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Workers' Compensation Research and Evaluation Group

Health Care Cost and Utilization in the Texas Workers' Compensation System 2000–2013

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MEDICAL COST
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Executive Summary

This report presents fundamental metrics and indicators of the health care cost and utilization in the Texas workers' compensation system since 2000. The primary purpose of this report is to provide system participants with a set of comprehensive, general and consistent data and metrics for monitoring and analyzing the trends in health care cost and utilization.

The medical data used in this report consists of bills submitted by health care providers (providers) to the insurance carrier, covering professional, hospital/institutional, dental, and pharmacy services, updated as of July 2014. Claims are grouped as either 'lost-time' or 'medical-only' claims. Lost-time claims have more than seven days of lost time from work because of a work-related injury or illness and receive medical as well as income benefits. Lost-time claims are roughly equivalent to permanent partial disability (PPD) claims reported by many states. Medical-only claims receive medical benefits but not income benefits, and have seven days or less of lost time.

Overview: Total Health Care Cost and Utilization

- Health care costs accounted for 68 percent of the total benefits in 2013 service year in the Texas workers' compensation system. Income benefits accounted for the remaining 32 percent.
- In 2013, 95 percent of all claims received one or more professional services; 29 percent received hospital/institutional services; and 45 percent received pharmacy services.
- The number of claims in 2013 decreased by four percent from 2012, and by 26 percent from 2000.
- Total health care cost in 2013 was \$1.17 billion, slightly down from \$1.21 billion in 2012. Total professional cost decreased by five percent from 2012, and by 10 percent since 2000. Hospital cost in 2013 decreased by 0.2 percent from 2012, but increased by 23 percent since 2000. Total cost for pharmacy services decreased by four percent since 2012 while decreasing by six percent since 2005.
- The average cost per claim in 2013 decreased by 0.7 percent from 2012 for professional services, and increased by six percent for hospital services. Average cost per claim for pharmacy services decreased by five percent from 2012. Since 2000, professional and hospital costs per claim increased by 23 percent and 76 percent, respectively. Pharmacy cost per claim increased by six percent since 2005.
- Adjusted for inflation, the combined total of professional and hospital costs decreased by 29 percent from 2000 to 2013, but in current prices without inflation adjustment, 2000 and 2013 costs were about the same. Since 2005, the total cost for health care services

including pharmacy increased by 6 percent in unadjusted prices, but decreased by 10 percent in inflation-adjusted prices.

- Total health care costs in the workers' compensation system were equivalent to about 0.14 percent of the Texas gross domestic product in 2000, which decreased to just 0.08 percent in 2013.

Professional Cost and Utilization

- Between 92 percent and 98 percent of all claims received at least one professional service in each service year. This percentage was the lowest during the years from 2005 to 2009.
- Changes in the cost trend primarily occurred between 2002 and 2008 coinciding with the changes in the 2003 professional services fee guideline. Longer-term factors that affected costs were the changes in the number of claims and the level of service utilization.
- The number of medical-only claims decreased by 23 percent since 2000, with a minor increasing period between 2004 and 2007. The number of lost-time claims actually increased by 8 percent between 2000 and 2002, and then continued to decrease, resulting in the overall decrease by 33 percent since 2000.
- About 75 percent of professional costs were for lost-time claims in 2013 while they accounted for 38 percent of all claims. The total cost increased between 2007 and 2011, which decreased slightly since then.
- The number of visits per claim to health care providers peaked in 2003 and decreased since then. Lost-time claims had about three and half times more visits per claim than medical-only claims in most years because of their more serious injuries and longer service period. The number of services per visit, as a measure of utilization intensity, was relatively similar across claim types and service years at about three to five services per visit.
- In terms of provider type, the number of claims receiving services from chiropractors declined from 13 percent of all claims in 2005 to 9 percent in 2013. The number of claims receiving services from physical/occupational therapists increased from 19 percent in 2005 to 23 percent in 2013. The average cost per claim for ambulatory surgical centers increased by 90 percent while the average cost for chiropractors decreased by 30 percent.
- For lost-time claims, Physical Medicine and Spinal Surgery were the most expensive service groups in most years. Total costs for Impairment Rating (IR) Exam and Report services and durable medical equipment, prosthetics, orthotics, and supplies (DMEPOS) services grew rapidly by 63 percent and 62 percent, respectively. For medical-only claims, evaluation and management (E/M) services were the most costly service in 2013. Costs for Spinal Surgery decreased by more than 70 percent, and costs for Physical Medicine services decreased by 39 percent for lost-time claims and by 17 percent for

medical-only claims. The share of claims receiving DMEPOS, Diagnostics/Pathology/Lab services, and IR Exam & Report services continued to increase.

- The top 20 services accounted for 52 percent of the total cumulative professional cost from 2005 to 2013. Considering the price per individual service, the price for E/M services increased continually since 2003. That for low back disc surgery decreased substantially in 2003 but increased moderately since 2008. The average price per service increased significantly for durable medical equipment services. Most other services showed a moderately increasing price trend.

