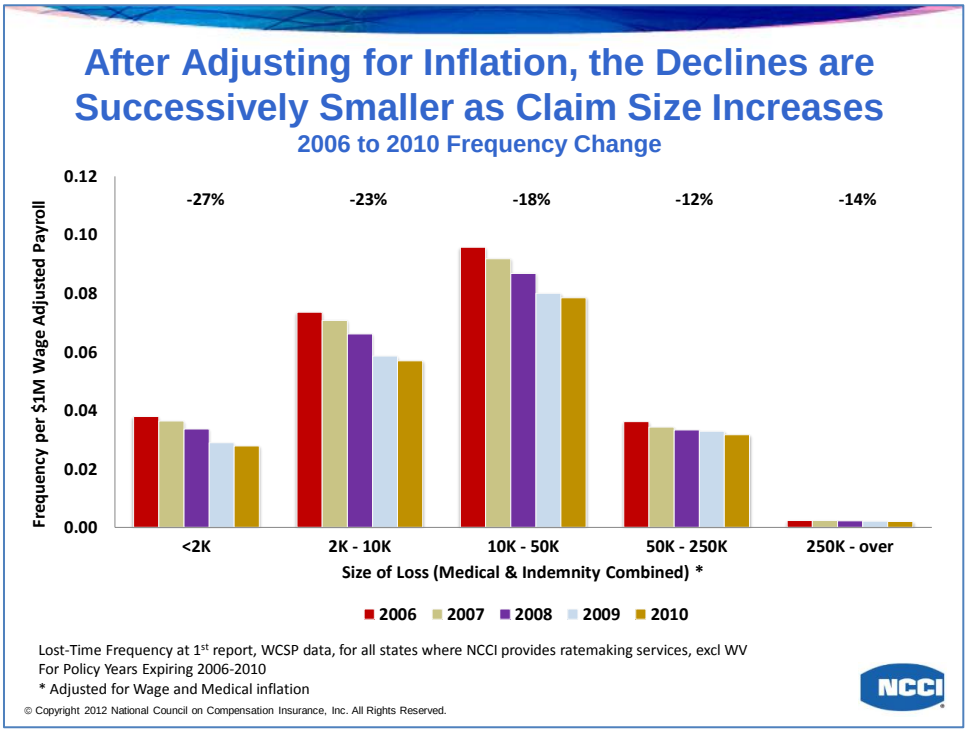

Exhibit 17: Claim Frequency by Size of Loss Adjusted for Inflation

[12] Source of Quarterly Census of Employment and Wages data and Medical CPI is the Bureau of Labor Statistics.

Exhibit 18 shows that claim frequency declines by size of loss were most divergent from PYE 2008 to 2009, where small claim frequency declined more sharply. As noted earlier, the recession may have impacted claiming behavior. This would have had a more pronounced effect on the frequency of smaller, less serious claims.

Exhibit 18 is consistent with Exhibit 5, both of which show the sharper decline in the frequency of small lost-time claims (vs. all lost-time claims) over the 2007 to 2009 calendar period. Exhibit 5 also shows that a reversal of this pattern occurred from AY 2009 to 2010.

Frequency Changes by Size of Loss

Small Claim Frequency Declines Sharply from PYE 2008 to 2009

Size of Loss	2006 to 2007	2007 to 2008	2008 to 2009	2009 to 2010	2006 to 2010
$0 - $2,000	-4.1%	-7.5%	-14.1%	-3.5%	-26.5%
$2,000 - $10,000	-3.8%	-6.5%	-11.5%	-2.8%	-22.6%
$10,000 - $50,000	-4.1%	-5.4%	-7.8%	-1.8%	-18.0%
$50,000 - $250,000	-5.4%	-2.8%	-1.3%	-3.6%	-12.5%
$250,000 and up	-0.7%	-6.5%	-1.7%	-5.4%	-13.7%
TOTAL	**-4.2%**	**-5.7%**	**-8.7%**	**-2.5%**	**-19.6%**

Lost-Time Frequency at 1st report, WCSP data, for all states where NCCI provides ratemaking services, excl WV
For Policy Years Expiring 2006-2010
Adjusted for Wage and Medical inflation to PYE 2010

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Exhibit 18: Annual Changes in Claim Frequency by Size of Loss

Claim Frequency by Part of Body

Exhibit 19 displays changes in lost-time frequency by Part of Body. Injuries involving the lower back and multiple body parts exhibited steep frequency declines over the latest five years, but continue to represent a relatively large share of injuries.

Note: For this exhibit and a number of subsequent exhibits, the Appendix provides the underlying distributions of claim counts and losses (reported paid losses plus case reserve amounts) for each grouping. In addition, the Appendix provides a detailed description of the elements contained in each grouping.

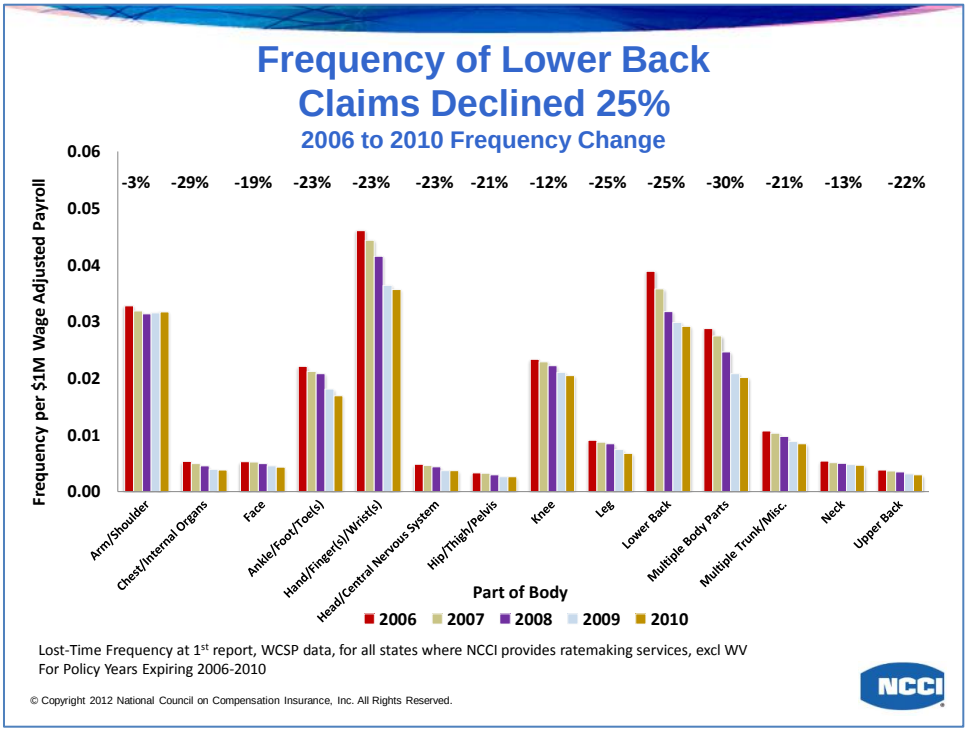

Exhibit 19: Claim Frequency by Part of Body

Claim Frequency by Likely-to-Develop and Not-Likely-to-Develop Parts of Body

In Exhibit 20, we have assigned all lost-time claims into one of two categories (Likely-to-Develop and Not-Likely-to-Develop) based on Part of Body. Under NCCI's new class ratemaking methodology, Part of Body is one of three claim characteristics (along with injury type and open vs. closed status) used to create homogeneous claim groupings for loss development purposes.[13]

Likely-to-Develop claims experienced a sharper percentage decline in claim frequency. NCCI identifies Likely-to-Develop claims as those with body parts such as head, skull, neck, trunk, spinal cord, upper and lower back, or multiple body parts. Not-Likely-to-Develop claims include those involving fingers, hand, arm, wrist, toes, foot, and ankle. The Appendix contains the complete list of Parts of Body in each category.

