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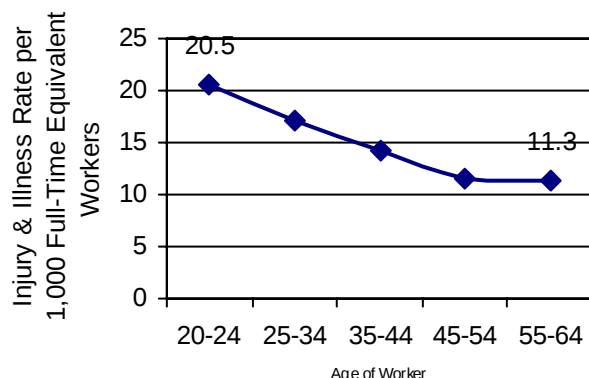
Age as a Driver of Frequency and Severity

Introduction

As the leading edge of the baby boomer generation approaches the age of 60, it is not surprising that the aging of the workforce has become a topic of interest in workers compensation; there are clear concerns over the potentially significant cost and return-to-work implications on claims and safety and health management, as well as the potential impact on loss cost trends. Indeed, both frequency and severity of workers compensation claims have been shown to be correlated with age of worker. As indicated below, on average, younger workers have higher incidence rates of workplace injuries and illnesses than older workers, while older workers have higher costs per claim.

Chart 1 shows the relationship of age with frequency, as measured by the Bureau of Labor Statistics (BLS)—nonfatal injury and illness rates per 1,000 full-time equivalent workers for the period 1994–2002 for workers aged 20–64.¹

Chart 1—Frequency Is Inversely Related to Age of Worker—Nonfatal Injury and Illness Rates Involving Days Away From Work by Age of Worker, Calendar Years 1994–1999, Bureau of Labor Statistics

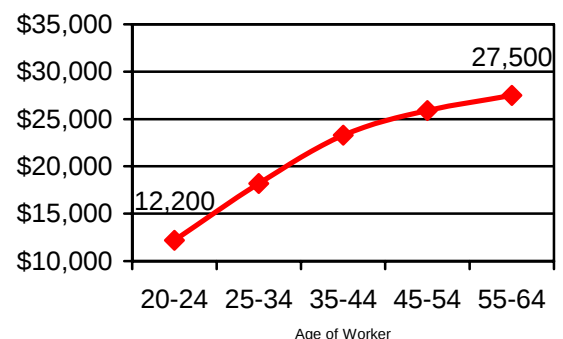


¹ This study covers lost-time claims. Countrywide, losses from lost-time claims comprise 94% of total losses since medical-only claims cover only 6% of losses.

This chart shows that over this period, there were, on average, slightly more than 20 nonfatal injuries or illnesses per 1,000 full-time equivalent workers for workers aged 20–24, a rate nearly twice as high as that for workers aged 45–64.

The relationship of age with claim severities was equally dramatic—average costs per claim for older workers were more than twice as high on lost-time claims (more than \$27,000 vs. slightly more than \$12,000 for younger workers), using paid plus case data reported to NCCI 18 months after injury (see Chart 2).²

Chart 2—Severity Is Directly Related to Age of Worker—Total Indemnity and Medical Paid Plus Case Severities on Lost-Time Claims Reported at 18 Months, Accident Years 1996–2003, NCCI



² Costs of workplace injuries or illnesses are not available from the BLS.

This paper examines the age-related patterns in the following components of loss costs:

- Frequency
- Indemnity severity
- Medical severity
- Likely impact on loss cost trends
- Detail by leading diagnoses

The key findings include³:

- While age is an important factor in overall claim costs, the significance of age on frequency has diminished, suggesting that age may not play as important a role for frequency trends in the future.
- The relationship between age and claim severities has been maintained.
- A significant portion of the differences in claim severities between younger and older workers were accounted for by other factors correlated with age—namely average wages, claim durations, lump sum payments, injury diagnoses, and number of medical treatments.
- Differences in wages and claim durations accounted for a majority of the difference in indemnity severities between younger and older workers. The former explains about a third and the latter explains almost half of the difference in indemnity severities. Differences in lump sum payments explain a small portion.
- With respect to medical severities, older workers experience relatively more higher-cost injuries, where the most notable differences in diagnoses involve injuries to the joints—rotator cuff and knees—which

were more commonly experienced by workers aged 45–64, and sprains of the ankle, which were more commonly experienced by workers aged 20–34. Carpal tunnel syndrome and injuries to the lower back are among the top 10 diagnoses for workers of all ages.

- Differences in the types of injuries accounted for a modest portion (about a quarter) of the difference in medical severities between younger and older workers.
- The key driver explaining about 70% of the difference in medical severities between younger and older workers is the markedly higher number and different mix of treatments within a diagnosis.
- The remaining portion (less than 10%) seems to be due to small differences in the prices of medical services. The greater number and different mix of treatments also contribute to the longer duration of indemnity payments for older workers.

The Impact of Age on Frequency

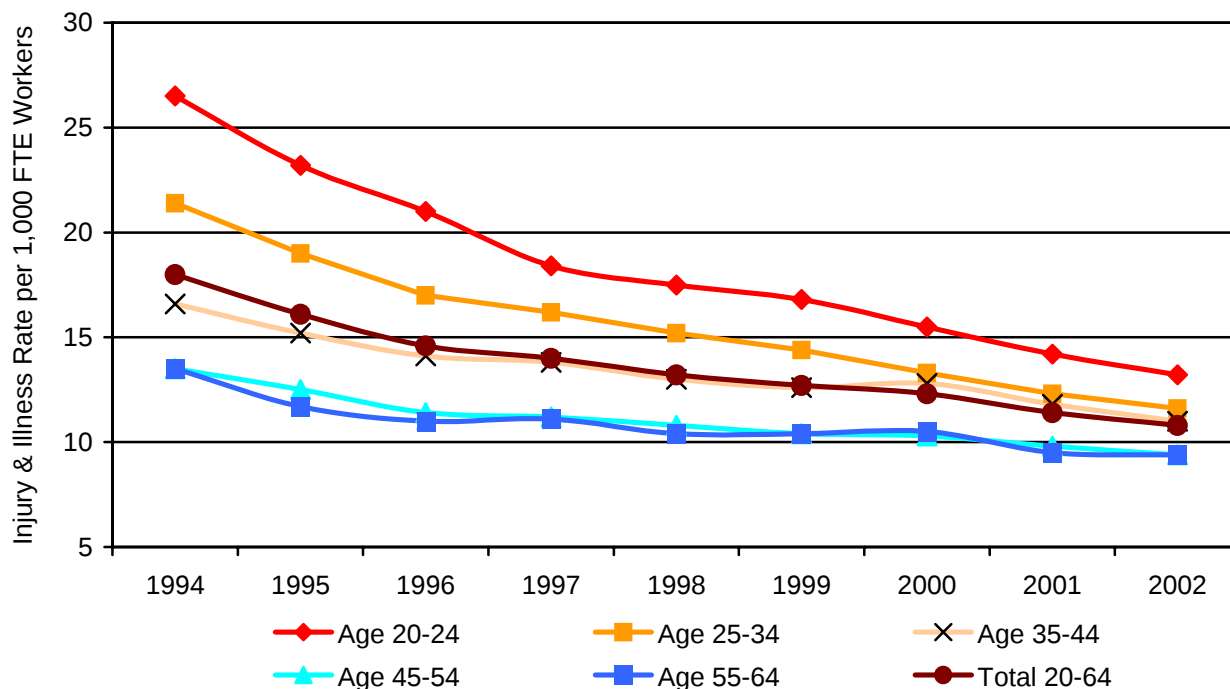
Differences by Age May Become Less Important

According to data published by the Bureau of Labor Statistics, while the overall injury and illness incidence rate has been declining at slightly more than 6% per year over the period 1994–2002, the rate for workers aged 20–24 declined more than 8% while the comparable rate for workers aged 45–64 declined a little over 4%. As a result, the rate for workers aged 20–24 has fallen from nearly double the rate for workers aged 45–64 in 1994 (26.5 per 1,000 FTE⁴ vs. 13.5, respectively) to only about 40% higher in 2002 (13.2 vs. 9.4, respectively). This can be seen in Chart 3.

³ In most cases, our results will be rounded to the nearest 1 percentage point or the nearest \$100 to avoid suggesting greater precision than is appropriate statistically.

⁴ Full-time equivalent workers.

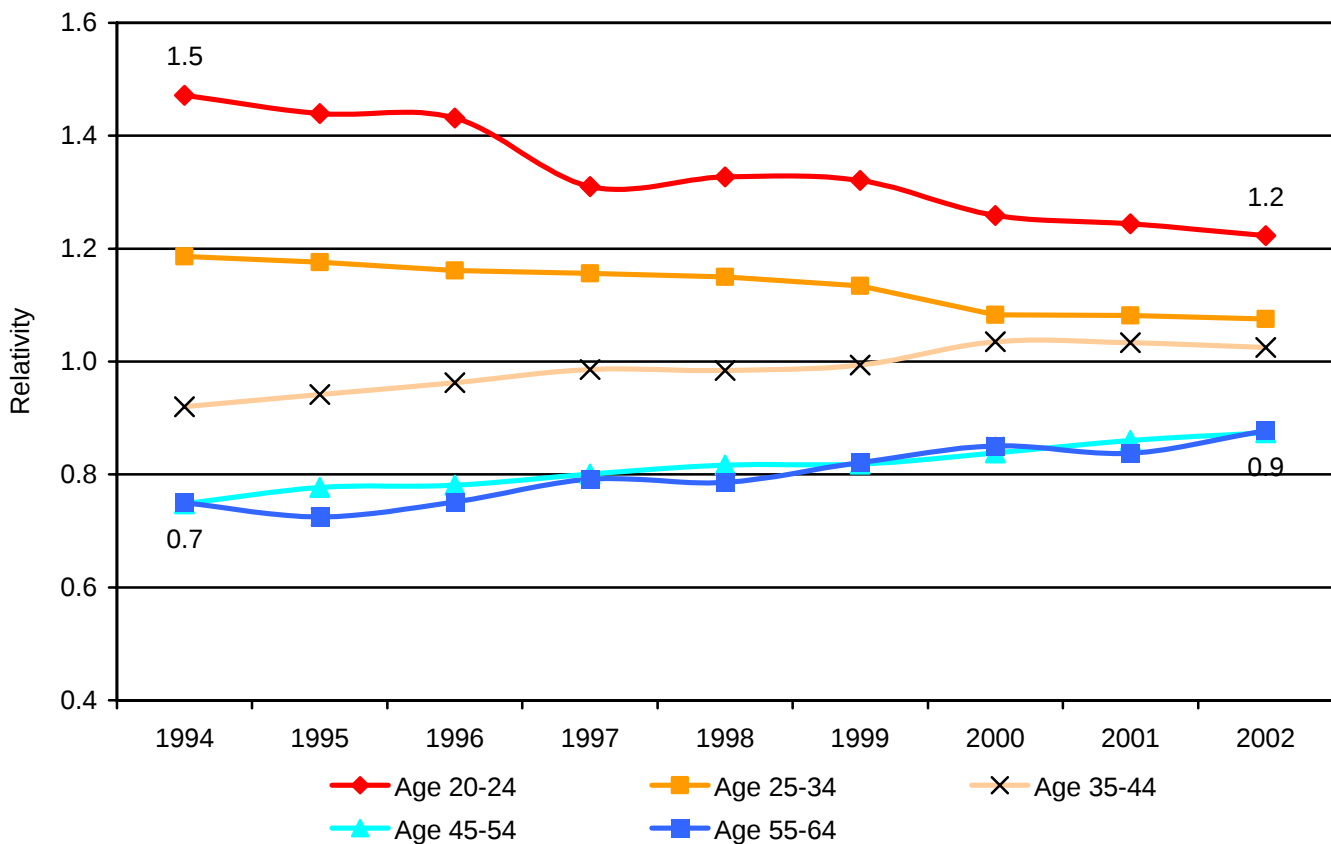
Chart 3—Nonfatal Incidence Rates Involving Days Away From Work by Age Show Relationships Narrowing, Calendar Years 1994–2002, Bureau of Labor Statistics



Dividing the rates for each age group by the total for ages 20–64 within each year removes the overall decreasing frequency trend to isolate the relationships between age groups. This is illustrated in Chart 4, which clearly shows that differences in frequency by age have diminished through the nine-year period in our study.

This suggests that as the baby boomers retire, the anticipated relative increase in the younger workforce may not result in as much upward pressure on frequency as may have been experienced in previous decades.

Chart 4—Nonfatal Incidence Rates Involving Days Away From Work Relativities Within Each Year Show Differences by Age Narrowing Since 1994, Calendar Years 1994–2002, Bureau of Labor Statistics



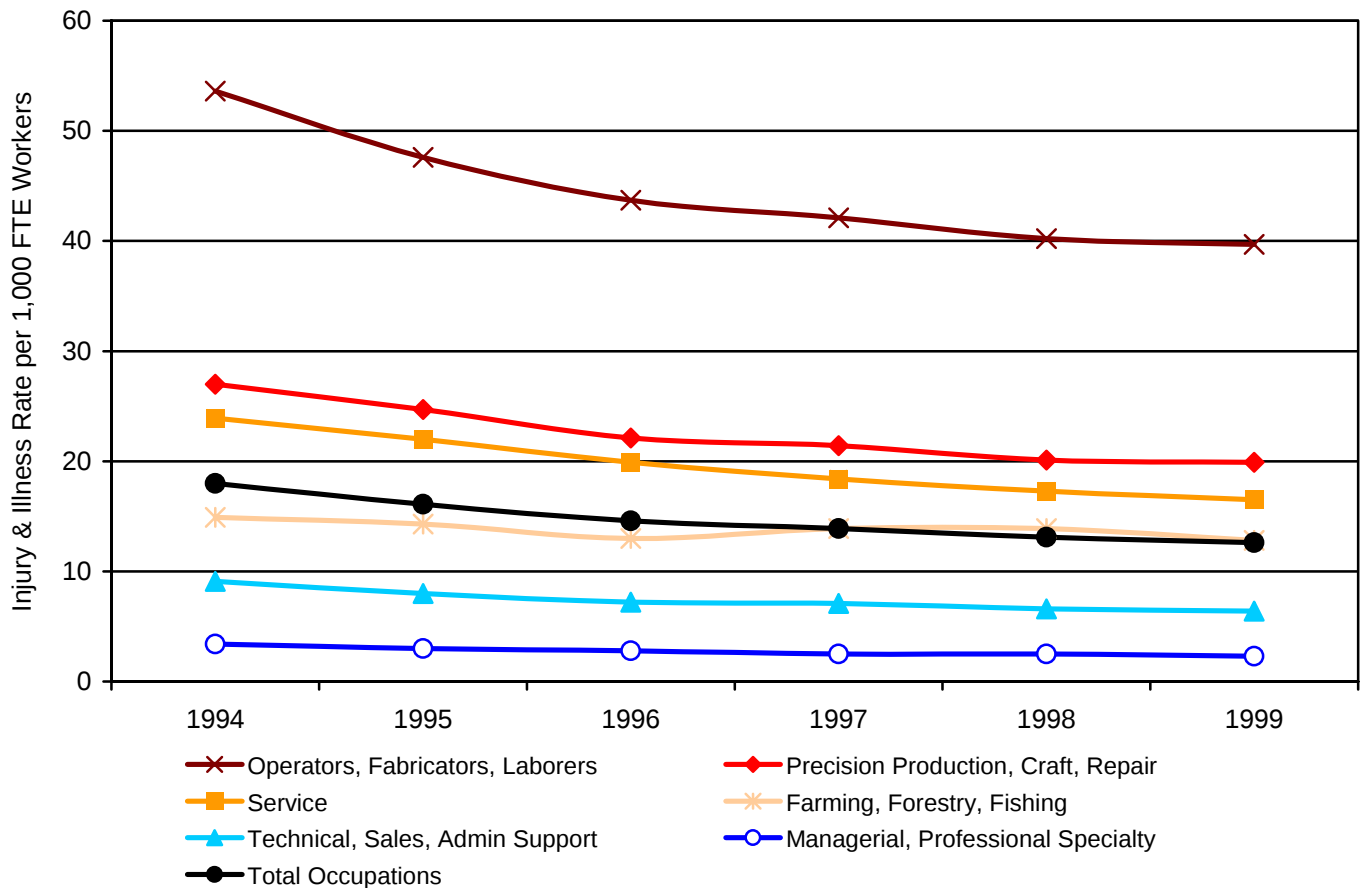
Differences in Occupation and Occupational Shifts in the Workforce Played a Role

Decreasing trends in incidence rates involving days away from work (DAFW) have generally been observed in each of the major occupation groups. Chart 5 illustrates two key observations:⁵

- Frequency has been declining across all occupation groups
- Operators, fabricators, and laborers have consistently higher frequency rates

⁵ Chart 5 shows major occupational groups as classified in 1994–1999. In January 2003, the Bureau of Labor Statistics adopted the 2002 Census occupational and industry classification systems, making it impossible to compare trends by these occupation groups beyond 1999. See Appendix A for the occupational descriptions for 1994–1999 and 2000–2002. For more information on the significant differences between these classification systems, refer to the February 2003 *Employment and Earnings* article on changes introduced to the CPS in January 2003.

Chart 5—Nonfatal Incidence Rates Involving Days Away From Work, Total Workers Aged 16+, Calendar Years 1994–1999, Bureau of Labor Statistics



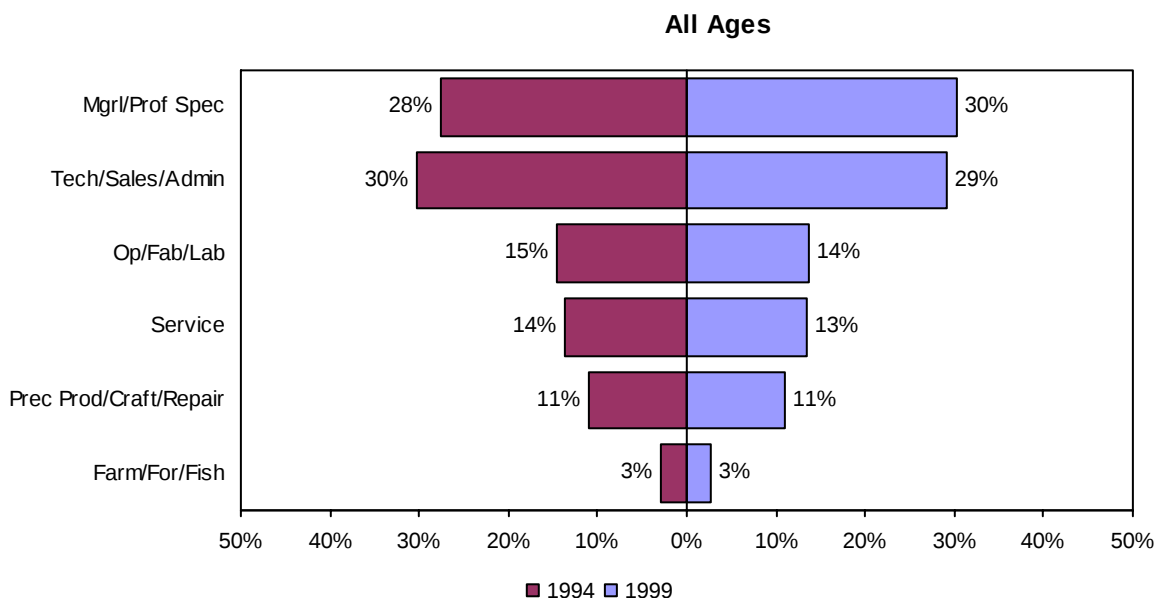
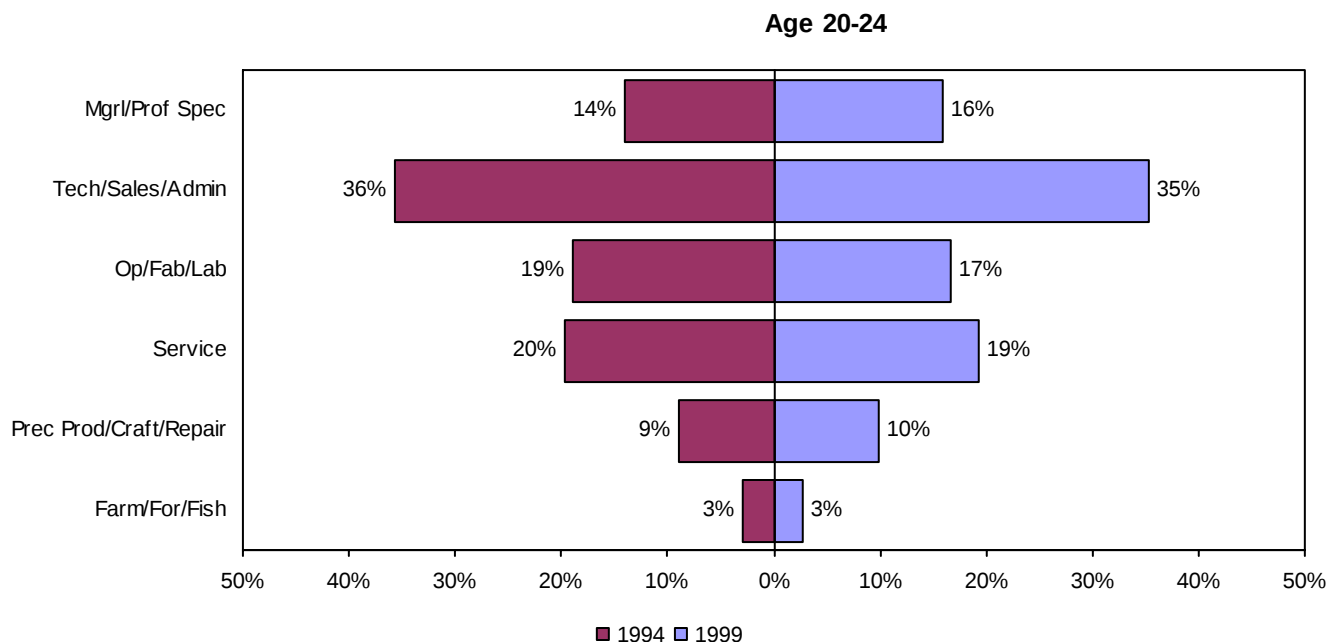
There is a perception supported somewhat by the data that some of the difference in frequency by age reflects differences in occupational mix. For example, conventional wisdom suggests that the higher frequencies experienced by younger workers might be due to a larger proportion employed in more injury prone occupations, such as jobs requiring physical exertion. Alternatively, the higher injury rates may be due to characteristics correlated to age, such as inexperience or carelessness.

