

STATE OF MAINE
WORKERS' COMPENSATION BOARD



**Most Expensive
100 Workers' Compensation Claims
2002-2006**

A Research Paper

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I. Background

In 2002, a study of the most costly employees' compensation claims in Maine was conducted for injuries occurring from 1994-1998. The study was conducted to identify cost drivers within the employees' compensation system and generate questions for further research. The information was presented in several different venues and was received with interest from insurers, employers, and safety coordinators as well as the employees' compensation and occupational research community. A subsequent study was completed in 2008 for injuries occurring from 1999-2003. This current study (for injuries occurring from 2002-2006) endeavors to ascertain how the cost drivers of the employees' compensation system have changed since the previous two studies.

II. Methodology

In April of 2010 (each study was conducted with data from three years and four months after the close of the last year of study), a database query was generated to identify costs reported to the Maine Workers' Compensation Board (MWCB) for workers' compensation claims where indemnity benefits were paid for injuries occurring from 2002-2006. The most costly one hundred claims (100 Most Costly Claims) were identified and the claim files were reviewed and checked for accuracy.

The first phase of the research compares the cost data for the 100 Most Costly Claims to all other compensated claims (All Other Compensated Claims) for the same time period. The purpose of this comparison is to identify any differences between the two populations (100 Most Costly Claims and All Other Compensated Claims) in both frequency and/or severity (cost). The second phase of the research compares and contrasts the 100 Most Costly Claims in this study with the results of the 100 Most Costly Claims in the 2002 and 2007 studies. It is important to note that there is some duplication of two years in this new study. As claims age the cost varies and some claims with 2001 and 2002 dates of injury do not appear in the most recent 100 Most Costly Claims and some additional claims that were not in the earlier study with dates of injury of 2001 and 2002 now appear.

Two terms are used repeatedly for comparison in this study: age and length of service. In both cases, these are reported as of the date of the employee's injury. Age is reported as the age of the employee on the day of the injury and length of service is reported as the length of time between the employee's date of hire and the date of the injury.

III. Findings 2002-2006 100 Most Costly Claims Compared to All Other Compensated Claims

A. Demographics

For this study, the MWCB database identified 78,647 lost time injuries. The MWCB has record of indemnity benefits paid on 29,878 (38%) of these injuries. Cost data was available on 25,348 (32%) of these compensated claims (payment information was required but not filed in 6% of the claims). It is assumed that the difference between the number of lost time injuries and the number of compensated claims (48,769 claims) are injuries where the employee returned to work within the seven day waiting period.

The following table compares gender, average age and average length of service of the two populations (the chart from the previous study is appended for comparison purposes). The 100 Most Costly Claims was heavily favored to males (66% more males than females). Although the All Other Compensated Claims also favored males, the male population is only 24% percent greater than the female population.

There is little variation in the average age of the two populations. In this study, the average and median ages of all the subpopulations have increased by as little as six months to as much as two years. The medians are included to assess the variability of the sample. (Where there is wide disparity between the median and average, there is either a small sample and/or a wide disparity from low to high.)

An analysis of the length of service of an injured employee proved to have more variability. As an example, the median length of service of the 83 men in the 100 Most Costly Claims is 2.7 years with fully half the males below the median and half over the median. To affect the average so strongly, the length of service of half the males is well above the 2.7 median length of service. These disparities appear within all male categories and within the female All Other Compensated Claims.

Although the average length of service for both populations did not differ much when looked at as a whole, the males within the 100 Most Costly Claims have worked longer at their job than the males in the All Other Compensated Claims. This is reversed with the females in each population. The average length of service of the females in the 100 Most Costly Claims is nearly two years less than the females in the All Other Compensated Claims.

2002-2006	100 Most Costly Claims			All Other Compensated Claims		
	Male	Female	Total	Male	Female	Total
Gender	83	17	100	15,660	9,588	25,248
Percent of Total Claims Population	(83%)	(17%)		(62.0%)	(38.0%)	
Average Age	41.6	43.4	41.9	41.1	42.8	41.8
Median Age	41.0	44.0	43.0	41.0	44.0	42.0
Average Length of Service	9.6 years	6.3 years	9.1 years	8.8 years	8.0 years	8.5 years
Median Length of Service	2.7 years	6.7 years	2.9 years	2.8 years	2.9 years	2.8 years
Percent of Total Claims			0.4%			99.6%