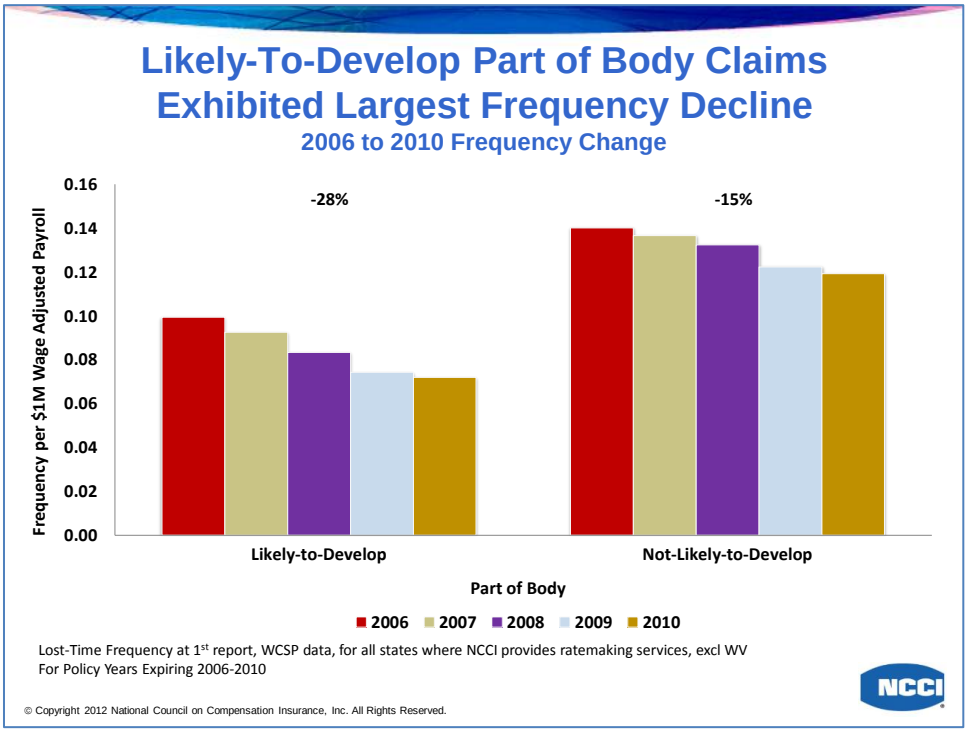

Exhibit 20: Claim Frequency by "Likely" vs. "Not-Likely" to Develop

[13] Refer to the report, *Class Ratemaking for Workers Compensation: NCCI's New Methodology*, by Tom Daley, available on **ncci.com.**

Claim Frequency by Nature of Injury

Exhibit 21 displays changes in lost-time claim frequency by Nature of Injury (NOI).

- Sprain/Strain claims constitute a large share of claims and show a decline in frequency that is in line with the decline in frequency for all lost-time claims over the period.
- Also notable is the continued decline in Carpal Tunnel Syndrome (CTS) claim frequency of –39%, compared to –20% for all claims. However, the rate of decline in CTS claim frequency slowed to –3.1% from PYE 2009 to 2010, as compared to –2.5% for all lost-time claims. CTS claims involve injuries to the hand, wrist, or both. For more discussion on the decline in CTS claim frequency, see the September 2010 NCCI research brief on frequency.[14]

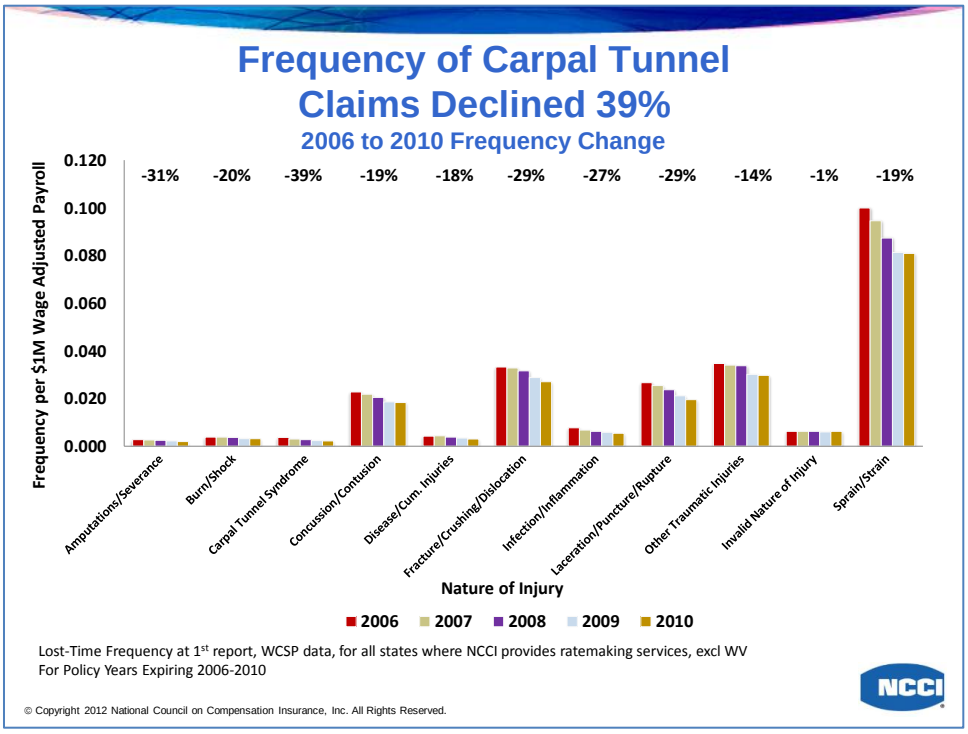

Exhibit 21: Claim Frequency by Nature of Injury

[14] Jim Davis and Matt Crotts, *Workers Compensation Claim Frequency Continues to Decline in 2009*, available on **ncci.com.**

Claim Frequency by Cause of Injury

Exhibit 22 compares changes in lost-time claim frequency by Cause of Injury (COI).

- The frequency of claims in the Cumulative Injury category declined sharply, by 43% over the latest five-year period.
- The frequency of claims categorized under Miscellaneous Causes declined by 33%. This category includes injuries such as foreign matter in eyes and absorption, ingestion, and inhalation. The Striking Against/Stepping On category also experienced a 33% decrease. A possible explanation is that the types of injuries in these two categories may be relatively more preventable through loss control and safety measures.

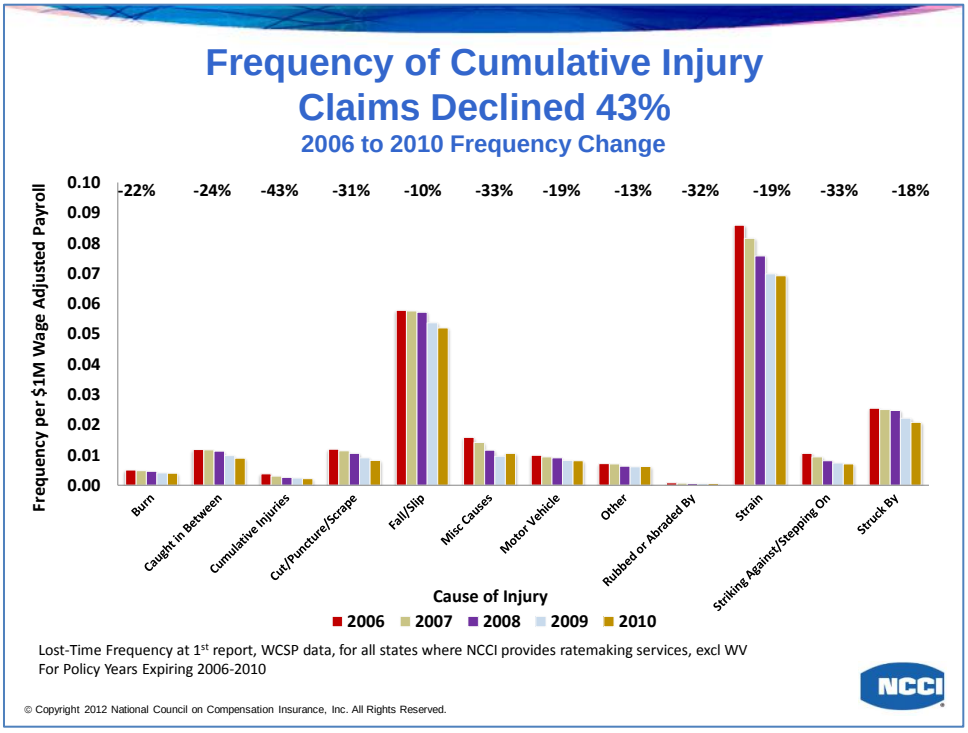

Exhibit 22: Claim Frequency by Cause of Injury

Claim Frequency by Injury Type

As shown in Exhibit 23, changes in frequency by Injury Type over the latest five years were very consistent with the overall lost-time claim frequency decline of 20%. Fatal and permanent total claims tend to exhibit more year-to-year volatility than other injury types, likely due to the much smaller volume of these claims.