An analysis of occupation mix by age group shows that, indeed, the higher frequencies exhibited by younger workers were partially due to higher proportions employed in the occupations having the highest frequencies. Chart 6 compares occupational shares for the youngest age group with the average of all ages

groups combined. It shows, not surprisingly, that only 14% of workers aged 20–24 were employed in low-frequency managerial or professional specialty occupations while a disproportionately high 19% were employed in higher-risk categories of operators, fabricators, or laborers in 1994. Contrast this with 28% and 15% employed in these occupations, respectively, on average for all ages. Employment distributions for the other age groups (shown in Appendix A) are similar to the averages over all ages.

The charts also reveal the interesting fact that from 1994 to 1999 the proportion of employment in occupations characterized as “operators, fabricators, or laborers” decreased for the 20–24-year-olds (19% to 17%) while the proportion employed in “managerial and professional specialty” occupations increased (14% to 16%).

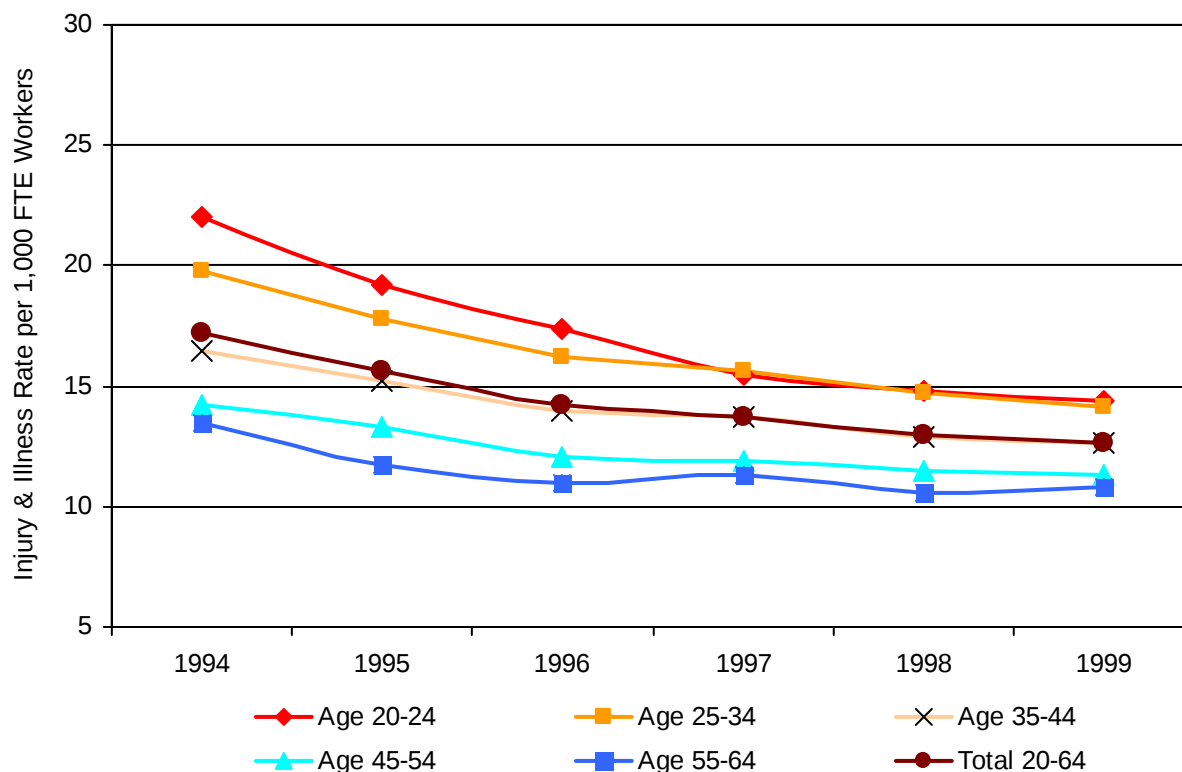
**Chart 6—Occupational Employment Distributions—Age 20–24 and All Ages, Calendar Year 1994 vs. 1999,
Bureau of Labor Statistics**



It is difficult to precisely measure the impact of occupational mix on changes in frequency by age over the 1994 to 2002 time period due to the change in the definitions of occupational categories (discussed earlier in footnote 5). However, the data through 1999 suggests that this factor probably played a modest role. To determine the extent to which the decreasing frequencies

over time for each age cohort were due to occupational differences throughout this period, we held the occupational mix of employment constant at the average level observed in 1999 for all age groups combined and recalculated incidence rates by age cohort. This is displayed in Chart 7.

Chart 7—Nonfatal Incidence Rates Involving Days Away From Work After Adjusting for Differences in Occupation Mix (i.e., Using a Common Occupational Mix), Calendar Years 1994–1999, Bureau of Labor Statistics

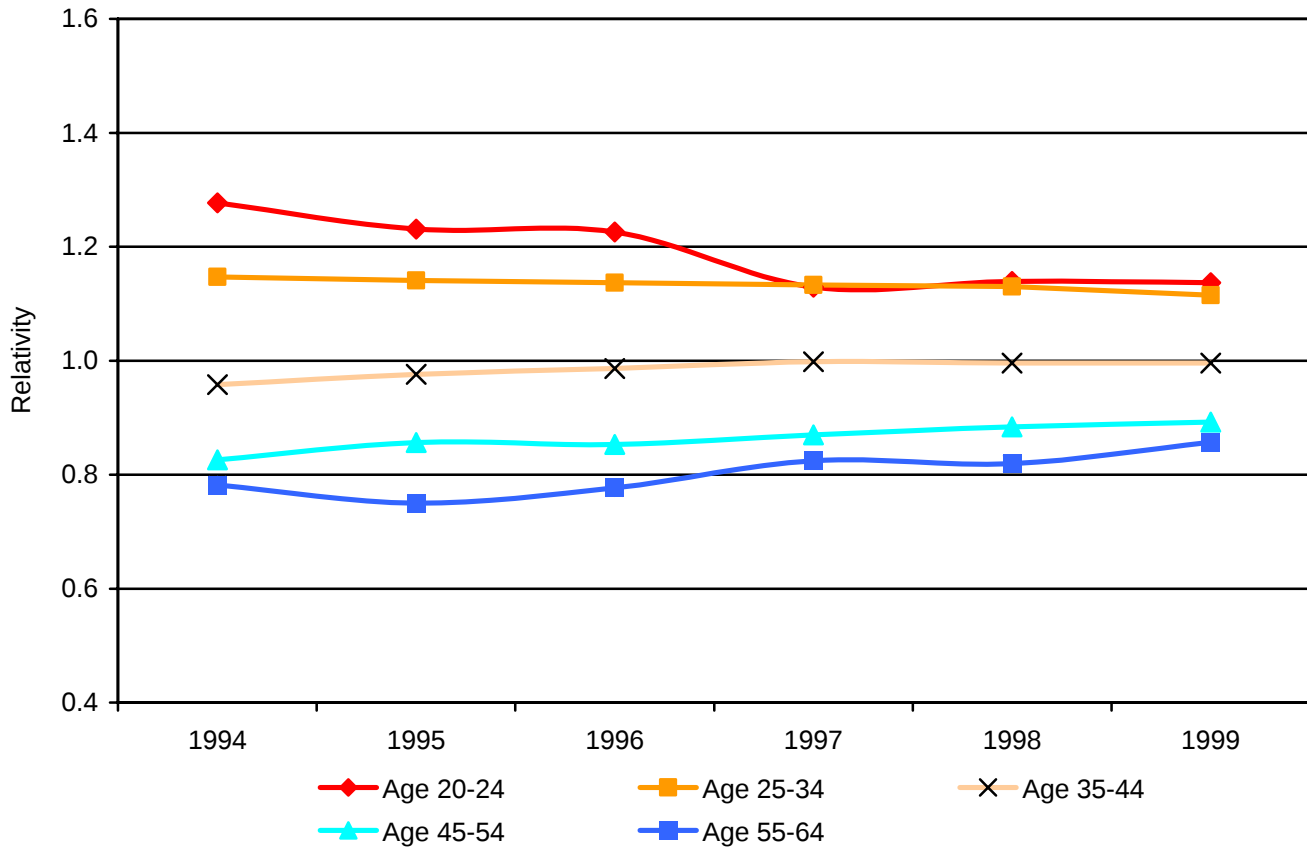


Differences in occupational mix and shifts in the mix over time between younger and older workers provide a partial explanation for the higher observed frequency for younger workers. After adjusting for occupational mix and shifts over time, the trends by age in Chart 7 show slightly less dramatic declines, particularly for the youngest age cohorts.

In Chart 8, we show the rates for each age group relative to the total for ages 20–64 within each year, this time

removing the effect of changing occupation mix. The relativities continue to show narrowing over time, suggesting that occupational mix and shifts in mix explain only a modest portion of the relative decline in frequency experienced by younger workers compared to older workers. In addition, separate research by NCCI on frequency suggests that the higher frequency for younger workers within common occupations may reflect more limited on-the-job experience.

Chart 8—Nonfatal Incidence Rate Involving Days Away From Work Relativities Within Each Year After Controlling for Occupational Differences, Calendar Years 1994–2002, Bureau of Labor Statistics



The Impact of Age on Severity

Differences by Age for Severity Show Stable Relationships

As discussed earlier, severity increases with age. Charts 9 and 10 contain average paid plus case severities reported to NCCI at 18 months after date of accident, by age and accident year for indemnity and medical, respectively. The charts show that both indemnity and medical severities increase with age with growth rates for

each age cohort showing similar patterns from 1991–2002.⁶ Severities have generally shown a consistent relationship by age—for each age cohort studied, the annualized increase over the period 1991–2002 was about 4% for indemnity and 6% to 7% for medical. Claim costs for workers aged 20–24 have maintained a constant level nearly 60% lower than workers aged 55–64 for indemnity and 40% lower for medical.

⁶ The source for this section of the report is NCCI's Detailed Claim Information (DCI) database.

Chart 9—Average Paid Plus Case Indemnity Severities Reported at 18 Months by Age and Accident Year, 1991–2002, NCCI DCI Data

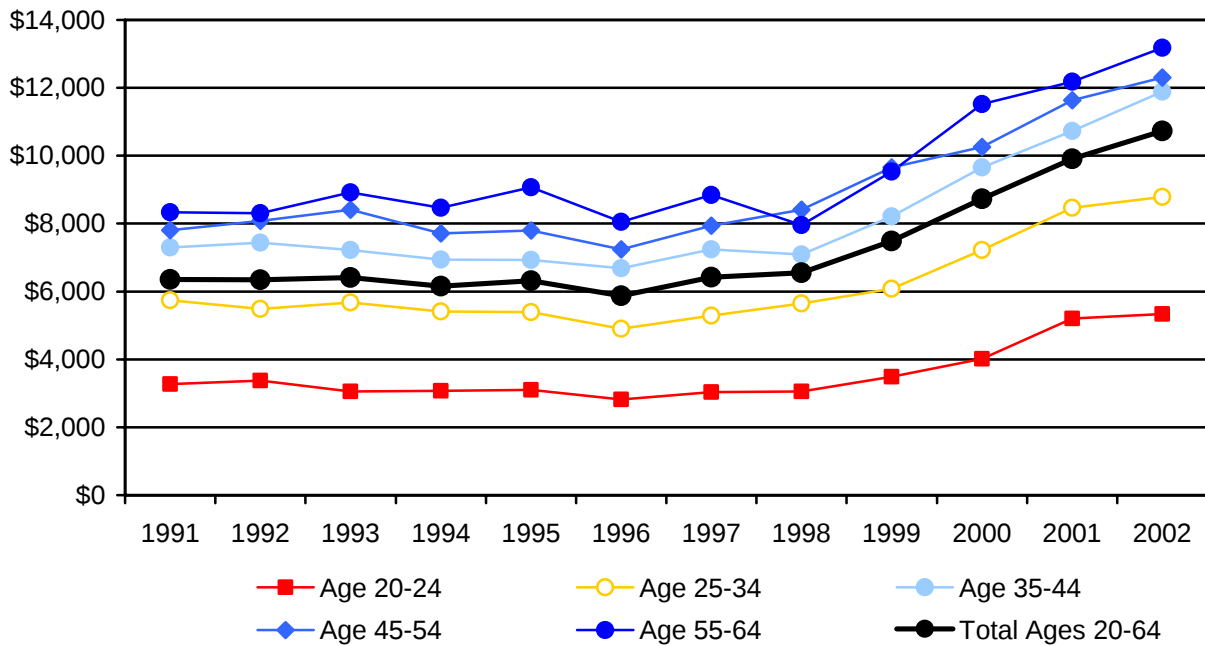
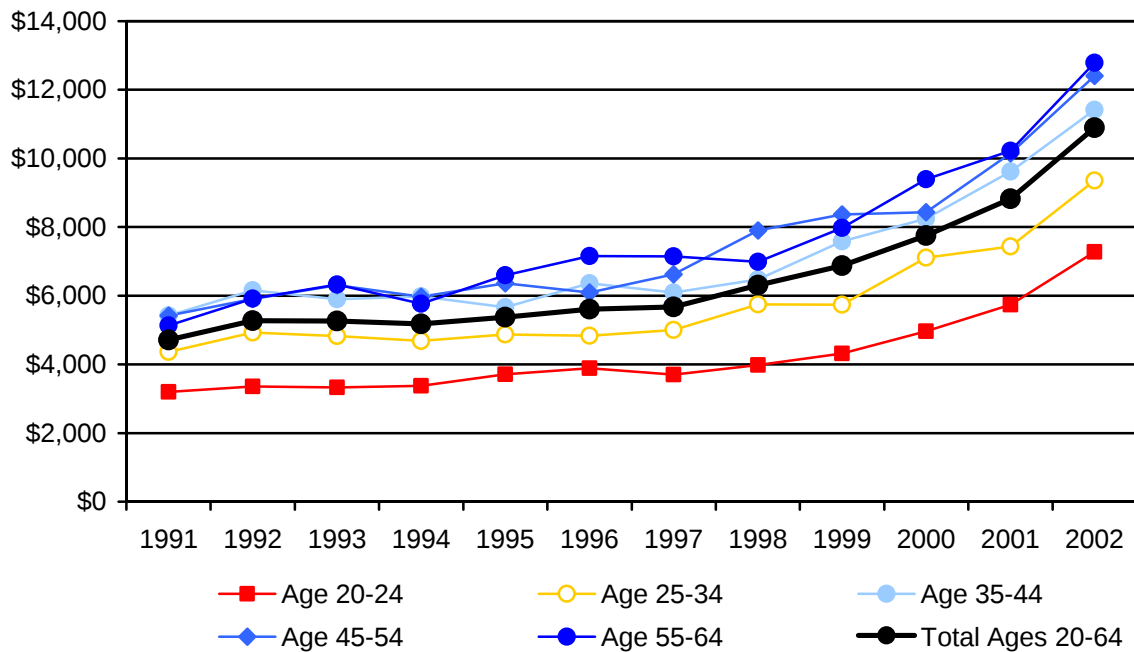


Chart 10—Average Paid Plus Case Medical Severities on Lost-Time Claims Reported at 18 Months by Age and Accident Year, 1991–2002, NCCI DCI Data



Similar to our analysis of frequency by age cohorts, dividing the rates for each age group by the total for ages 20–64 within each year removes the overall increasing severity trend to isolate the relationships between age groups over time. Charts 11 and 12 show relativities of the severities for each age cohort compared to the average by year. Because the growth rates were similar

across age cohorts, the relationships remained roughly the same over the 1991–2002 period for both indemnity and medical. In marked contrast to frequency, which showed the differences between ages narrowing, relationships among age cohorts for severity have been fairly stable.

Chart 11—Average Paid Plus Case Indemnity Severity Relativities Show Relationships Approximately Maintained, Accident Years 1991–2002, NCCI DCI Data Reported at 18 Months

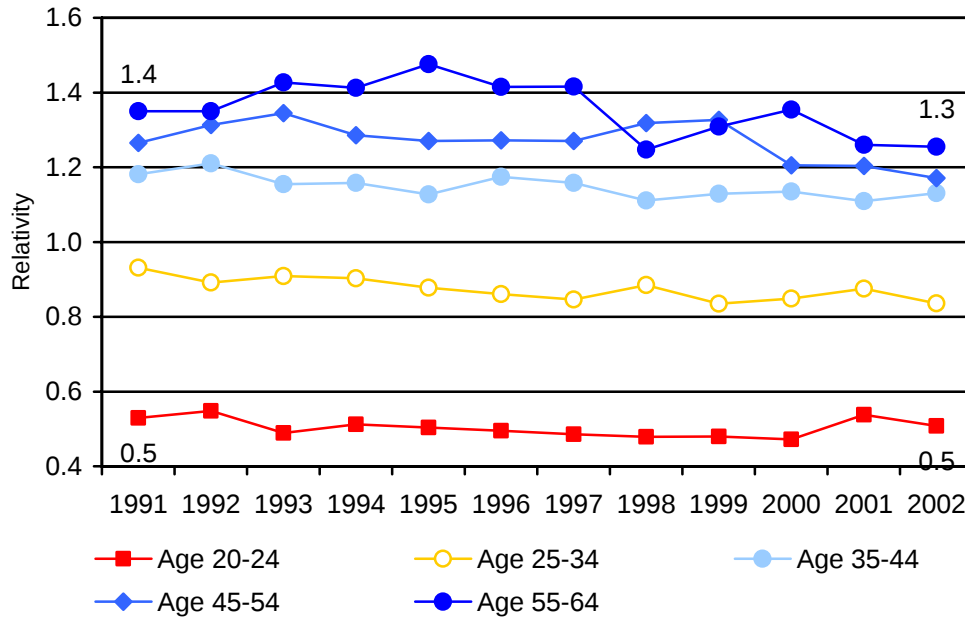
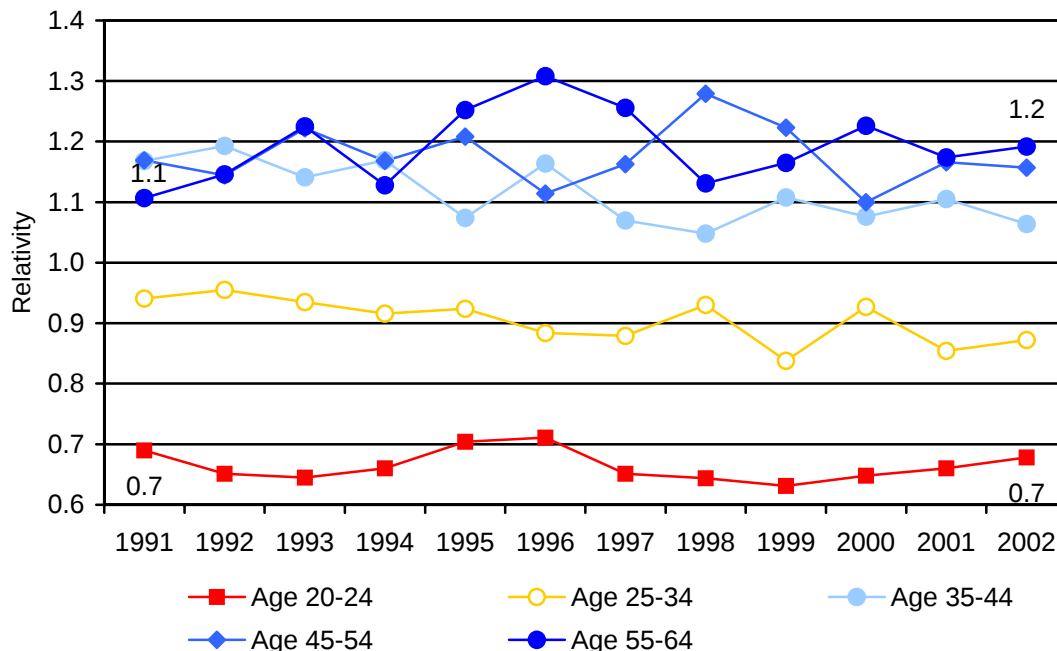


Chart 12—Average Paid Plus Case Medical Severity on Lost-Time Claims Relativities Shows Relationships Approximately Maintained, Accident Years 1991–2002, NCCI DCI Data Reported at 18 Months



Explaining Severity Differences by Age

The systematic differences are apparent. The challenge lies in identifying and quantifying the factors that explain the differences in severities between older and younger workers.⁷

To aid in this we define a simple “model” of claims costs as follows:

$$\text{Cost} = \text{Price} \times \text{Utilization},$$

where utilization consists of both quantity and mix.⁸

“Modeling” Indemnity and Medical Severities

For indemnity severities, we examined the impacts of:

- “Price”—Differences in average weekly wages
- “Quantity and Mix”—Differences in duration and differences in percentages of claims receiving lump sum payments⁹

⁷ This portion of the study is based on data licensed to NCCI by insurers for purposes of this study covering losses reported from more than 1.5 million lost-time claims over the eight years from 1996–2003. For this analysis, younger workers are defined as those aged 20–34 and older workers are those aged 45–64.

⁸ As an illustration of the concept of changes in “mix,” consider the following example:

Johnny goes to the store to buy some apples. On Monday, he buys:

- 3 Golden Delicious at \$0.50 each, and
- 4 Macintosh at \$0.25 each.
- Total cost = $(3 \times \$0.50) + (4 \times \$0.25) = \$2.50$.

On Wednesday, he buys:

- 4 Golden Delicious at \$0.50 each, and
- 3 Macintosh at \$0.25 each
- Total cost = $(4 \times \$0.50) + (3 \times \$0.25) = \$2.75$.

Both the total quantity and actual prices were unchanged, but the average price paid for “apples” increased because the mix of specific purchases changed.

⁹ Evidence suggests that for a given type of injury, on average, older workers take longer to heal. In addition, older workers have relatively more injuries with longer durations.

