



A Study of Claim Frequency in the New York State Workers' Compensation System

INTRODUCTION

The purpose of this study is to explore the various drivers of claim frequency and examine changes in claim frequency over time in the New York workers' compensation system. Claim frequency is the relationship between the number of claims and an exposure base, which is affected by a variety of measures such as payroll and loss cost levels. The study primarily examines indemnity claim frequency, which consists of claims involving lost time wage replacement payments.

We recognize that the impact of the COVID-19 pandemic on workers' compensation frequency is an important area of study, however, data reflecting that impact has not yet been submitted to the Rating Board. Accordingly, issues related to the pandemic and any related economic recession's affect on frequency will not be addressed in this study.

KEY FINDINGS

This report's key findings are as follows:

- New York lost time claim frequency has experienced a long-term decline since 1996, although the decline has slowed between 2013 and 2018. The change in lost time frequency is impacted by a variety of factors, including both economic factors and non-economic changes in the New York workers' compensation system.
- The long-term decline in lost time claim frequency is partially explained by the economic shift in the State away from manufacturing and toward (a) lower frequency industries such as the contracting, services, and miscellaneous industry groups, and (b) the professional and office industry group, which has seen relatively larger decreases in frequency over time.
- As frequency has declined, severity has increased because the number of smaller claims has decreased faster than the number of larger claims. Some of the increase in average severity is also explained by a statewide shift toward contracting exposures, which has an average severity that exceeds the statewide average.
- The frequency of permanent partial claims has declined at a slower pace than other, less severe injury types.
- Strains are the most frequent cause of injury and have declined at a faster rate than other injuries. Meanwhile, fall, slip or trip injuries and motor vehicle accidents, which have relatively higher severities, have shown only slight decreases in frequency.



- Fracture, crushing, and dislocation injuries have seen a smaller decline in lost time claim frequency and a larger increase in lost time severity than other nature of injury groups.
- Lower back area injuries experienced a larger decrease in frequency than other claims, while head, neck, shoulder and arm injuries experienced smaller decreases in frequency but larger increases in severity. Further, the frequency of arm, shoulder, knee, and leg injuries is correlated to age and is higher for claimants in their forties and fifties.
- Generally, claim frequency is higher for workers in their early twenties, late forties, and fifties. Claim severity is often lower for workers injured in their twenties than in other age groups, and this is particularly evident for workers in the stores and dealers industry group. Claimants in their forties and fifties filed more claims that exceeded \$100,000 than claimants in other age groups.



STUDY DATA

This study was based primarily on the following data sources:

New York aggregate financial call data provides the latest available lost time frequency information. Frequency is defined as the number of lost time claims per one million dollars of standard premium at current Rating Board loss cost level and current wage level. Standard premiums were developed to ultimate and claim counts were developed to the fifth report level.

Unit Statistical Report (“USR”) data, though not as recent as the financial call data, provides detailed policy and claim level information, which enables analysis of frequency by various claim characteristic categories such as cause of injury, nature of injury, part of body, and industry group of the injured worker. For analyses that utilize USR data, “on-leveled standard premium” is defined as reported payroll adjusted to the current wage level divided by one hundred, times the current loss cost and experience rating modification. Reported claim counts were evaluated from first report level to tenth report level.

Additionally, New York Workers’ Compensation Board data provides information on claimants’ age at the time of injury.

Claims related to September 11, 2001 terrorist attacks and the subsequent rescue, recovery, and clean-up operations were excluded.



TABLE OF CONTENTS

Section		Page
I.	Frequency Definition and Background	5
II.	Economic and Reform Impact on Frequency	5
III.	Industry Mix	8
IV.	Severity	9
V.	Injury Type	11
VI.	Injury Cause	13
VII.	Nature of Injury	15
VIII.	Part of Body	16
IX.	Claimant Age and Industry Group	19



I. Frequency Definition and Background

Claim frequency is defined as the number of claims per unit of exposure, which is affected by a variety of measures such as payroll and loss cost levels. In this study, the exposure base used to measure frequency is one million dollars of standard premium at current loss cost and wage levels.

To measure changes over time in claim frequency, the change in the raw number of claim counts is not sufficient. For example, if the number of claims increases by 20% over a certain period, but premiums (at current loss cost and wage levels) also increase by 20% over the same period, claim frequency remains the same. The increase in claim counts in this case is due to additional exposure in the system. An increase in claim counts at a higher or lower rate than premiums, results in a frequency increase or decrease, respectively.

The premiums used as the base are affected primarily by payroll and loss costs, because premiums equal the product of these two elements.

II. Economic and Reform Impact on Frequency

The Takeaway: New York lost time claim frequency has experienced a long-term decline since 1996, although the decline has slowed between 2013 and 2018. The change in lost time frequency is impacted by a variety of factors, including both economic factors and non-economic changes in the New York workers' compensation system.

The Details: New York lost time claim frequency has experienced a long term decline since 1996. This finding is consistent with countrywide results published by the National Council on Compensation Insurance ("NCCI"). As noted by NCCI in its research publications, much of the decline is a result of safer workplaces, a changing economy that is moving toward industries with lower claim frequency, an aging workforce, and reforms enacted in many states in the 1990s aimed at workplace safety.¹ In California, there has been a similar long-term frequency decline with evident changes around economic downturns along with some differences that are unique to California.²

New York claim frequency changes are influenced by a variety of factors. The overall statewide economic cycle is the primary economic factor affecting New York claim frequency. However, non-economic factors, such as legislative reforms, improved safety standards, and changes in industry mix, influence claim frequency as well.

¹ See Coate, Patrick, "Changing Workforce Demographics and Workplace Injury Frequency" *NCCI*, April 2019.

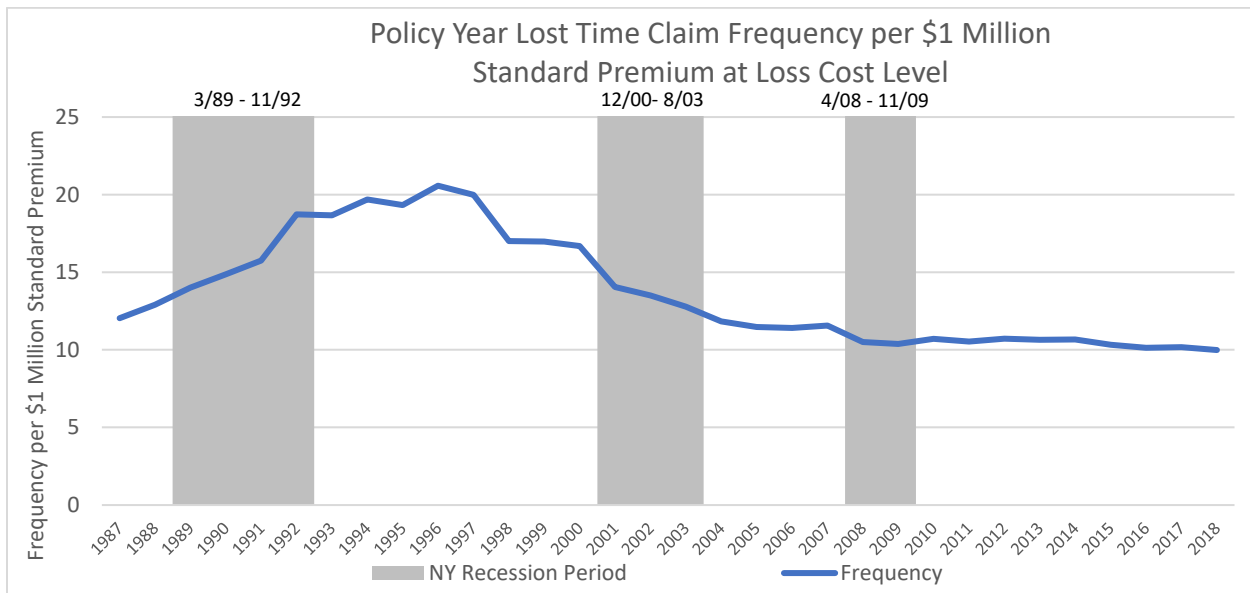
² See "Impact of Economic Downturn on California Workers' Compensation Claim Frequency" *WCIRB California*, June 2020.