It is not uncommon for claims to be reclassified under different injury types as they mature. For example, a claim reported as temporary total disability at 1st report may develop adversely into a permanent partial or permanent total disability claim as of a subsequent report. This exhibit is based on the Injury Type reported as of 1st report.

Lastly, the development of claim counts from 1st report to ultimate level can differ considerably by injury type. For example, Exhibit 23 shows that fatal claim frequency at 1st report is more than three times higher than permanent total disability claim frequency. However, this discrepancy will ultimately decrease since permanent total claim count development is significantly greater than fatal claim count development beyond 1st report.[15]

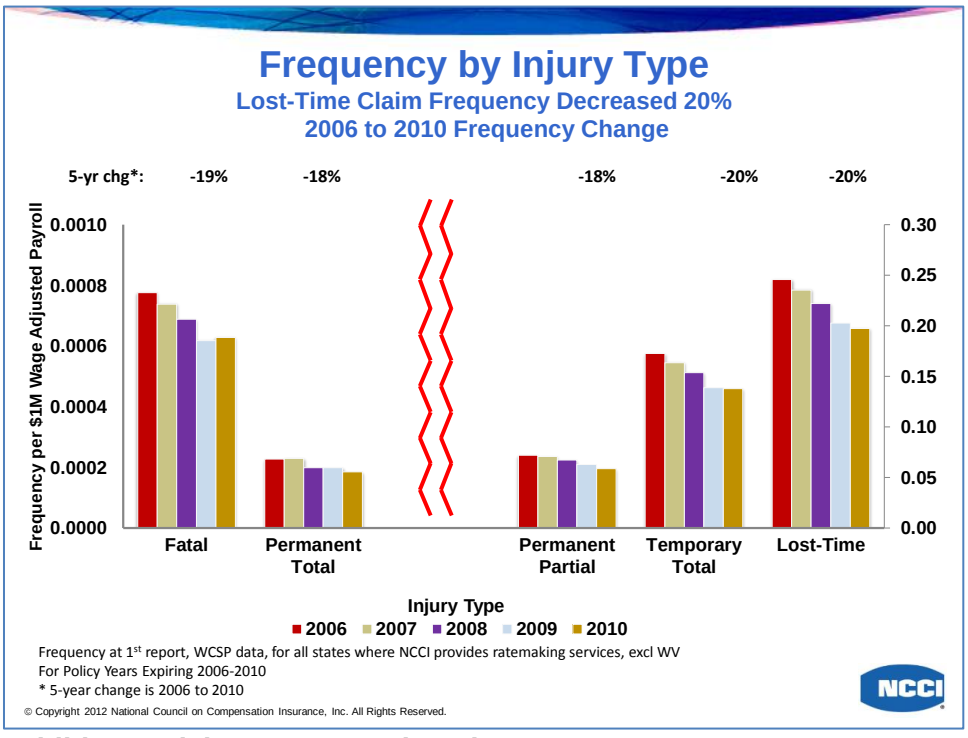

Exhibit 23: Claim Frequency by Injury Type

[15] For more information on claims by type of injury, refer to the NCCI ***Annual Statistical Bulletin***.

In addition to analyzing frequency by claim characteristics, we also examined frequency changes for the various categories listed below:

- By Market Type (Assigned Risk vs. Voluntary)
- By Geographic Region
- By State
- By Industry Group
- By Largest Classes Within Each Industry Group
- By Size of Employer Payroll
- By Size of Employer Premium

Changes in Claim Frequency by Market Type

Exhibit 24 shows that from PYE 2006 to PYE 2010, both the assigned risk and voluntary markets experienced a decline in frequency, with the assigned risk market experiencing the smaller percentage decline. In compiling this exhibit, policies were assigned to the appropriate market type by year. During the period displayed, the assigned risk markets were generally depopulating. With all else being equal, a shift of employers with relatively lower frequency from the assigned risk market into the voluntary market would slow the decline in frequency in both markets. This would explain why the overall change in lost-time claim frequency of 20% does not fall in between the changes for the assigned risk and voluntary markets.

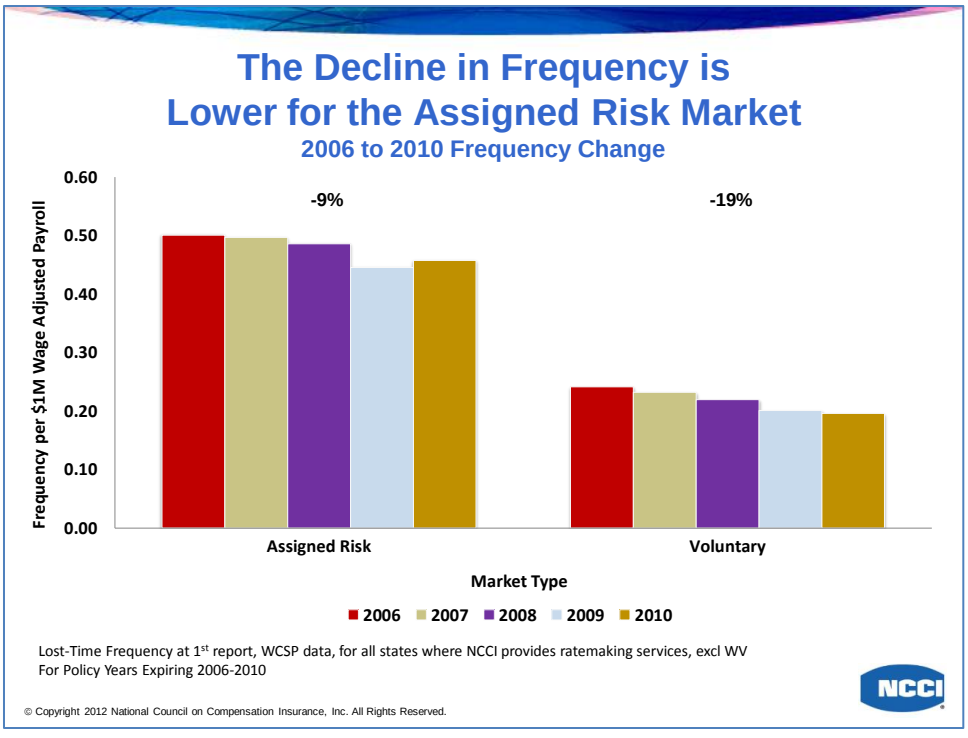

Exhibit 24: Claim Frequency by Market Type

Changes in Claim Frequency by Geographic Region

Exhibit 25 examines changes in frequency by geographic region over the latest 5- and 10-year periods. The 5-year changes are very similar by region. The Western Region shows a somewhat smaller 10-year decline than the other regions. A listing of states in each region can be found in the Appendix.