1999-2003	100 Most Costly Claims			All Other Compensated Claims		
	Male	Female	Total	Male	Female	Total
Gender	80	20	100	16,876	10,538	27,414
Percent of Total Claims Population	(80%)	(20%)		(61.6%)	(38.4%)	
Average Age	41.1	41.4	41.2	40.4	41.9	41.0
Median Age	40.0	42.0	40.0	40.0	42.0	41.0
Average Length of Service	6.6 years	4.1 years	6.1 years	6.8 years	6.0 years	6.5 years
Median Length of Service	2.9 years	2.9 years	2.9 years	2.4 years	2.5 years	2.5 years
Percent of Total Claims			0.4%			99.6%

B. Costs by Gender

The following table compares the average cost of a claim of the two populations by gender (the chart from the previous study is appended for comparison purposes). Although the 100 Most Costly Claims represent

not even half a percentage point (0.4%) of all claims with payments in the five year period, they represent more than nine percent (9.3%) of the total costs of employees' compensation in Maine for injuries in that five year period, up three quarters of a percent from the last study (8.6%).

In both of the populations, the average cost of a claim for males is greater than for females. The difference between males and females in the 100 Most Costly Claims is nearly ninety thousand dollars (\$89,001) which represents almost fourteen percent (13.8%) more than the average female claim cost. Although the dollar difference is far smaller in the All Other Compensated Claims (\$3,329), it still represents a corresponding thirteen percent (13.0%) more paid to males than to females. In the prior study, the differences were \$19,905 and \$2,256 representing 3.8% and 11.3% more paid on average to males than to females in the corresponding populations.

2002-2006	100 Most Costly Claims			All Other Compensated Claims		
	Male	Female	All	Male	Female	All
Average Cost	\$733,886	\$644,885	\$718,756	\$29,029	\$25,700	\$27,765
Total Cost	\$60,912,524	\$10,963,046	\$71,875,570	\$454,589,779	\$246,412,094	\$701,001,873
Percent of Costs	84.7%	15.3%		64.8%	35.2%	
Percent of Total Costs			9.3%			90.7%

1999-2003	100 Most Costly Claims			All Other Compensated Claims		
	Male	Female	All	Male	Female	All
Average Cost	\$550,255	\$530,350	\$546,274	\$22,151	\$19,895	\$21,286
Total Costs	\$44,001,315	\$10,607,007	\$54,608,322	\$373,901,800	\$209,654,602	\$583,556,403
Percent of Costs	80.6%	19.4%		64.1%	35.9%	
Percent of Total Costs			8.6%			91.4%

C. Frequency by Age

2002-2006	100 Most Costly Claims		All Other Compensated Claims	
	Number	Percentage	Number	Percentage
Under 20	2	2.0%	572	2.3%
20-24	3	3.0%	1865	7.4%
25-34	17	17.0%	4645	18.4%
35-44	37	37.0%	7167	28.4%
45-54	30	30.0%	6887	27.3%
55-64	11	11.0%	3474	13.7%
65 and Over	0	0.0%	638	2.5%

The above table compares the injury frequency by age of the two populations. The age distribution between the two populations is similar. The Under 20 and 65 and Over age categories comprise the

smallest percentage of both populations. Most of the injuries in both populations occur in employees between the ages of 35 and 44. The age category on either side of this age group decreases and there is a marked decrease in the 55-64 category.

In national data presented in October 2007 by the National Council on Compensation Insurance, Inc. (NCCI)¹, the frequency of injury per 1,000 full time employees is inversely related to the age of the employee for the time period from 2003 to 2005. Those 20-24 have more than sixteen injuries per thousand employees. Those 25-44 have fourteen injuries per thousand employees and those 45-64 have thirteen injuries per thousand employees.

D. Cost by Age

The following table compares the total cost of a claim of the two populations by age. In the 100 Most Costly Claims a difference occurs within the 35-44 category and the 45-54 category. Although there were seven more injuries within the younger category, the older category had 4% more of the costs. Within the All Other Compensated Claims, the number of claims and the cost of those claims in the 35-44 and 45-54 categories were statistically the same. The only difference of note is between the “shoulder” categories of 25-34 and 55-64. Although the younger category represents 4.6% more of the injuries, the older category represents nearly the same costs (0.2% difference). This is seen again in the oldest and youngest categories. The Under 20 category had 64 fewer injuries than those in the 65 and Over category (0.3% difference), yet the cost of the claims in the older category was more than two and one half times the cost of the injuries in the younger category.