Industry research suggests that claim frequency generally increases during periods of economic expansion and decreases during recessions.³ In New York, this rule does not always hold true.

Claim frequency in New York during the economic recessions of 2001 and 2008 followed the general rule described above – it decreased significantly during the initial phase of those recessions. This is shown graphically in Exhibit 1, which displays New York claim frequency over time with the gray bars representing recessionary periods.

Exhibit 1



However, the economic recession from March 1989 to November 1992 did not follow this pattern in New York. During this period, lost time claim frequency increased significantly.⁴ This increase in claim frequency is partly attributable to statutory increases in indemnity benefits in July 1990, July 1991, and July 1992, as well as to large changes in payroll and rate changes impacting premium levels. Industry research confirms this finding, suggesting that benefit

³ See Shuford, Harry, "Workers' Compensation and the Business Cycle: An Overview" NCCI, October 30, 2008; see also Schmid, Frank "Workplace Injuries and Job Flows" NCCI, July 31, 2009; see also Hartwig, Robert, "Workers Compensation and Economic Cycles: A Longitudinal Approach" NCCI, 1997.

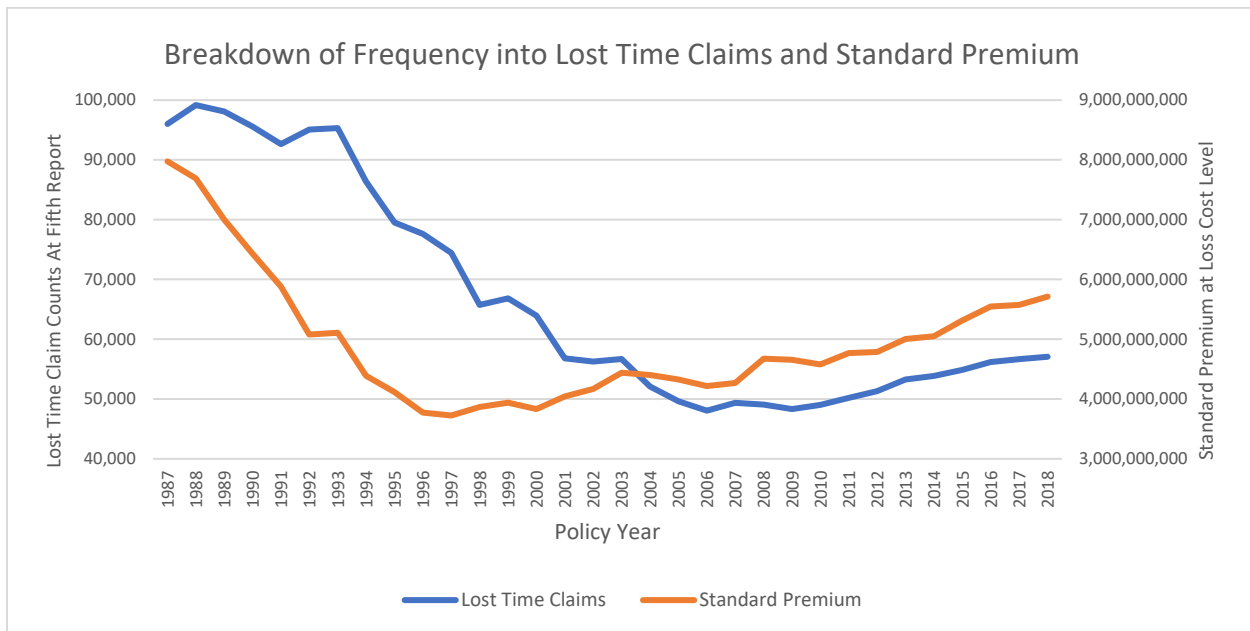
⁴ See Exhibit 1 above; see also the New York State Department of Labor's data on recessions at https://www.labor.ny.gov/stats/recessions_nys.shtm.



increases often result in an increase in claim frequency.⁵ The increase in claim frequency in New York from 1991 to 1993 more than offset any decrease resulting from the recession.

Analysis of the components underlying claim frequency, *i.e.*, lost time claim count and on-leveled standard premium, highlights the drivers of claim frequency. Specifically, from 1991 to 1993, claim counts increased by 2.9% while premiums (at current level) decreased by 13%, resulting in a significant increase in frequency over the period. Claim counts and on-leveled standard premium by year are displayed in Exhibit 2.

Exhibit 2

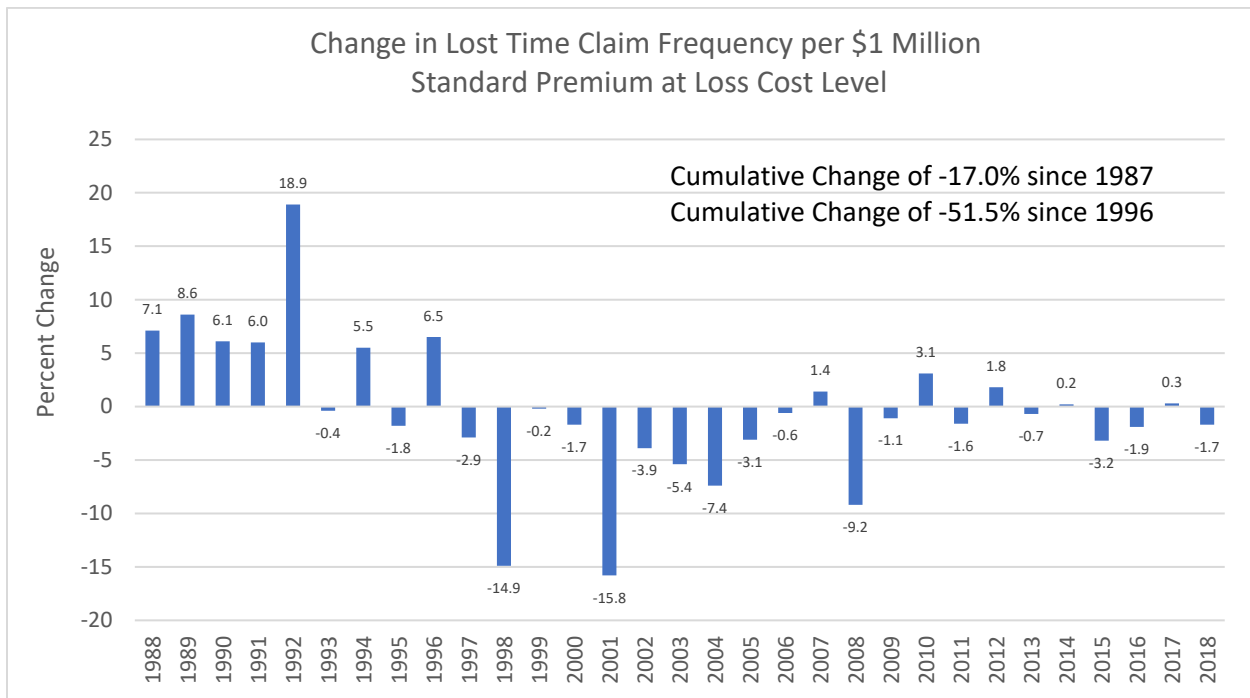


While claim frequency tends to increase during times of economic expansion, this rule did not prove true in New York during the economic expansion of the late 1990s. Various components of the 1996 legislative reform likely contributed to New York’s decreasing claim frequency during this time period. Claim frequency in New York continued to decrease through the 2000s up to the 2007 reforms and stabilized shortly thereafter, exhibiting only a slightly decreasing trend since that time. Exhibit 3 displays the annual changes in frequency as well as cumulative changes based on two different periods.