For medical severities, we examined the impacts of:

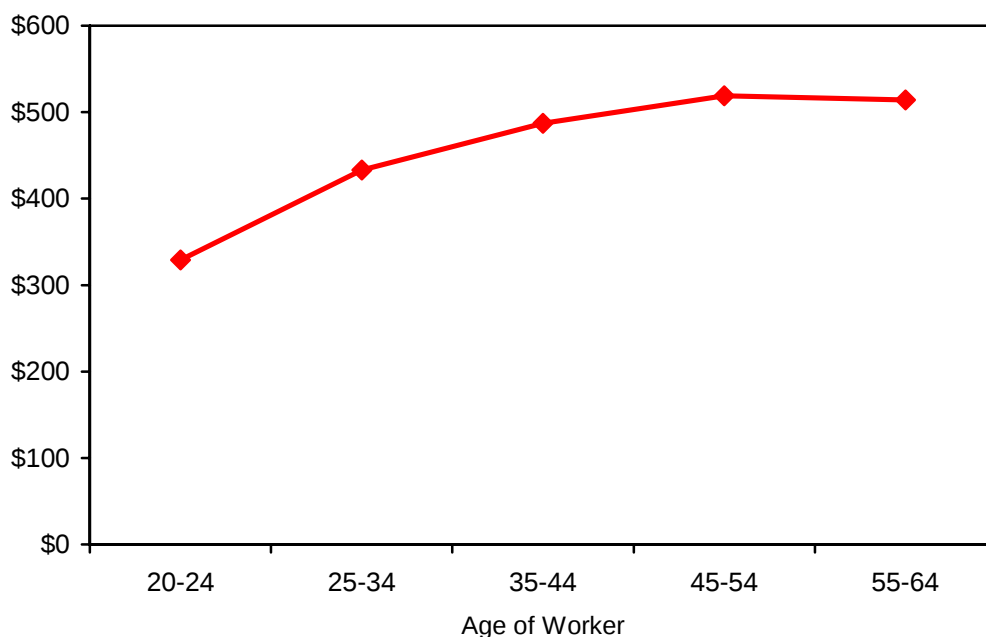
- “Mix”—Differences in diagnosis mix
- “Quantity”—Differences in the average number of treatments by service category within individual diagnoses
- “Price”—Differences in the average price of treatments by service category within individual diagnoses

Indemnity Severity

Differences in Wages Explain a Third of the Difference in Indemnity Severities

Chart 13 shows that average weekly wages also generally rise with age. For the age cohorts used in this study, the average weekly wage is 28% higher for older workers than for younger workers on average (\$517 versus \$404), during the period 1996–1999.

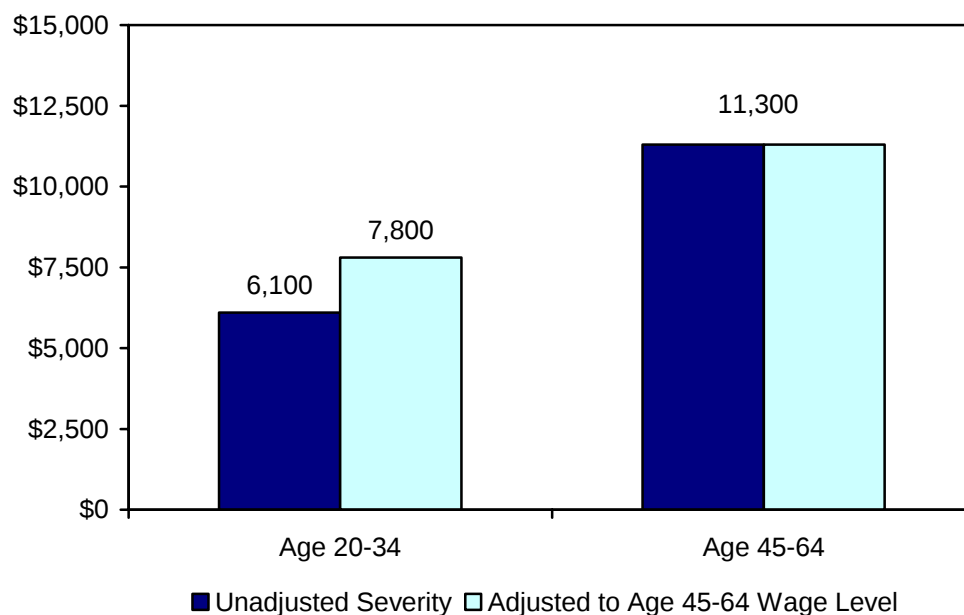
Chart 13—Average Weekly Wage Generally Increases With Age
Average Weekly Wage of Injured Workers; Closed Claims at 60 Months, Accident Years 1996–1999, NCCI



To control for the difference in wages, we restated the severity of the younger age cohort as if they made \$517 dollars on average instead of \$404, or equivalently, we multiplied the severity for younger workers by the factor 1.28 (= 517 / 404). Chart 14 shows the average

unadjusted severities for both age cohorts and the restated indemnity severity for the younger age cohort. The chart is based on average paid severities 60 months after the date of injury for closed claims over the period 1996–1999.

Chart 14—Paid Indemnity Severities at 60 Months After Adjusting for Wage Differences, Accident Years 1996–1999, NCCI



Indemnity severity for the older age cohort is 85% higher than for the younger age cohort. After controlling for wage differences, the older cohort's indemnity severity is only 44% higher. Thus, wage differences explain 33%¹⁰ of the difference in indemnity severity between the older and younger age cohorts (see Chart 15).

Chart 15—Paid Indemnity Severities at 60 Months After Adjusting for Wage Differences, Accident Years 1996–1999, NCCI

	20-34	45-64	% Diff 45-64 vs. 20-34
Unadjusted Indemnity Severity	6,100	11,300	85%
Adjusted for Wage Differences	7,800	11,300	44%
Portion Due to Wage Differences			33%

Differences in Duration Explain Nearly Half of the Difference in Indemnity Severities

In addition to higher wages, older workers also tend to receive benefits for longer durations. Chart 16 shows that older workers have fewer claims closed than younger workers both 18 and 60 months after date of injury. For example, at 18 months after injury, 72% of claims are closed for those aged 20–34 vs. 58% for the 45–64 age cohort. Sixty months after the date of injury, the percentages are 96% and 91%, respectively.

¹⁰ 33% = 1 – [(11,300 – 7,800) / (11,300 – 6,100)]; difference due to rounding.

Chart 16—Older Workers Have Fewer Claims Closed Than Younger Workers—Both 18 and 60 Months After Date of Injury, Percentage of Claims Closed, Accident Years 1996–2003, NCCI

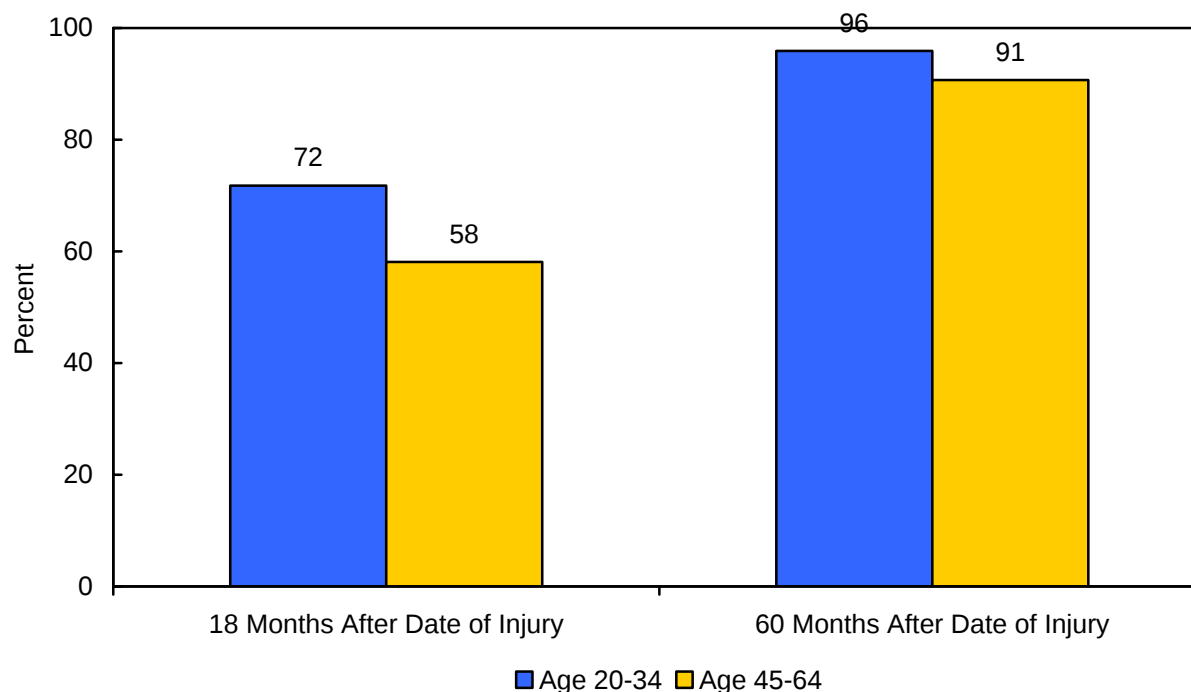


Chart 17—Average Duration Is Longer for Older Workers, Average Days From Date of Injury to Closure, Closed Claims, Accident Years 1996–2003, NCCI

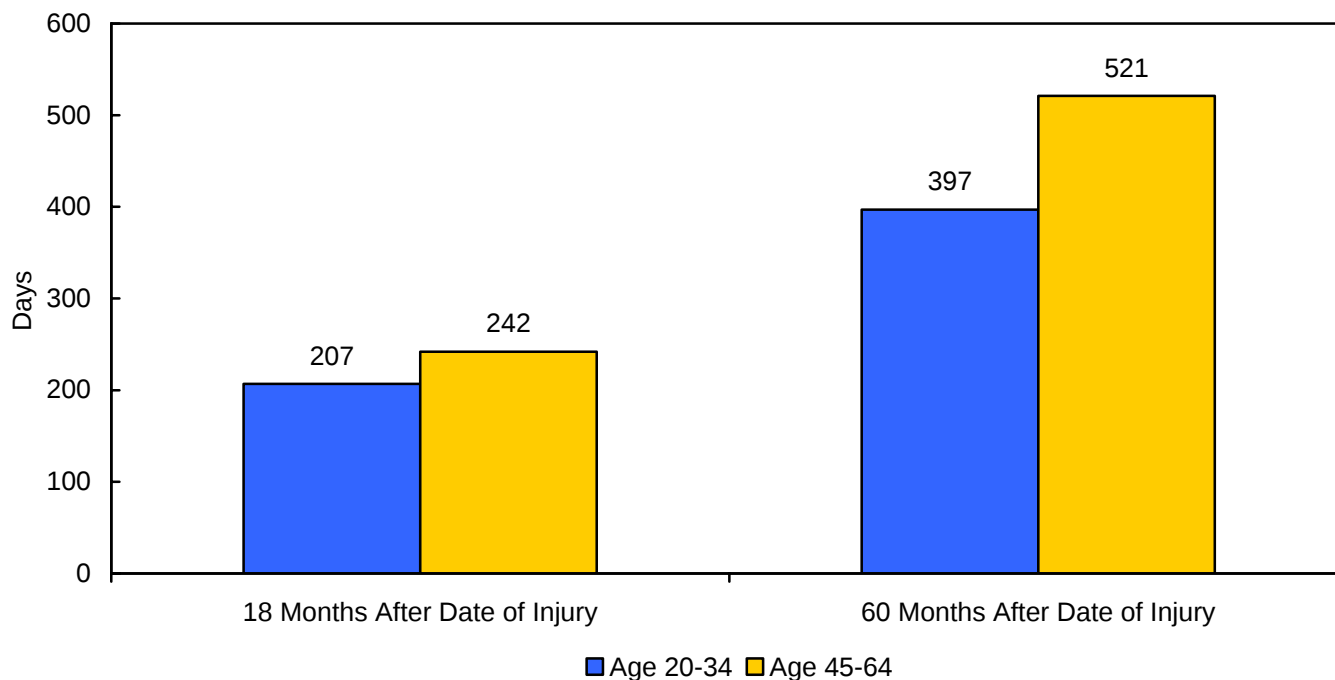
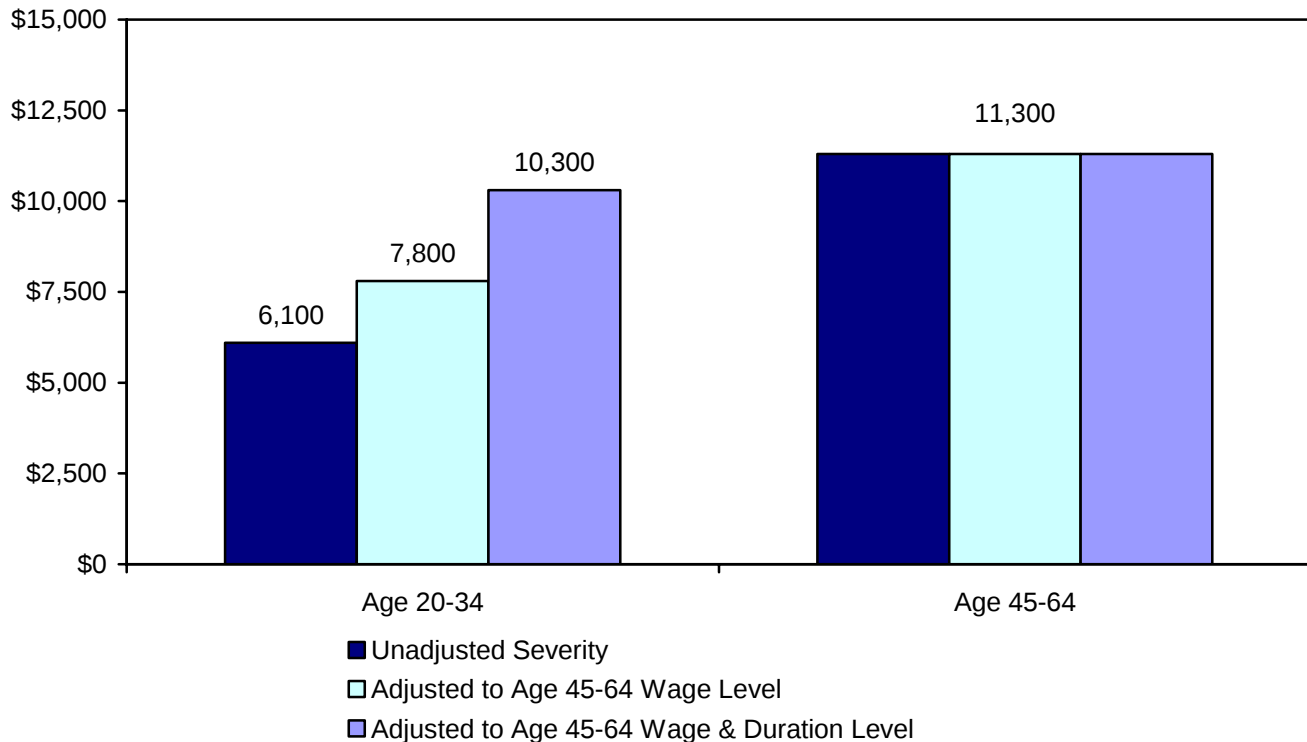


Chart 17 shows the average duration of claims for both age cohorts as measured by the number of days from date of injury to closure for both 18 and 60 months after date of injury. To be consistent with the severities that use paid data for closed claims 60 months after date of injury, we used the average duration 60 months after date of injury to control for the difference in duration.

Duration for older workers averages 521 days, or nearly 1½ years, using data through 60 months after date of injury compared to 397 days (just over 1 year and a month) for younger workers. Building on our analysis, to control for the differences in duration, again the severity

of the younger age cohort (after controlling for differences in wages) was recalculated as if their duration was 521 days. Chart 18 extends Chart 14 and includes the restated indemnity severity for the younger age cohort after adjusting for duration differences.

Chart 18—Paid Indemnity Severities at 60 Months After Adjusting for Wage and Duration, Accident Years 1996–1999, NCCI



After controlling for both wage and duration differences, indemnity severities are much closer—the older cohort is only 10% higher than for the younger cohort. Wage and duration differences together account for approximately 80%¹¹ of the difference in indemnity severity between older and younger workers. The portion due specifically to duration differences is 47%, and 20% is still left unexplained (see Chart 19).

Chart 19—Paid Indemnity Severities at 60 Months Adjusted for Wage and Duration, Accident Years 1996–1999, NCCI

	20-34	45-64	% Diff 45-64 vs. 20-34
Unadjusted Indemnity Severities	6,100	11,300	85%
Adjusted for Wage Differences	7,800	11,300	44%
Portion Due to Wage Differences			33%
Adjusted for Wage & Duration Differences	10,300	11,300	10%
Portion Due to Duration Differences			47%
Total Portion Due to Wage & Duration Differences			80%
Remaining Portion Due to Other Factors			20%

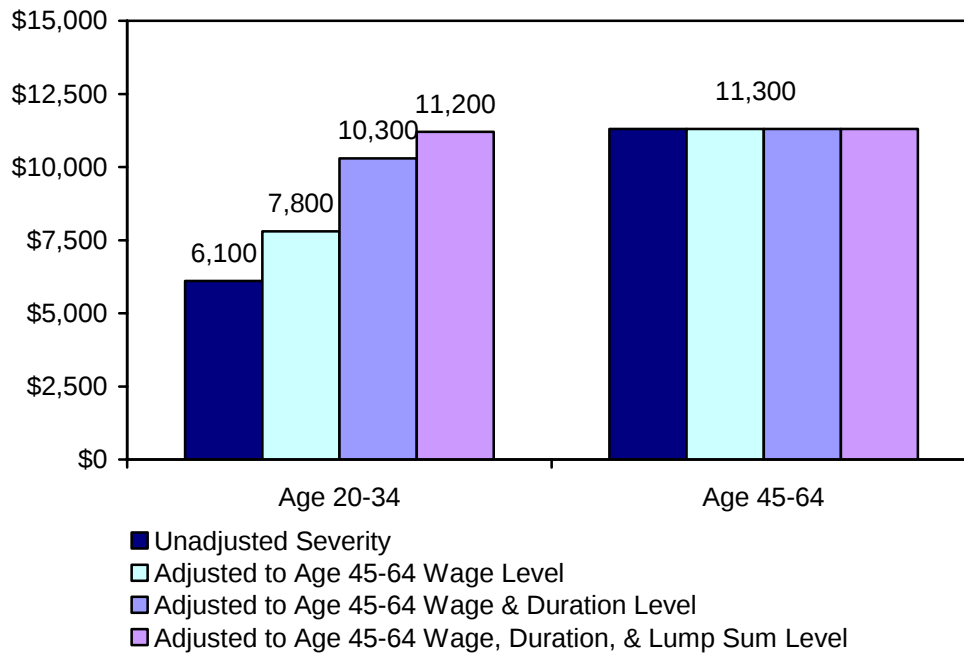
¹¹ 80% = 1 – [(11,300 – 10,300) / (11,300 – 6,100)]; difference due to rounding.

Differences in the Percentage of Claims Settled by Lump Sum Payments Further Explain the Difference in Indemnity Severities

The data suggest that the percentage of claims settled by lump sum payments also varies by age. Based on closed

claim data evaluated through 60 months, the share of closed claims settled by lump sum payments was 24% higher for the older age cohort than the younger age cohort (roughly 20% vs. 15%). We might expect the share of lump sums to be greater for the older age cohort because claims with higher expected future costs (due to higher wage-based indemnity payments, longer duration, etc.) are typically closed out at a higher rate.

Chart 20—Paid Indemnity Severities at 60 Months After Adjusting for Wage, Duration, and Lump Sum Payment Differences, Accident Years 1996–1999, NCCI



Building on Chart 18, and adjusting the younger cohort's severities as if 19% of claims were settled via lump sum payments, the indemnity severities nearly converge.

Together, wage, duration, and lump sum differences account for 97% of the difference in indemnity severity between older and younger workers. The portion due specifically to lump sum differences is about 17%, leaving about 3% due to other factors (see Chart 20).¹² Chart 21 summarizes our analysis of the differences due to wages, duration, and lump sum payments.

¹² This simplified calculation assumes that lump sum claims and non-lump sum claims will be impacted in the same way if we impose a different average duration. However, it indicates that differences in lump sum payments further explain a portion of the difference in average severity between the older and younger age cohorts.

Chart 21—Paid Indemnity Severities at 60 Months Adjusting for Wage, Duration, and Lump Sum Payments, Accident Years 1996–1999, NCCI

	20-34	45-64	% Diff 45-64 vs. 20-34
Unadjusted Indemnity Severities	6,100	11,300	85%
Adjusted for Wage Differences	7,800	11,300	44%
Portion Due to Wage Differences			33%
Adjusted for Wage & Duration Differences	10,300	11,300	10%
Portion Due to Duration Differences			47%
Adjusted for Wage, Duration & Lump Sum Differences	11,200	11,300	1%
Portion Due to Lump Sum Differences			17%
Total Portion Due to Wage, Duration, & Lump Sum Differences			97%
Remaining Portion Due to Other Factors			3%

Medical Severity

Differences in Diagnosis Mix Explain Some of the Difference in Medical Severities

Many of the same diagnoses appear in the top 10 for both the 20–34 and 45–64 age cohorts, but there are some interesting differences. Chart 22 shows the 10 leading diagnoses observed in our study for each age cohort. Diagnosis codes in bold are ones in the top 10

that differ between the two age cohorts. Carpal tunnel syndrome and injuries to the neck, lower back, and lower leg are common to workers of all ages; the most notable differences involve more expensive injuries to the joints (rotator cuff and knees), which were more commonly experienced by workers aged 45–64, and less costly sprains (ankle, neck, and lumbosacral), which were more commonly experienced by workers aged 20–34.¹³

¹³ Note that injuries to the knee and rotator cuff tend to reflect cumulative stress, whereas sprains typically result from traumatic or immediate causations.

Chart 22—Rankings of Top 10 Lost-Time Claim Diagnoses, Accident Years 1996–2003, NCCI

Ages 20-34		Ages 45-64	
1	Sprain Lumbar Region	1	Carpal Tunnel Syndrome
2	Lumbar Disc Displacement	2	Lumbar Disc Displacement
3	Carpal Tunnel Syndrome	3	Sprain Rotator Cuff
4	Lumbago	4	Tear Medial Cartilage/Meniscus of Knee
5	Cervicalgia	5	Cervicalgia
6	Lower Leg Injury, not otherwise specified	6	Sprain Lumbar Region
7	Sprain of Ankle, not otherwise specified	7	Rotator Cuff Syndrome, not otherwise specified
8	Sprain of Neck	8	Lumbosacral Neuritis, not otherwise specified
9	Lumbosacral Neuritis, not otherwise specified	9	Lumbago
10	Sprain Lumbosacral	10	Lower Leg Injury, not otherwise specified

The different mix of injuries by age explains about a quarter of the difference in medical severities between the younger and older age cohorts. Chart 23 shows the unadjusted medical severities for the younger and older age cohorts, along with the estimated medical severity for the younger age group after using the older cohort's mix distribution to control for differences in diagnosis mix.