2002-2006 Age Category	100 Most Costly Claims			All Other Compensated Claims	
	Total Cost	Rank	n=	Total Cost	Rank
Under 20	\$1,228,650	6	2	\$6,008,658	7
20-24	\$3,928,274	5	3	\$24,475,816	5
25-34	\$9,727,950	3	17	\$103,601,327	4
35-44	\$22,972,832	2	37	\$220,765,138	2
45-54	\$25,538,523	1	30	\$222,347,752	1
55-64	\$8,479,341	4	11	\$108,347,237	3
65 and Over	\$0		0	\$15,455,945	6

In claims that are settled by lump sum (see Open versus Closed (Settled) Claims below), the lump sum is estimated based on the life expectancy of the employee. Therefore, it was assumed in a previous study that within the 100 Most Costly Claims, the age of the employee would be inversely proportional to the cost of the claim. This assumption led to the development of an average cost by age chart (see below) for both populations. The assumption that the cost of a claim varies inversely to the age of the employee continues to not hold true when looking at the data in this manner.

In the 100 Most Costly Claims, the average cost of a claim is difficult to look at in the younger two categories, since there are only two or three claims represented. However, in the next four categories, the average cost of a claim increases with the age of the employee until age 55. Then there is a slight decrease (9.8%) in the average cost of these eleven claims.

¹ 2007 State Employees’ Compensation State Advisory Forum , p. 45.

In the All Other Compensated Claims, the average cost of a claim increases with the age of the employee up to a point. Although there is a slight downward cost in the 45-54 category and then another small decrease in the 55-64 category, the average cost of a claim within the three categories decreases by less than 5%. The real decrease occurs when the employee is 65 and Over. These claims are only 2% of all the claims, but they cost on average 20 to 25 percent less than those injuries that occur in the three prior categories.

2002-2006 Age Category	100 Most Costly Claims		All Other Compensated Claims	
	Average Cost	Rank	Average Cost	Rank
Under 20	\$614,325	5	\$10,505	7
20-24	\$1,309,425	1	\$13,124	6
25-34	\$572,232	6	\$22,304	5
35-44	\$620,887	4	\$30,803	3
45-54	\$851,284	2	\$32,285	1
55-64	770,849	3	\$31,188	2
65 and Over	\$0	7	\$24,226	4

As this next chart shows (the chart from the previous study is appended for comparison purposes), there is a fairly steady increase in the indemnity costs of a claim in both populations as the employee ages until age 55. A negligible decrease in the average indemnity cost occurs for those in the 55-64 category. Then there is a significant drop in the 65 and Over category.

2002-2006 Age Category	100 Most Costly Claims		All Other Compensated Claims	
	Average Indemnity Cost	Rank	Average Indemnity Cost	Rank
Under 20	\$18,710	6	\$2,456	7
20-24	\$52,761	5	\$3,370	6
25-34	\$83,469	4	\$6,488	5
35-44	\$102,938	3	\$9,164	3
45-54	\$110,631	1	\$9,620	1
55-64	\$108,470	2	\$9,559	2
65 and Over	\$0	7	\$7,694	4

1999-2003 Age Category	100 Most Costly Claims		All Other Compensated Claims	
	Average Indemnity Cost	Rank	Average Indemnity Cost	Rank
Under 20	\$16,101	7	\$1,579	7
20-24	\$64,344	5	\$3,038	6
25-34	\$104,275	2	\$5,805	4
35-44	\$93,035	4	\$8,351	3
45-54	\$133,827	1	\$8,550	1
55-64	\$96,379	3	\$8,443	2
65 and Over	\$62,668	6	\$5,039	5

With regard to the average medical costs of a claim, a pattern of increasing average cost with age through age 55 appears in the All Other Compensated Claims but appears lacking in the 100 Most Costly Claims. As noted previously, there are very few claims in the younger two age categories (five in total) resulting in the average costs to be skewed significantly based on the severity of those few claims. In general, average medical costs in the 100 Most Costly Claims increase from ages 25 to 44 and then increase dramatically after age 45.