⁵ See Moss, Robert, and Ashley Pistole, *et al.*, "Impact on Utilization From an Increase in Workers Compensation Indemnity Benefits" NCCI, November 2009; https://www.ncci.com/Articles/Pages/IL_benefitincreaseimpact.pdf.



Exhibit 3



Anecdotal information indicates that claim counts in 2020 are decreasing significantly due to factors related to the COVID-19 pandemic. However, it is not known whether the magnitude of workers’ compensation premium reductions will be higher or lower than the reductions in claim counts. Consequently, the impact of the COVID-19 pandemic and resulting recession on claim frequency, which is dependent on the relationship between claim counts and premium, cannot yet be determined. Nevertheless, due to the pandemic’s varying economic impact on different sectors of the economy, it is reasonable to assume that changes in claim frequency will vary across occupational classifications.

III. Industry Mix

The Takeaway: The long-term decline in lost time claim frequency is partially explained by the economic shift in the State away from manufacturing and toward (a) lower frequency industries such as the contracting, services, and miscellaneous industry groups, and (b) the professional and office industry group, which has seen relatively larger decreases in frequency over time.

The Details: The manufacturing industry group’s share of statewide workers’ compensation premium declined significantly, from 13.4% of total premium in the State in policy year 2000 to 8.2% in 2017. At the same time, the lost time claim frequency in the manufacturing industry group has remained higher than the services, miscellaneous and contracting industry groups. Accordingly, as the State’s economy has shifted away from manufacturing and toward other



industries with lower frequencies, the average statewide claim frequency has decreased. For example, the premium share of the contracting industry group, which has a significantly lower frequency profile than other industry groups, has increased since the Great Recession, putting significant downward pressure on overall claim frequency. Significant frequency decreases in the professional and office industry group have also contributed to the overall frequency decrease.

Exhibit 4 displays average annual changes by industry group for various measures with a frequency relativity for each of the groups in the last column.

Exhibit 4

Average Annual Changes in Premium, Payroll, Frequency, and Severity by Industry Policy Years 2000-2017

Industry	Average Annual Change in:				Average Industry Group
	Premium Share	Payroll Share	Frequency	Severity	Frequency Relative to Overall Frequency
Stores & Dealers	0.4%	-0.1%	-2.2%	2.7%	+32.6%
Professional	1.0%	0.1%	-3.3%	1.9%	+18.8%
Manufacturing	-2.8%	-2.7%	-2.8%	3.3%	+16.4%
Services	0.3%	0.5%	-2.0%	2.7%	+9.7%
Miscellaneous	1.0%	0.5%	-0.8%	4.1%	+3.3%
Contracting	0.2%	-0.3%	-1.8%	3.6%	-45.2%

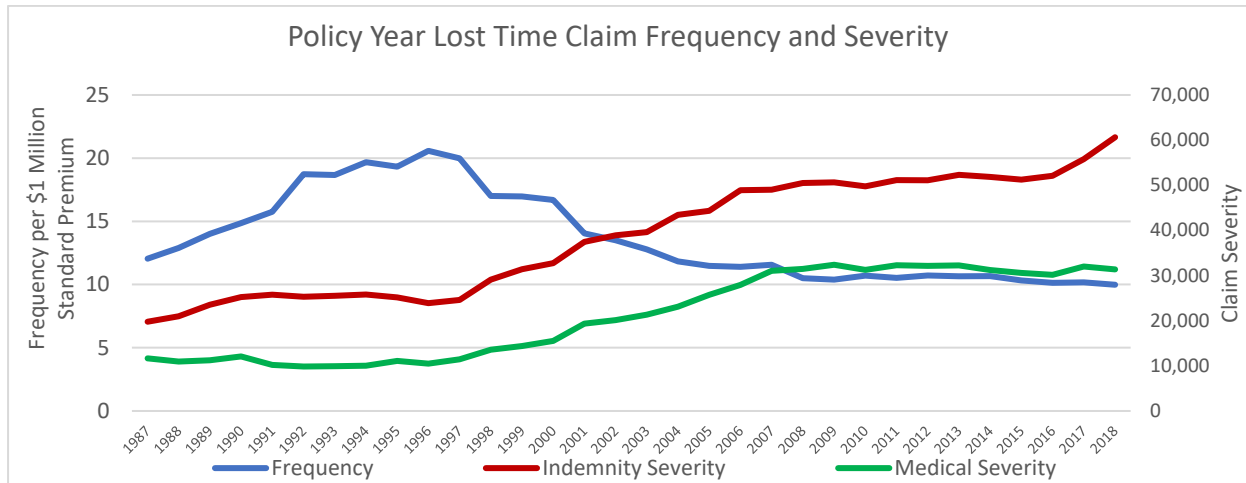
IV. Severity

The Takeaway: As frequency has declined, severity has increased because the number of smaller claims has decreased faster than the number of larger claims. Some of the increase in average severity is also explained by a statewide shift toward contracting exposures, which has an average severity that exceeds the statewide average.

The Details: In New York, claim severity increased significantly between 1996 and 2007. From a loss cost and pricing standpoint, the increase in severity during this period was offset by a sharp frequency decline. Exhibit 5 compares frequency, indemnity severity, and medical severity over policy years 1987 to 2018.

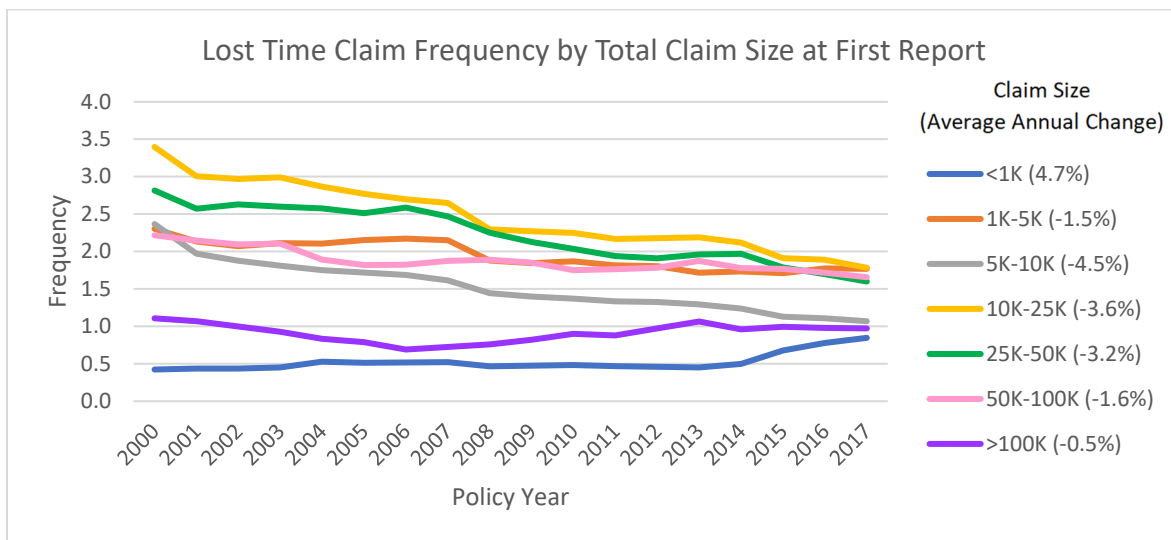


Exhibit 5



An examination of claims by size demonstrates that average severity is predominately driven by the relative frequency of small and large claims. In recent years, the frequency of smaller claims has decreased at a faster rate than the frequency of larger claims, thereby resulting in an increase in average severity. For example, claims in the \$5,000 to \$25,000 range have decreased at a faster rate than claims in the \$25,000 to \$100,000 range, and average severity has increased as a result. It bears mention that the dip in the number of claims over \$100,000 between 2004 and 2012 is not a major driver of the decrease in claim frequency because these claims are less common. Exhibit 6 shows the frequency of different sized claims from policy years 2000 to 2017.