The unadjusted medical severity for the older age cohort is 55% higher than that of the younger age cohort. After adjusting to control for differences in diagnosis mix, the older cohort's medical severity is only 39% higher. Therefore, diagnosis mix explains 20%–24% of the difference in medical severity between the older and younger age cohorts (see Chart 24).¹⁴

¹⁴ The analysis is based on the top 28 most common diagnoses in detail and all other diagnoses as a group. These 28 were selected because they appear in the top 25 in terms of number of claims for any age cohort and represent about a third of all claims and losses. The impact due to diagnosis mix is 20%–24% based on the range of alternative estimates. That is, whether the younger cohort's severities were restated using the older cohort's diagnosis mix or whether the older cohort's severities were restated using the younger cohort's diagnosis mix. The charts in this paper only show the younger cohort's severities restated using the older cohort's mix, but the impact is shown as the range.

Chart 23—Paid Medical Severities on Lost-Time Claims After Adjusting for Diagnosis Mix, Cumulative Paid Medical Severities Through Latest Evaluation, Accident Years 1996–2003, NCCI

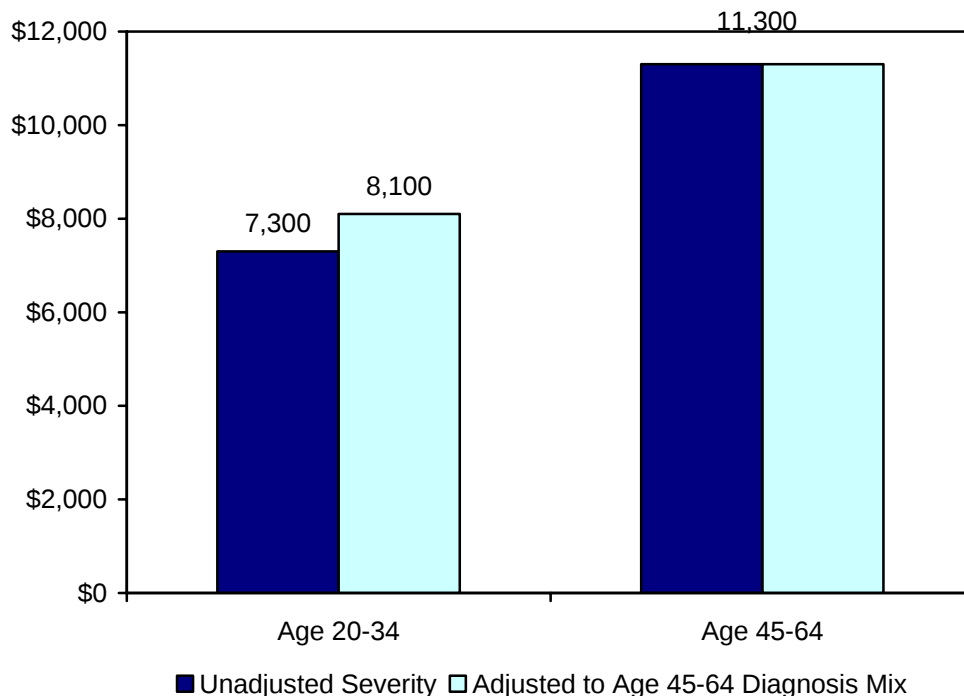


Chart 24—Paid Medical Severities on Lost-Time Claims After Adjusting for Diagnosis Mix, Accident Years 1996–2003, NCCI

	20-34	45-64	% Diff 20-34 vs. 45-64
Unadjusted Medical Severities on Lost-Time Claims	7,300	11,300	55%
Adjusted for Diagnosis Mix Differences	8,100	11,300	39%
Portion Due to Diagnosis Mix Differences			20%-24%

Differences in Number of Treatments Explain the Majority of the Difference in Severities; Differences in Price Likely Explain the Small Remainder

As seen in Charts 23 and 24, for all diagnoses combined, medical severity over the 1996–2003 period was \$4,000

higher for the 45–64 age cohort versus the 20–34 age cohort (or 55%). Chart 25 contains the percent differences in severities for the top 28 diagnoses examined in this study, showing that older workers are always more costly. Differences in the number of treatments and the differences in the average price per treatment can help to further explain these differences in severity.

Chart 25—Percent Difference in Severity, Older Over Younger, by Diagnosis, Accident Years 1996–2003, NCCI

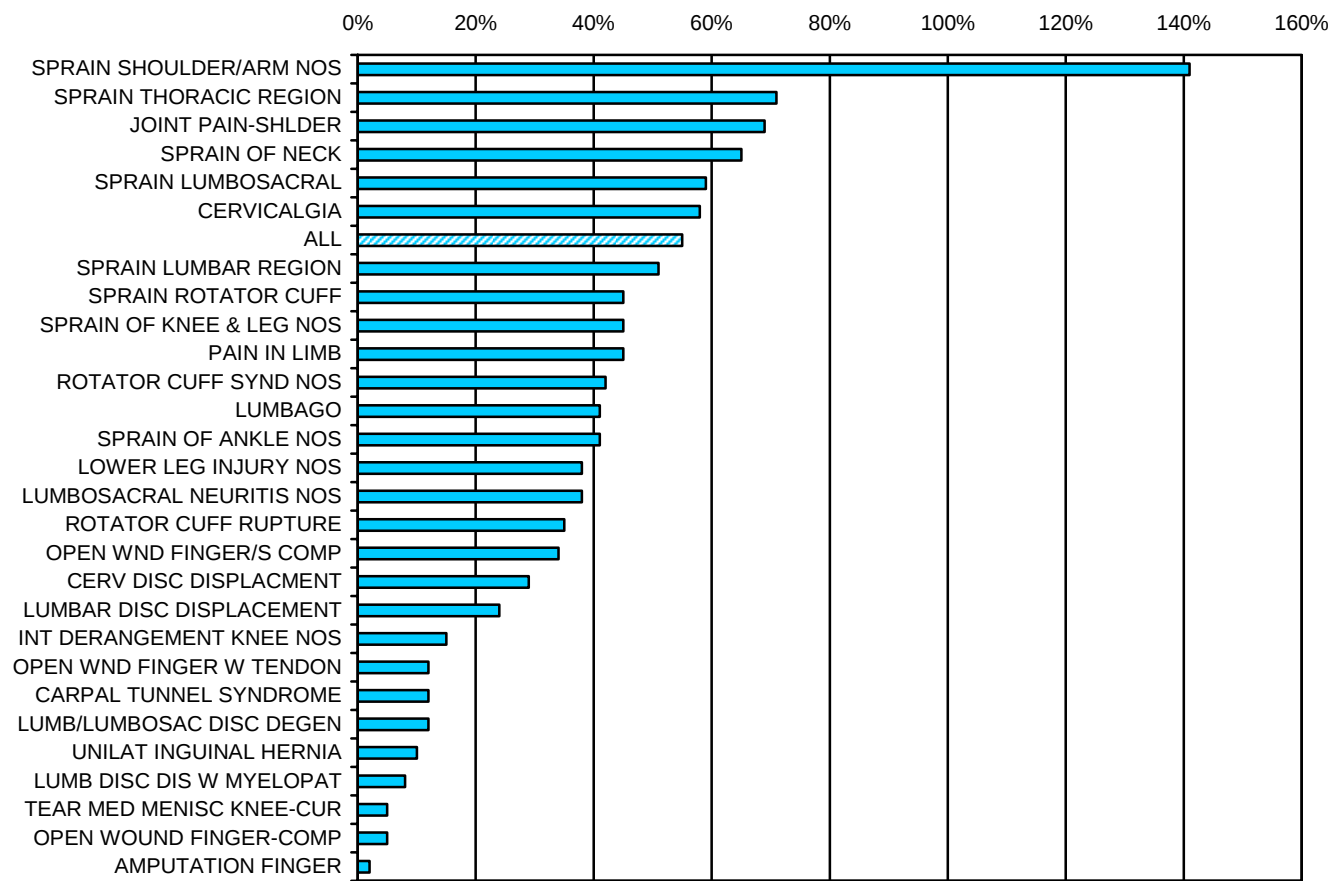
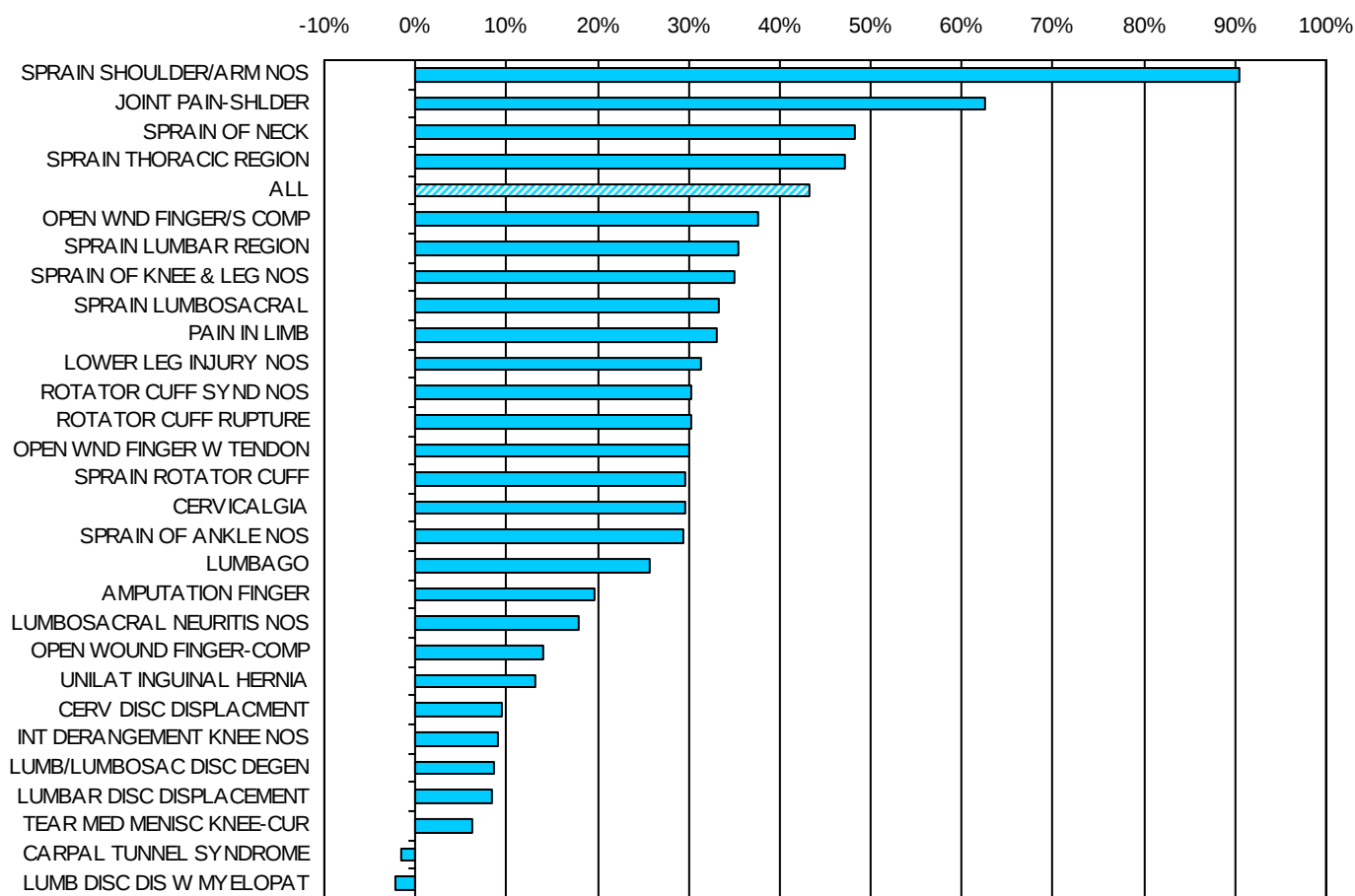


Chart 26 shows the percent differences in the total number of treatments between the older and younger age cohorts by diagnosis code. For example, the older age cohort has 90% more treatments than the younger age cohort for a sprain of shoulder or arm injury. Twenty-six of the top 28 diagnoses examined in our study experienced

greater total treatments for the older age cohort than the younger. The two exceptions are carpal tunnel syndrome and lumbar disc displacement with myelopathy, where the older cohort received about 2% fewer treatments than the younger cohort in each case. Over all diagnoses, the older cohort received 43% more treatments, on average, than the younger cohort.

Chart 26—Percent Difference in Number of Treatments, Older Over Younger, by Diagnosis, Accident Years 1996–2003, NCCI



It is also important to look at differences in number of treatments by service category. Chart 27 shows the differences in number of treatments by service category for all diagnoses combined. They range from 90% more

pathology treatments for older workers down to 26% more office visits. The only service category where older workers receive fewer treatments than younger workers is emergency services (15% less).¹⁵

¹⁵ The differences in the number of treatments by service category within individual diagnosis codes generally fell into groups that were based on similar types of injuries and/or parts of body. The charts in Appendix B show these groupings, generally in order from those most similar to the average of all diagnosis codes combined, to ones least similar. The key point is that the difference in the number of treatments accounts for a major portion of the differences in severity, and this pattern appears in almost all leading diagnoses. Details on differences in number of treatments and differences in severity for the 28 leading diagnoses are in Appendix B and Appendix C. Appendix D contains a glossary describing what is included in each service category.

Chart 27—More Pathology; Fewer Emergency Services
Percent Difference in Number of Treatments for All Diagnosis Codes, Older Over Younger, Accident Years 1996–2003, NCCI

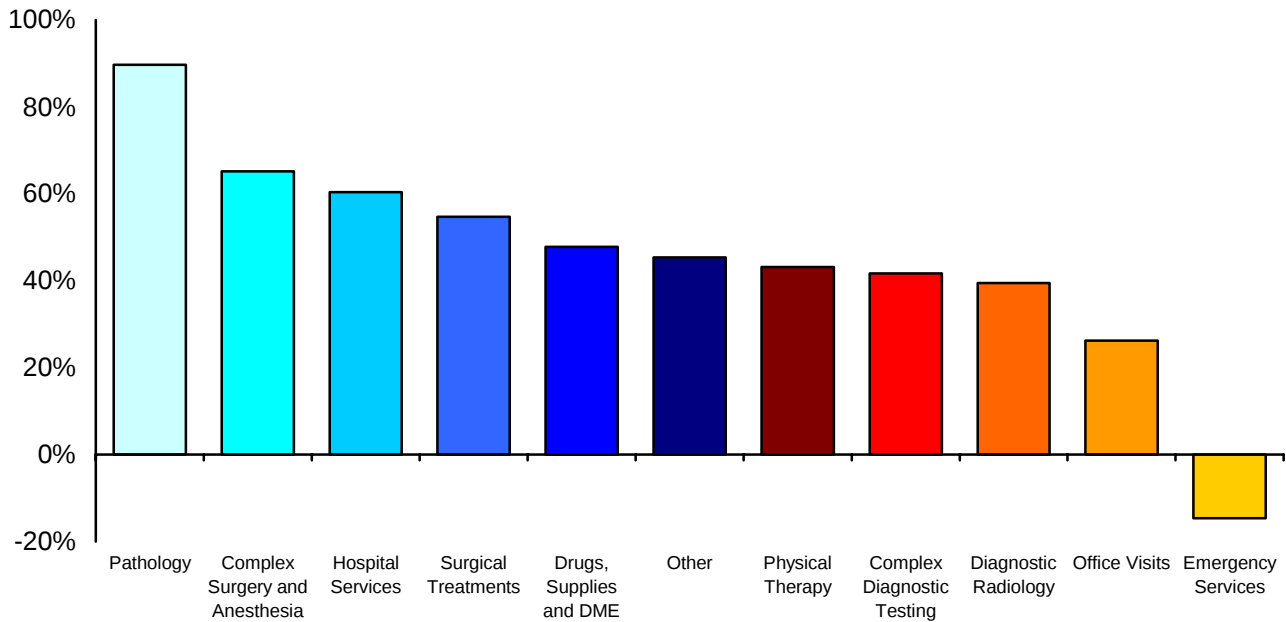


Chart 28—Differences in Number of Treatments, Price, and Severity, Older Over Younger, for All Diagnoses, Accident Years 1996–2003, NCCI

Overall Severity % Older over Younger: 55%	All Diagnoses							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
Treatment Service Group	Age 20-34	Age 45-64	% Difference Older Over Younger	Age 20-34	Age 45-64	% Difference Older Over Younger	Dollar Difference in Severity	% of Total Severity Dollar Difference
Pathology	1.6	3.0	90%	40	39	-1%	56	1%
Complex Surgery and Anesthesia	1.6	2.7	65%	703	755	7%	892	22%
Hospital Services	1.3	2.1	60%	1,000	996	0%	766	19%
Surgical Treatments	0.9	1.4	55%	309	302	-2%	142	4%
Drugs, Supplies and DME	10.4	15.4	48%	96	112	17%	727	18%
Other	7.7	11.2	45%	118	117	0%	407	10%
Physical Therapy	34.9	49.9	43%	39	39	0%	591	15%
Complex Diagnostic Testing	0.8	1.1	42%	519	527	1%	173	4%
Diagnostic Radiology	3.3	4.7	40%	71	74	4%	107	3%
Office Visits	7.8	9.8	26%	60	61	2%	131	3%
Emergency Services	1.0	0.8	-15%	136	173	27%	11	0%
Total Treatments	71.3	102.1	43%	102	111	8%	4,003	100%

Even though pathology shows the largest percent difference between the age cohorts (90%), it is not all that great in terms of the difference in the actual number of treatments (3 vs. about 1.5). Chart 28 shows the average number of treatments by service category for all diagnosis codes combined, along with the average price per treatment and differences in overall severity in tabular format. Physical therapy shows the largest number difference (50 vs. 35), while its percent difference is average at 43%.

In terms of price, even at this aggregate level, price is generally similar between the older and younger age cohorts, as one would expect. Service categories with larger differences include complex surgery and anesthesia (7%); drugs, supplies, and durable medical equipment (17%); and emergency services (27%). At this aggregate level, these differences in price are likely due to differences in the mix of individual procedures within treatment service group. For example, older workers may receive more complicated surgeries, which cost more per treatment or require more expensive drugs.

When combining treatments and price, the top three contributors to the \$4,000 difference in severity are complex surgery and anesthesia (22%), hospital services (19%), and drugs (18%), as seen in the last column of Chart 28.

Carpal Tunnel Syndrome as an Example

The number of treatments and price per treatment by service category also help explain the severity differences for individual diagnoses. Recall that for carpal tunnel syndrome, the older cohort had slightly fewer total treatments than the younger cohort, but overall severity was still 12% higher. The primary reason for this is that older workers receive more high-priced treatments, such as complex surgery and hospitalization, while younger workers receive more lower-priced treatments, such as physical therapy.

Chart 29 shows that for carpal tunnel syndrome, older workers receive complex surgery and anesthesia 28% more often than younger workers. Because this is a high-priced treatment (greater than \$600), it contributes more than 70% of the severity difference of \$944. In contrast, although older workers receive pathology treatments 33% more often than younger workers, it does not contribute significantly to the overall severity difference due to its low price (about \$35 per treatment). In the case of carpal tunnel syndrome, older workers receive physical therapy 5% less often than younger workers, which lowered the overall severity difference by 14%. Refer to Appendix C for details on all 28 diagnosis codes examined in this report.

Chart 29—Differences in Number of Treatments, Price, and Severity, Older Over Younger, for Carpal Tunnel Syndrome, Accident Years 1996–2003, NCCI

Overall Severity % Older over Younger: 12%	Carpal Tunnel Syndrome							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
Treatment Service Group	Age 20-34	Age 45-64	% Difference Older Over Younger	Age 20-34	Age 45-64	% Difference Older Over Younger	Dollar Difference in Severity	% of Total Severity Dollar Difference
Pathology	1.7	2.3	33%	34	35	3%	22	2%
Complex Surgery and Anesthesia	3.3	4.2	28%	622	645	4%	668	71%
Hospital Services	1.4	1.7	27%	541	529	–2%	174	18%
Surgical Treatments	1.0	1.2	20%	257	291	13%	93	10%
Diagnostic Radiology	1.9	2.1	12%	65	65	0%	14	2%
Drugs, Supplies and DME	11.8	12.5	6%	75	85	14%	187	20%
Other	13.5	13.0	–4%	95	97	3%	(17)	–2%
Physical Therapy	45.0	42.5	–5%	38	37	–2%	(132)	–14%
Office Visits	10.2	8.9	–13%	58	61	5%	(48)	–5%
Complex Diagnostic Testing	0.3	0.2	–14%	550	555	1%	(18)	–2%
Emergency Services	0.4	0.2	–39%	213	349	63%	(0)	0%
Total Treatments	90.4	88.9	–2%	87	99	14%	944	100%

Quantifying the Key Factors That Account for the Difference in Medical Severity

Clearly, differences in the number of treatments is another key factor in explaining the difference in medical severity between age cohorts. Charts 30 and 31 build on Charts 23 and 24 discussed earlier when controlling for diagnosis mix. The graph now also shows medical severities after controlling for the differences in the number of treatments. The severity for the younger age cohort was restated using the number of treatments by diagnosis for the older age cohort. After controlling for

number of treatments within service category, medical severity for the older cohort is now only 3% higher. Differences in the number of treatments by service category alone accounts for about 70% of the medical severity difference.

Together, diagnosis mix and number of treatments by service category account for about 91%–94% of the difference between the older and younger age cohorts. The remaining portion due to other factors is about 6%–9%. As discussed earlier, this is likely due to the more expensive mix of treatments for the older age cohort.