2002-2006 Age Category	100 Most Costly Claims		All Other Compensated Claims	
	Average Medical Cost	Rank	Average Medical Cost	Rank
Under 20	\$426,708	4	\$7,018	6
20-24	\$1,075,438	1	\$6,803	7
25-34	\$225,387	6	\$9,460	5
35-44	\$257,884	5	\$12,396	3
45-54	\$571,516	3	\$12,686	1
55-64	\$582,954	2	\$12,602	2
65 and Over	\$0	7	\$10,947	4

1999-2003 Age Category	100 Most Costly Claims		All Other Compensated Claims	
	Average Medical Cost	Rank Order	Average Medical Cost	Rank Order
Under 20	\$436,226	1	\$4,642	7
20-24	\$229,874	5	\$5,600	6
25-34	\$191,453	6	\$8,043	5
35-44	\$270,181	4	\$10,461	2
45-54	\$290,291	3	\$10,110	3
55-64	\$374,541	2	\$10,471	1
65 and Over	\$171,601	7	\$9,045	4

E. Frequency by Length of Service

The following table compares frequency by length of service (the chart from the previous study is appended for comparison purposes). The length of service of injured employees is gradually increasing; however, the frequency of claims within both populations is virtually the same with only modest changes.

In the last study nearly one third of all compensated claims occurred when the employee had less than one year of service at the time of the injury. Even though this recent data includes two years from the last study, only 29.7% of the injuries occurred to those with less than one year on the job. Those with less than two years experience still account for 4.2 to 4.4 out of every ten compensated claims in Maine.

In national data presented in October 2007 by the NCCI², it was reported that nationally 24.4% of all employees have less than one year of experience with their current employer, and yet they represent 35.0%

² 2007 State Employees' Compensation State Advisory Forum , p. 45.

of all injuries. Those with one to five years of experience represent 36.8% of the employees and 34.1% of the injuries. NCCI concluded that experience matters.³

2002-2006 Length of Service	100 Most Costly Claims		All Other Compensated Claims	
	Number	Percentage	Number	Percentage
Less than 6 months	16	16.0%	4990	19.8%
6 months but less than 1 year	11	11.0%	2495	9.9%
1 year but less than 2 years	17	17.0%	3076	12.2%
2 years but less than 5 years	13	13.0%	4957	19.6%
5 years but less than 10 years	14	14.0%	3414	13.5%
10 years or more	29	29.0%	6313	25.0%

1999-2003 Length of Service	100 Most Costly Claims		All Other Compensated Claims	
	Number	Percentage	Number	Percentage
Less than 6 months	20	20.0%	6074	22.7%
6 months but less than 1 year	11	11.0%	2776	10.4%
1 year but less than 2 years	12	12.0%	3439	12.9%
2 years but less than 5 years	20	20.0%	4832	18.1%
5 years but less than 10 years	13	13.0%	3458	13.0%
10 years or more	22	22.0%	6117	22.9%

F. Cost by Length of Service

The following table compares total cost by length of service. As noted above, this information indicates that more than four out of every ten dollars spent in the workers' compensation system is spent on employees who have worked with a company for less than two years. Nearly three out of every ten dollars is spent on employees who have worked with a company for less than one year.

2002-2006 Length of Service	100 Most Costly Claims			All Other Compensated Claims		
	Cost	Percentage	Rank	Cost	Percentage	Rank
Less than 6 months	\$ 11,526,569	16.0%	2	\$122,893,993	17.5%	3
6 months but less than 1 year	\$ 7,667,941	10.7%	6	\$ 67,026,951	9.6%	6
1 year but less than 2 years	\$ 10,582,105	14.7%	3	\$ 82,776,455	11.8%	5
2 years but less than 5 years	\$ 9,819,692	13.7%	5	\$143,077,648	20.4%	2
5 years but less than 10 years	\$ 9,993,774	13.9%	4	\$ 97,399,771	13.9%	4
10 years or more	\$ 22,285,490	31.0%	1	\$187,811,442	26.8%	1

³ 2007 State Employees' Compensation State Advisory Forum, p.40.

The following table compares average cost by length of service. While the average cost of a claim when compared to age had a standard deviation in the All Other Compensated Claims of nearly \$262 thousand, indicating age to have a strong influence over the cost data, the average cost of a claim in the 100 Most Costly Claims when compared to the length of service was far more stable (standard deviation of \$48 thousand).

2002-2006 Length of Service	100 Most Costly Claims		All Other Compensated Claims	
	Average Cost	Rank	Average Cost	Rank
Less than 6 months	\$720,411	3	\$24,628	6
6 months but less than 1 year	\$697,086	5	\$26,865	5
1 year but less than 2 years	\$622,477	6	\$26,910	4
2 years but less than 5 years	\$755,361	2	\$28,864	2
5 years but less than 10 years	\$713,841	4	\$28,530	3
10 years or more	\$768,465	1	\$29,750	1
Average of All	\$718,756		\$21,286	

G. Lump Sum Settlements

There were 3,374 lump sum settlements for injuries that occurred from 2002 to 2006. The total value of those lump sum settlements was in excess of \$184 million. The 100 Most Costly Claims represent more than \$19 million of that sum or 10.6% of the total lump sum settlement dollars.