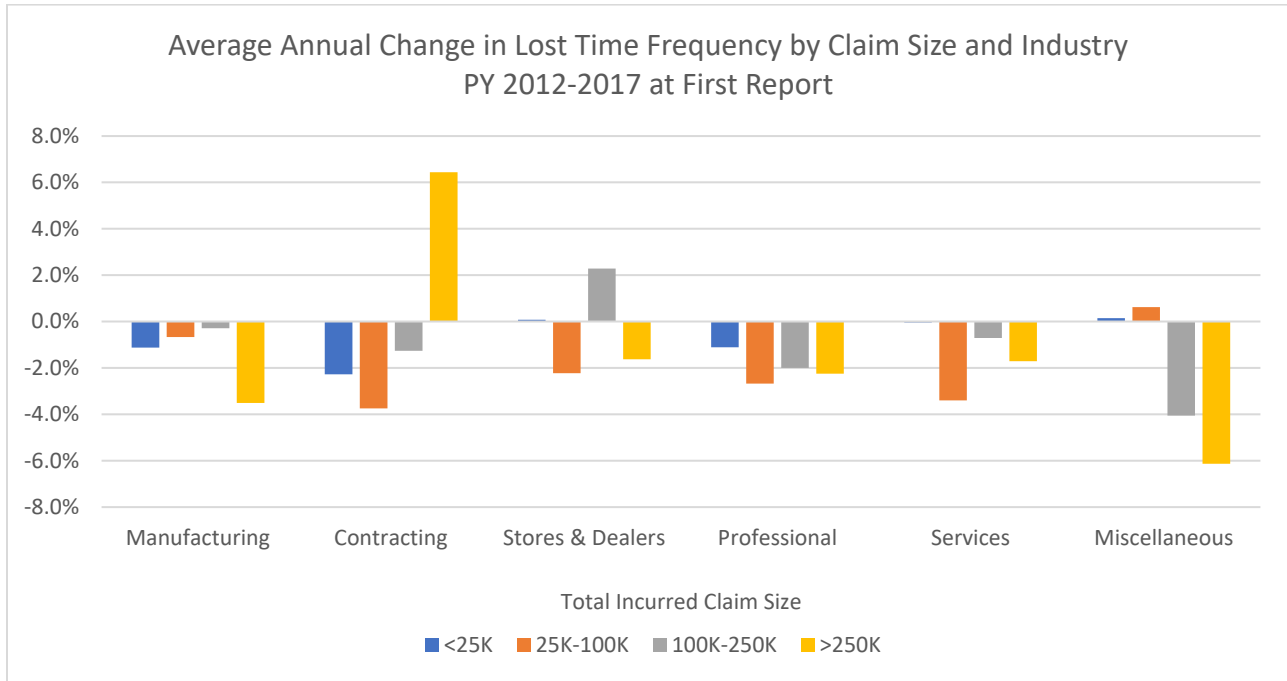
Exhibit 6





From 2012 to 2017, the contracting industry group experienced an increase in the frequency of claims over \$250,000, which contributed to the increase in claim severity. The increase of this industry group’s share of the overall state economy during this time period has amplified the upward pressure that this industry group has placed on total claim severity. Exhibit 7 shows the average annual changes in claim frequency by claim size and industry group from policy years 2012 to 2017.

Exhibit 7



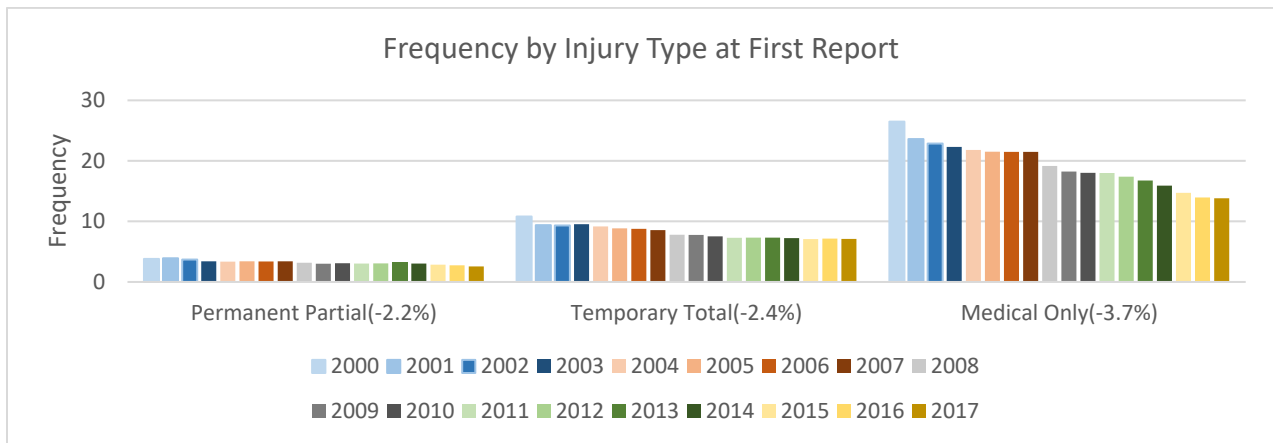
V. Injury Type

The Takeaway: The frequency of permanent partial claims has declined at a slower pace than other, less severe injury types.

The Details: Frequency for all injury types (fatal, permanent total, permanent partial, temporary total, and medical only) has decreased over the years studied. However, the decline in medical only claims, which have not been included in this study up to this point, is larger than the decline in other injury types. The decline in permanent partial claims, which are generally more costly, is smaller than the decline in temporary total claims, which have a lower average cost. Exhibit 8 displays the frequency changes for permanent partial, temporary total, and medical only injuries at first report with the average annual changes in parenthesis.



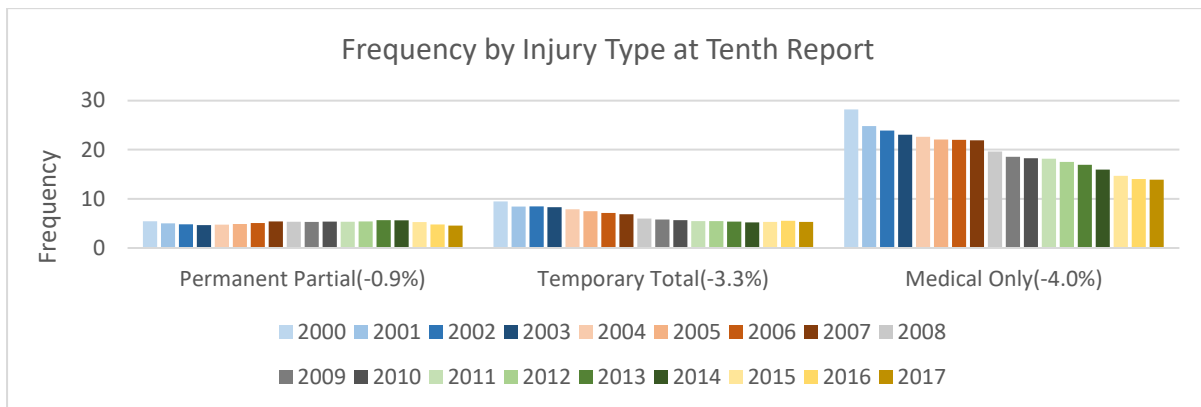
Exhibit 8



While fatal and permanent total claims have also shown a general decrease in frequency over the years of the study, the low number of claims in these categories has also resulted in some volatility.