Chart 30—Paid Medical Severities on Lost-Time Claims After Adjusting for Diagnosis Mix and Number of Treatments, Cumulative Paid Medical Severities on Lost-Time Claims Through Latest Evaluation, Accident Years 1996–2003, NCCI

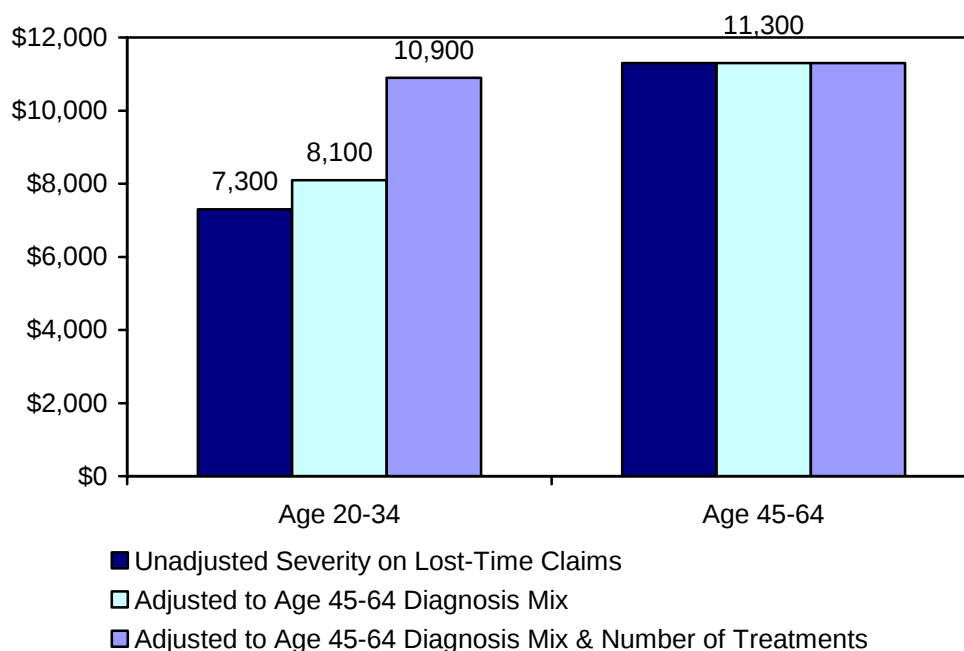


Chart 31—Paid Medical Severities on Lost-Time Claims After Adjusting for Diagnosis Mix and Number of Treatments, Accident Years 1996–2003, NCCI

	20-34	45-64	% Diff 20-34 vs. 45-64
Unadjusted Medical Severities on Lost-Time Claims	7,300	11,300	55%
Adjusted for Diagnosis Mix Differences	8,100	11,300	39%
Portion Due to Diagnosis Mix Differences			20%-24%
Adjusted for Diagnosis Mix & Number of Treatments	10,900	11,300	3%
Portion Due to Number of Treatments			70%
Total Portion Due to Diagnosis Mix & Number of Treatments			91%-94%
Remaining Portion Due to Other Factors			6%-9%

Tracking Trends in Loss Costs—Are Boomers a Bust?

In terms of loss costs, the higher severity of claims by older workers tends to offset at least some of the benefits of lower frequency.¹⁶

Differences by Age for Loss Costs

Charts 32, 33, and 34 show indemnity, medical, and total loss costs by age. Loss costs were obtained by

multiplying frequency (incidence rates) and severity (shown previously in Charts 3, 9, and 10) and are stated as losses per 1,000 full-time equivalent workers. In terms of loss costs, it is the 35 to 44 age cohort that is highest for both indemnity and medical, particularly in the latest years. For medical, the oldest two age cohorts moved from the lowest to second and third because injury rates for the younger groups declined more. Again for medical, the youngest age cohort moved from in the middle to by far the lowest in terms of loss costs.

¹⁶ See the discussion below as well as "Workers' Compensation and the Changing Age of the Workforce," Douglas Tattre, Glenn A. Gotz, Te-Chun Liu, WCRI, December 2000. At this point, we are switching back to using the NCCI DCI and Bureau of Labor Statistics data.

Chart 32—Indemnity Losses per 1,000 Full-Time Equivalent Workers, Based on NCCI DCI Paid Plus Case Data at 18 Months for Accident Years 1994–2002 and Bureau of Labor Statistics Nonfatal Incidence Rates Involving Days Away From Work for Calendar Years 1994–2002

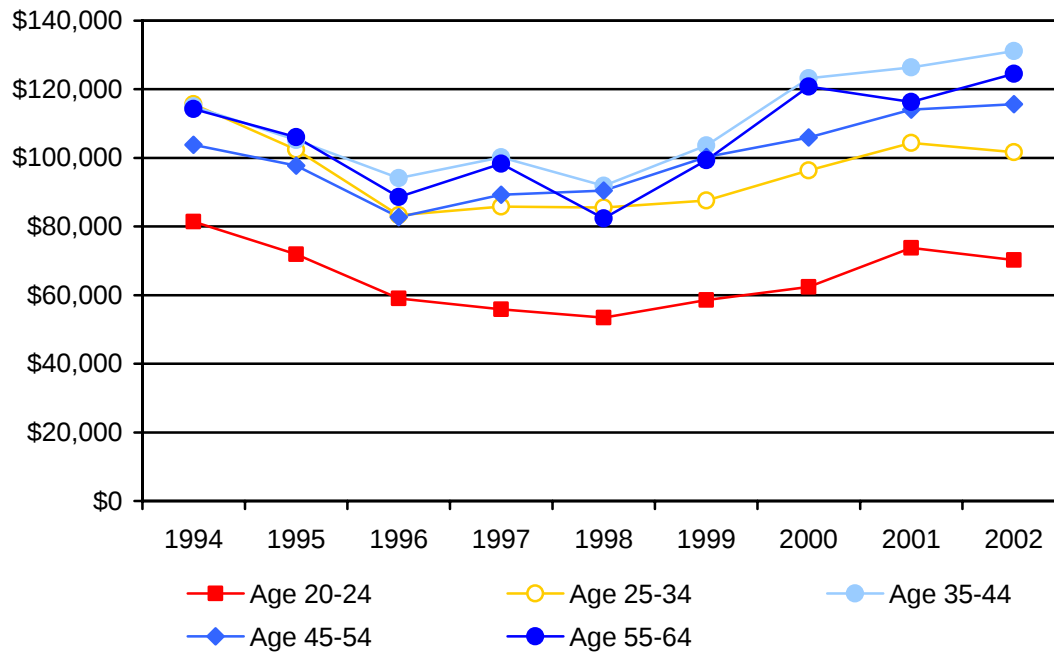


Chart 33—Medical Losses per 1,000 Full-Time Equivalent Workers, Based on NCCI DCI Paid Plus Case Data at 18 Months for Accident Years 1994–2002 and Bureau of Labor Statistics Nonfatal Incidence Rates Involving Days Away From Work for Calendar Years 1994–2002

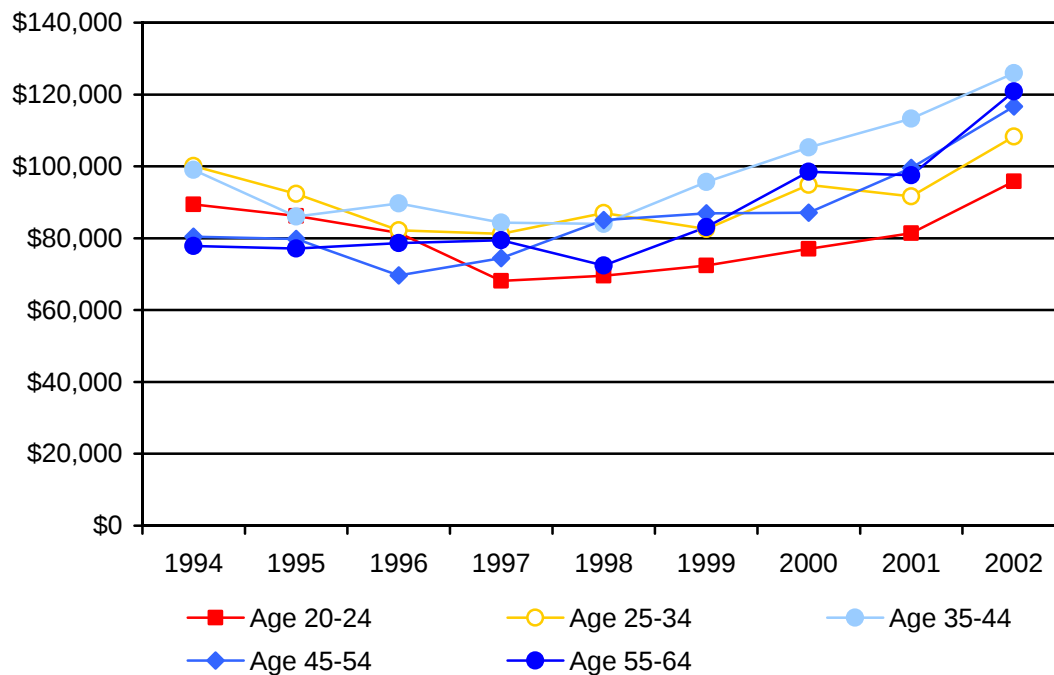
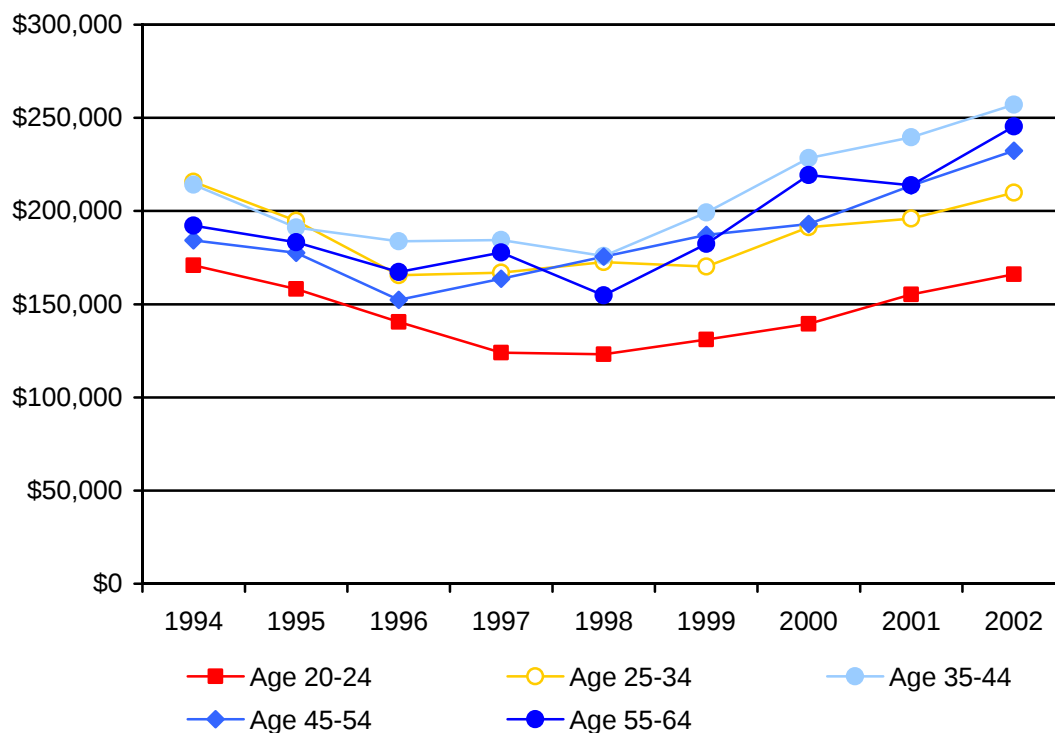


Chart 34—Total Losses per 1,000 Full-Time Equivalent Workers, Based on NCCI DCI Paid Plus Case Data at 18 Months for Accident Years 1994–2002 and Bureau of Labor Statistics Nonfatal Incidence Rates Involving Days Away From Work for Calendar Years 1994–2002

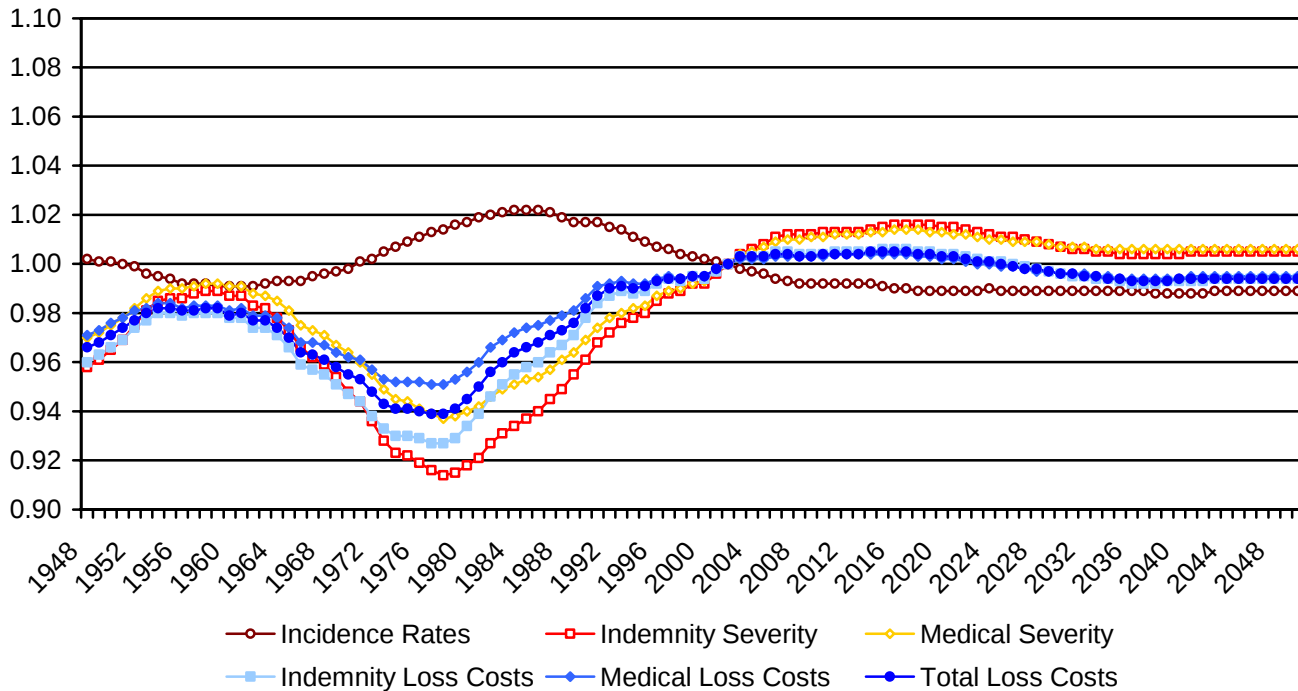


Frequency, Severity, and Loss Cost Indices

Chart 35 contains indexes indicating how incidence rates, severity, and loss costs in 2002 would change if the age composition of the labor force matched the indicated

year on the bottom axis. The indexes include all workers (ages 15 to over 65). They are not actual measures of frequency, severity, or loss costs but are a rough indication of the likely impact of the baby boomers on workers compensation loss costs over time.

Chart 35—Indexes Weighted by the Age Distribution of the Labor Force Where 2002 = 1.00, 1948–2050, Based on NCCI DCI Paid Plus Case Data at 18 Months, Bureau of Labor Statistics Nonfatal Incidence Rates Involving Days Away From Work, and Economy.com Forecasts of Population



The baby boomers made a difference historically, but the estimates through 2050 show that the major impact of an aging workforce has already occurred.¹⁷ The reasons for this are twofold:

1. Forecasts for the age distribution of the labor force¹⁸ show only small changes in the future. Chart 36 illustrates that there was considerably more variation historically than is anticipated over the next few

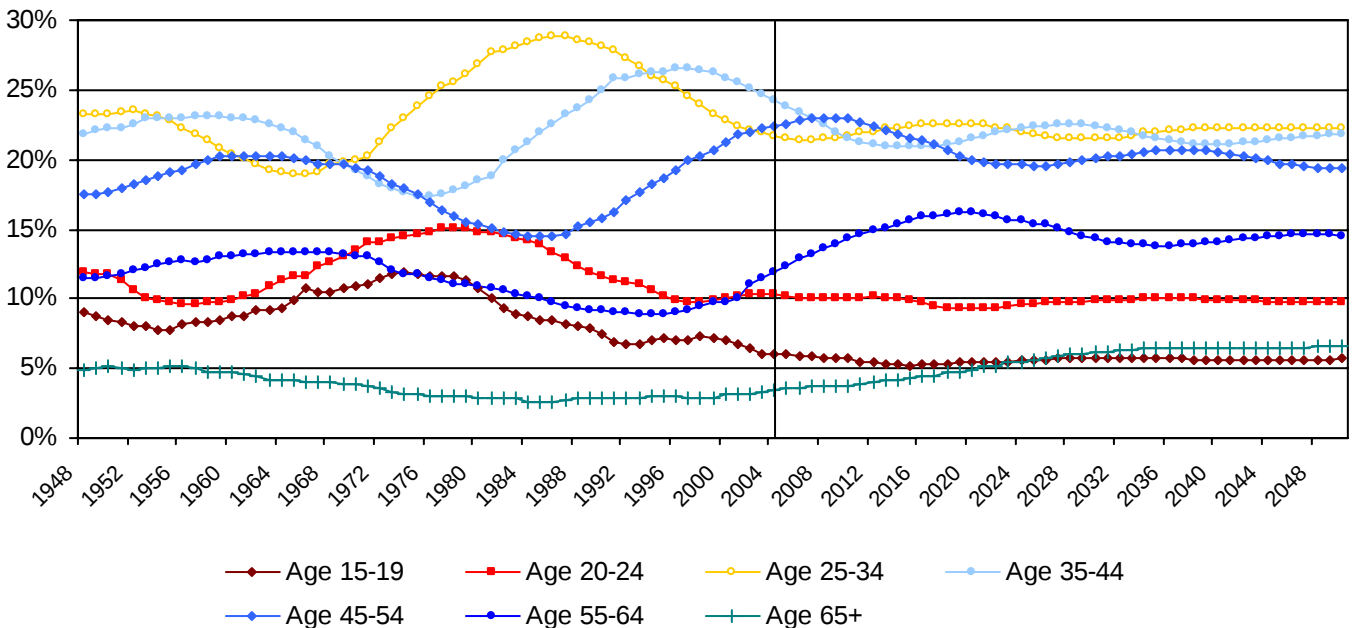
decades (the vertical line in the chart delineates past and future).

2. There is very little difference in the frequency and severity levels of the 45–54 and 55–64 age cohorts (recall Charts 3, 9, and 10). Baby boomers are currently (in 2006) 42 to 60 years old, so, for the most part, have already entered these age groups.

¹⁷ Note that the age-weighted frequency peaked in 1985, while severity bottoms out in 1978. This reflects the fact that in 2002, the marked differences in frequency ended with the 45 to 54 cohort whereas the gaps in severities largely disappeared with the 35 to 44 age cohort.

¹⁸ Derived labor force share by age was obtained by multiplying labor force participation rates for each age cohort by population for each age cohort. Forecasts of population by age were obtained from Economy.com. Labor force participation rates by age were only available through 2006, so the 2006 values were used for future years.

Chart 36—Derived Labor Force Share, Calendar Years 1948–2050, Forecasts of Population From Economy.com



Conclusion

This study found that age is indeed a leading factor in explaining trends in claims costs. Older workers generally have lower frequency and younger workers generally have higher frequency, but the significance of that relationship may be diminishing, based on recent years' experience. For severity, the relationship is reversed—older workers generally have higher severities than that of younger workers, and this relationship seems to be holding steady.

Differences in average weekly wages and duration of claims account for most of the difference in indemnity

severity between older and younger age cohorts, while lump sum payments account for a small portion of the difference. For medical severity, differences in the mix of injuries account for a modest portion of the difference in medical severity across age cohorts, while the key driver is markedly higher numbers of treatments by service category within a diagnosis for older workers. Indemnity and medical are related in that the greater number of treatments also undoubtedly accounts for the longer duration of indemnity payments for older workers.

Overall, baby boomers made an impact historically, but the major impact of an aging workforce has likely already occurred.

Appendices—Table of Contents

Appendix A—Definitions of Major Occupational Groups
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28 Diagnosis Codes

Appendix D—Glossary of Service Categories

Appendix A—Definitions of Major Occupational Groups and Employment Distributions by Age

Below are the descriptions of the major occupational groups used to adjust the frequency data for changes in occupation.

1994–1999 Occupational Groups

- Managerial & Professional Specialty—consists of executive, administrative, managerial, and professional specialty occupations
- Technical, Sales, & Administrative Support—consists of technicians & related support, sales, and administrative support including clerical occupations
- Service—consists of private household service, protective service, and other service occupations
- Precision Production, Craft, & Repair—consists of mechanics & repairers, construction trades, extractive, and precision production occupations
- Operators, Fabricators, & Laborers—consists of machine operators, assemblers, inspectors, transportation & material moving, handlers, equipment cleaners, helpers, and laborer occupations

- Farming, Forestry, & Fishing—consists of farm operators & managers, other agricultural & related occupations, forestry & logging occupations, fishers, hunters, and trappers

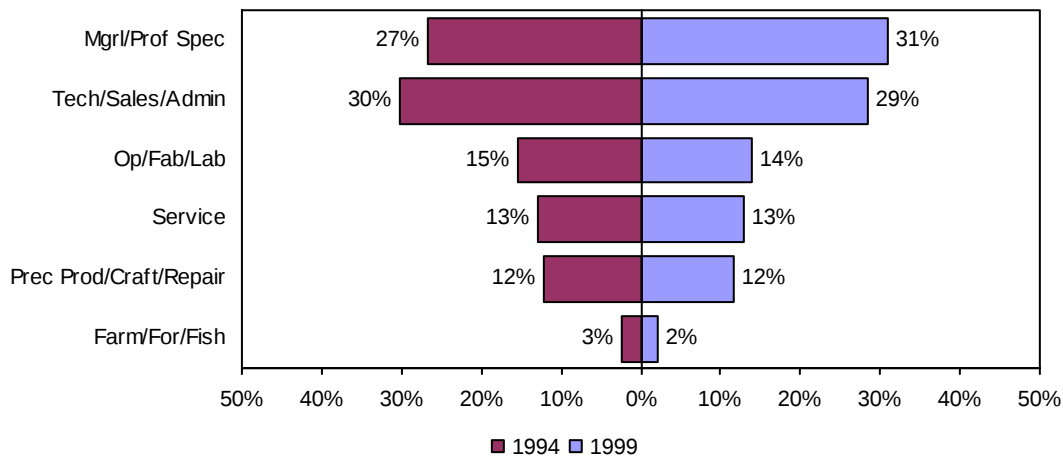
2000–2002 Occupational Groups

- Management, Professional, & Related—consists of management, business, financial operations, and professional & related occupations
- Service—consists of healthcare support, protective service, food preparation & serving related, building & grounds cleaning & maintenance, and personal care & service occupations
- Sales & Office—consists of sales & related, and office & administrative support occupations
- Natural Resources, Construction, & Maintenance—consists of farming, fishing, forestry, construction, extraction, installation, maintenance, and repair occupations
- Production, Transportation, & Materials Moving—consists of production, transportation, and materials moving occupations

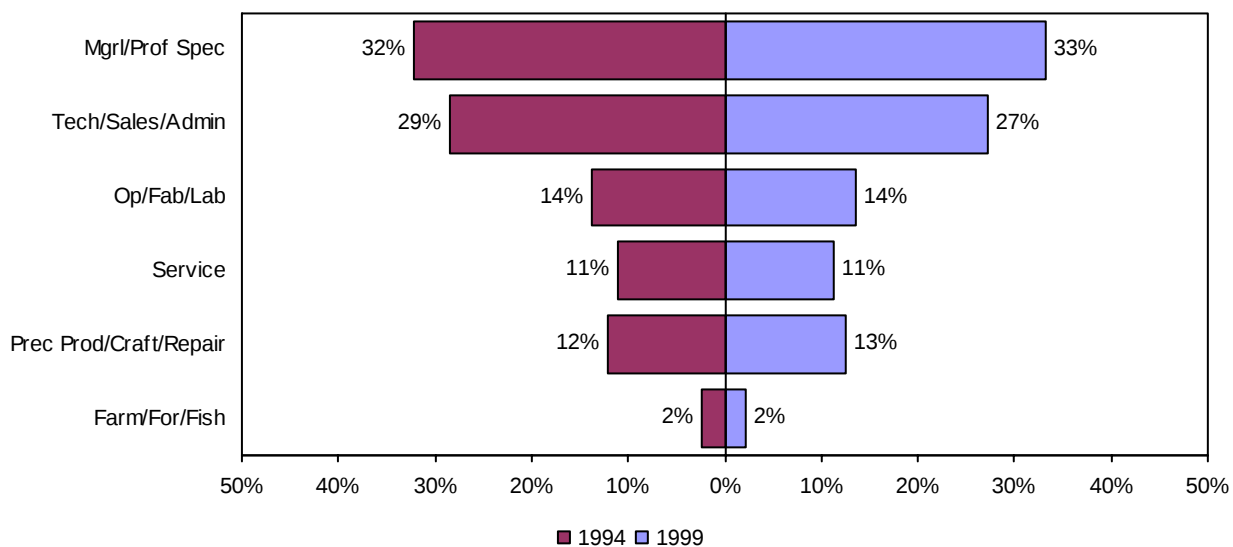
The following charts show the occupation employment distributions for the additional age cohorts not shown in Chart 6 in the text.