The overall cost of claims settled with a lump sum ranged from a low of under one hundred dollars (\$52.94) to a high of over one million dollars (\$1,248,584). As the chart below indicates, more than fifteen percent of the settlements were less than five thousand dollars. Nearly forty percent of all settlements were within ten to fifty thousand dollars. Five hundred eleven settlements were in excess of one hundred thousand dollars and 68 of those were in the 100 Most Costly Claims.

Lump Sum Settlements for Injuries Occurring 1999-2003

0-\$5,000	604	17.9%
\$5,001-\$10,000	300	8.9%
\$10,001-\$50,000	1,306	38.7%
\$50,001-\$100,000	653	19.3%
\$100,001-\$249,999	428	12.7%
\$250,000 +	83	2.5%
Total lump sum settlements: 3,374		

IV. Comparison Findings: 100 Most Costly Claims 1994-1998, 1999-2003, and 2002-2006

While the previous section dealt with many different ways of looking at the differences between the entire population of compensated claims with injuries in 2002-2006 and its subpopulation of the 100 Most Costly Claims for the same period, this section looks only at the smaller subpopulation and compares it with the same subpopulation in the prior two studies.

A. Demographics

100 Most Costly Claims	1994-1998			1999-2003			2002-2006		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Gender	78	22	100	80	20	100	83	17	100
Average Age	41.9	41.8	41.9	41.1	41.4	41.2	41.6	43.4	41.9
Average Length of Service (years)	n/a	n/a	n/a	6.6	4.1	6.1	9.6	6.3	9.1

The gender split in the 100 Most Costly Claims remained basically the same in all studies. All populations had a preponderance of males. The age of the injured employee in the studies has stayed remarkably stable. In the last two studies the women in the study were slightly older than their male counterparts. The age range in the first study was 24 to 63 years of age, the age range in the second study was 16 to 81 years of age and the range in the final study was 16 to 62 years of age. Although the range differs, the average age of the injured employee remained approximately the same.

B. Costs by Gender

100 Most Costly Claims	1994-1998			1999-2003			2002-2006		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Average Cost	\$390,002	\$383,851	\$388,650	\$550,016	\$530,350	\$546,083	\$733,886	\$644,885	\$718,756

The overall average cost of a claim within this population has almost doubled in the time periods under study. In the first study, the cost of a claim ranged from a low of \$284,000 to a high of \$1,044,000. The range in the second study was from a low of \$344,000 to a high of \$2,940,000. The range in the third study was from a low of \$439,000 to a high of \$3,031,000.

C. Frequency by Age

100 Most Costly Claims	1994-1998		1999-2003		2002-2006	
	Number	Percentage	Number	Percentage	Number	Percentage
Under 20	0	0.0%	2	2.0%	2	2.0%
20-24	1	1.0%	4	4.0%	3	3.0%
25-34	27	27.0%	22	22.0%	17	17.0%
35-44	37	37.0%	37	37.0%	37	37.0%
45-54	26	26.0%	23	23.0%	30	23.0%
55-64	9	9.0%	11	11.0%	11	11.0%
65 and Over	0	0.0%	1	1.0%	0	0.0%

There is remarkable similarity within the three studies as far as age distribution. More than three quarters of the 100 Most Costly Claims occurred with employees from ages 25-54, at the height of their working years. More than a third of them in each study were ages 35-44. In the second and third studies, there were more injuries in younger employees than in the first study and there were two or three more injuries in the older age categories (age 55 and over).

D. Cost by Age

100 Most Costly Claims Age Category	1994-1998		1999-2003		2002-2006	
	Total Cost	Percentage	Total Cost	Percentage	Total Cost	Percentage
Under 20	\$0	0.0%	\$928,024	1.7%	\$1,228,650	1.7%
20-24	\$342,664	0.9%	\$1,991,729	3.6%	\$3,928,274	5.5%
25-34	\$10,756,338	28.2%	\$11,092,773	20.3%	\$9,727,950	13.5%
35-44	\$13,867,072	36.4%	\$19,828,215	36.3%	\$22,972,832	32.0%
45-54	\$9,272,680	24.3%	\$13,886,182	25.4%	\$25,538,523	35.5%
55-64	\$3,905,501	10.2%	\$6,457,960	11.8%	\$8,479,341	11.8%
65 and Over	\$0	0.0%	\$423,440	0.8%	\$0	0.0%

The percentage of total costs does not differ significantly (more than 2.5%) from the frequency percentage in the first two studies. There is not this same similarity in the third study. Four of the eight claims totaling more than one million dollars are in the 45-54 age category which explains the 12.5% difference in total costs from the frequency of claims.