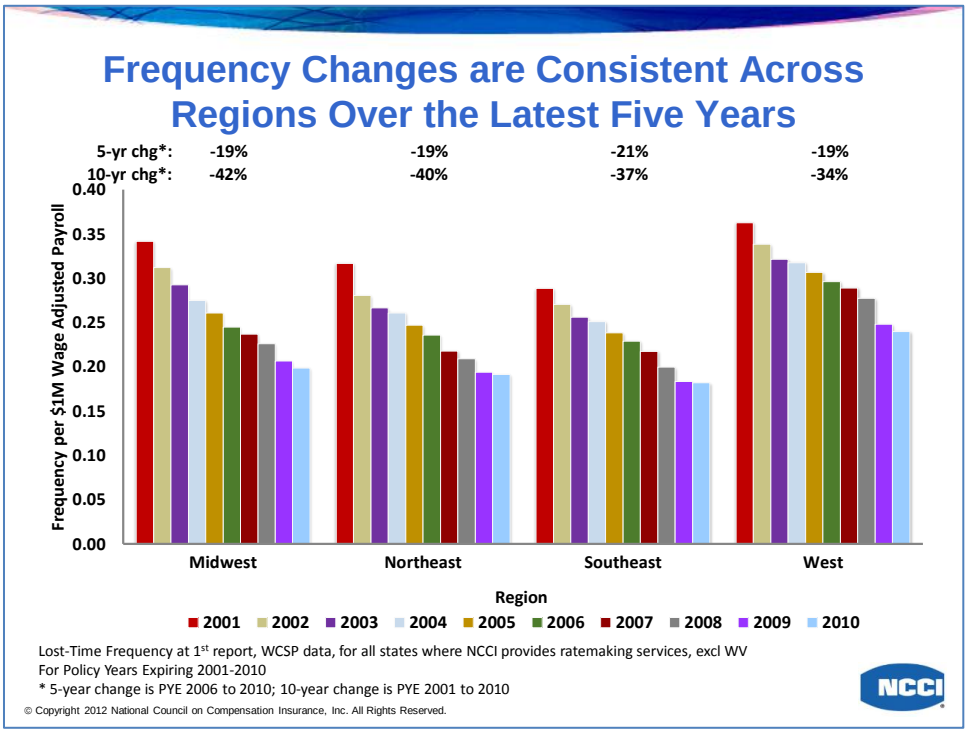

Exhibit 25: Claim Frequency by Geographic Region

Changes in Claim Frequency by State

Exhibit 26 displays annual frequency changes by state for the latest five-year period (PYE 2006 to PYE 2010). Independent bureau states and monopolistic state fund states, for which data is not included in this report, are displayed in white.

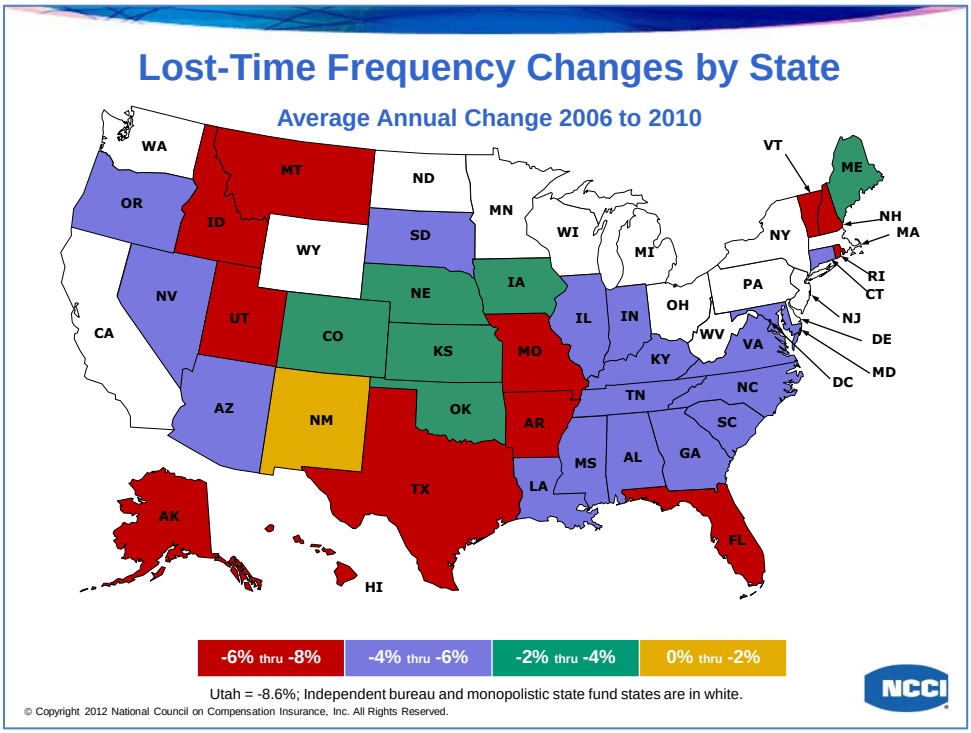

Exhibit 26: Annual Change in Claim Frequency by State—Latest Five Years

For comparison, the average annual changes by region over the latest 5-year period are as follows:

Midwest	–5.1%
Northeast	–5.1%
Southeast	–5.6%
West	–5.1%

Exhibit 27 displays annual frequency changes by state for the latest 10-year period (PYE 2001 to PYE 2010). Over the latest 10 years, 19 of the 37 states examined had an average annual change in frequency in the –4% to –6% range. Of the remaining 18 states, 10 had changes between –2% and –4% and 8 had changes between –6% and –8%.

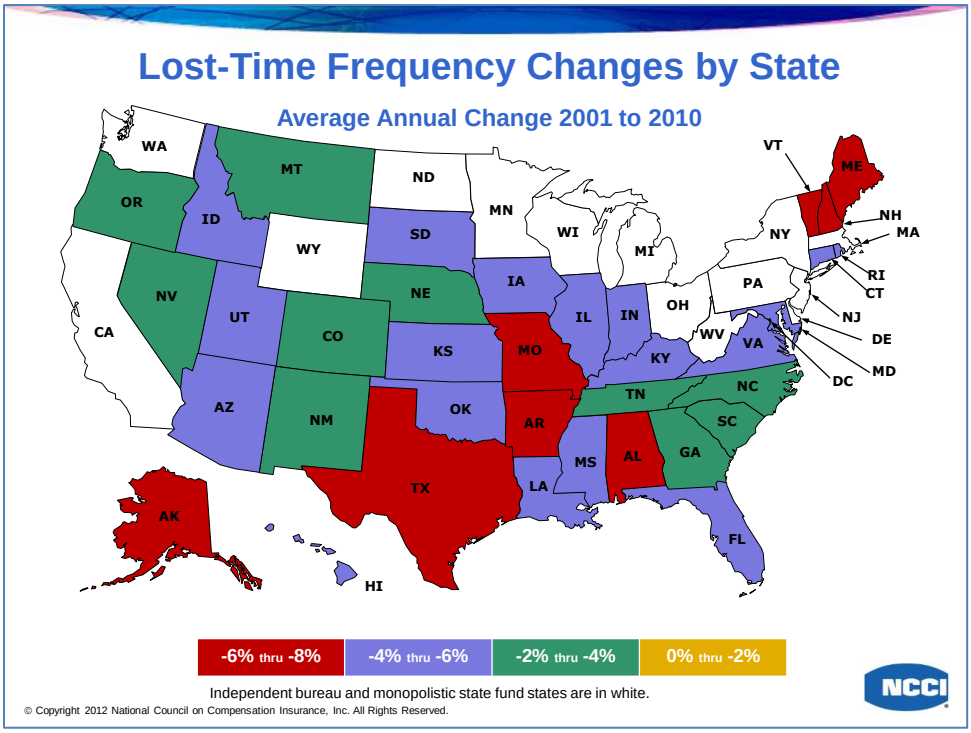

Exhibit 27: Annual Claim Frequency by State—Latest 10 Years

For comparison, the average annual changes by region over the latest 10-year period are as follows:

Midwest	–5.9%
Northeast	–5.5%
Southeast	–5.0%
West	–4.5%

Changes in Claim Frequency for the Three Largest Classes in Each Industry Group

Exhibit 28 displays changes in frequency for the three largest classes within each NCCI Industry Group. The high frequency Drivers/Chauffeurs and Trucking–NOC classes had less of a decline in frequency over the period than for all classes combined. A possible explanation is that the impact of the recession on payroll for these classes was mild, and in general, industries hit hardest by the recession experienced larger declines in frequency.