**Chart A-1—Occupational Employment
Distributions, Calendar Year 1994 vs. 1999, Bureau of Labor Statistics**

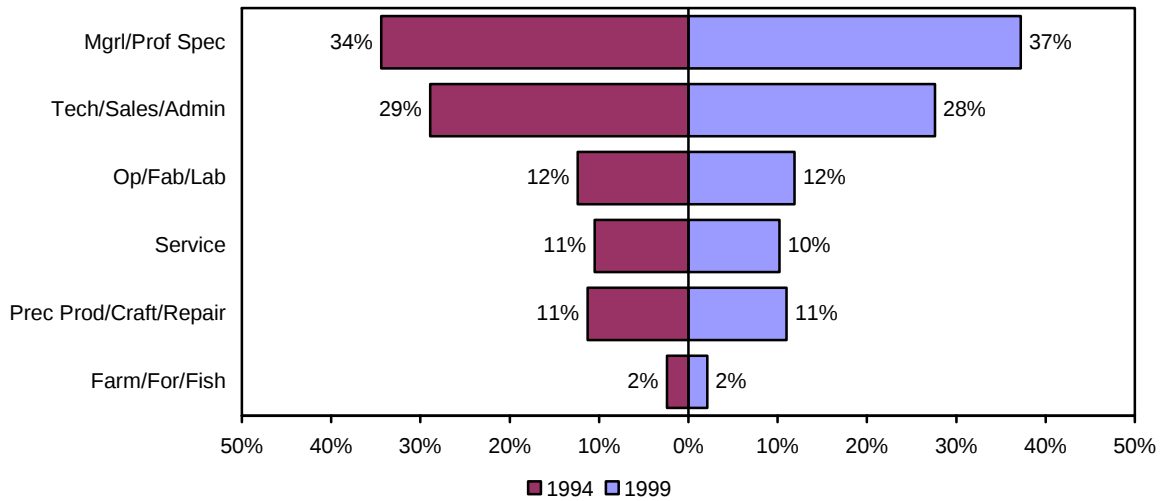
Age 25-34



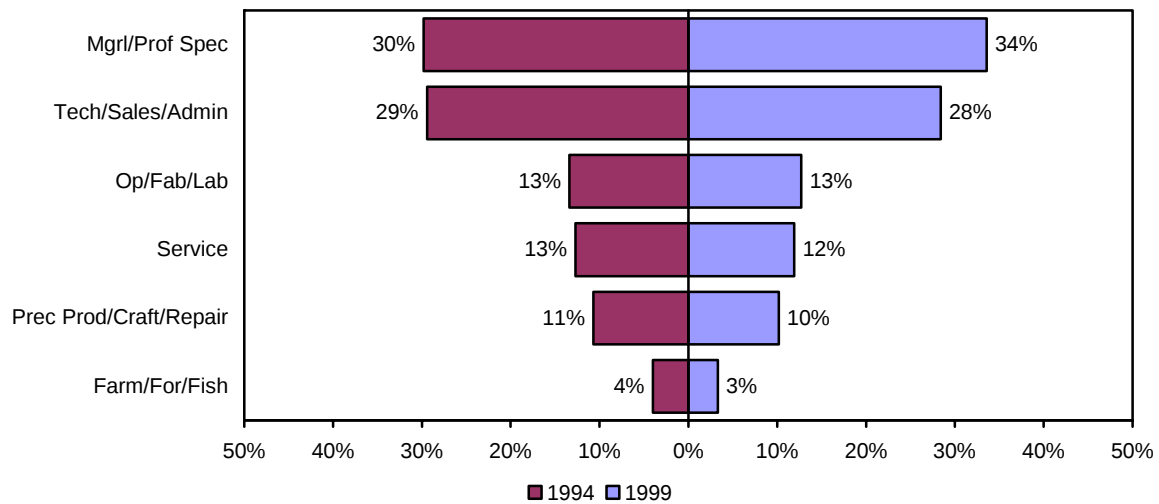
Age 35-44



Age 45-54



Age 55-64



Appendix B—Groupings of Individual Diagnosis Codes Based on Differences in Number of Treatments Between the Older and Younger Age Cohorts

As mentioned in the main body of this report, diagnosis codes generally fell into groups based on similar types of injury and/or parts of body based on similarities in the differences in number of treatments by service category between the older and younger age cohorts. This appendix contains charts showing the groupings, generally in order from those most similar to the average of all diagnosis codes (Chart 27 in the body of this report) to ones least similar.

The pattern in the difference in the number of treatments between the older and younger age cohorts by service categories is most similar to the average for codes pertaining to pain in the neck and limbs. For those diagnosis codes, the older age cohort also shows much more pathology and complex surgery and anesthesia. The code least similar to the average is inguinal hernia, where older workers have 140% more diagnostic radiology treatments than younger workers, but the overall difference in severity is relatively small at about 10% (see Appendix C).

All charts in this appendix use the following legend:

-  Pathology
-  Complex Surgery and Anesthesia
-  Hospital Services
-  Surgical Treatments
-  Drugs, Supplies and DME
-  Other
-  Physical Therapy
-  Complex Diagnostic Testing
-  Diagnostic Radiology
-  Office Visits
-  Emergency Services

Chart B-1—Pain in Neck and Limbs Diagnosis Codes Grouping Shows Much More Pathology and Complex Surgery and Anesthesia

Percent Difference in Number of Treatments, Older Over Younger, Accident Years 1996–2003

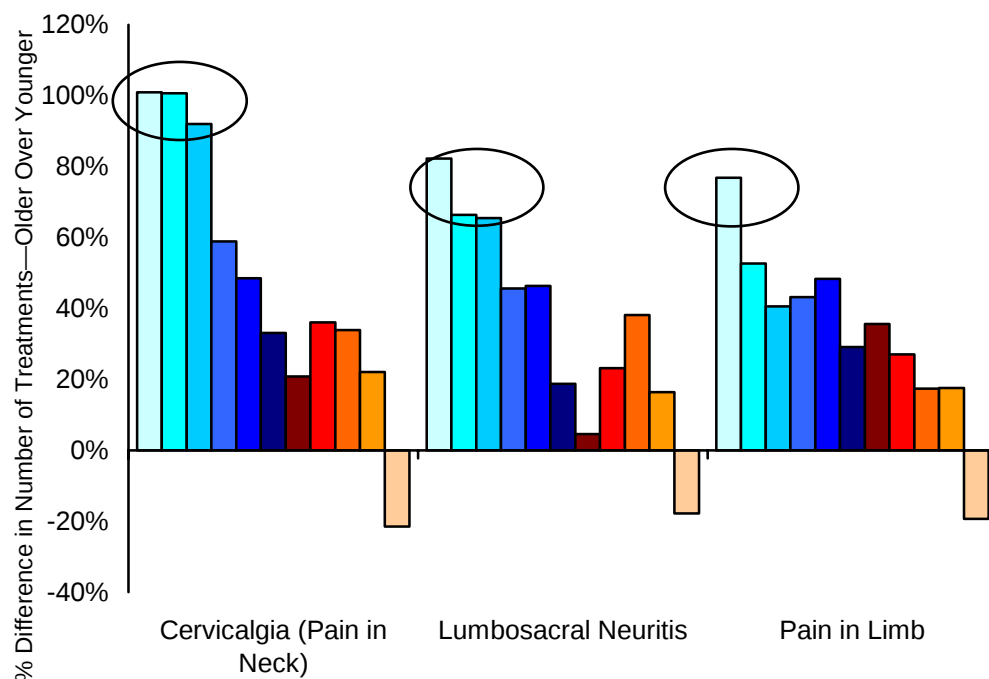


Chart B-2—Joint Pain in Shoulder and Lower Leg Injury Diagnosis Codes Grouping Shows Much More Pathology

Percent Difference in Number of Treatments, Older Over Younger, Accident Years 1996–2003

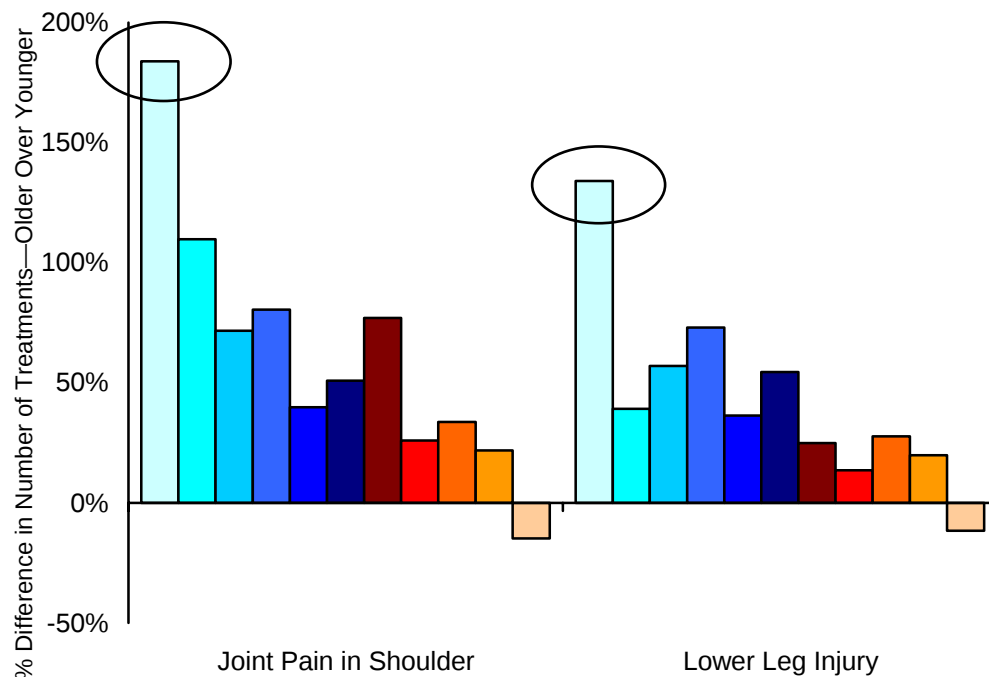


Chart B-3—Cervical and Lumbar Disc Diagnosis Codes Grouping Shows More Pathology, Complex Surgery and Anesthesia, Hospital Services, Surgical Treatments, and Drugs

Percent Difference in Number of Treatments, Older Over Younger, Accident Years 1996–2003

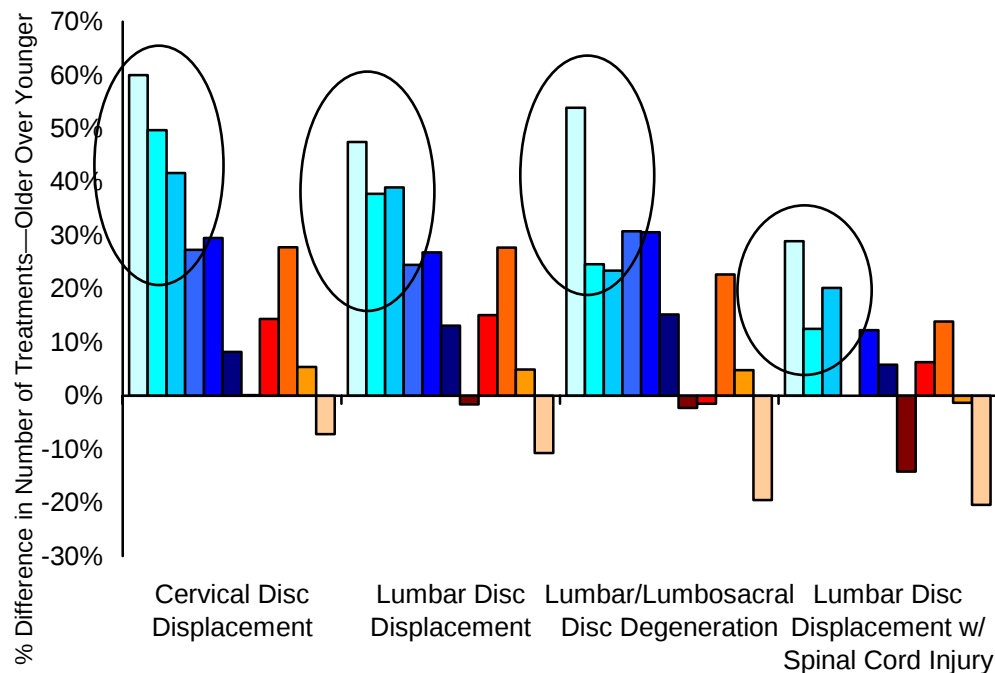


Chart B-4—Sprain/Pain in Lumbar Region Diagnosis Codes Grouping Shows More Complex Surgery and Anesthesia and Surgical Treatments

Percent Difference in Number of Treatments, Older Over Younger, Accident Years 1996–2003

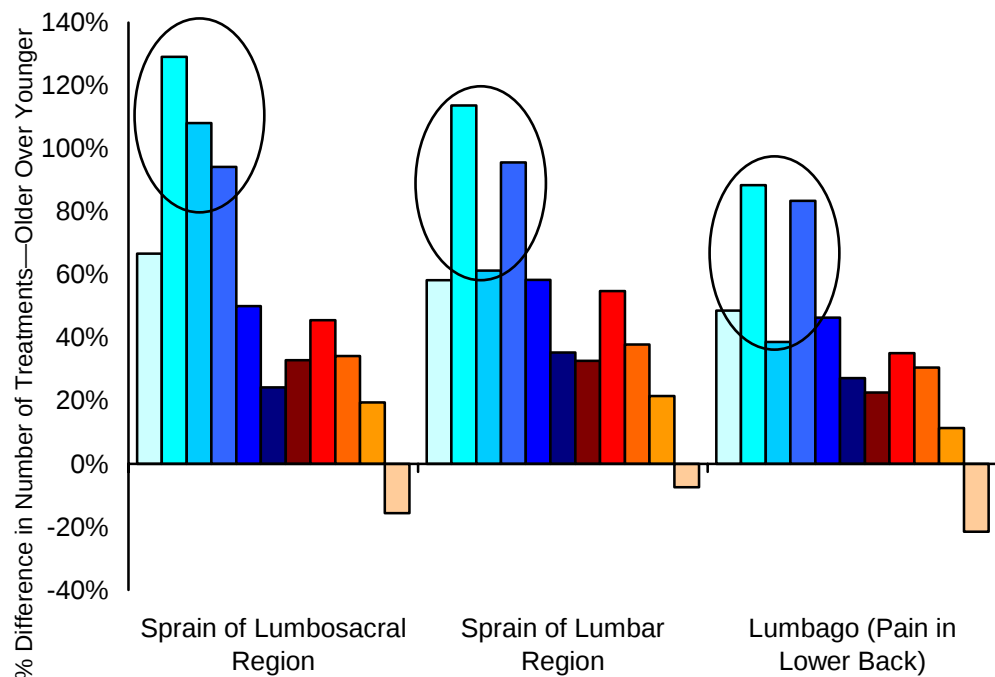


Chart B-5—Diagnosis Codes Involving Sprains and Tears Show Much More Pathology, Complex Surgery and Anesthesia, Hospital Services, and Surgical Treatments

Percent Difference in Number of Treatments, Older Over Younger, Accident Years 1996–2003

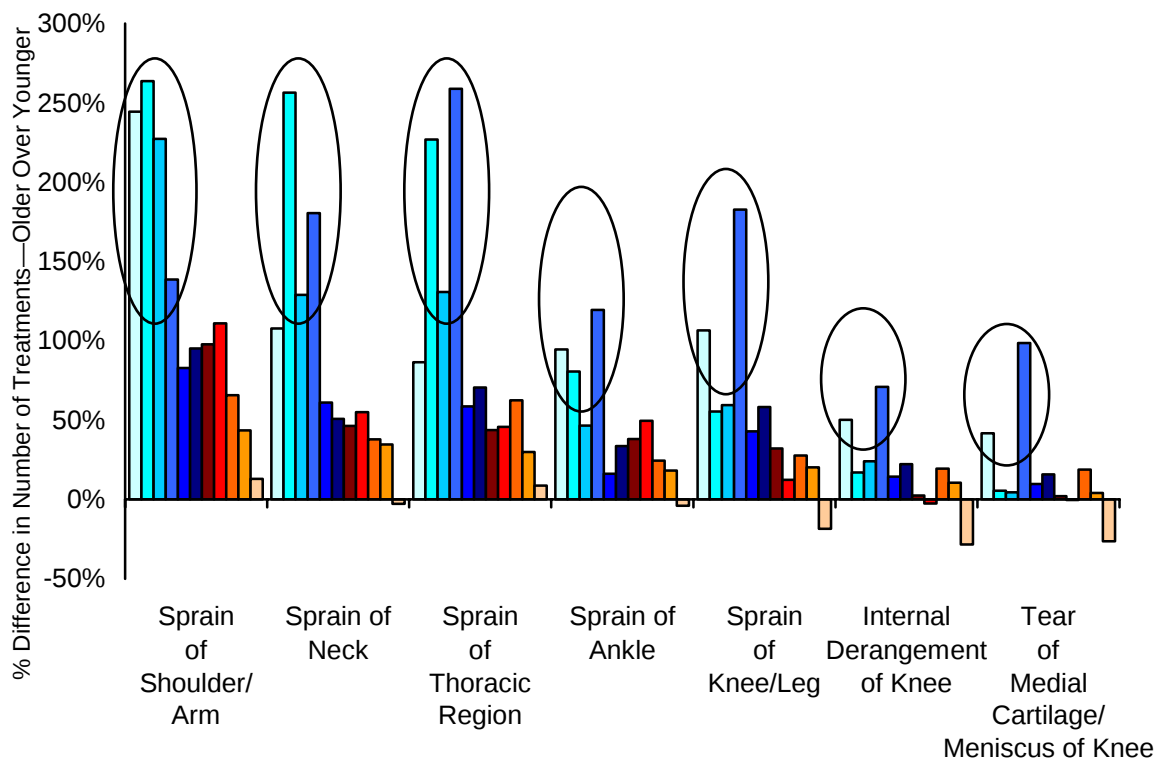
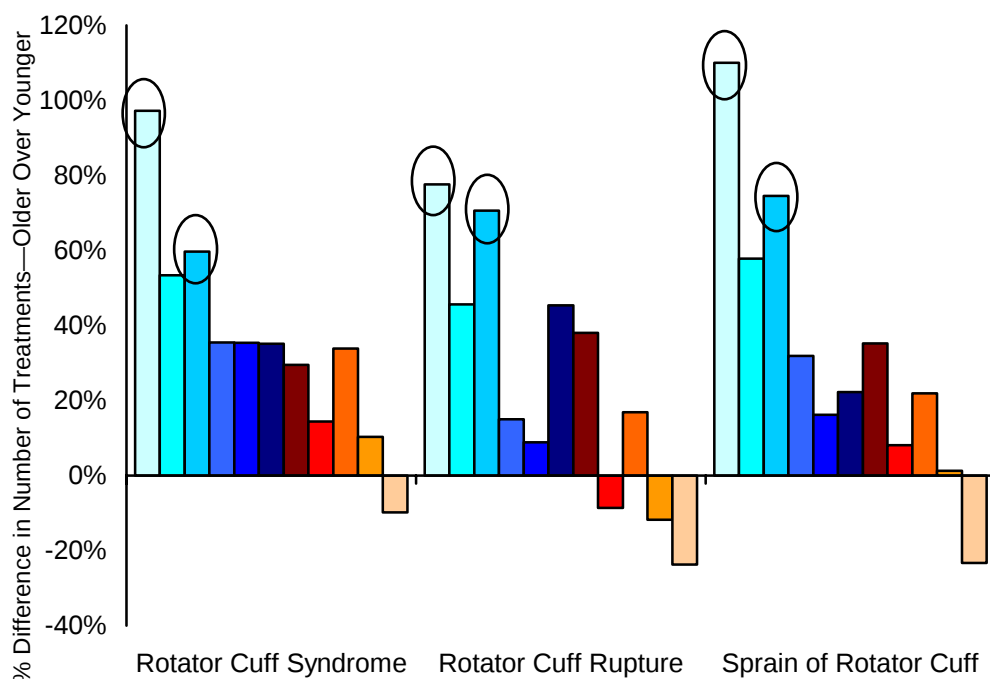


Chart B-6—Rotator Cuff Injury Diagnosis Codes Show More Pathology and Hospital Services

Percent Difference in Number of Treatments, Older Over Younger, Accident Years 1996–2003



**Chart B-7—Carpal Tunnel Syndrome Shows More Pathology and Complex Surgery and Anesthesia;
Fewer Diagnostic Testing, Office Visits, and Emergency Services**

Percent Difference in Number of Treatments, Older Over Younger, Accident Years 1996–2003