100 Most Costly Claims Age Category	1994-1998		1999-2003		2002-2006	
	Average Cost	Rank	Average Cost	Rank	Average Cost	Rank
Under 20	\$0		\$464,012		\$614,325	
20-24	\$342,664		\$497,932		\$1,309,425	
25-34	\$398,383	2	\$482,294	4	\$572,232	4
35-44	\$374,786	3	\$535,898	3	\$620,887	3
45-54	\$356,642	4	\$603,747	1	\$851,284	1
55-64	\$433,945	1	\$587,087	2	\$770,849	2
65 and Over	\$0		\$423,440		\$0	

There has been a shift in the average cost of a claim by age. In the age categories where fewer than five claims occur (Under 20, 20-24 and 65 and Over), making comparisons is not reasonable given the influence of one or two extremely large claims; however when you look at the four remaining categories, the average cost of a claim in the first study does not behave in the same manner as the average cost of a claim in each of the subsequent studies.

E. Open versus Closed (Settled) Claims

100 Most Costly Claims	1994-1998		1999-2003		2002-2006	
	Open	Closed	Open	Closed	Open	Closed
Total Cost	\$7,987,220	\$30,891,006	\$21,171,111	\$33,456,263	\$22,619,495	\$44,683,607
% of Costs	20.5%	79.5%	38.8%	61.2%	33.6%	66.4%
Average Cost	\$532,481	\$406,461	\$622,680	\$506,913	\$983,456	\$580,307
Number	15	76	34	66	23	77
	* 9 claims were not examined					

The cost of all claims is rising; however the average cost of an open claim is rising at a more aggressive rate than a closed claim. In the first study, the \$126 thousand dollar difference was thirty-one percent more than the cost of a closed claim. In the second study, the \$116 thousand dollar difference was twenty-three percent more than the cost of a closed claim. In the third study, the difference between the average cost of an open and closed claim was \$403 thousand dollars which is sixty-nine percent more than the cost of a closed claim.

In the first study seventy-six of the 100 Most Costly Claims were closed via a lump sum settlement at the time of the study. Nine claims were not available for inspection, so it is likely that those too were in the process of being settled. In the second study, only sixty-six of the claims had been settled. That means that thirty-four of these 100 Most Costly Claims still remained open and ongoing at the time of the study in contrast to the fifteen open claims in the first study. In the third study, seventy-seven of the 100 Most Costly Claims were closed via a lump sum settlement and twenty-three remained open at the time of the study.

The length of time from the date of injury to the date of the lump sum settlement is unknown for the first study (this information was not collected). The average time from the date of injury to the date of the lump sum settlement was 1,677 days (four years and almost seven months) in the second study and 1,766 days (four years and eleven months) in the third study. It appears that the time between the date of injury and the date of settlement is increasing.

With the passage of the Medicare, Medicaid and SCHIP Extension Act of 2007, all settlements must take into account Medicare's interests. Of the seventy-seven settlements in place at the time of the study, one of those claims was a fatality which did not require any future Medicare payments and one was a claim where the indemnity was settled, but the medical portion of the claim was not. The remaining seventy-five claims were reviewed to assess whether a Medicare Set Aside (MSA) existed and if so, what form it took:

100 Most Costly Claims 2002-2006	Number of Claims with MSA	Average Total Cost with MSA	Number of Claims without MSA	Average Total Cost without MSA
Lump Sum Settlement	24	\$536,656	22	\$546,210
Structured Lump Settlement	22	\$616,999	2	\$565,153
Subrogation Settlement	4	\$845,680	1	\$461,881
TOTAL	50	\$596,729	25	\$545,352
Average Age/ Average MSA	41.34	\$81,818	37.52	
Age Range	16-59		18-53	

Most of the settlements in the first study were lump sum settlements. The same was not found with the claims that had a settlement in the second and third studies. Although, as noted above, ten fewer claims were closed in the latest study versus the previous study (sixty six versus seventy-six), many more were closed with the structured form of settlement. Four of the claims were closed via subrogation (payment from another source i.e., car insurance.) Thirty-nine were closed via a lump sum payment at the time of the closing and twenty-three were closed via a structured settlement. Additionally, the average lump sum settlement in the first study was \$194,497. In the second study, the average lump sum settlement was \$239,856. When this amount is converted to 1994-1998 dollars the amount is \$212,498. This represents a 9.3% increase from the first study. This percentage of increase is modest when compared to similar growth in medical costs (see above.)