Hospital/Institutional Cost and Utilization

- In 2013, 29 percent of all claims received at least one hospital or institutional service.
- Hospital/institutional bills included payments for services in hospital inpatient, hospital outpatient, skilled nursing facilities, home health care, and other institutions. But 94 percent of these payments were for hospital services in 2013.
- The number of claims receiving hospital/institutional services decreased by 30 percent since 2000. The total cost increased by 23 percent from 2000 to 2013, but it showed a great deal of fluctuation: costs increased by 39 percent until 2002, then decreased by 39 percent by 2005, and again increased by 47 percent by 2013.
- Lost-time claims accounted for about 46 percent of all claims receiving hospital/institutional services in 2013 service year, but they accounted for 86 percent of the total hospital/institutional cost.
- In 2013, 95 percent of lost-time claims received hospital outpatient services while only 12 percent received inpatient services. But hospital inpatient services accounted for 50 percent of the total cost and hospital outpatient services for 44 percent.

Dental Cost and Utilization

- Dental services accounted for 0.4 percent of all health care costs in 2013, a slight increase from 0.3 percent in 2009.
- Most common services were crown, implant, and root canal.

Pharmacy Cost and Utilization

- In 2013, 45 percent of those who received health care services received pharmacy services. Since 2005, lost-time and medical-only claims receiving pharmacy services decreased by 23 percent and by 14 percent, respectively.
- In 2013, 52 percent of pharmacy service claims were lost-time claims, but they accounted for 87 percent of the total cost.
- In 2013, 63 percent of the total pharmacy cost was for legacy claims with four or more years of maturity. New injuries accounted for 21 percent of the total cost in 2013.

- For lost-time claims, the most frequently prescribed and costly drug group was Analgesics – Opioid until 2011. In 2012 and 2013, Central Nervous System drug group became the most costly drug group. Central Nervous System drugs (comprising anticonvulsants, anti-anxiety agents, anti-depressants and hypnotics) had the highest average cost per claim among lost-time claims.
- For medical-only claims, the Analgesics – Opioid was the most costly drug group until 2009. In 2013, the Others drug group was the costliest.
- Generic prescriptions accounted for about half of the total pharmacy cost since 2005, and their shares are increasing steadily. The average cost per prescription for brand drugs was four times higher than that of generic drugs. For older claims with more than three years of maturity, generic drugs accounted for 78 percent of prescriptions and 50 percent of the total cost in 2013.
- The use of N-drugs decreased substantially in 2012 and 2013: in terms of total cost, N-drugs accounted for 29 percent of all costs for lost-time claims in 2011, but decreased to 22 percent in 2012 and 13 percent in 2013. For medical-only claims, it decreased from 21 percent in 2011 to 14 percent in 2012 and 8 percent in 2013. The cost share of N-drugs in the total cost was the highest for the Analgesics – Opioid drug group at 24 percent of the total in 2013.

Summary: Trends in Changing Cost Components

- For lost-time claims, the average cost per claim for professional services increased by 29 percent from 2000 to 2013. Adjusted for inflation, the average cost per claim decreased by 9 percent. The number of claims and the level of utilization all decreased significantly, resulting in the overall decrease in the total cost by 13 percent. If we adjust for inflation, the total cost decreased by 39 percent.
- The main factor in the decrease in total costs was the large decline in the number of claims. The average cost per claim increased substantially because of increases in cost per service and in utilization in some services. But the total cost decreased despite the increasing cost per service because the number of claims decreased substantially.
- Cost trends are similar for lost-time and medical-only claims, but medical-only claims showed a lower rate of decrease in the number of claims and the utilization than lost-time claims.



1. Introduction and Methodological Notes

This report presents fundamental metrics and indicators of health care cost and utilization in the Texas workers' compensation (WC) system since 2000. Health care, consisting of professional, hospital/institutional, dental, and pharmacy services, is one of the major benefits provided by the WC system for injured employees. Injured employees receive health care benefits that pay for appropriate and necessary medical care to treat work-related injuries or illnesses without a limit in benefit amount or duration. Because there are no limits to medical benefits, no copayments or deductibles, and other burdens on the part of the patients, payers as well as the legislators and the regulators of the workers' compensation insurance pay close attention to the changes and trends in health care costs and service utilization.

The primary purpose of this report is to provide system participants with a set of comprehensive, general and consistent data and metrics for monitoring and analyzing the trends in health care cost and utilization. In addition to summarizing major cost and utilization statistics, this report also provides drill-down analyses by claim type, provider type, service type, maturity, facility type, and drug type. For other issues on WC health care and income benefits, refer to other reports by the Texas Department of Insurance, WC Research and Evaluation Group (REG) that can be found at the REG's reports webpage (www.tdi.texas.gov/reports/report14.html).

Data Sources

The medical data underlying the REG's health care cost and utilization studies is comprised primarily of bills submitted by service providers to insurance carriers for payment. This data is in turn transmitted to the Texas Department of Insurance, Division of Workers' Compensation (DWC) along with payment amounts and any denial or payment reduction codes. Medical data underwent a major change in 2005 when data collection transitioned to EDI standards from a tape-submission system. The number of bills collected for 2004 service year, which was the last service year before the implementation of EDI, was initially unusually low, but the current data for the pre-EDI period was extensively updated in 2010. Nevertheless, missing data during the EDI transition resulted in low figures for 2004. In addition, some data for the 2005 service year, being the first year of EDI implementation, may not be as reliable as those of later years. This was especially true for dental service data.