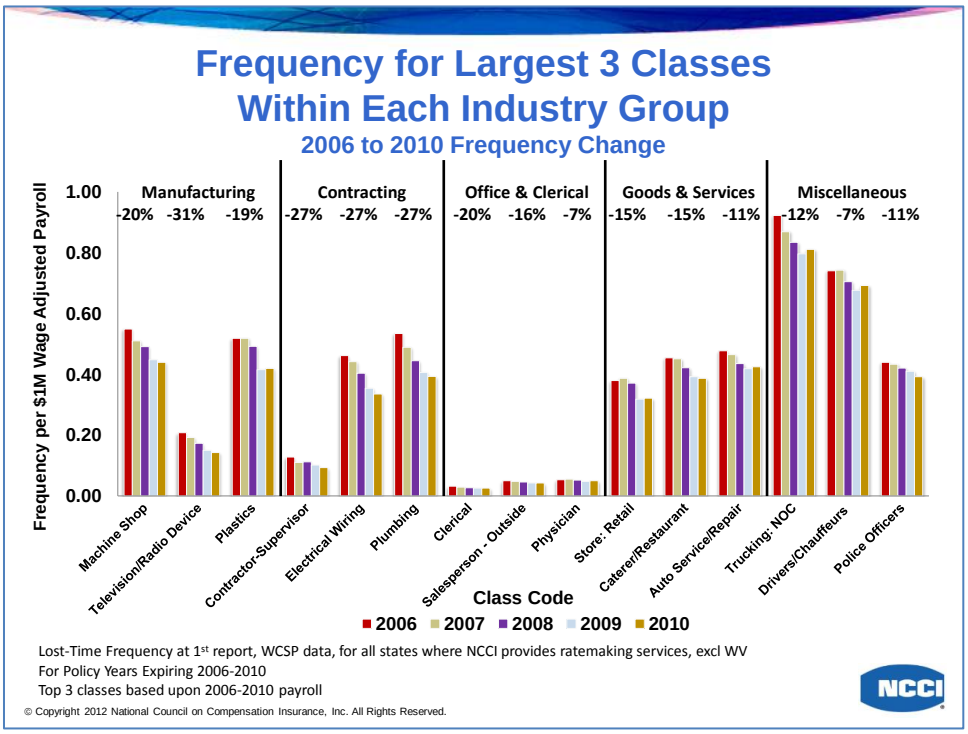

Exhibit 28: Claim Frequency by Largest Classes Within Each Industry Group

Changes in Claim Frequency by Employer Characteristics

In the next two exhibits, we have grouped employers by size of payroll and size of premium respectively. Note that the assignments to each size range are performed separately for each year. Thus, it is possible for individual employers to change size range from one year to the next.

Changes in Claim Frequency by Size of Employer Payroll

Exhibit 29 reveals that changes in frequency over the latest five years were relatively consistent by size of employer payroll. Employers with over $100 million in payroll enjoyed a slightly larger decline in frequency. Larger employers might be better equipped than smaller employers to implement loss control and safety programs.

In constructing this exhibit, each employer's payroll by state was adjusted to the PYE 2010 wage level. Employers were then assigned to the appropriate size range based on their wage-adjusted payroll.

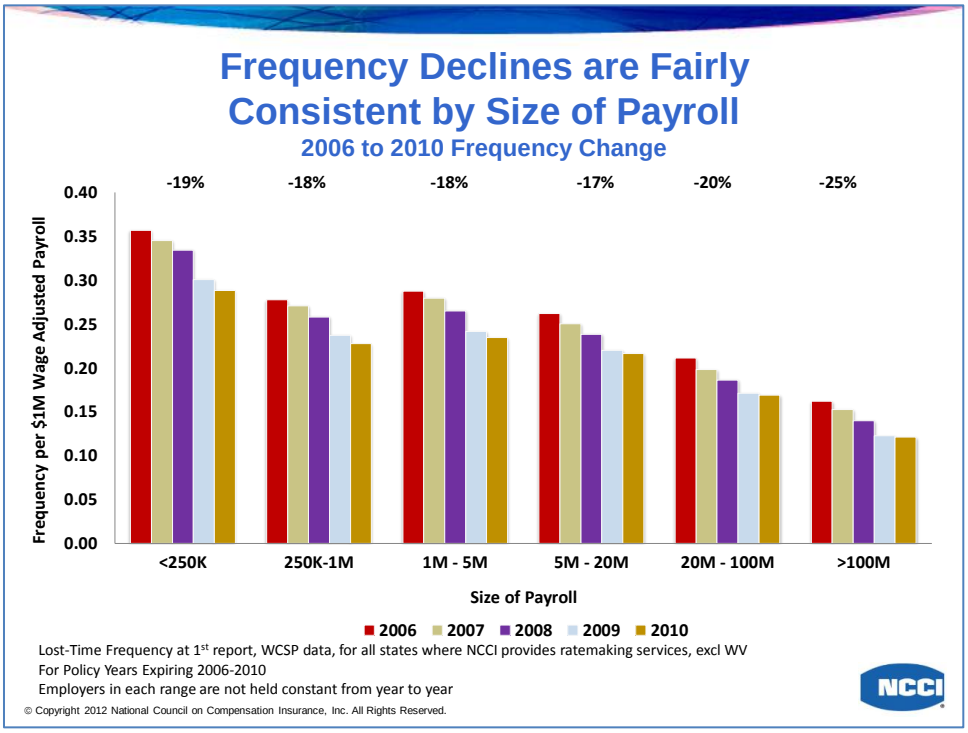

Exhibit 29: Claim Frequency by Size of Employer Payroll

Changes in Claim Frequency by Size of Employer Premium

Exhibit 30 indicates that employers of all premium sizes enjoyed double-digit frequency declines over the latest five years. Employers with greater than $250,000 in premium experienced the largest declines, while those with less than $10,000 in premium experienced the smallest declines.

In compiling this exhibit, each employer's premium by state was adjusted to reflect wage changes through 2010. Employers were then assigned to the appropriate size range based on their wage-adjusted premium.

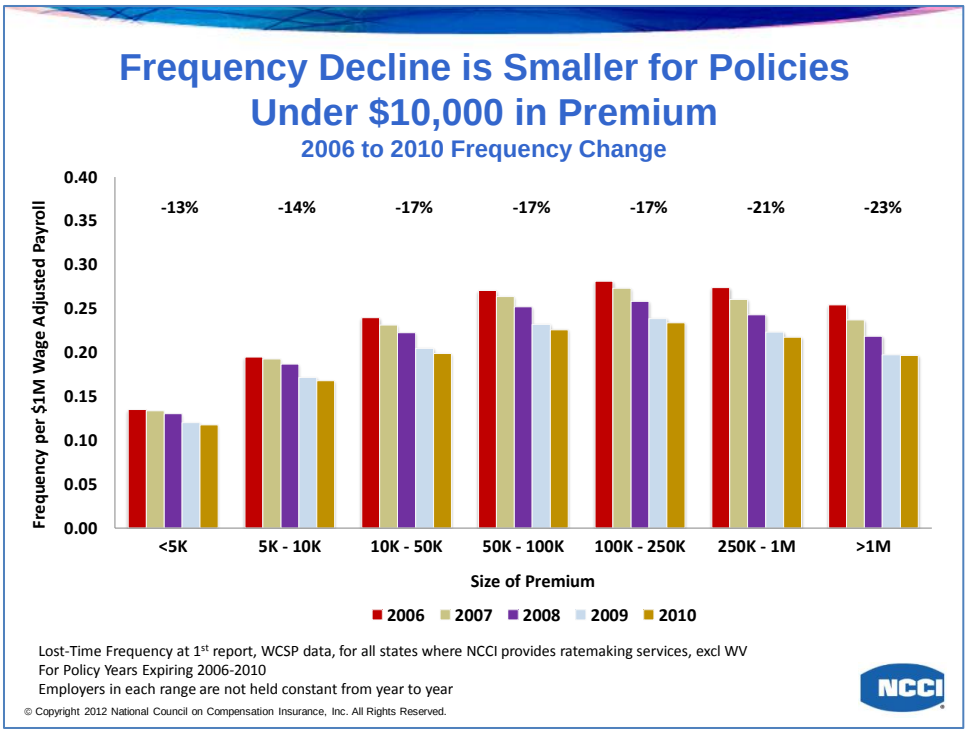

Exhibit 30: Claim Frequency by Size of Employer Premium

Comparison to Bureau of Labor Statistics

Whenever possible, NCCI examines external data sources to ensure consistency with its findings. We reviewed Bureau of Labor Statistics (BLS) data from the United States Department of Labor.[16] The BLS defines frequency as nonfatal occupational injuries and illnesses involving days away from work per 10,000 full-time workers. The numbers below represent BLS changes in frequency for the United States during the calendar period 2006 to 2010. Typically, the BLS changes are consistent with those observed in NCCI data over a similar period.