F. Breakdown of Costs for 100 Most Costly Claims

The cost of the 100 Most Costly Claims as a percentage of the overall cost of claims shows significant and continued growth in the medical area. The percentage of the claim cost associated with a lump sum settlement has been approximately a fourth of the cost of a claim. Other costs have continued to shrink. The one area that appears to have some variation is the benefit or indemnity payments. This is somewhat surprising since the average claim remains open more than four months longer than in the first study, yet the indemnity benefits represent more than a five percent reduction in the relative cost of a claim.

100 Most Costly Claims	1994-1998		1999-2003		2002-2006	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Medical	\$13,353,369	37.8%	\$27,160,321	49.8%	\$40,428,039	55.7%
Benefit Payments	\$ 6,148,830	17.4%	\$10,331,047	18.9%	\$9,827,003	13.5%
Settlements	\$14,158,245	40.0%	\$15,350,769	28.1%	\$20,738,616	28.6%
Employer Legal	\$ 316,279	0.9%	\$ 499,903	0.9%	\$485,975	0.7%
Other	\$ 1,390,464	3.9%	\$ 1,266,281	2.3%	\$1,050,918	1.5%

In trying to compare the dollars spent in each category, it is important to acknowledge the impact that inflation (and deflation) has on all costs.

100 Most Costly Claims	1994-1998	1999-2003			2002-2006		
	Real Dollars	Real Dollars	Adjusted Dollars	Increase or Decrease from 1994-1998	Real Dollars	Adjusted Dollars	Increase or Decrease from 1994-1998
Medical	\$13,353,369	\$27,160,321	\$24,062,419	+80.2%	\$40,428,039	\$35,793,134	+168.0%
Benefit Payments	\$ 6,148,830	\$10,331,047	\$ 9,152,689	+48.9%	\$ 9,827,003	\$ 8,162,291	+ 32.7%
Settlements	\$14,158,245	\$15,350,769	\$13,599,862	-3.9%	\$20,738,616	\$13,633,010	-3.7%
Employer Legal	\$ 316,279	\$ 499,903	\$ 442,884	+40.0%	\$ 485,975	\$ 443,964	+40.4%
Other	\$ 1,390,464	\$ 1,266,281	\$ 1,121,849	-19.3%	\$ 1,050,918	\$ 1,124,583	-19.1%

In the above chart, all of the above categories were adjusted for inflation. Using the CPI inflation calculator found on the Bureau of Labor Standards website all of the dollars in the above chart were adjusted to 1996 dollars for apples to apples comparison.

Over time there is a steady decrease in the "Settlements" and "Other" categories. It is interesting to note that the decreases stay level over the studies. The increase in "Employer Legal" also remains constant from the initial study through both subsequent studies. When reviewing the "Benefit Payment", there was an initial increase in the second study of nearly fifty percent. In the third study, the "Benefit Payment" dropped to only one third more than the initial study. The real dramatic change is the continued increase in "Medical".

In the second study, medical costs increased by more than eighty percent. In the third study, medical costs are more than one and one half times greater than the medical costs in the initial study.

Claims remaining open for longer (seven months on average) may explain some of the increased medical costs. Also a factor is that in the latest study, more than twenty million (28.0%) of the nearly seventy-two million dollars in claims cost are represented by nine claims that remain and are likely to remain open. The average medical costs for these nine claims are in excess of two million dollars (\$2,091,849).

G. Types and Causes of Injuries

100 Most Costly Claims	1994-1998	1999-2003	2002-2006
	Number	Number	Number
Back/Neck	62	31	29
Extremities/Shoulder	28	33	37
Multi Trauma	6	25	32
Head	4	6	2
Other (none noted or systems not indicated above)	0	5	0

The most frequent injury category reported in the 100 Most Costly Claims continues to be back/neck and extremity/shoulder injuries. Multi-trauma injuries appear to play a larger part in later studies than in the initial study. The increased number of motor vehicle and pedestrian accidents is one reason for this increase.