Medical data collected by DWC contain direct payments to health care providers and hospitals/institutions. Other costs such as bill and utilization reviews, dispute resolution expenses, and costs paid to third parties are not included. These data, however, include information about bill review actions taken by the insurance carriers such as payment decisions and payment adjustment amounts. Using this information, bills for services deemed not compensable are deleted from both cost and utilization analyses.

Claim Types

Claims are classified as either ‘lost-time’ claims if they receive medical as well as income benefits, or ‘medical-only’ claims if they receive only medical benefits without any income benefits. Income benefits include short-term temporary as well as long-term disability payments as defined by DWC (see www.tdi.texas.gov/wc/employee/incomeben.html). Most claims that receive income benefits are those that have more than seven days of lost time away from work. This group is roughly equivalent to ‘permanent partial disability’ claims used by other states’ workers’ compensation reports. ‘Medical-only’ claims may have no lost time or a maximum of seven days of lost time.

Service Year, Injury Year, and Maturity

Cost and utilization analyses are presented in both service year and injury year. Service year statistics account for all services and payments in a given calendar year for all claims regardless of their injury date. In comparison, injury year statistics are organized by the year of injury, and cumulatively account for all payments up to a set period of maturity. For example, 2013 injury year data with six months maturity will cover claims with injuries that occurred in 2013, with services rendered within six months from the date of injury for each claim. Service dates will therefore span from January 1, 2013, to June 30, 2014.

Economic and accounting cost analyses are best presented in the service year format since it accounts for all costs for all claims in the system within a given calendar year. An injury year measure, on the other hand, is concerned only with new injuries presenting a partial picture of the costs involved, but it offers consistent sets of data that are suited for developing cost trends and setting insurance rates. When appropriate, we show cost development patterns using 6 months, 12 months, and 24 months of maturity. More than 80 percent of total professional costs are incurred within 24 months post injury. To account for long-tail effects of severe injuries on health care costs, some tables show separate maturity groups that include four years or more of maturity. The longer maturity is especially necessary for pharmacy services for which more than 60 percent of total costs are for the claims with four years or longer maturity.

Measuring Service Utilization

When evaluating long-term patterns and trends in health care service utilization, a consistent and proper unit of service must be chosen to reflect the differences in frequency and intensity of services. The basic units for utilization analysis are based on straightforward measures: the number of visits to a health care provider as a measure of service frequency, and the number of services provided in one visit as a measure of service intensity. While the number of visits is an uncomplicated measurement, the number of services will depend on the way service bills are submitted by the providers. A more detailed discussion about utilization metrics is presented in the Appendix A.

2. Overview: Total Health Care Cost and Utilization

In this section, we present an overall view of the total and average health care costs by type of provider (bill type) and claim type. Remaining sections focus on one particular provider bill type such as professional, hospital, dental, and pharmacy services.

We begin by comparing health care costs with income (or indemnity) benefit costs, which together make up the whole benefits paid to injured employees and health care providers in the workers' compensation system. At the end of this section, we also discuss the effect of price inflation on cost measures and the share of health care costs in the general economy.

Medical and Income Benefits

Medical costs increased rapidly in the late 1990s into the early 2000s. The share of medical costs in total medical and income benefits in the Texas workers' compensation system steadily increased from 58 percent in 2000 to 68 percent in 2013 (see Table 2.1). The combined professional and hospital costs grew by 30 percent from 2000 to 2002. These increases provided compelling rationale for the subsequent workers' compensation reforms by the Texas legislature. Since 2002, the total cost of both health care and income benefits has declined primarily as a result of these reforms. The decline was more prominent in income benefits than in health care benefits which increased slightly in recent years.

Table 2.1: Medical and Income Benefits, by Service Year (Thousand Dollars)

Service Year	Medical Benefits	Income Benefits	Medical Benefit Share
2000	\$1,037,979	\$755,480	57.88%
2001	\$1,167,936	\$822,764	58.67%
2002	\$1,348,653	\$959,634	58.43%
2003	\$1,241,980	\$872,159	58.75%
2004	\$980,055	\$740,507	56.96%
2005	\$1,103,331	\$661,667	62.51%
2006	\$1,063,565	\$570,177	65.10%
2007	\$1,081,519	\$547,391	66.40%
2008	\$1,102,995	\$541,469	67.07%
2009	\$1,126,264	\$560,243	66.78%
2010	\$1,144,819	\$553,843	67.40%
2011	\$1,237,454	\$538,391	69.68%
2012	\$1,214,356	\$530,304	69.60%
2013	\$1,168,024	\$542,055	68.30%

Notes: From 2000 to 2004, medical benefits are professional and hospital benefits only. From 2005, dental and pharmacy benefits are added to these benefits. For the low figure for 2004 medical benefits, see 'Data Sources' on page 1. See Appendix B for details on how income benefits are calculated by service year.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Costs by Bill Type

Since data availability varies among different types of bills, a more consistent analysis may require separating health care payments by bill type. Texas workers' compensation medical bills are collected as four separate data bases, consisting of bills for professional, hospital/institutional, dental, and pharmacy services. Since each bill type database is separate from each other, some claims may have bills only in some databases but not in others. When all four databases are combined, there were about 319 thousand unique claims in 2013 (see 'Medical Combined' in Table 2.2). This represents a 26 percent decrease in the number of claims from 2000.