Total Private Sector	–16%
Construction Industry	–32%
Lower Back (Lumbar) Injuries	–19%

Factors Influencing the Long-Term Decline in Frequency

As previously reported, NCCI believes that several factors have contributed to the decline in frequency since the early 1990s, including the following:

- Global competition has fostered advances in automation, technology, and production, such as the following:
  - Increased use of robotics
  - Increased use of modular design and construction techniques
  - Increased use of power-assisted processes
  - Advances in ergonomic designs
  - Proliferation of cordless tools
- The aging of the workplace contributed to the historical decline in claim frequency because older workers tend to have fewer workplace accidents
- Emphasis on workplace safety and loss control has continued

Acknowledgments

Barry Lipton, John Robertson, Yair Bar-Chaim, Daniel Stern, Tom Sheppard, and Pam Barlow contributed to this study.

[16] Source: US Bureau of Labor Statistics, Occupational Injuries and Illnesses.

Appendix

Adjustment for Industry Mix

Exhibits 12 and 13 display frequency measures after adjustment for industry mix. Below is a proof that the mix-adjusted change in frequency per payroll equals the mix-adjusted change in frequency per on-leveled premium.

Change in Mix Adjusted Frequencies

A. Mix-Adjusted Frequency Per Payroll Change

$$\left(\sum \frac{Claims\ 2010 * Payroll\ 2009}{Payroll\ 2010}\right) / \sum Payroll\ 2009 / \{\sum Claims\ 2009 / \sum Payroll\ 2009\}$$

B. Mix-Adjusted Frequency Premium Change

$$\left(\sum \frac{Claims\ 2010 * Premium\ 2009}{Premium\ 2010}\right) / \sum Premium\ 2009 / \{\sum Claims\ 2009 / \sum Premium\ 2009\}$$

C. The Mix-Adjusted 2010 Claims are the same under (A) and (B), because the rates (on-leveled to 2010) cancel by Class and State

$$\left(\sum \frac{Claims\ 2010 * Premium\ 2009}{Premium\ 2010}\right) = \left(\sum \frac{Claims\ 2010 * Payroll\ 2009 * Rate\ 2010}{Payroll\ 2010 * Rate\ 2010}\right)$$

$$= \left(\sum \frac{Claims\ 2010 * Payroll\ 2009}{Payroll\ 2010}\right)$$

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The Exhibits below contain the frequency measures underlying the Industry Group changes displayed in Exhibits 12 and 13:

Lost-Time Frequency Measures by Industry Group

For Policies Expiring in 2006 versus 2010

Industry Group	2006 Frequency Per Wage Adjusted* Payroll	2010 Frequency Per Wage Adjusted* Payroll	2010 Mix Adjusted Frequency (Using 2006 Payroll)
Manufacturing	0.478	0.376	0.398
Contracting	0.598	0.454	0.500
Office & Clerical	0.048	0.041	0.040
Goods & Services	0.481	0.429	0.429
Miscellaneous	0.666	0.586	0.605
ALL	**0.246**	**0.198**	**0.213**

* Wage adjusted to policies expiring in 2010

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Lost-Time Frequency Measures by Industry Group

For Policies Expiring in 2006 versus 2010

Industry Group	2006 Frequency Per On-leveled* and Wage Adjusted** Premium	2010 Frequency Per On-leveled* and Wage Adjusted** Premium	2010 Mix Adjusted Frequency (Using 2006 On-leveled* Premium)
Manufacturing	12.756	10.256	10.618
Contracting	7.689	5.992	6.424
Office & Clerical	11.407	9.620	9.588
Goods & Services	15.828	14.274	14.106
Miscellaneous	11.272	9.979	10.245
ALL	**11.770**	**10.252**	**10.199**

* On-leveled (adjusted) to average carrier rate level for policies expiring in 2010
** Wage adjusted to policies expiring in 2010

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Lost-Time Frequency Measures by Industry Group

For Policies Expiring in 2009 versus 2010

Industry Group	2009 Frequency Per Wage Adjusted* Payroll	2010 Frequency Per Wage Adjusted* Payroll	2010 Mix Adjusted Frequency (Using 2009 Payroll)
Manufacturing	0.386	0.376	0.386
Contracting	0.466	0.454	0.463
Office & Clerical	0.041	0.041	0.040
Goods & Services	0.428	0.429	0.429
Miscellaneous	0.590	0.586	0.595
ALL	**0.203**	**0.198**	**0.203**

* Wage adjusted to policies expiring in 2010

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Lost-Time Frequency Measures by Industry Group

For Policies Expiring in 2009 versus 2010

Industry Group	2009 Frequency Per On-leveled* and Wage Adjusted** Premium	2010 Frequency Per On-leveled* and Wage Adjusted** Premium	2010 Mix Adjusted Frequency (Using 2009 On-leveled* Premium)
Manufacturing	10.446	10.256	10.461
Contracting	6.086	5.992	6.047
Office & Clerical	9.702	9.620	9.585
Goods & Services	14.206	14.274	14.237
Miscellaneous	9.949	9.979	10.032
ALL	**10.116**	**10.252**	**10.114**

* On-leveled (adjusted) to average carrier rate level for policies expiring in 2010
** Wage adjusted to policies expiring in 2010

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Distribution of Lost-Time Claim Counts and Reported Loss Amounts

The following charts provide the underlying loss distributions for selected categories of data provided in this report. Each chart provides a distribution of lost-time claim counts and reported loss amounts (medical and indemnity combined). For each distribution, we utilized ***Statistical Plan*** data for the latest five years combined to add stability. The data is undeveloped as of 1st report. Thus, the distributions are likely to change as claim counts and loss dollars develop to an ultimate level.

The following claim counts and loss distributions can be used to estimate the impact that the change in frequency for a given claim type had on the entire workers compensation market.

Data Corresponding to Exhibit 12

	Distribution of Lost-Time Claims PYE 2006 to 2010	
Industry Group	**Claim Counts**	**Loss Amounts**
Manufacturing	17.7%	17.0%
Contracting	17.3%	25.5%
Office & Clerical	11.7%	10.9%
Goods & Services	38.4%	30.4%
Miscellaneous	14.9%	16.2%
Total	100.0%	100.0%

Data Corresponding to Exhibit 19

	Distribution of Lost-Time Claims PYE 2006 to 2010	
Part of Body	**Claim Counts**	**Loss Amounts**
Arm/Shoulder	14.4%	16.4%
Chest/Internal Organs	2.0%	1.6%
Face	2.2%	1.6%
Ankle/Foot/Toe(s)	9.0%	6.0%
Hand/Finger(s)/Wrist(s)	18.5%	11.7%
Head/Central Nervous System	1.9%	4.2%
Hip/Thigh/Pelvis	1.3%	1.9%
Knee	10.0%	8.8%
Leg	3.7%	4.8%
Lower Back	15.0%	14.0%
Multiple Body Parts	11.0%	17.4%
Multiple Trunk/Miscellaneous	4.3%	4.1%
Neck	2.3%	3.7%
Upper Back	1.5%	1.5%
Invalid Body Part	2.8%	2.3%
Total	100.0%	100.0%

Data Corresponding to Exhibit 20

Part of Body Group	Distribution of Lost-Time Claims PYE 2006 to 2010 Claim Counts	Loss Amounts
Likely-to-Develop	38.2%	49.3%
Not-Likely-to-Develop	59.0%	48.4%
POB Not Reported	2.8%	2.3%
Total	100.0%	100.0%