Over time, claims may change injury type, and such reclassification tends to move claims into more severe injury type categories. Nevertheless, an examination of frequency by injury type at tenth report⁶ shows results similar to those at first report. Exhibit 9 displays the frequency changes for permanent partial, temporary total, and medical only injuries at tenth report.

Exhibit 9

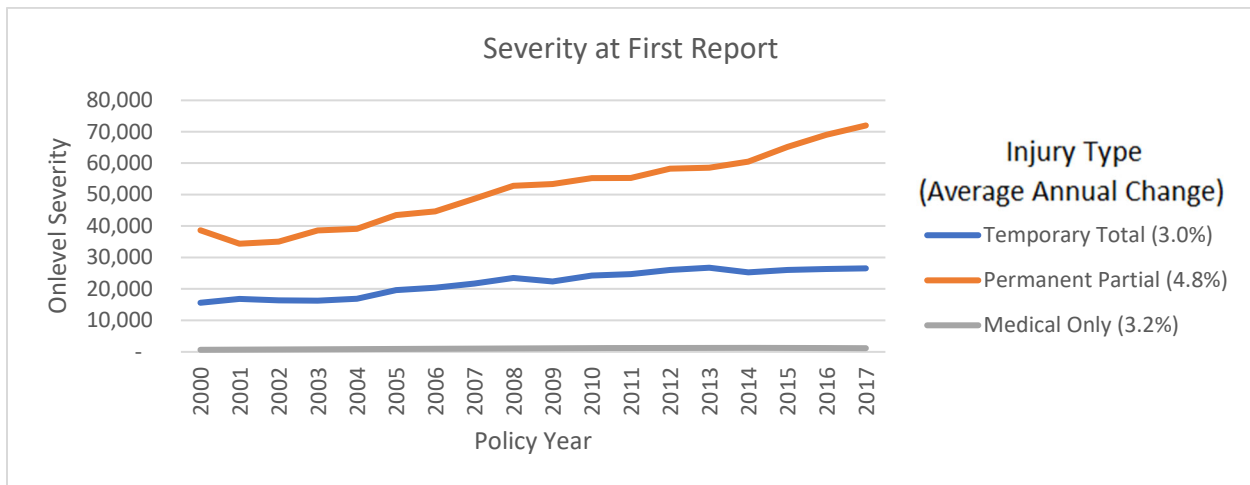


Over the same period, average claim severities have increased for all injury types. However, the average severity of permanent partial claims has increased more than temporary total and medical only claims. Exhibit 10 shows the severity levels of common injury types at first report.

⁶ Claim counts by injury type were developed from the latest reported data to tenth report based on historical development patterns.



Exhibit 10



VI. Cause of Injury

The Takeaway: Strains are the most frequent cause of injury and have declined at a faster rate than other injuries. Meanwhile, fall, slip or trip injuries and motor vehicle accidents, which have relatively higher severities, have shown only slight decreases in frequency.

The Details: Strains are consistently the leading cause of injury of lost time claims, followed by the Fall, Slip, or Trip and Struck by injury cause groups. While almost all causes of injury in New York experienced a decline in claim frequency since 2000, the decline in strain injuries is most significant. Motor vehicle accidents and fall, slip or trip injuries, which are the two most severe causes of injury, have shown some of the smallest declines in frequency. Exhibit 11 shows how lost time frequency by cause of injury group has changed over time, and Exhibit 12 shows the lost time severity at first report by cause of injury group.



Exhibit 11

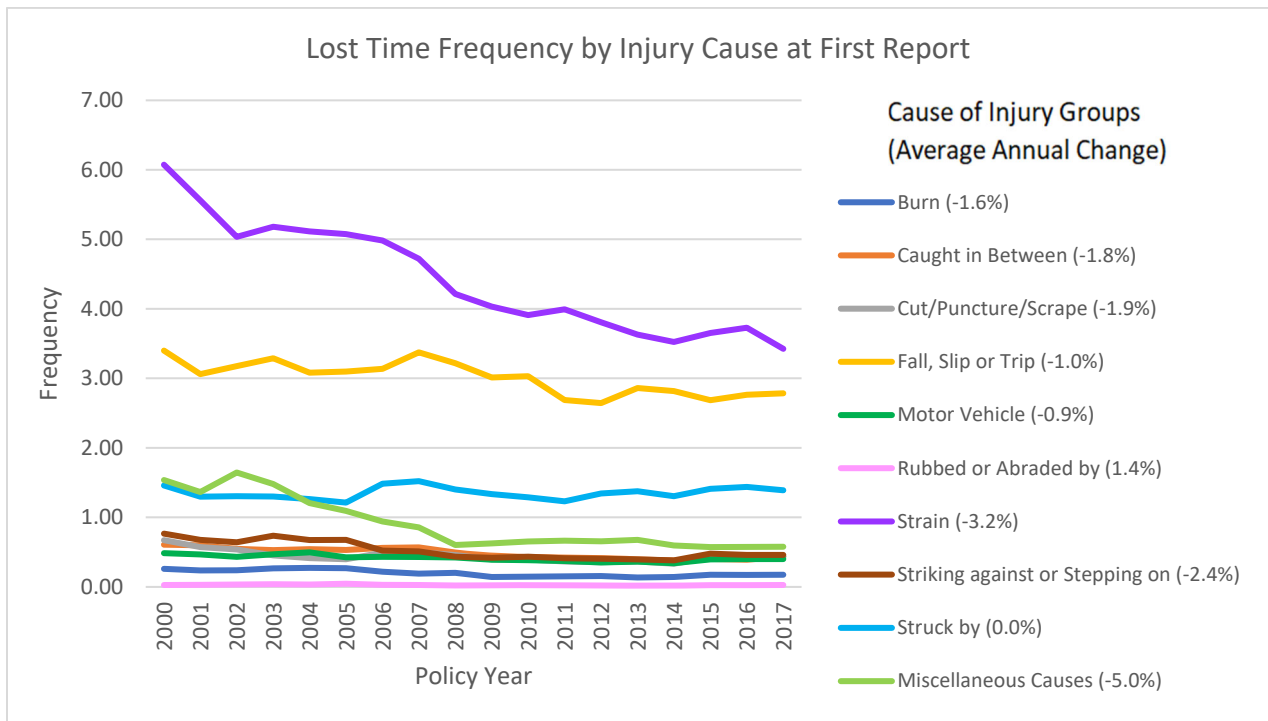
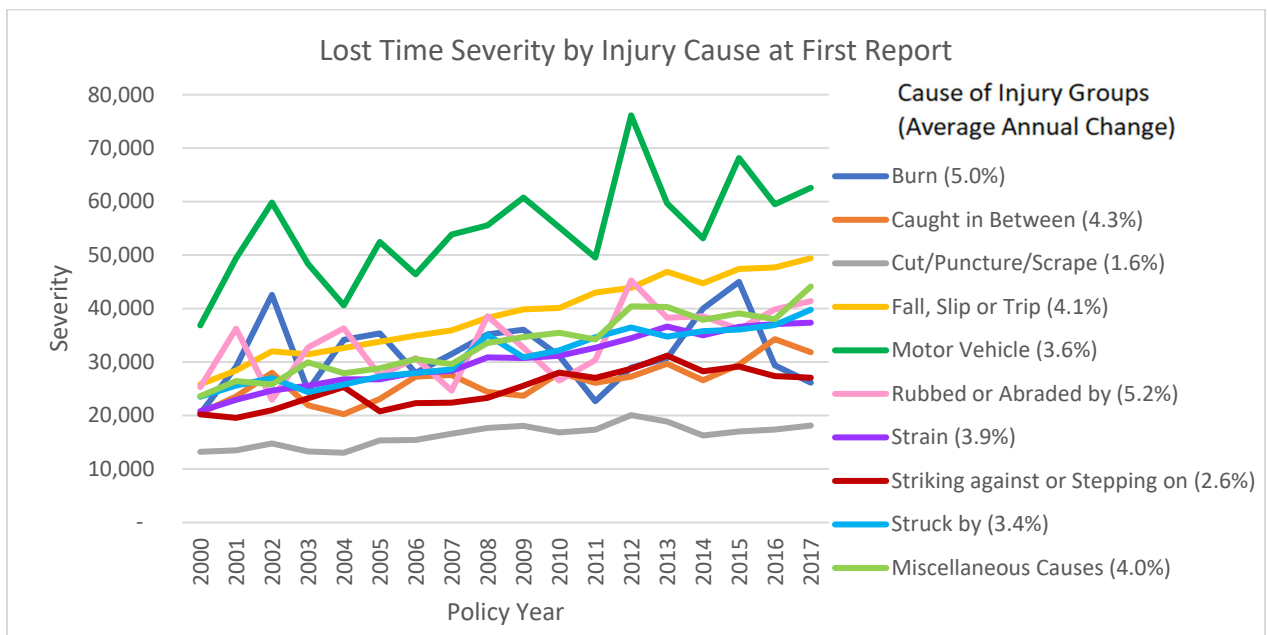