Numbers of unique claims are available from 2000 by bill type (see Table 2.2). Dental and pharmacy data are not available prior to 2005. While 95 percent of the claims received at least one professional service in 2013, only 29 percent of them received hospital/institutional service, and about 45 percent of the claims received pharmacy services. In other words, about half of the claims did not receive pharmacy services, and 70 percent of the claims received their medical services in professional offices and ambulatory surgical centers only. A noticeable trend in the table is the consistent decrease in the overall number of claims being treated in the workers' compensation system.

Table 2.2: Number of Unique Claims, by Bill Type

Service Year	Professional	Hospital/ Institutional	Dental	Pharmacy	Medical Combined
2000	413,745	132,032			430,133
2001	412,625	135,397			429,373
2002	421,462	142,662			434,629
2003	388,474	131,909			398,411
2004	348,615	111,197			357,624
2005	354,760	98,651	622	177,189	382,291
2006	353,260	108,571	882	178,847	380,694
2007	353,403	112,430	1,231	184,979	381,229
2008	341,888	108,971	1,354	181,996	371,311
2009	315,820	98,717	1,272	166,832	340,565
2010	316,861	100,290	1,391	164,142	336,125
2011	317,359	102,723	1,413	159,913	334,298
2012	314,739	97,833	1,450	153,324	330,820
2013	302,540	92,575	1,504	143,321	318,676

Note: Figures for 'Medical Combined' do not include dental and pharmacy services prior to 2005.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Since 2000, total professional costs decreased by 10 percent while hospital costs increased by 23 percent (see Table 2.3). However, professional cost increased steadily since 2007, although it is still lower than the cost levels before 2004. The recent increase was mainly due to increased fees per service, but total costs decreased in 2013. Total hospital/institutional cost increased by 50 percent between 2005 and 2011, but it became stable since 2012 mainly because of the decreased number of claims receiving hospital services. Total pharmacy costs, accounting for about 15 percent of total medical costs, fluctuated around \$15 million. Since 2011, pharmacy costs decreased because of the pharmacy closed formulary.

Table 2.3: Total Cost, by Bill Type (Thousand Dollars)

Service Year	Professional	Hospital/ Institutional	Dental	Pharmacy	Medical Combined
2000	\$719,024	\$318,954			\$1,037,979
2001	\$786,000	\$381,936			\$1,167,936
2002	\$906,898	\$441,755			\$1,348,653
2003	\$823,143	\$418,837			\$1,241,980
2004	\$665,573	\$314,482			\$980,055
2005	\$688,509	\$267,936	\$779	\$146,107	\$1,103,331
2006	\$599,616	\$310,677	\$1,509	\$151,762	\$1,063,565
2007	\$574,213	\$349,239	\$2,541	\$155,526	\$1,081,519
2008	\$574,825	\$364,286	\$3,311	\$160,573	\$1,102,995
2009	\$604,050	\$355,249	\$3,384	\$163,581	\$1,126,264
2010	\$607,083	\$372,857	\$3,966	\$160,912	\$1,144,819
2011	\$677,227	\$401,692	\$4,247	\$154,289	\$1,237,454
2012	\$676,066	\$392,016	\$4,388	\$141,887	\$1,214,356
2013	\$645,106	\$392,721	\$4,514	\$125,682	\$1,168,024

Note: Figures for 'Medical Combined' do not include dental and pharmacy costs prior to 2005.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

The average cost per claim increased by 23 percent for professional services and 76 percent for hospital services since 2000 (see Table 2.4). The average cost per claim for pharmacy services increased by 17 percent by 2010, but it decreased by 11 percent from 2011 and 2013, mainly because of the new pharmacy closed formulary. Although total costs decreased or increased moderately over the past 10 years, the average cost per claim increased substantially because of a combination of factors including the declining number of low-cost claims, increases in fee for service, and price increases due to inflation.

Table 2.4: Average Cost per Claim, by Bill Type

Service Year	Professional	Hospital/ Institutional	Dental	Pharmacy	Medical Combined
2000	\$1,738	\$2,416			\$2,413
2001	\$1,905	\$2,821			\$2,720
2002	\$2,152	\$3,097			\$3,103
2003	\$2,119	\$3,175			\$3,117
2004	\$1,909	\$2,828			\$2,740
2005	\$1,941	\$2,716	\$1,252	\$825	\$2,886
2006	\$1,697	\$2,862	\$1,711	\$849	\$2,794
2007	\$1,625	\$3,106	\$2,064	\$841	\$2,837
2008	\$1,681	\$3,343	\$2,445	\$882	\$2,971
2009	\$1,913	\$3,599	\$2,660	\$981	\$3,307
2010	\$1,916	\$3,718	\$2,852	\$980	\$3,406
2011	\$2,134	\$3,910	\$3,006	\$965	\$3,702
2012	\$2,148	\$4,007	\$3,026	\$925	\$3,671
2013	\$2,132	\$4,242	\$3,002	\$877	\$3,665

Note: Figures for 'Medical Combined' do not include dental and pharmacy costs prior to 2005.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Total and Average Costs by Claim Type

Because of the large difference in costs by claim type, average costs are broken down by claim type in Tables 2.5 to 2.7. Claims with more than seven days of lost work days as a result of a compensable work-related injury are classified as 'lost-time' claims. These claims receive income benefits for lost time and disability. The remaining claims are classified as 'medical-only' claims. Medical-only claims, although often more numerous than lost-time claims, account for a small portion of the total cost. About 38 percent of the claims receiving professional services in 2013 were lost-time claims, but they accounted for 75 percent of the total cost. Lost-time claims accounted for 47 percent of hospital claims and 86 percent of hospital costs. In pharmacy, lost-time claims accounted for 52 percent of the claims and 87 percent of the cost.