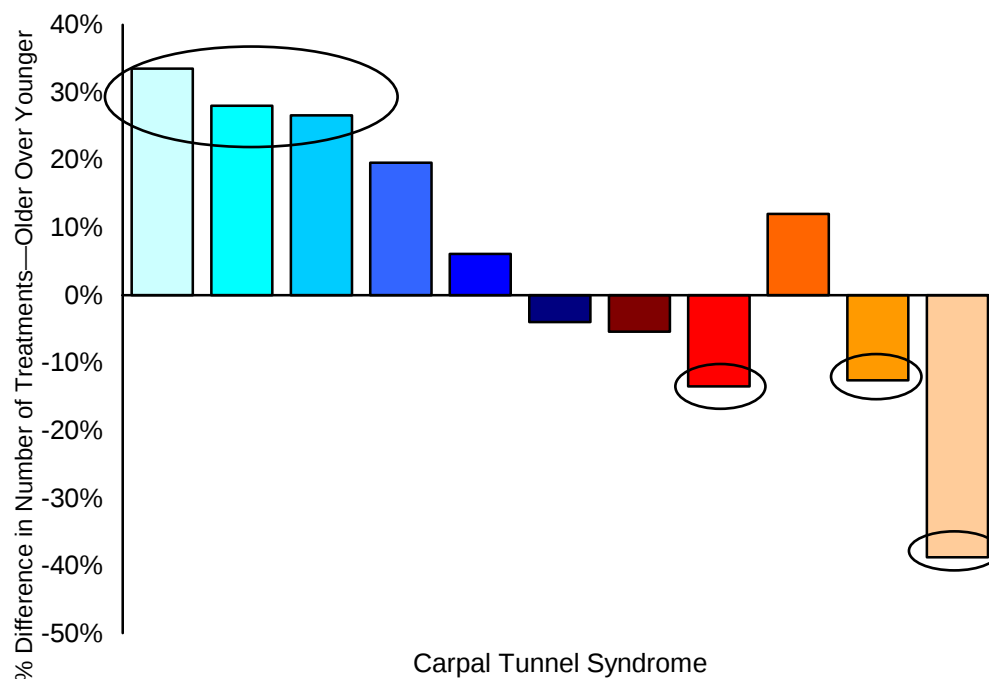


Chart B-8—Diagnosis Codes Involving Open Wounds/Amputation of Fingers Show More Pathology and Complex Diagnostic Testing

Percent Difference in Number of Treatments, Older Over Younger, Accident Years 1996–2003

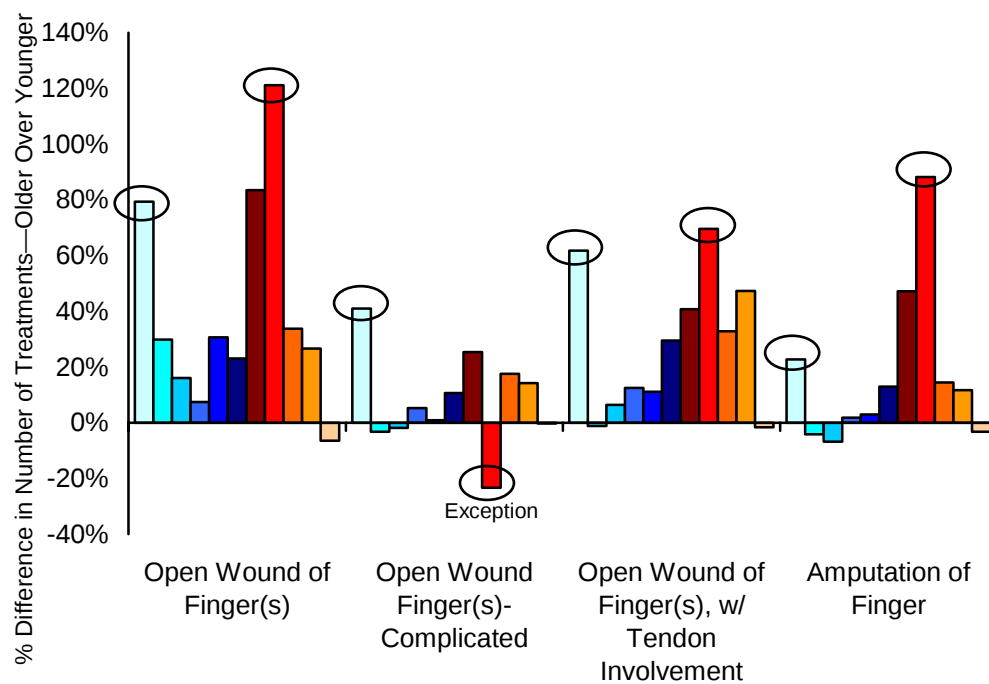
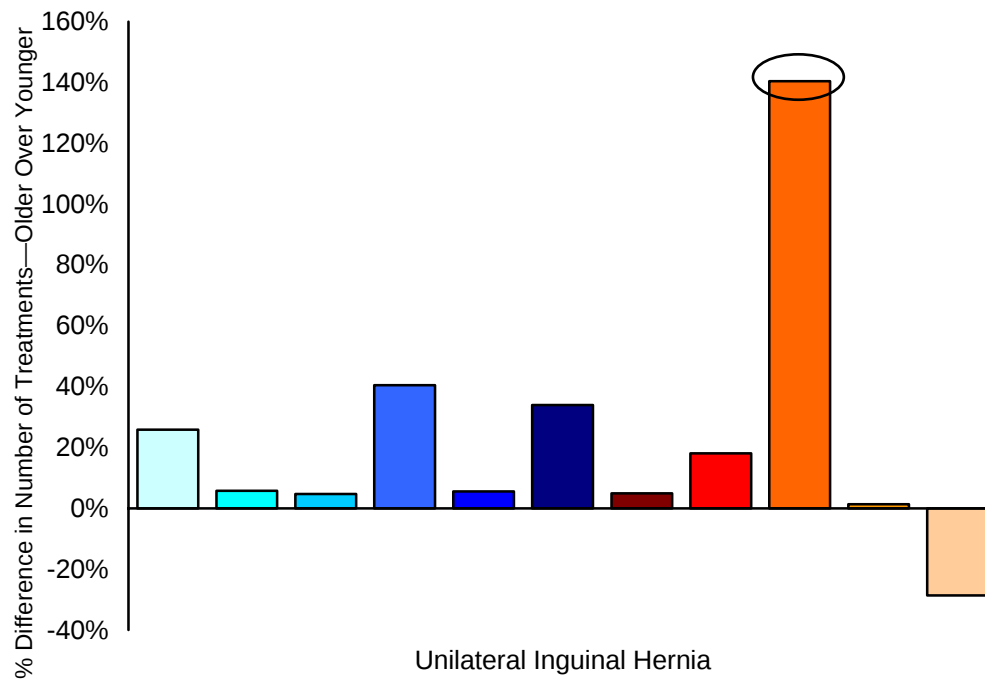


Chart B-9—Inguinal Hernia Shows More Diagnostic Radiology
Percent Difference in Number of Treatments, Older Over Younger, Accident Years 1996–2003



Appendix C—Differences in Number of Treatments, Price, and Severity, Older Over Younger, 1996–2003, for 28 Diagnosis Codes

This appendix contains tables for the 28 individual diagnosis codes showing differences in number of treatments, price, and severity between the older and younger age cohorts by service category. The last column in each table shows the percent each service category contributes to the overall severity difference between the older and younger age cohorts for that diagnosis code. As discussed in the report, a service category could have a large difference in the number of treatments but not contribute much to the severity difference if the price for that service category is low.

The tables are arranged in order from the diagnosis with the smallest difference between the older and younger age cohorts to the largest. For some diagnoses such as tear of cartilage in the knee, inguinal hernia, and carpal tunnel syndrome, the differences in severity are small. For carpal tunnel syndrome, older and younger workers have different but equally costly treatment patterns. Other diagnoses are markedly more expensive for older workers. In these cases older workers have different treatment patterns that are more costly. For example, for sprain of neck and cervicalgia, older workers are more likely to receive complex surgery.

Overall Severity % Older over Younger: 2%	Amputation of Finger							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Complex Diagnostic Testing	0.0	0.0	88%	505	510	1%	11	9%
Physical Therapy	14.1	20.7	47%	45	41	-9%	216	181%
Pathology	1.5	1.9	23%	50	44	-12%	7	5%
Diagnostic Radiology	2.3	2.6	14%	48	50	4%	21	18%
Other	4.9	5.5	13%	116	101	-13%	(7)	-6%
Office Visits	3.8	4.2	12%	58	57	-1%	23	19%
Drugs, Supplies and DME	9.2	9.4	3%	90	75	-16%	(112)	-93%
Surgical Treatments	1.1	1.1	2%	275	261	-5%	(11)	-9%
Emergency Services	2.0	1.9	-3%	154	164	6%	9	8%
Complex Surgery and Anesthesia	2.8	2.7	-4%	543	571	5%	12	10%
Hospital Services	1.4	1.3	-7%	739	755	2%	(50)	-42%
Total Treatments	43.0	51.4	20%	130	111	-15%	119	100%

Overall Severity % Older over Younger: 5%	Open Wound Finger(s)-Complicated							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	1.1	1.6	41%	39	38	-2%	17	7%
Physical Therapy	16.1	20.2	25%	39	38	-1%	148	62%
Diagnostic Radiology	2.0	2.4	18%	51	51	0%	18	8%
Office Visits	4.0	4.6	14%	58	58	-1%	30	13%
Other	4.7	5.2	11%	96	96	0%	49	21%
Surgical Treatments	1.5	1.6	5%	265	280	6%	44	19%
Drugs, Supplies and DME	8.5	8.6	1%	66	64	-3%	(14)	-6%
Emergency Services	1.5	1.5	0%	139	155	12%	24	10%
Hospital Services	1.2	1.2	-2%	698	668	-4%	(52)	-22%
Complex Surgery and Anesthesia	2.4	2.3	-3%	535	544	2%	(21)	-9%
Complex Diagnostic Testing	0.0	0.0	-23%	520	403	-22%	(7)	-3%
Total Treatments	43.2	49.2	14%	111	102	-8%	237	100%

Overall Severity % Older over Younger: 5%	Tear of Medial Cartilage/Meniscus of Knee							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Surgical Treatments	0.5	1.1	99%	174	122	-30%	37	6%
Pathology	2.0	2.8	42%	35	37	4%	34	6%
Diagnostic Radiology	2.7	3.2	19%	63	65	3%	39	7%
Other	7.4	8.5	16%	111	111	0%	127	22%
Drugs, Supplies and DME	9.8	10.7	10%	163	144	-11%	(43)	-7%
Complex Surgery and Anesthesia	3.8	4.0	6%	937	933	0%	186	32%
Hospital Services	1.6	1.7	5%	781	837	7%	156	27%
Office Visits	8.1	8.4	4%	59	60	1%	23	4%
Physical Therapy	48.3	49.3	2%	39	38	-2%	1	0%
Complex Diagnostic Testing	1.2	1.2	0%	566	568	0%	0	0%
Emergency Services	0.6	0.4	-26%	181	297	64%	23	4%
Total Treatments	86.1	91.5	6%	125	124	-1%	582	100%

Overall Severity % Older over Younger: 8%	Lumbar Disc Displacement w/ Spinal Cord Injury							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	6.7	8.7	29%	23	25	8%	61	3%
Hospital Services	3.8	4.6	20%	1,325	1,291	-3%	869	37%
Diagnostic Radiology	9.4	10.7	14%	90	91	1%	124	5%
Complex Surgery and Anesthesia	6.3	7.1	13%	733	776	6%	885	38%
Drugs, Supplies and DME	48.6	54.6	12%	94	101	7%	945	40%
Complex Diagnostic Testing	3.4	3.6	6%	557	555	0%	110	5%
Other	25.9	27.4	6%	120	125	4%	317	14%
Surgical Treatments	3.3	3.3	0%	287	281	-2%	(19)	-1%
Office Visits	24.1	23.8	-1%	63	64	2%	3	0%
Physical Therapy	126.0	108.0	-14%	47	46	-1%	(911)	-39%
Emergency Services	1.4	1.1	-20%	116	102	-12%	(49)	-2%
Total Treatments	258.9	252.9	-2%	111	123	11%	2,335	100%

Overall Severity % Older over Younger: 10%	Unilateral Inguinal Hernia							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Diagnostic Radiology	0.3	0.6	140%	71	68	-5%	23	5%
Surgical Treatments	0.0	0.1	41%	166	228	37%	7	1%
Other	2.1	2.9	34%	133	132	-1%	93	20%
Pathology	2.3	2.9	26%	36	37	3%	24	5%
Complex Diagnostic Testing	0.0	0.0	18%	431	386	-10%	1	0%
Complex Surgery and Anesthesia	2.9	3.1	6%	661	684	4%	183	40%
Drugs, Supplies and DME	3.9	4.1	6%	224	233	4%	83	18%
Physical Therapy	0.7	0.7	5%	45	37	-17%	(4)	-1%
Hospital Services	1.5	1.5	5%	724	708	-2%	25	5%
Office Visits	2.3	2.3	1%	74	77	4%	9	2%
Emergency Services	0.3	0.2	-29%	201	350	75%	15	3%
Total Treatments	16.3	18.4	13%	276	269	-3%	460	100%

Overall Severity % Older over Younger: 12%	Lumbar/Lumbosacral Disc Degeneration							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Pathology	2.5	3.8	54%	34	36	8%	55	3%
Surgical Treatments	1.5	1.9	31%	299	279	-7%	98	5%
Drugs, Supplies and DME	21.7	28.4	31%	112	119	6%	939	51%
Complex Surgery and Anesthesia	3.0	3.7	25%	766	736	-4%	449	25%
Hospital Services	2.0	2.5	23%	1,389	1,198	-14%	182	10%
Diagnostic Radiology	5.6	6.9	23%	97	97	0%	124	7%
Other	12.5	14.3	15%	132	127	-4%	178	10%
Office Visits	14.7	15.5	5%	65	64	-1%	34	2%
Complex Diagnostic Testing	2.2	2.1	-1%	566	565	0%	(21)	-1%
Physical Therapy	68.0	66.4	-2%	43	41	-4%	(178)	-10%
Emergency Services	1.0	0.8	-19%	146	140	-4%	(35)	-2%
Total Treatments	134.7	146.4	9%	115	118	3%	1,826	100%

Overall Severity % Older over Younger: 12%	Carpal Tunnel Syndrome							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Pathology	1.7	2.3	33%	34	35	3%	22	2%
Complex Surgery and Anesthesia	3.3	4.2	28%	622	645	4%	668	71%
Hospital Services	1.4	1.7	27%	541	529	-2%	174	18%
Surgical Treatments	1.0	1.2	20%	257	291	13%	93	10%
Diagnostic Radiology	1.9	2.1	12%	65	65	0%	14	2%
Drugs, Supplies and DME	11.8	12.5	6%	75	85	14%	187	20%
Other	13.5	13.0	-4%	95	97	3%	(17)	-2%
Physical Therapy	45.0	42.5	-5%	38	37	-2%	(132)	-14%
Office Visits	10.2	8.9	-13%	58	61	5%	(48)	-5%
Complex Diagnostic Testing	0.3	0.2	-14%	550	555	1%	(18)	-2%
Emergency Services	0.4	0.2	-39%	213	349	63%	(0)	0%
Total Treatments	90.4	88.9	-2%	87	99	14%	944	100%

Overall Severity % Older over Younger: 12%	Open Wound of Finger(s), w/ Tendon Involvement							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Complex Diagnostic Testing	0.0	0.0	70%	508	468	-8%	8	1%
Pathology	1.1	1.8	62%	38	45	19%	38	5%
Office Visits	3.7	5.4	47%	61	61	-1%	104	13%
Physical Therapy	26.9	37.9	41%	37	36	-4%	358	46%
Diagnostic Radiology	1.7	2.3	33%	52	56	8%	39	5%
Other	5.6	7.3	29%	96	88	-9%	97	12%
Surgical Treatments	1.3	1.4	13%	240	281	17%	99	13%
Drugs, Supplies and DME	9.4	10.4	11%	79	79	1%	89	11%
Hospital Services	1.4	1.5	6%	685	664	-3%	31	4%
Complex Surgery and Anesthesia	3.6	3.6	-1%	610	599	-2%	(65)	-8%
Emergency Services	1.4	1.4	-2%	150	144	-4%	(11)	-1%
Total Treatments	56.1	72.9	30%	113	98	-14%	786	100%

Overall Severity % Older over Younger: 15%	Internal Derangement of Knee							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Surgical Treatments	0.7	1.2	71%	154	122	-21%	38	2%
Pathology	2.2	3.4	50%	37	37	2%	44	3%
Hospital Services	1.5	1.8	24%	696	799	15%	437	28%
Other	8.7	10.7	22%	102	100	-2%	177	11%
Diagnostic Radiology	3.2	3.9	19%	62	64	2%	44	3%
Complex Surgery and Anesthesia	3.2	3.8	17%	914	894	-2%	429	28%
Drugs, Supplies and DME	11.2	12.8	14%	133	134	0%	218	14%
Office Visits	9.4	10.4	11%	57	58	1%	63	4%
Physical Therapy	55.2	56.6	3%	39	40	1%	84	5%
Complex Diagnostic Testing	1.2	1.2	-3%	564	570	1%	(11)	-1%
Emergency Services	0.7	0.5	-28%	152	245	61%	17	1%
Total Treatments	97.4	106.3	9%	106	111	5%	1,538	100%

Overall Severity % Older over Younger: 24%	Lumbar Disc Displacement							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	3.1	4.5	48%	34	37	10%	65	2%
Hospital Services	2.4	3.3	39%	998	1,004	1%	934	25%
Complex Surgery and Anesthesia	3.1	4.3	38%	836	819	-2%	913	24%
Diagnostic Radiology	5.2	6.7	28%	93	94	2%	147	4%
Drugs, Supplies and DME	21.2	26.8	27%	103	129	25%	1,280	34%
Surgical Treatments	1.5	1.8	24%	290	275	-5%	77	2%
Complex Diagnostic Testing	2.1	2.4	15%	586	592	1%	202	5%
Other	14.7	16.6	13%	119	121	2%	267	7%
Office Visits	16.1	16.8	5%	62	63	1%	61	2%
Physical Therapy	80.2	79.0	-2%	43	42	-3%	(139)	-4%
Emergency Services	0.9	0.8	-11%	164	177	8%	(6)	0%
Total Treatments	150.4	163.1	8%	104	120	15%	3,801	100%

Overall Severity % Older over Younger: 29%	Cervical Disc Displacement							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	3.3	5.3	60%	31	34	10%	78	1%
Complex Surgery and Anesthesia	4.1	6.1	50%	806	892	11%	2,142	40%
Hospital Services	2.4	3.4	42%	938	943	1%	947	18%
Drugs, Supplies and DME	27.1	35.1	30%	91	116	27%	1,588	30%
Diagnostic Radiology	7.1	9.0	28%	86	86	0%	168	3%
Surgical Treatments	1.8	2.3	27%	257	232	-10%	67	1%
Complex Diagnostic Testing	2.7	3.0	14%	569	556	-2%	180	3%
Other	20.1	21.8	8%	114	124	8%	399	7%
Office Visits	19.0	20.1	5%	60	63	4%	111	2%
Physical Therapy	106.6	106.7	0%	43	39	-8%	(338)	-6%
Emergency Services	0.9	0.8	-7%	135	196	45%	40	1%
Total Treatments	195.0	213.6	10%	96	113	17%	5,383	100%

Overall Severity % Older over Younger: 34%	Open Wound of Finger(s)							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Complex Diagnostic Testing	0.0	0.0	121%	585	509	-13%	5	1%
Physical Therapy	3.8	6.9	84%	37	36	-5%	106	24%
Pathology	0.3	0.5	79%	41	42	2%	10	2%
Diagnostic Radiology	0.8	1.1	34%	50	52	4%	16	4%
Drugs, Supplies and DME	4.1	5.3	31%	42	44	6%	66	15%
Complex Surgery and Anesthesia	0.5	0.6	30%	494	517	5%	84	19%
Office Visits	2.7	3.4	27%	54	55	3%	44	10%
Other	1.9	2.4	23%	65	59	-10%	14	3%
Hospital Services	0.4	0.4	16%	438	507	16%	55	12%
Surgical Treatments	0.8	0.9	7%	149	190	27%	46	10%
Emergency Services	1.3	1.3	-6%	105	112	6%	(1)	0%
Total Treatments	16.7	22.9	38%	78	76	-3%	445	100%

Overall Severity % Older over Younger: 35%	Rotator Cuff Rupture							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	2.1	3.7	78%	46	34	-25%	31	1%
Hospital Services	1.6	2.7	71%	829	867	5%	1,010	21%
Complex Surgery and Anesthesia	3.7	5.4	46%	861	936	9%	1,864	39%
Other	10.2	14.8	45%	140	97	-30%	16	0%
Physical Therapy	88.1	121.6	38%	40	36	-9%	879	19%
Diagnostic Radiology	4.0	4.6	17%	74	71	-4%	34	1%
Surgical Treatments	1.7	2.0	15%	249	275	10%	114	2%
Drugs, Supplies and DME	15.3	16.7	9%	110	149	36%	805	17%
Complex Diagnostic Testing	1.6	1.5	-9%	571	586	3%	(57)	-1%
Office Visits	13.1	11.6	-12%	57	59	2%	(74)	-2%
Emergency Services	0.8	0.6	-24%	94	331	252%	124	3%
Total Treatments	142.1	185.0	30%	96	100	3%	4,746	100%

Overall Severity % Older over Younger: 38%	Lumbosacral Neuritis							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	2.1	3.9	82%	35	34	-2%	58	1%
Complex Surgery and Anesthesia	2.4	3.9	66%	627	675	8%	1,168	24%
Hospital Services	1.7	2.9	65%	814	819	1%	939	19%
Drugs, Supplies and DME	21.7	31.8	46%	92	104	13%	1,310	27%
Surgical Treatments	1.5	2.1	46%	267	274	2%	192	4%
Diagnostic Radiology	4.8	6.7	38%	89	91	3%	181	4%
Complex Diagnostic Testing	1.8	2.2	23%	569	571	0%	244	5%
Other	14.9	17.7	19%	111	121	9%	486	10%
Office Visits	15.9	18.6	16%	60	60	0%	155	3%
Physical Therapy	78.7	82.3	5%	41	40	-2%	92	2%
Emergency Services	1.0	0.8	-18%	123	158	28%	7	0%
Total Treatments	146.6	172.9	18%	87	102	17%	4,833	100%