Exhibit 12



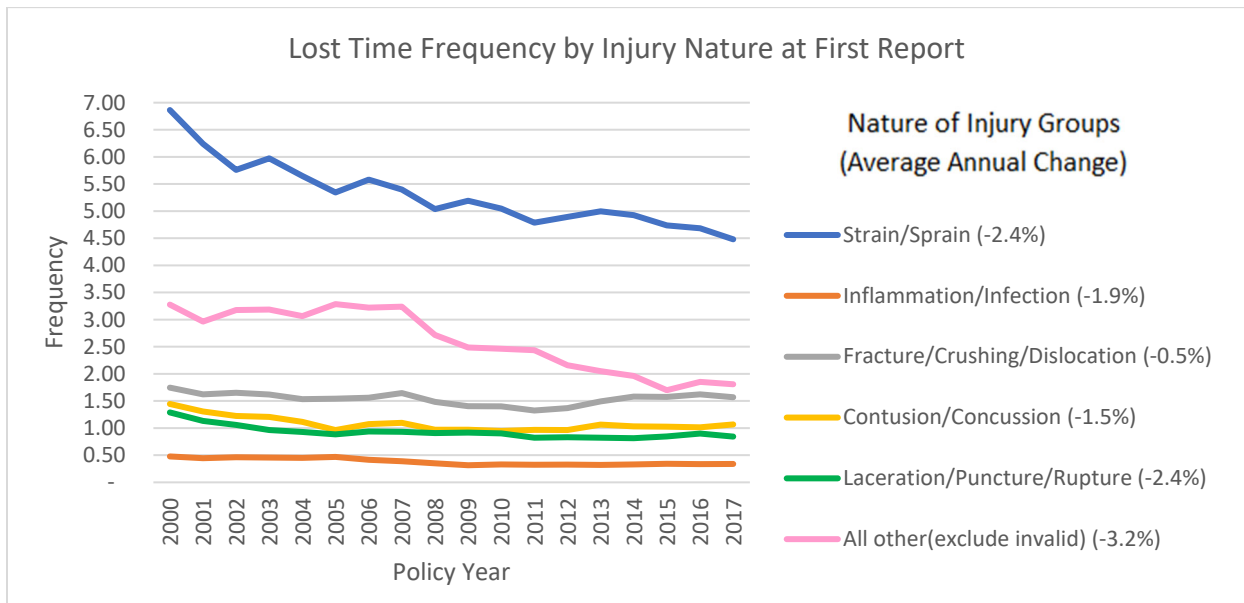


VII. Nature of Injury

The Takeaway: Fracture, crushing, and dislocation injuries have seen a smaller decline in lost time claim frequency and a larger increase in lost time severity than other nature of injury groups.

The Details: While most nature of injury groups, such as strain and sprain injuries, have experienced declines in claim frequency, the frequency of fracture, crushing, and dislocation injuries has remained rather stable. Exhibit 13 shows lost time frequency at first report by nature of injury group over policy years 2000 to 2017.

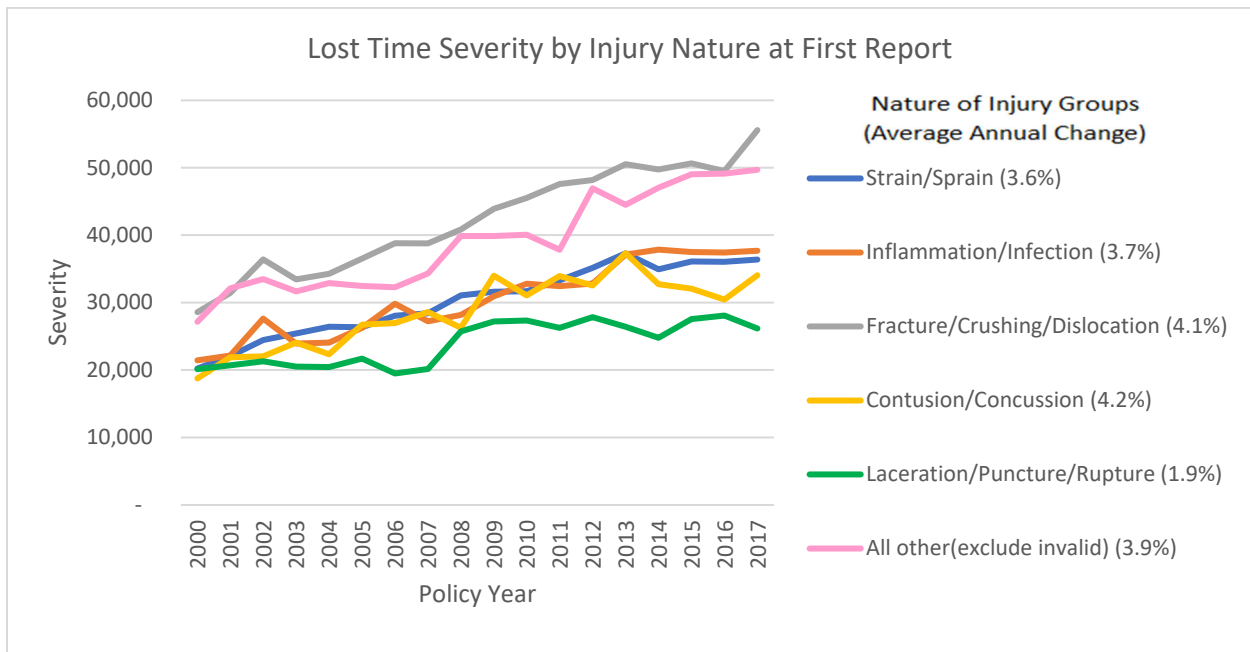
Exhibit 13



Over the same period, the Fracture, Crushing, and Dislocation nature of injury category had the highest average severity and that severity has increased at a faster rate than other categories. Exhibit 14 shows lost time severity at first report by nature of injury group over policy years 2000 to 2017.



Exhibit 14



VIII. Part of Body

The Takeaway: Lower back area injuries experienced a larger decrease in frequency than other claims, while head, neck, shoulder and arm injuries experienced smaller decreases in frequency but larger increases in severity. Further, the frequency of arm, shoulder, knee, and leg injuries is correlated to age and is higher for claimants in their forties and fifties.