In 2013, compared to an overall average professional cost of \$2,132 in Table 2.4, the average cost was \$4,161 for lost-time claims, and \$864 for medical-only claims (see Table 2.5). Since 2000, the average cost for professional services increased by 29 percent for lost-time claims and by 31 percent for medical-only claims while total costs decreased for both types.

For hospital services, average cost increased by 95 percent for lost-time claims and by 16 percent for medical-only claims (see Table 2.6). Total costs increased by 33 percent for lost-time claims during the period while total costs for medical-only claims decreased by 17 percent.

For pharmacy services, the average cost increased by 16 percent for lost-time claims while it decreased by 16 percent for medical-only claims (see Table 2.7). The general cost trends were dominated by changes in costs for lost-time claims.

Table 2.5: Total and Average Costs, by Claim Type, Professional Services

Service Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Cost (Thousand Dollars)	Average Cost per Claim	Number of Claims	Total Cost (Thousand Dollars)	Average Cost per Claim
2000	173,147	\$560,411	\$3,237	240,720	\$158,614	\$659
2001	180,824	\$622,671	\$3,444	231,917	\$163,330	\$704
2002	191,830	\$739,507	\$3,855	229,740	\$167,391	\$729
2003	180,572	\$674,340	\$3,734	207,990	\$148,803	\$715
2004	161,811	\$538,255	\$3,326	186,865	\$127,317	\$681
2005	156,774	\$555,982	\$3,546	198,051	\$132,527	\$669
2006	147,453	\$470,404	\$3,190	205,889	\$129,212	\$628
2007	142,269	\$441,903	\$3,106	211,207	\$132,310	\$626
2008	138,760	\$446,701	\$3,219	203,192	\$128,124	\$631
2009	133,997	\$478,962	\$3,574	181,884	\$125,089	\$688
2010	133,067	\$479,825	\$3,606	183,837	\$127,258	\$692
2011	130,337	\$530,161	\$4,068	187,064	\$147,066	\$786
2012	126,583	\$524,462	\$4,143	188,199	\$151,604	\$806
2013	116,402	\$484,332	\$4,161	186,185	\$160,775	\$864

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Table 2.6: Total and Average Costs, by Claim Type, Hospital/Institutional Services

Service Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Cost (Thousand Dollars)	Average Cost per Claim	Number of Claims	Total Cost (Thousand Dollars)	Average Cost per Claim
2000	62,317	\$254,841	\$4,089	69,765	\$64,113	\$919
2001	65,735	\$308,631	\$4,695	69,706	\$73,305	\$1,052
2002	73,904	\$367,756	\$4,976	68,792	\$73,999	\$1,076
2003	69,331	\$351,702	\$5,073	62,599	\$67,135	\$1,072
2004	57,514	\$262,249	\$4,560	53,698	\$52,234	\$973
2005	47,346	\$225,477	\$4,762	51,326	\$42,459	\$827
2006	50,076	\$257,709	\$5,146	58,517	\$52,968	\$905
2007	50,743	\$290,654	\$5,728	61,713	\$58,586	\$949
2008	50,808	\$313,436	\$6,169	58,181	\$50,850	\$874
2009	48,256	\$311,921	\$6,464	50,471	\$43,328	\$858
2010	48,602	\$326,349	\$6,715	51,693	\$46,508	\$900
2011	48,714	\$350,384	\$7,193	54,020	\$51,308	\$950
2012	46,307	\$341,512	\$7,375	51,536	\$50,504	\$980
2013	42,588	\$339,596	\$7,974	49,995	\$53,125	\$1,063

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Table 2.7: Total and Average Costs, by Claim Type, Pharmacy Services

Service Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Costs (Thousand Dollars)	Cost per Claim	Number of Claims	Total Costs (Thousand Dollars)	Cost per Claim
2005	96,780	\$117,412	\$1,213	80,441	\$21,650	\$269
2006	94,190	\$121,851	\$1,294	84,705	\$22,478	\$265
2007	93,638	\$124,106	\$1,325	91,386	\$22,998	\$252
2008	93,213	\$131,152	\$1,407	88,821	\$20,859	\$235
2009	89,071	\$133,165	\$1,495	77,794	\$23,218	\$298
2010	89,002	\$134,683	\$1,513	75,167	\$18,308	\$244
2011	86,658	\$130,217	\$1,503	73,282	\$16,229	\$221
2012	81,833	\$119,872	\$1,465	71,516	\$15,359	\$215
2013	74,520	\$105,341	\$1,414	68,828	\$15,461	\$225

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Inflation Adjusted Cost

All prices in this report are in current prices without adjustments for inflation. However, in a cost study spanning 14 years, the effects of inflation on current prices are often significant. Unlike utilization measures, costs are nominal values that may increase simply because of price inflation. Prices in most reports are not adjusted for inflation because there are issues and problems associated with indices used to adjust. Nevertheless, it is important to note that a significant part of seeming cost increases is due to inflation, not to changes in utilization or fee schedule. In this section, we consider one of the most standard ways to adjust prices for inflation, which will provide us with some indication about how large the effects of price inflation may be on cost changes.