Another way of categorizing injuries is to look at the cause of the injury. This was not done for the first study, but was reviewed in subsequent studies. The causes of injuries appear below:

100 Most Costly Claims	1999-2003	2002-2006
	Number	Number
Lift or Strain	26	27
Fall (different levels)	18	12
Slip (same level)	13	8
Object (hit by or crushed by)	10	8
Motor Vehicle Accident (including pedestrians)	11	15
Repetitive Injuries	9	9
Machinery Accidents	6	16
Other (chemical or infection exposure, burn or electrocution)	7	5

The most common cause in both of the later studies is lifting or straining. This is consistent with the large number of back/neck injuries noted above. The second most common cause in this latest study was machinery accidents followed closely by motor vehicle accidents. While falls and slips were a greater causation factor in the earlier study, those causes fall to only twenty percent of the injuries rather than the thirty-one percent in the preceding period.

V. Summary and Questions for Further Study

A review of the most costly workers' compensation claims in Maine is an interesting collection of data that offers more questions for future research than answers. This latest study indicates that some things have changed in intervening years and some things have remained remarkably the same.

The following results appeared in the 100 Most Costly Claims:

- The gender of employees being injured in Maine are more likely to be men than women (80/20).
- The average age of employees being injured in Maine has been 41.2-41.9 for all three periods thirteen years of injuries.
- The average length of service has increased from 6.1 years to 9.1 years (it appears that injured employees in Maine are trending older and more experienced).
- The average cost of a claim for a male has continued to grow at a pace greater than the average cost of a female (from 1.6% more than a female claim in the first study to 13.8% more than a female claim in the third study).
- The frequency of the 100 Most Costly Claims has not substantially changed in age distribution over the three periods of study.
- The average cost of an open claim in the 100 Most Costly Claims has always been greater than the cost of a claim closed by lump sum settlement. In this study while the open claims represents less than a quarter of the claims, they represent more than a third of the cost.
- Medical costs are driving the overall costs of claims in the 100 Most Costly Claims. The medical costs of these one hundred claims even when rounded down to 1996 dollars represent a 168% increase: an increase that cannot be explained by any other mitigating factor.
- Extremity injuries (37) are the primary injury noted in this period of study followed closely by multi-trauma (32) and back and neck injuries (29).
- The most common cause of injury in this period of study is lifts or strains (27) followed by machinery accidents (16) and motor vehicle accidents (15).
- The 100 Most Costly Claims are remaining open for a longer period of time in this study (four years and 11 months) than in the previous study (four years and 7 months).

The following results appeared in the All Other Compensated Claims:

- Employees are more likely to be men than women (60/40).
- Employees are trending up in age.
- Employees appear to have worked longer for their employers.
- Compensated claims appear to be more costly the longer the employee has been employed (length of service).
- Compensated claims appear to be more costly the older the employee is at the time of the injury up until age 65

Questions for further study:

1. Why is there a difference between male and female length of service?
2. Why is the average length of service for the females in the 100 Most Costly Claims two years less than the average length of service for females in the All Other Compensated Claims?
3. Why do female workers' compensation claims cost less than male claims?
4. What impact does the average weekly wage have on the difference between male and female cost data?
5. Do injured employees reflect the age of the entire workforce? If there are differences, where are they?
6. How will the aging workforce impact costs to the workers' compensation system?
7. Why are nearly three out of every ten injured employees between the ages of 35 and 44? Is this a comparable percentage of the total workforce?
8. What impact do social security and disability offsets have on indemnity payments?
9. Why does one in every three compensated injuries occur within the first year of employment? What implication does this have for safety officers and human relations departments?
10. Why do four out of every ten dollars spent on the employees' compensation system occur with employees who have been on the job for less than two years?
11. Do these figures reflect the transient nature of the workforce in Maine?
12. Are lump sum settlements providing enough resources for future medical costs?
13. Are the number of lump sum settlements growing or shrinking? Why?
14. Why is the disparity of the cost of a claim between genders increasing so rapidly over time?
15. What is driving the overall increase in catastrophic claim costs?
16. Why is there a shift in the average cost of a claim to older employees?
17. Why are employees aged 45-54 the most expensive claims?
18. Why are catastrophic claims staying open longer now?
19. How long does it take for a employees' compensation claim with serious injuries to close?
20. Are rising medical costs causing catastrophic claims to remain open longer?
21. Can the type of injury or the mechanics of injury predict the cost of a claim?
22. What is at work that is resulting in fewer lump sum settlements and more structured settlements?
23. What role are the changes in Medicare playing in structured settlements?