Overall Severity % Older over Younger: 38%	Lower Leg Injury							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	0.9	2.2	134%	34	34	-1%	41	2%
Surgical Treatments	0.6	1.0	73%	341	334	-2%	131	7%
Hospital Services	0.9	1.4	57%	785	879	12%	515	27%
Other	4.3	6.7	55%	107	98	-9%	192	10%
Complex Surgery and Anesthesia	1.2	1.7	39%	801	758	-5%	309	16%
Drugs, Supplies and DME	7.4	10.1	36%	98	101	3%	297	16%
Diagnostic Radiology	4.0	5.1	28%	61	62	2%	75	4%
Physical Therapy	21.1	26.3	25%	41	42	2%	240	13%
Office Visits	5.9	7.1	20%	57	57	0%	69	4%
Complex Diagnostic Testing	0.6	0.7	14%	515	509	-1%	40	2%
Emergency Services	1.4	1.3	-12%	104	113	8%	(7)	0%
Total Treatments	48.4	63.5	31%	103	109	5%	1,903	100%

Overall Severity % Older over Younger: 41%	Sprain of Ankle							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Surgical Treatments	0.1	0.2	119%	264	234	-11%	19	3%
Pathology	0.2	0.3	95%	29	39	35%	7	1%
Complex Surgery and Anesthesia	0.1	0.2	81%	740	612	-17%	36	7%
Complex Diagnostic Testing	0.1	0.2	50%	570	549	-4%	27	5%
Hospital Services	0.2	0.3	46%	394	437	11%	42	8%
Physical Therapy	11.5	15.9	38%	33	33	2%	151	28%
Other	2.1	2.8	34%	53	66	25%	73	14%
Diagnostic Radiology	2.0	2.5	25%	58	63	8%	41	8%
Office Visits	4.3	5.1	18%	55	56	3%	51	10%
Drugs, Supplies and DME	3.9	4.5	16%	42	54	28%	79	15%
Emergency Services	0.6	0.6	-4%	104	121	16%	8	1%
Total Treatments	25.1	32.5	30%	52	56	9%	534	100%

Overall Severity % Older over Younger: 41%	Lumbago (Pain in Lower Back)							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Complex Surgery and Anesthesia	0.5	0.9	88%	710	706	-1%	310	17%
Surgical Treatments	0.3	0.6	83%	236	238	1%	66	4%
Pathology	0.7	1.1	49%	35	41	17%	19	1%
Drugs, Supplies and DME	6.9	10.1	46%	78	88	13%	350	19%
Hospital Services	0.7	1.0	39%	763	884	16%	333	19%
Complex Diagnostic Testing	0.7	0.9	35%	568	564	-1%	133	7%
Diagnostic Radiology	2.1	2.8	31%	88	91	3%	66	4%
Other	6.4	8.2	27%	77	84	9%	189	11%
Physical Therapy	32.6	40.0	23%	37	37	-1%	259	14%
Office Visits	7.5	8.4	11%	59	61	4%	71	4%
Emergency Services	0.8	0.6	-22%	118	148	26%	(1)	0%
Total Treatments	59.4	74.6	26%	73	82	12%	1,795	100%

Overall Severity % Older over Younger: 42%	Rotator Cuff Syndrome							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	1.5	2.9	97%	37	36	-3%	49	1%
Hospital Services	1.3	2.1	60%	700	748	7%	639	14%
Complex Surgery and Anesthesia	2.8	4.3	53%	863	893	3%	1,417	31%
Surgical Treatments	1.7	2.4	36%	207	239	15%	204	4%
Drugs, Supplies and DME	13.3	18.1	35%	102	109	7%	613	14%
Other	11.0	14.8	35%	98	94	-4%	324	7%
Diagnostic Radiology	3.6	4.8	34%	69	72	4%	96	2%
Physical Therapy	76.0	98.4	30%	38	39	2%	951	21%
Complex Diagnostic Testing	1.3	1.5	14%	571	581	2%	124	3%
Office Visits	12.1	13.3	10%	58	58	0%	74	2%
Emergency Services	0.6	0.6	-10%	141	241	70%	47	1%
Total Treatments	125.2	163.1	30%	87	94	9%	4,540	100%

Overall Severity % Older over Younger: 45%	Pain in Limb							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	0.8	1.5	77%	38	42	8%	30	1%
Complex Surgery and Anesthesia	0.9	1.4	53%	654	675	3%	337	16%
Drugs, Supplies and DME	7.6	11.3	48%	70	97	39%	565	26%
Surgical Treatments	0.7	1.0	43%	302	326	8%	119	6%
Hospital Services	0.9	1.3	41%	801	805	0%	310	14%
Physical Therapy	26.2	35.5	36%	38	38	-1%	341	16%
Other	7.9	10.2	29%	82	89	8%	256	12%
Complex Diagnostic Testing	0.5	0.6	27%	521	538	3%	82	4%
Office Visits	7.0	8.3	18%	60	61	0%	76	4%
Diagnostic Radiology	3.6	4.2	17%	66	70	5%	55	3%
Emergency Services	1.0	0.8	-19%	118	128	9%	(15)	-1%
Total Treatments	57.2	76.1	33%	84	92	9%	2,157	100%

Overall Severity % Older over Younger: 45%	Sprain of Knee/Leg							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Surgical Treatments	0.1	0.4	183%	141	117	-17%	26	2%
Pathology	0.6	1.2	106%	33	36	10%	24	2%
Hospital Services	0.5	0.8	59%	760	726	-5%	192	12%
Other	2.9	4.6	58%	78	96	22%	212	13%
Complex Surgery and Anesthesia	0.8	1.3	55%	931	937	1%	433	28%
Drugs, Supplies and DME	5.0	7.2	43%	94	96	2%	217	14%
Physical Therapy	22.8	30.1	32%	36	38	4%	312	20%
Diagnostic Radiology	1.6	2.1	28%	62	64	3%	32	2%
Office Visits	5.5	6.6	20%	59	59	0%	66	4%
Complex Diagnostic Testing	0.5	0.6	12%	587	617	5%	54	3%
Emergency Services	0.6	0.5	-19%	134	178	32%	6	0%
Total Treatments	41.0	55.3	35%	85	92	7%	1,574	100%

Overall Severity % Older over Younger: 45%	Sprain of Rotator Cuff							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	1.6	3.4	110%	36	35	-2%	61	1%
Hospital Services	1.4	2.4	75%	713	794	11%	919	18%
Complex Surgery and Anesthesia	3.0	4.7	58%	877	932	6%	1,784	34%
Physical Therapy	77.7	105.0	35%	39	39	0%	1,073	21%
Surgical Treatments	1.5	1.9	32%	219	255	16%	172	3%
Other	10.7	13.1	22%	103	110	6%	329	6%
Diagnostic Radiology	3.8	4.7	22%	70	72	3%	70	1%
Drugs, Supplies and DME	14.1	16.4	16%	101	131	30%	728	14%
Complex Diagnostic Testing	1.4	1.6	8%	576	581	1%	75	1%
Office Visits	11.8	12.0	1%	59	60	1%	14	0%
Emergency Services	0.7	0.6	-23%	179	224	25%	(5)	0%
Total Treatments	127.8	165.7	30%	90	101	12%	5,220	100%

Overall Severity % Older over Younger: 51%	Sprain of Lumbar Region							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Complex Surgery and Anesthesia	0.3	0.5	114%	659	621	-6%	171	13%
Surgical Treatments	0.2	0.3	96%	205	216	5%	37	3%
Hospital Services	0.3	0.5	61%	586	665	14%	143	11%
Drugs, Supplies and DME	5.3	8.4	58%	54	65	20%	258	20%
Pathology	0.4	0.6	58%	32	41	26%	12	1%
Complex Diagnostic Testing	0.3	0.5	55%	590	598	1%	112	9%
Diagnostic Radiology	1.4	1.9	38%	84	87	4%	52	4%
Other	3.6	4.8	35%	75	88	17%	155	12%
Physical Therapy	24.9	33.1	33%	35	34	-2%	258	20%
Office Visits	6.1	7.4	21%	59	60	2%	86	7%
Emergency Services	0.5	0.5	-7%	115	164	43%	19	1%
Total Treatments	43.2	58.5	35%	59	66	12%	1,301	100%

Overall Severity % Older over Younger: 58%	Cervicalgia (Pain in Neck)							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	1.6	3.3	101%	34	32	-8%	47	1%
Complex Surgery and Anesthesia	1.7	3.5	101%	614	728	19%	1,479	26%
Hospital Services	1.1	2.1	92%	776	862	11%	953	17%
Surgical Treatments	1.2	1.9	59%	212	238	12%	201	3%
Drugs, Supplies and DME	18.1	26.8	49%	73	90	23%	1,094	19%
Complex Diagnostic Testing	1.7	2.4	36%	536	541	1%	349	6%
Diagnostic Radiology	5.2	7.0	34%	80	83	4%	163	3%
Other	13.2	17.5	33%	109	122	13%	716	12%
Office Visits	13.3	16.2	22%	61	63	2%	201	3%
Physical Therapy	69.1	83.5	21%	39	39	0%	560	10%
Emergency Services	1.2	0.9	-21%	121	162	34%	7	0%
Total Treatments	127.5	165.1	30%	78	95	22%	5,770	100%

Overall Severity % Older over Younger: 59%	Sprain of Lumbosacral Region							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Complex Surgery and Anesthesia	0.2	0.5	129%	680	672	-1%	172	14%
Hospital Services	0.3	0.5	108%	521	727	40%	260	20%
Surgical Treatments	0.1	0.3	94%	215	249	16%	37	3%
Pathology	0.3	0.5	67%	32	60	86%	22	2%
Drugs, Supplies and DME	4.6	6.9	50%	48	68	42%	248	19%
Complex Diagnostic Testing	0.3	0.4	46%	587	584	0%	79	6%
Diagnostic Radiology	1.3	1.7	34%	82	88	7%	47	4%
Physical Therapy	21.5	28.5	33%	33	33	0%	231	18%
Other	3.1	3.9	24%	83	91	9%	92	7%
Office Visits	5.9	7.1	19%	58	59	1%	72	6%
Emergency Services	0.4	0.4	-16%	99	149	51%	12	1%
Total Treatments	38.0	50.7	33%	57	68	19%	1,272	100%

Overall Severity % Older over Younger: 65%	Sprain of Neck							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Complex Surgery and Anesthesia	0.3	0.9	256%	546	608	11%	406	19%
Surgical Treatments	0.2	0.6	180%	167	197	18%	79	4%
Hospital Services	0.3	0.7	129%	446	465	4%	200	9%
Pathology	0.4	0.9	108%	36	35	-3%	16	1%
Drugs, Supplies and DME	6.3	10.2	61%	48	66	38%	369	17%
Complex Diagnostic Testing	0.6	0.9	55%	551	539	-2%	164	8%
Other	5.1	7.7	51%	92	85	-8%	184	9%
Physical Therapy	36.8	53.9	46%	31	30	-3%	483	23%
Diagnostic Radiology	2.6	3.6	38%	76	76	-1%	74	3%
Office Visits	7.3	9.8	35%	59	59	0%	150	7%
Emergency Services	0.7	0.7	-3%	124	147	18%	13	1%
Total Treatments	60.7	89.9	48%	54	60	11%	2,137	100%

Overall Severity % Older over Younger: 69%	Joint Pain in Shoulder							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			Dollar Difference in Severity	% of Total Severity Dollar Difference
	20-34	45-64		20-34	45-64			
Treatment Service Group								
Pathology	0.5	1.6	184%	38	39	3%	40	1%
Complex Surgery and Anesthesia	1.0	2.2	110%	861	915	6%	1,092	26%
Surgical Treatments	0.7	1.3	81%	196	243	24%	175	4%
Physical Therapy	40.5	71.7	77%	35	36	2%	1,146	28%
Hospital Services	1.0	1.7	72%	1,052	960	-9%	591	14%
Other	7.9	12.0	51%	76	71	-6%	250	6%
Drugs, Supplies and DME	7.2	10.1	40%	90	116	29%	525	13%
Diagnostic Radiology	2.9	3.9	34%	67	75	11%	94	2%
Complex Diagnostic Testing	0.8	1.1	26%	573	578	1%	129	3%
Office Visits	7.2	8.8	22%	60	62	5%	119	3%
Emergency Services	0.7	0.6	-15%	152	178	17%	(0)	0%
Total Treatments	70.7	114.9	63%	85	88	4%	4,159	100%

Overall Severity % Older over Younger: 71%	Sprain of Thoracic Region							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			% of Total Severity Dollar Difference	
	20-34	45-64		20-34	45-64		Dollar Difference in Severity	
Treatment Service Group								
Surgical Treatments	0.1	0.4	259%	139	221	59%	65	5%
Complex Surgery and Anesthesia	0.1	0.3	227%	453	559	23%	147	11%
Hospital Services	0.2	0.4	131%	379	436	15%	107	8%
Pathology	0.2	0.4	87%	30	32	7%	7	1%
Other	2.8	4.7	71%	69	72	4%	147	11%
Diagnostic Radiology	1.3	2.1	63%	73	74	2%	62	5%
Drugs, Supplies and DME	4.1	6.5	59%	37	50	37%	178	13%
Complex Diagnostic Testing	0.2	0.3	46%	574	578	1%	64	5%
Physical Therapy	23.5	33.7	44%	34	36	7%	427	32%
Office Visits	5.7	7.3	30%	57	56	-2%	88	7%
Emergency Services	0.4	0.4	9%	96	161	67%	31	2%
Total Treatments	38.6	56.8	47%	48	56	16%	1,323	100%

Overall Severity % Older over Younger: 141%	Sprain of Shoulder/Arm							
	Average Treatments Per Claim			Average Price Per Treatment			Average Dollar & % Dollar Differences in Severity	
	% Difference Older Over Younger			% Difference Older Over Younger			% of Total Severity Dollar Difference	
	20-34	45-64		20-34	45-64		Dollar Difference in Severity	
Treatment Service Group								
Complex Surgery and Anesthesia	0.4	1.5	264%	870	836	-4%	867	22%
Pathology	0.3	1.1	244%	30	37	23%	33	1%
Hospital Services	0.3	1.0	227%	732	741	1%	495	13%
Surgical Treatments	0.3	0.7	139%	154	207	34%	102	3%
Complex Diagnostic Testing	0.4	0.8	111%	591	581	-2%	239	6%
Physical Therapy	27.9	55.2	98%	34	34	2%	953	24%
Other	3.5	6.8	95%	64	89	40%	387	10%
Drugs, Supplies and DME	5.1	9.3	83%	51	88	75%	566	14%
Diagnostic Radiology	1.8	3.0	66%	67	67	0%	80	2%
Office Visits	6.2	8.8	44%	58	60	3%	171	4%
Emergency Services	0.4	0.5	13%	120	202	69%	48	1%
Total Treatments	46.6	88.7	90%	60	76	27%	3,940	100%

Appendix D

Glossary of Service Categories

The table below lists the more detailed treatment types contained in each of the service categories used in this analysis. Complex surgery and anesthesia and surgical treatments may still require further explanation. Complex surgeries are invasive and often require inpatient hospitalization. Surgical treatments are usually noninvasive surgical procedures that are often performed in a doctor's office or emergency room as an outpatient service.

SERVICE CATEGORY	
01 Office Visits	001. New patient office visit
01 Office Visits	002. Established patient office visit
01 Office Visits	006. Consultations (initial)
01 Office Visits	007. Consultations (follow-up)
01 Office Visits	081. Consultations (general)
02 Physical Therapy	013. Physical medicine modalities w/ office visit
02 Physical Therapy	014. Physical medicine procedures
02 Physical Therapy	015. Physical medicine tests and measurements
02 Physical Therapy	016. Physical medicine: other
03 Emergency Services	003. Emergency services
04 Hospital Services	004. Hospital services
04 Hospital Services	005. Critical Care
04 Hospital Services	065. Hospital inpatient bundled services
05 Diagnostic Radiology	040. Diagnostic Radiology/Ultrasound head/neck
05 Diagnostic Radiology	041. Diagnostic Radiology/Ultrasound chest
05 Diagnostic Radiology	042. Diagnostic Radiology/Ultrasound spine/pelvis
05 Diagnostic Radiology	043. Diagnostic Radiology (no ultrasound) upper extremities
05 Diagnostic Radiology	044. Diagnostic Radiology (no ultrasound) lower extremities
05 Diagnostic Radiology	078. Other Radiology
06 Complex Diagnostic Testing	045. CT/CAT/MRI head/neck
06 Complex Diagnostic Testing	046. CT/CAT/MRI chest
06 Complex Diagnostic Testing	047. CT/CAT/MRI (spine/pelvis)
06 Complex Diagnostic Testing	048. CT/CAT/MRI upper extremities
06 Complex Diagnostic Testing	049. CT/CAT/MRI lower extremities
06 Complex Diagnostic Testing	079. Other CT/CAT/MRI
07 Pathology	051. Laboratory/Pathology
08 Complex Surgery and Anesthesia	028. Surgery (Integumentary)
08 Complex Surgery and Anesthesia	029. Surgery (musculoskeletal: head, neck, thorax)
08 Complex Surgery and Anesthesia	030. Surgery (spine)
08 Complex Surgery and Anesthesia	031. Surgery (musculoskeletal: shoulder)
08 Complex Surgery and Anesthesia	032. Surgery (musculoskeletal: upper arm, elbow, forearm/wrist)
08 Complex Surgery and Anesthesia	033. Surgery (musculoskeletal: hand & fingers)
08 Complex Surgery and Anesthesia	034. Surgery (musculoskeletal: pelvis, hip)
08 Complex Surgery and Anesthesia	035. Surgery (musculoskeletal: femur/knee)
08 Complex Surgery and Anesthesia	036. Surgery (musculoskeletal: leg/ankle)
08 Complex Surgery and Anesthesia	037. Surgery (musculoskeletal: foot)
08 Complex Surgery and Anesthesia	039. Arthroscopy
08 Complex Surgery and Anesthesia	064. Anesthesia
08 Complex Surgery and Anesthesia	066. Surgery (hernia)
08 Complex Surgery and Anesthesia	072. Surgery (general)

SERVICE CATEGORY

08 Complex Surgery and Anesthesia	073. Surgery (brain)
08 Complex Surgery and Anesthesia	074. Surgery (nerves)
08 Complex Surgery and Anesthesia	076. Surgery (eye)
08 Complex Surgery and Anesthesia	087. Dental Surgery
08 Complex Surgery and Anesthesia	098. Surgery (Cardiovascular)
08 Complex Surgery and Anesthesia	100. Surgery (Digestive System)
08 Complex Surgery and Anesthesia	102. Surgery (Auditory System)
08 Complex Surgery and Anesthesia	104. General Musculoskeletal Surgery
08 Complex Surgery and Anesthesia	106. Abdomen Surgery
08 Complex Surgery and Anesthesia	108. Lymph Surgery
08 Complex Surgery and Anesthesia	110. Mouth Surgery
08 Complex Surgery and Anesthesia	112. Liver, Pancreas, Gallbladder, Kidney, Bladder, Adrenal Surgery
08 Complex Surgery and Anesthesia	114. Reproductive/Urinary Surgery
09 Surgical Treatments	018. Treatment (integumentary)
09 Surgical Treatments	019. Treatment (musculoskeletal: head, neck, thorax)
09 Surgical Treatments	020. Treatment (Spine)
09 Surgical Treatments	021. Treatment (musculoskeletal: shoulder)
09 Surgical Treatments	022. Treatment (musculoskeletal: upper arm, elbow, forearm/wrist)
09 Surgical Treatments	023. Treatment (musculoskeletal: hand & fingers)
09 Surgical Treatments	024. Treatment (musculoskeletal: pelvis, hip)
09 Surgical Treatments	025. Treatment (musculoskeletal: femur/knee)
09 Surgical Treatments	026. Treatment (musculoskeletal: leg/ankle)
09 Surgical Treatments	027. Treatment (musculoskeletal: foot)
09 Surgical Treatments	070. Treatment (lesions)
09 Surgical Treatments	071. Treatment (general)
09 Surgical Treatments	075. Treatment (eye)
09 Surgical Treatments	077. Treatment (ear)
09 Surgical Treatments	094. Misc. Treatment
09 Surgical Treatments	099. Treatment (Digestive System)
09 Surgical Treatments	101. Treatment (Nervous System)
09 Surgical Treatments	103. General Musculoskeletal Treatment
09 Surgical Treatments	105. Abdomen Treatment
09 Surgical Treatments	107. Lymph Treatment
09 Surgical Treatments	109. Mouth Treatment
09 Surgical Treatments	111. Liver, Pancreas, Gallbladder, Kidney, Bladder, Adrenal Treatment
09 Surgical Treatments	113. Reproductive/Urinary Treatment
10 Drugs, Supplies and DME	053. Drugs
10 Drugs, Supplies and DME	054. Supplies
10 Drugs, Supplies and DME	055. Fabrication of Orthotics/Prosthetics
10 Drugs, Supplies and DME	090. Durable Medical Equipment
10 Drugs, Supplies and DME	093. Orthotics Procedures
10 Drugs, Supplies and DME	095. Vision Supplies and Prostheses (Glasses, Prosthetic Eyes, etc.)
10 Drugs, Supplies and DME	096. Hearing Equipment
10 Drugs, Supplies and DME	121. Miscellaneous Supplies
11 Other	008. Legal Consultations
11 Other	009. Psychological testing/diagnosis/evaluation
11 Other	010. Psychotherapy and treatment (includes ECT, hypnosis, drug treatment/monitoring)
11 Other	011. Other Psychological
11 Other	012. Neuromuscular testing
11 Other	017. Burn treatment
11 Other	038. Casting & Strapping
11 Other	050. Acupuncture
11 Other	052. Other Diagnostic (cardiac, allergies, other vascular, pulmonary)

SERVICE CATEGORY

11 Other	056. Home Medical Services
11 Other	057. Nursing Facilities
11 Other	058. Custodial Care
11 Other	059. Immunizations
11 Other	060. Therapeutic/Diagnostic Injections
11 Other	061. Gastroenterology
11 Other	062. Ophthalmology (excluding glasses)
11 Other	063. Dermatological Procedures
11 Other	067. Case Management by physician
11 Other	068. Biofeedback
11 Other	069. Miscellaneous
11 Other	080. Hearing Tests
11 Other	082. Transportation
11 Other	083. Dental Restorative
11 Other	084. Dental Endodontics
11 Other	085. Dental Periodontics
11 Other	086. Dental Prosthodontics and misc. Prosthetics
11 Other	088. Dental orthodontics
11 Other	089. Misc. Dental
11 Other	091. Rehabilitative Services
11 Other	092. Non-Injectable Drugs
11 Other	097. Preventive Services
11 Other	115. Radiation Therapy
11 Other	116. Hyperthermia
11 Other	117. Dialysis
11 Other	118. Cardiac Diagnostic
11 Other	119. Chemotherapy
11 Other	120. Unspecified Medical/Diagnostic

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