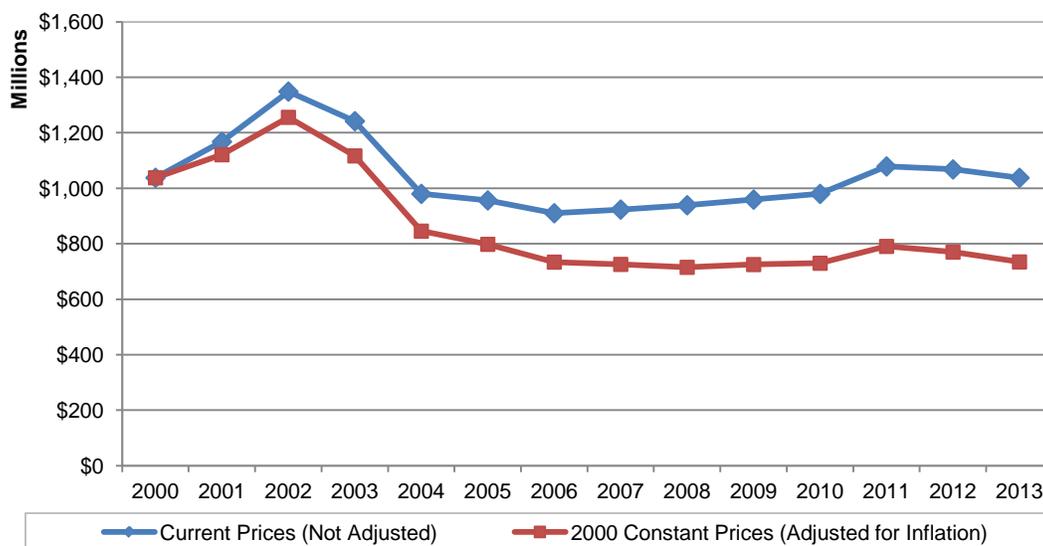
There are two indices commonly used to adjust inflationary price effects on health care costs. First, the Centers for Medicare and Medicaid Services (CMS) publishes a nationwide measurement called the Medicare Economic Index (MEI) which measures the changes in the prices paid for health care inputs, and it is used to adjust and update payment rates for Medicare and Medicaid. Regional variations are weighted by geographical indices. Secondly, the Bureau of Labor Statistics publishes Consumer Price Indexes (CPI) that measure changes in prices paid by urban consumers for a selected basket of goods and services. True to their purposes, the MEI focuses on provider payments while the CPI is primarily concerned with retail prices that consumers pay. CPI medical care index is limited to patient out-of-pocket expenditures (including insurance premiums) without considering health care provider payments paid by insurers. For our purposes, we use MEI to adjust prices for inflationary effects.

From 2000 to 2013, MEI increased by about 3 percent annually (41 percent total). As a comparison, CPI medical care indices on average were slightly higher than the MEI. (Individual CPI indices are published separately for the large metropolitan areas of Houston and Dallas, and

regional averages for medium cities and small cities. Averaging these four CPI indices, the results showed an increase of 60 percent from 1998 to 2011 with a 3.7 percent annual rate.)

Figure 2.1 shows that the 2013 cost of professional and hospital services was about the same as in 2000 in current prices, but there was a 29 percent decrease in inflation-adjusted prices. Considering from 2005 and including pharmacy costs, total health care costs increased by 6 percent in current prices between 2005 and 2013, but decreased by 10 percent in inflation-adjusted prices.

Figure 2.1: Professional and Hospital Costs in Current and Inflation-Adjusted Prices, by Service Year



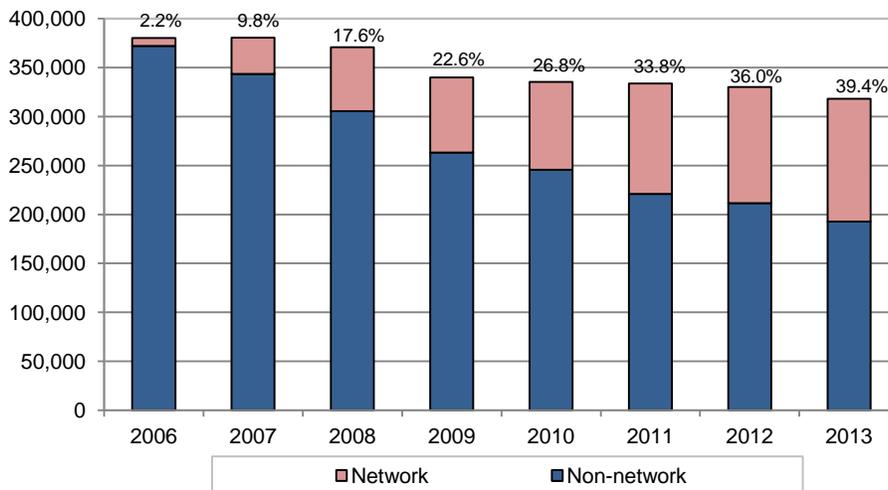
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Workers' Compensation Health Care Networks

In 2005, the 79th Texas Legislature passed House Bill 7, which authorized the use of workers' compensation health care networks (networks) certified by the Texas Department of Insurance (TDI). TDI began accepting applications for the certification of workers' compensation health care networks in 2006, and by 2013, networks accounted for more than a third of claims and medical costs in the Texas workers' compensation system.