Data Corresponding to Exhibit 21

Nature of Injury	Distribution of Lost-Time Claims PYE 2006 to 2010 Claim Counts	Loss Amounts
Amputations/Severance	1.1%	2.0%
Burn/Shock	1.6%	2.3%
Carpal Tunnel Syndrome	1.3%	1.1%
Concussion/Contusion	9.2%	7.7%
Fracture/Crushing/Dislocation	13.9%	20.0%
Infection/Inflammation	2.9%	2.3%
Laceration/Puncture/Rupture	10.5%	7.9%
Occupational Disease/Cumulative Injuries	1.7%	1.5%
Other Traumatic Injuries	14.7%	18.9%
Invalid Nature of Injury	2.8%	2.2%
Sprain/Strain	40.2%	34.0%
Total	100.0%	100.0%

Data Corresponding to Exhibit 22

Cause of Injury	Distribution of Lost-Time Claims PYE 2006 to 2010 Claim Counts	Loss Amounts
Burn	2.0%	2.4%
Caught in Between	4.8%	4.8%
Cumulative Injuries	1.3%	1.1%
Cut/Puncture/Scrape	4.6%	2.7%
Fall/Slip	25.2%	29.5%
Misc Causes	5.6%	4.8%
Motor Vehicle	4.0%	8.1%
Other	3.0%	2.4%
Rubbed or Abraded By	0.3%	0.2%
Strain	34.6%	29.9%
Striking Against/Stepping On	3.9%	2.9%
Struck By	10.7%	11.2%
Total	100.0%	100.0%

Data Corresponding to Exhibit 29

Size of Payroll	Distribution of Lost-Time Claims PYE 2006 to 2010 Claim Counts	Loss Amounts
0 to 250K	10.0%	13.1%
250K to 1M	13.6%	15.4%
1M to 5M	24.3%	25.1%
5M to 20M	22.1%	20.5%
20M to 100M	17.7%	15.6%
100M and up	12.3%	10.3%
Total	100.0%	100.0%

Data Corresponding to Exhibit 30

Size of Premium	Distribution of Lost-Time Claims PYE 2006 to 2010 Claim Counts	Loss Amounts
0 to 5K	6.2%	7.4%
5K to 10K	4.7%	5.3%
10K to 50K	17.8%	19.4%
50K to 100K	10.9%	11.1%
100K to 250K	16.1%	15.7%
250K to 1M	21.5%	20.4%
1M and up	22.8%	20.8%
Total	100.0%	100.0%

Detailed Description of the NCCI Groupings

The charts below provide a detailed description of the following groupings:

- Part of Body (POB)
- Likely-to-Develop vs. Not-Likely-to-Develop
- Nature of Injury (NOI)
- Cause of Injury (COI)
- Geographic Region

Exhibit 19—Claim Frequency by Part of Body

"Part of Body" Group	POB Code	"Part of Body" Description
Arm/Shoulder	30	Upper Extremities: Multiple Upper Extremities
	31	Upper Extremities: Upper Arm (Including: Clavicle and Scapula)
	32	Upper Extremities: Elbow
	33	Upper Extremities: Lower Arm
	38	Upper Extremities: Shoulder(s)
Chest/Internal Organs	44	Trunk: Chest (Including: Ribs, Sternum, and Soft Tissue)
	48	Trunk: Internal Organs
	49	Trunk: Heart
	60	Trunk: Lung
Face	13	Head: Ear(s)
	14	Head: Eye(s)
	15	Head: Nose
	16	Head: Teeth
	17	Head: Mouth
	18	Head: Other Facial Soft Tissue
	19	Head: Facial Bones
Ankle/Foot/Toe(s)	55	Lower Extremities: Ankle
	56	Lower Extremities: Foot
	57	Lower Extremities: Toe(s)
	58	Lower Extremities: Great Toe
Hand/Finger(s)/Wrist(s)	34	Upper Extremities: Wrist
	35	Upper Extremities: Hand
	36	Upper Extremities: Finger(s)
	37	Upper Extremities: Thumb
	39	Upper Extremities: Wrist(s) and Hand(s)
Head/Central Nervous System	10	Head: Multiple Head Injury
	11	Head: Skull
	12	Head: Brain
Hip/Thigh/Pelvis	46	Trunk: Pelvis
	51	Lower Extremities: Hip

Knee	53	Lower Extremities: Knee
Leg	50	Lower Extremities: Multiple Lower Extremities
	52	Lower Extremities: Upper Leg
	54	Lower Extremities: Lower Leg
Lower Back	42	Trunk: Low Back Area (Including: Lumbar and Lumbo-Sacral)
Multiple Body Parts	64	Multiple Body Parts: Artificial Appliance (Braces, etc.)
	65	Multiple Body Parts: Insufficient Information/Unclassified
	66	Multiple Body Parts: No Physical Injury
	90	Multiple Body Parts: Multiple Body Parts
	91	Multiple Body Parts: Body System and Multiple Body System
Multiple Trunk/Miscellaneous	40	Trunk: Multiple Trunk
	61	Trunk: Abdomen Including Groin
	62	Trunk: Buttocks
	43	Trunk: Disc
	45	Trunk: Sacrum and Coccyx
	47	Trunk: Spinal Cord
	63	Trunk: Lumbar and/or Sacral Vertebrae
Neck	20	Neck: Multiple Injury
	21	Neck: Vertebrae
	22	Neck: Disc
	23	Neck: Spinal Cord
	24	Neck: Larynx
	25	Neck: Soft Tissue
	26	Neck: Trachea
Upper Back	41	Trunk: Upper Back Area (Thoracic Area)

Exhibit 20—Claim Frequency by "Likely" to Develop vs. "Not-Likely" to Develop Groupings

"Part of Body" Group	POB Code	"Part of Body" Description
Likely-to-Develop Group		
Head/Central Nervous System	10	Head: Multiple Head Injury
	11	Head: Skull
	12	Head: Brain
Lower Back	42	Trunk: Low Back Area (Including: Lumbar and Lumbo-Sacral)
Upper Back	41	Trunk: Upper Back Area (Thoracic Area)
Multiple Upper Extremities	30	Upper Extremities: Multiple Upper Extremities
Internal Organs (Heart, Lung, etc.)	48	Trunk: Internal Organs
	49	Trunk: Heart
	60	Trunk: Lung
Hip	51	Lower Extremities: Hip
Multiple Lower Extremities	50	Lower Extremities: Multiple Lower Extremities
Multiple Body Parts	65	Multiple Body Parts: Insufficient Information/Unclassified

	90	Multiple Body Parts: Multiple Body Parts
	91	Multiple Body Parts: Body System and Multiple Body System
Multiple Trunk/Miscellaneous	40	Trunk: Multiple Trunk
	62	Trunk: Buttocks
	43	Trunk: Disc
	45	Trunk: Sacrum and Coccyx
	47	Trunk: Spinal Cord
	63	Trunk: Lumbar and/or Sacral Vertebrae
Neck	20	Neck: Multiple Injury
	21	Neck: Vertebrae
	22	Neck: Disc
	23	Neck: Spinal Cord
	24	Neck: Larynx
	25	Neck: Soft Tissue
Not-Likely-to-Develop Group		
Face	13	Head: Ear(s)
	14	Head: Eye(s)
	15	Head: Nose
	16	Head: Teeth
	17	Head: Mouth
	18	Head: Other Facial Soft Tissue
	19	Head: Facial Bones
Ankle/Foot/Toe(s)	55	Lower Extremities: Ankle
	56	Lower Extremities: Foot
	57	Lower Extremities: Toe(s)
	58	Lower Extremities: Great Toe
Hand/Finger(s)/Wrist(s)	34	Upper Extremities: Wrist
	35	Upper Extremities: Hand
	36	Upper Extremities: Finger(s)
	37	Upper Extremities: Thumb
	39	Upper Extremities: Wrist(s) and Hand(s)
Knee	53	Lower Extremities: Knee
Arm/Shoulder	31	Upper Extremities: Upper Arm (Including: Clavicle and Scapula)
	32	Upper Extremities: Elbow
	33	Upper Extremities: Lower Arm
	38	Upper Extremities: Shoulder(s)
Chest (Ribs, Sternum, etc.)	44	Trunk: Chest (Including: Ribs, Sternum, and Soft Tissue)
Pelvis	46	Trunk: Pelvis
Leg	52	Lower Extremities: Upper Leg
	54	Lower Extremities: Lower Leg
Artificial Appliance/No Physical Injury	64	Multiple Body Parts: Artificial Appliance (Braces, etc.)
	66	Multiple Body Parts: No Physical Injury
Abdomen	61	Trunk: Abdomen Including Groin
Trachea	26	Neck: Trachea