The Details: Between 2000 and 2017, the frequency of lower back area injuries reported at first report has declined on average 4.9% per year. Other parts of body have seen smaller declines in frequency while shoulder and arm injuries have increased in frequency. Of particular note is that the severity of neck and head injuries has increased at a higher rate than other parts of body while the severities of injuries to the hand, wrist, ankle, foot, or toe have increased at a slower pace. Exhibit 15 shows the lost time frequency at first report for different part of body groups from policy year 2000 to 2017 and Exhibit 16 shows the corresponding severity changes for these part of body groups.



Exhibit 15

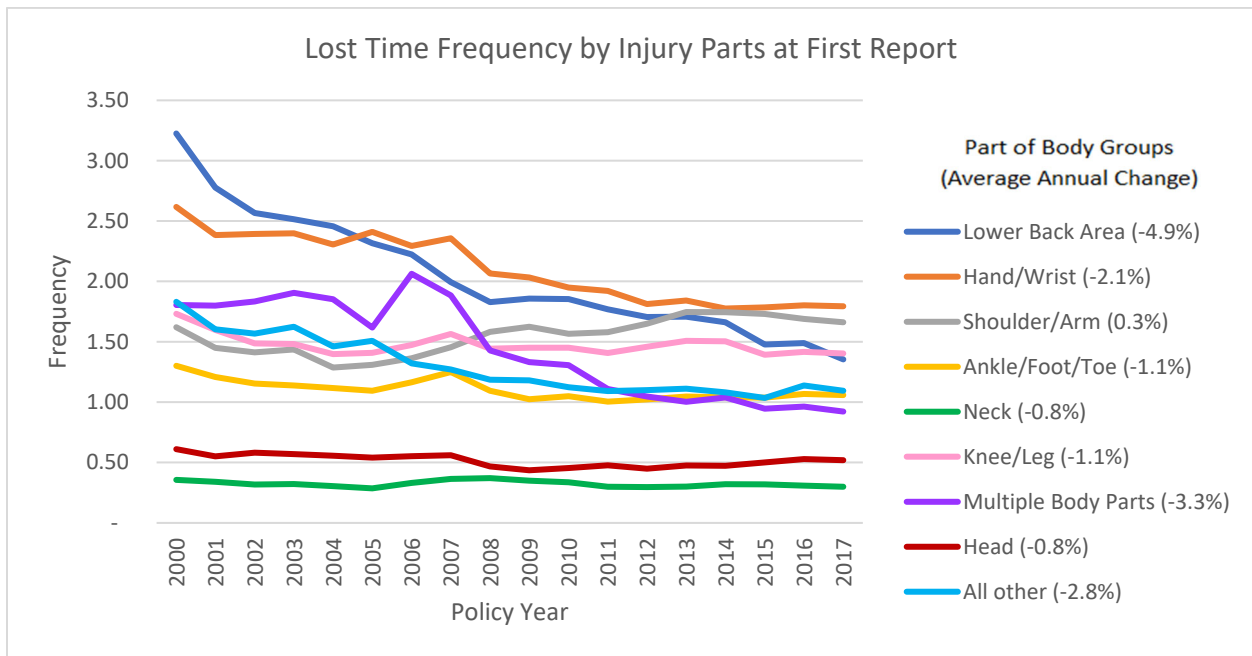
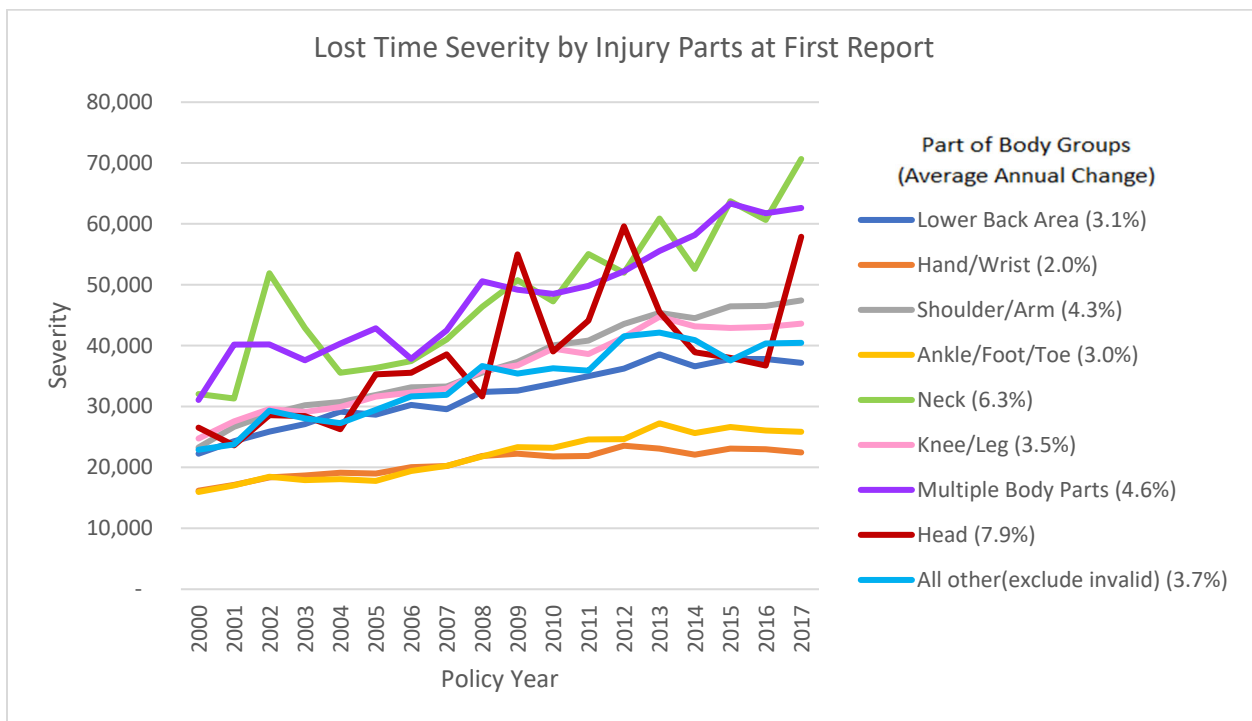


Exhibit 16





The relationship between part of body and claimant’s age varies by body part. Specifically, claim frequency of injuries to the shoulder, arm, knee, and leg is higher for claimants who are injured in their forties and fifties. Meanwhile, injuries to the head, ankle, foot, or toe appear to have frequency levels that are relatively unaffected by age of the claimant. Exhibits 17a and 17b show the frequency of claims by age at the time of injury for different part of body groups.