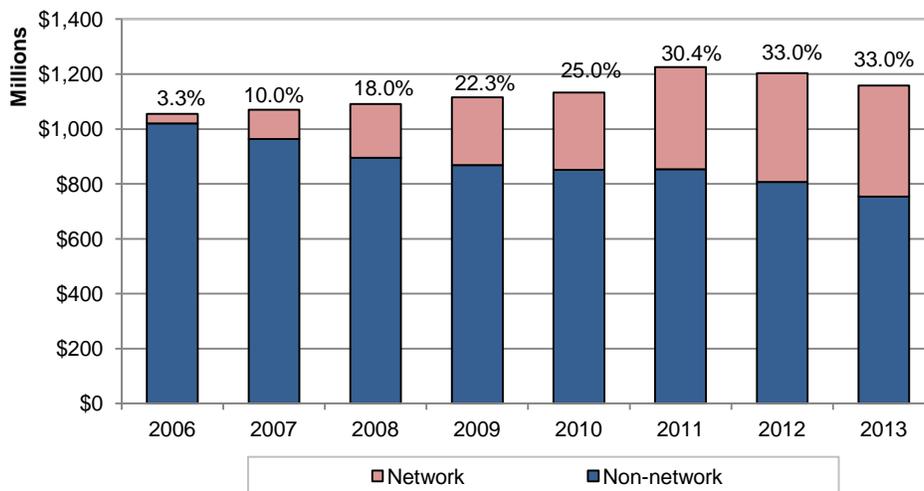
Figure 2.2 shows the number of network and non-network claims in the combined professional, hospital, and pharmacy data. In 2013 service year, 125,384 injured employees were treated in networks, accounting for 39 percent of all injured employees. Networks' share of the total medical cost had increased since 2006 at about the same rate as their share of the total claims (see Figure 2.3). In 2013, networks accounted for 33 percent of the total medical cost.

Figure 2.2: Number of Claims by Network Status, by Service Year



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

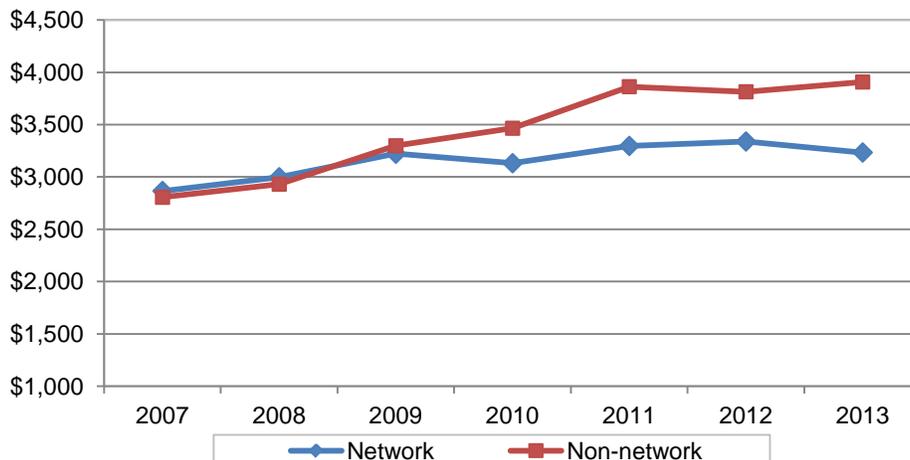
Figure 2.3: Total Medical Cost by Network Status, by Service Year



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Networks' cost share is slightly lower than their claim share because networks cost less per claim on average, especially in more recent years. In terms of average cost, networks' average medical cost per claim was similar to that of non-network until 2009 (see Figure 2.4). But since 2009, it remained substantially below that of non-network. One factor for the stable network cost is the fact that health care providers and workers' compensation certified networks may negotiate fees under the network model rather than utilize DWC's adopted fee guidelines.

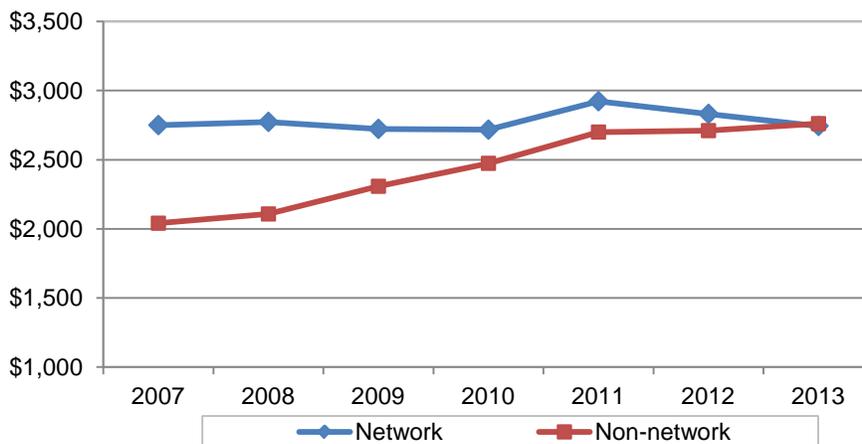
Figure 2.4: Average Medical Cost per Claim, by Service Year