Exhibit 21—Claim Frequency by Nature of Injury

"Nature of Injury" Group	NOI Code	"Nature of Injury" Description
Amputations/Severance	02	Amputation
	47	Severance
Burn/Shock	04	Burn
	19	Electric Shock
Carpal Tunnel Syndrome	78	Carpal Tunnel Syndrome
Concussion/Contusion	07	Concussion
	10	Contusion
Fracture/Crushing/Dislocation	13	Crushing
	16	Dislocation
	28	Fracture
Infection/Inflammation	36	Infection
	37	Inflammation
Laceration/Puncture/Rupture	22	Enucleation
	34	Hernia
	40	Laceration
	43	Puncture
	46	Rupture
Occupational Disease/Cumulative Injuries	60	Dust Disease
	61	Asbestosis
	62	Black Lung
	63	Byssinosis
	64	Silicosis
	65	Respiratory Disorders
	66	Poisoning—Chemical
	67	Poisoning—Metal
	68	Dermatitis
	69	Mental Disorder
	70	Radiation
	71	All Other OD
	72	Loss of Hearing—Occupational Disease or Cumulative Injury
	73	Contagious Disease
	74	Cancer
	75	AIDS
	76	VDT-Related Disease
	77	Mental Stress
	80	All Other Cumulative Injuries
Other Traumatic Injuries	01	No Physical Injury
	03	Angina Pectoris
	25	Foreign Body
	30	Freezing
	31	Loss of Hearing—Specific Injury
	32	Heat Prostration
	41	Myocardial Infarction

	42	Poisoning—General
	53	Syncope
	54	Asphyxiation
	55	Vascular Loss
	58	Vision Loss
	59	All Other, NOC
	79	Specific Injury: Hepatitis C
	90	Multiple Physical Injuries Only
	91	Multiple Injuries Including Physical and Psychological
Sprain/Strain	49	Sprain
	52	Strain

Exhibit 22—Claim Frequency by Cause of Injury

"Cause of Injury" Group	COI Code	"Cause of Injury" Description
Burn	01	Burn or Scald—Heat or Cold Exposure: Chemicals
	02	Burn or Scald—Heat or Cold Exposure: Hot Objects or Substances
	03	Burn or Scald—Heat or Cold Exposure: Temperature Extremes
	04	Burn or Scald—Heat or Cold Exposure: Fire or Flame
	05	Burn or Scald—Heat or Cold Exposure: Steam or Hot Fluids
	06	Burn or Scald—Heat or Cold Exposure: Dust, Gases, Fumes, or Vapors
	07	Burn or Scald—Heat or Cold Exposure: Welding Operations
	08	Burn or Scald—Heat or Cold Exposure: Radiation
	09	Burn or Scald—Heat or Cold Exposure: Contact With, NOC
	11	Burn or Scald—Heat or Cold Exposure: Cold Objects or Substances
	14	Burn or Scald—Heat or Cold Exposure: Abnormal Air Pressure
	84	Burn or Scald—Heat or Cold Exposure: Electrical Current
Caught in-Between	10	Caught in or Between: Machine or Machinery
	12	Caught in or Between: Object Handled
	13	Caught in or Between: Caught In, Under or Between, NOC
	20	Caught in or Between: Collapsing Materials (Slides of Earth)
Cumulative Injuries	98	Miscellaneous Causes: Cumulative, NOC
Cut/Puncture/Scrape	15	Cut, Puncture, Scrape Injured By: Broken Glass
	16	Cut, Puncture, Scrape Injured By: Hand Tool, Utensil, Not Powered
	17	Cut, Puncture, Scrape Injured By: Object Being Lifted or Handled
	18	Cut, Puncture, Scrape Injured By: Powered Hand Tool, Appliance
	19	Cut, Puncture, Scrape Injured By: Caught, Puncture, Scrape, NOC
Fall/Slip	25	Fall or Slip Injury: From Different Level (Elevation)
	26	Fall or Slip Injury: From Ladder or Scaffolding
	27	Fall or Slip Injury: From Liquid or Grease Spills
	28	Fall or Slip Injury: Into Openings
	29	Fall or Slip Injury: On Same Level

	30	Fall or Slip Injury: Slipped, Did Not Fall
	31	Fall or Slip Injury: Fall, Slip or Trip, NOC
	32	Fall or Slip Injury: On Ice or Snow
	33	Fall or Slip Injury: On Stairs
Misc. Causes	82	Miscellaneous Causes: Absorption, Ingestion or Inhalation, NOC
	87	Miscellaneous Causes: Foreign Matter (Body) in Eye(s)
	88	Natural Disaster
	89	Miscellaneous Causes: Person in Act of a Crime
	90	Miscellaneous Causes: Other Than Physical Cause of Injury
	91	Mold
	96	Losses Due to Act of Terrorism
	99	Miscellaneous Causes: Other—Miscellaneous, NOC
Motor Vehicle	40	Motor Vehicle: Crash of Water Vehicle
	41	Motor Vehicle: Crash of Rail Vehicle
	45	Motor Vehicle: Collision or Sideswipe With Another Vehicle
	46	Motor Vehicle: Collision With a Fixed Object
	47	Motor Vehicle: Crash of Airplane
	48	Motor Vehicle: Vehicle Upset
	50	Motor Vehicle: Motor Vehicle, NOC
Rubbed or Abraded By	94	Rubbed or Abraded By: Repetitive Motion
	95	Rubbed or Abraded By: Rubbed or Abraded, NOC
Strain	52	Strain or Injury By: Continual Noise
	53	Strain or Injury By: Twisting
	54	Strain or Injury By: Jumping
	55	Strain or Injury By: Holding or Carrying
	56	Strain or Injury By: Lifting
	57	Strain or Injury By: Pushing or Pulling
	58	Strain or Injury By: Reaching
	59	Strain or Injury By: Using Tool or Machinery
	60	Strain or Injury By: Strain or Injury By, NOC
	61	Strain or Injury By: Wielding or Throwing
	97	Strain or Injury By: Repetitive Motion
Striking Against/Stepping On	65	Striking Against or Stepping On: Moving Parts of Machine
	66	Striking Against or Stepping On: Object Being Lifted or Handled
	67	Striking Against or Stepping On: Sanding, Scraping, Cleaning Operations
	68	Striking Against or Stepping On: Stationary Object
	69	Striking Against or Stepping On: Stepping on Sharp Object
	70	Striking Against or Stepping On: Striking Against or Stepping On, NOC
Struck By	74	Struck or Injured By: Fellow Worker, Patient
	75	Struck or Injured By: Falling or Flying Object
	76	Struck or Injured By: Hand Tool or Machine in Use

77	Struck or Injured By: Motor Vehicle
78	Struck or Injured By: Moving Parts of Machine
79	Struck or Injured By: Object Being Lifted or Handled
80	Struck or Injured By: Object Handled by Others
81	Struck or Injured By: Struck or Injured, NOC
85	Struck or Injured By: Animal or Insect
86	Struck or Injured By: Explosion or Flare Back

Exhibit 25—Claim Frequency by Geographic Region

Geographic Region	States
Midwest	Illinois
	Indiana
	Iowa
	Kansas
	Missouri
	Nebraska
	Oklahoma
	South Dakota
	Texas
West	Arizona
	Colorado
	Idaho
	Montana
	Nevada
	New Mexico
	Oregon
	Utah
	Hawaii
	Alaska
Northeast	Connecticut
	District of Columbia
	Maine
	Maryland
	New Hampshire
	Rhode Island
	Vermont
Southeast	Alabama
	Arkansas
	Florida
	Georgia
	Kentucky
	Louisiana
	Mississippi
	North Carolina
	South Carolina
	Tennessee
	Virginia

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