Exhibit 17a

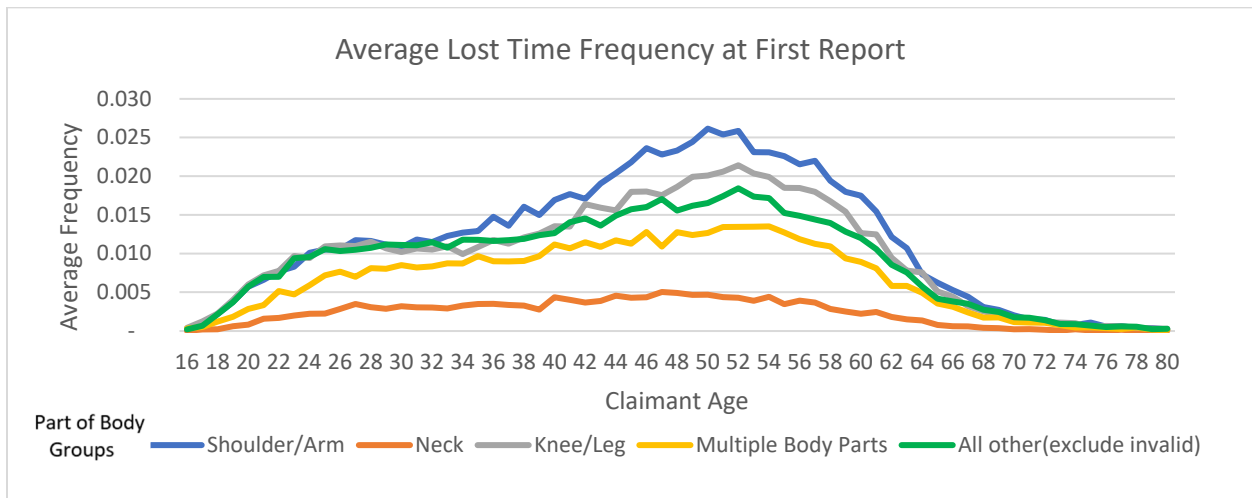
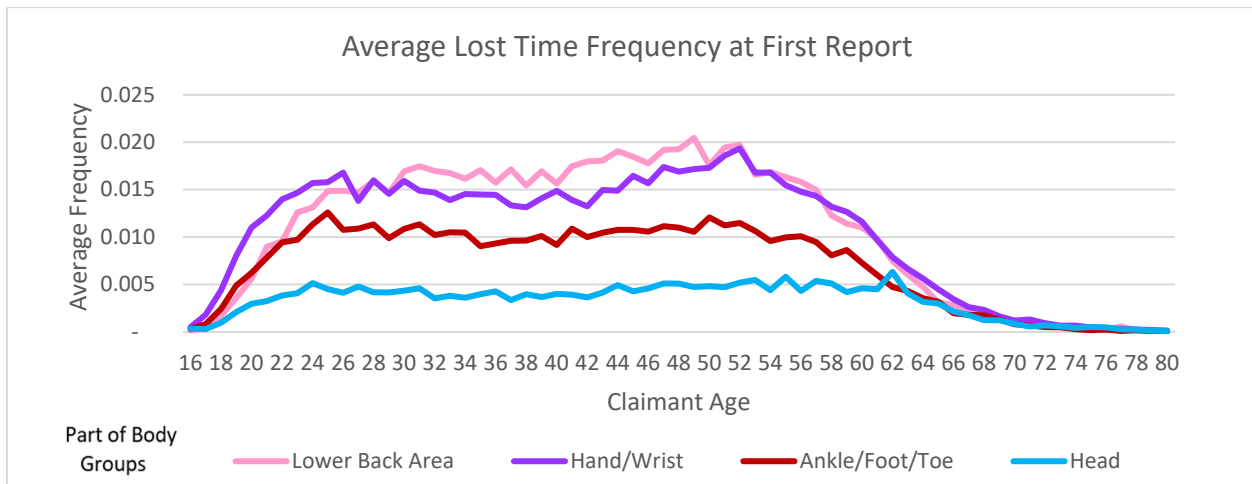


Exhibit 17b





IX. Claimant Age and Industry Group

The Takeaway: Generally, claim frequency is higher for workers in their early twenties, late forties, and fifties. Claim severity is often lower for workers injured in their twenties than in other age groups, and this is particularly evident for workers in the stores and dealers industry group. Claimants in their forties and fifties filed more claims that exceeded \$100,000 than claimants in other age groups.

The Details: Lost time claim frequency was examined by age of claimant, industry group, and size of the loss at first and fifth reports. In general, lost time claim frequency is notably higher for claimants in their twenties, late forties, and fifties. Claim frequency appears to develop consistently upward among the different age groups and industry groups between first and fifth report, and stabilize thereafter. Much of this increase in claim frequency is caused by the reclassification of medical only claims to lost time claims. It bears noting that the claim frequency of workers in their twenties within the stores and dealers industry group is notably higher than it is for other age and industry groups. However, younger workers generally have lower claim severity.

Across all industry groups, claimants in their forties and fifties filed more claims that exceeded \$100,000 than claimants in other age groups. This correlation may be attributable to longer recovery periods due to age that impacts both indemnity and medical benefits.

The frequency of claims exceeding \$100,000 is highest for the contracting industry group at first report because it is easier to identify severe injuries in this group than it may be in other industry groups. However, by fifth report, the frequency of claims exceeding \$100,000 in other industry groups generally exceeds that of the contracting industry group. Notably, the frequency of claims over \$100,000 triples between first and fifth reports.

The exhibits below combine data from policy years 2010 to 2017 and group claims based on claimant age at the time of injury and the industry group of the worker. Patterns vary greatly between the stores and dealers, contracting, and miscellaneous industry groups when compared to the manufacturing, professional, and service industry groups. Exhibit 18 shows all losses, while Exhibit 19 breaks losses down by size of claim, at both first and fifth reports.



Exhibit 18

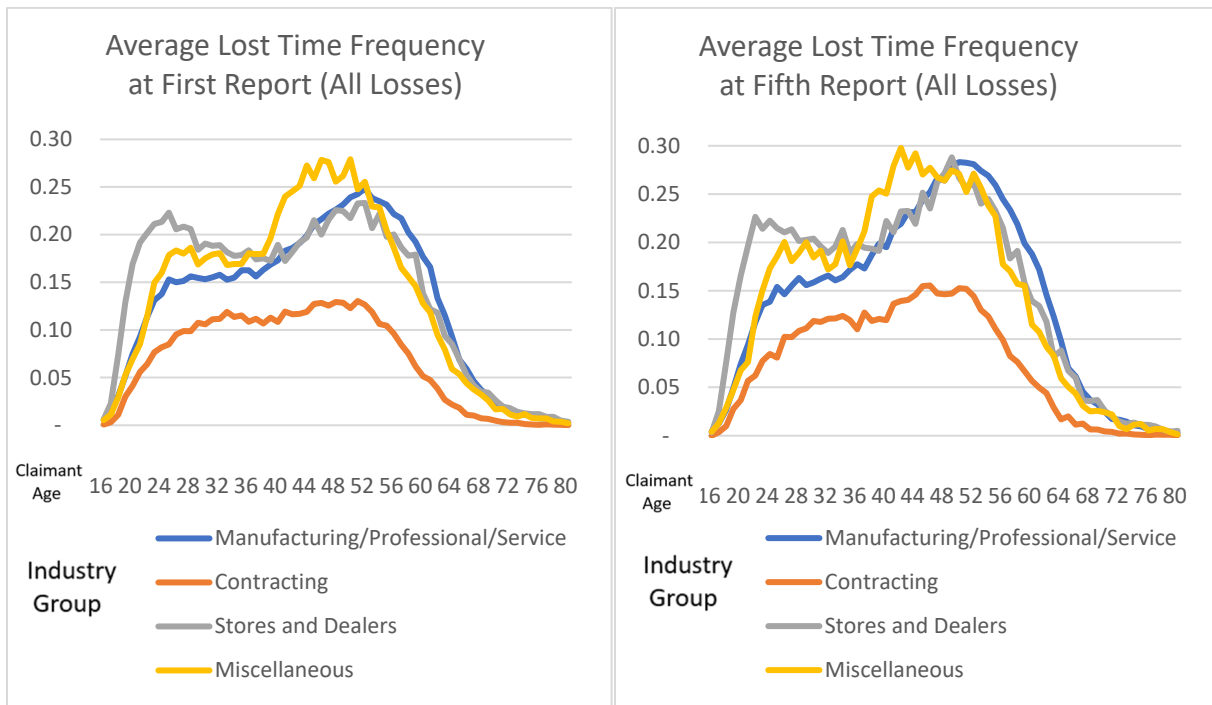


Exhibit 19