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Another possible factor is networks' heightened focus on initial care, which tends to increase medical costs initially but decrease long-term costs. Figure 2.5 shows the average medical cost per claim by injury year for the first six months after injury. Average cost in networks in 2007 was higher than in non-network, indicating higher contracted prices in part to induce health care providers to participate in networks and in part to encourage better initial care. While network average cost stayed about the same since 2007, non-network average cost increased steadily. Despite the higher initial medical cost, per-claim cost in networks (in Figure 2.4) was lower than that of non-network because of a relatively lower share of claims with long-term care costs in networks.

Figure 2.5: Average Medical Cost per Claim, by Injury Year, Six Months Post Injury



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Health Care Cost and Texas Gross Domestic Product

Total WC health care costs account for less than one tenth of one percent of the Texas state Gross Domestic Product (GDP) (see Table 2.8). This GDP share decreased from 0.46 percent in 2000 to 0.08 percent in 2013. In comparison, a National Council on Compensation Insurance research brief in 2010 showed that, nationally, WC medical expenditure was about 0.25 percent of the GDP in 2006.¹ This suggests that, as a share of state GDP, WC costs in Texas are substantially lower than the national average.

WC's lower share of GDP for Texas is partly because WC is not mandatory in Texas. An estimated 66 percent to 73 percent of Texas employees in the private sector (measured by payroll amount) are covered by workers' compensation insurance (see REG's biennial reports on "Employer Participation in the Texas Workers' Compensation System" and "Costs to Employers and Efficiencies in the Texas Workers' Compensation System" available at the REG's reports webpage: www.tdi.texas.gov/reports/report14.html). If we add government and public sector employers who are legally required to subscribe to the workers' compensation system, about 80 percent of Texas workers are covered by the workers' compensation system even though it is not mandatory in Texas.

Table 2.8: Health Care Cost as a Percentage of Texas GDP

Service Year	Texas GDP (Millions)	Total Health Care Cost (Millions)	Health Care Cost as a Percentage of GDP
2000	\$732,987	\$1,038	0.14%
2001	\$765,740	\$1,168	0.15%
2002	\$785,434	\$1,349	0.17%
2003	\$827,139	\$1,242	0.15%
2004	\$906,893	\$980	0.11%
2005	\$970,997	\$1,103	0.11%
2006	\$1,055,959	\$1,064	0.10%
2007	\$1,147,970	\$1,082	0.09%
2008	\$1,202,104	\$1,103	0.09%
2009	\$1,146,647	\$1,126	0.10%
2010	\$1,248,511	\$1,145	0.09%
2011	\$1,357,298	\$1,237	0.09%
2012	\$1,463,021	\$1,214	0.08%
2013	\$1,532,623	\$1,168	0.08%

Note: 2005–2013 health care costs include pharmacy and dental costs.

Sources: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014. Texas GDP figures in current dollars are from the Bureau of Economic Analysis, Department of Commerce.

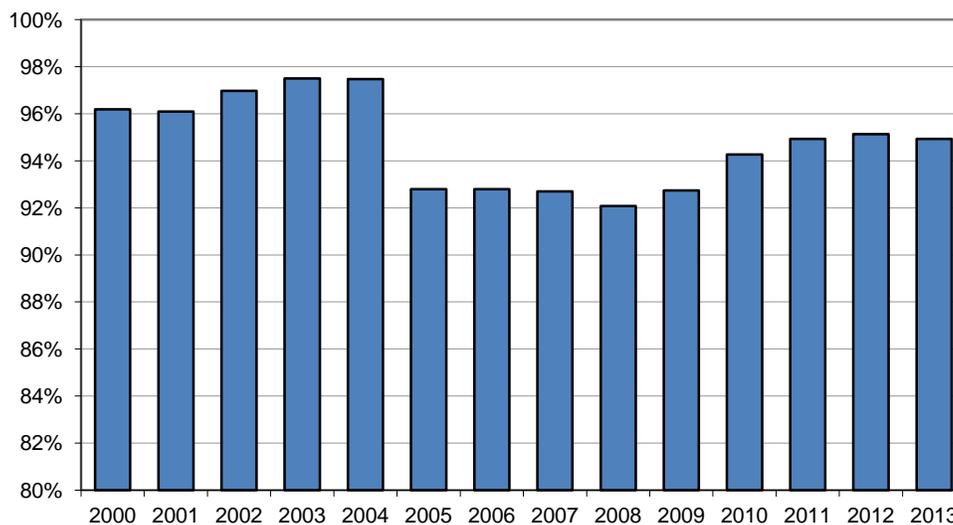
¹ See *NCCI Research Brief: Medicare and Workers Compensation Medical Cost Containment*, NCCI Holdings, Inc., 2010. Estimates are based on data published by CMS and US BEA.

3. Cost and Utilization for Professional Services

Professional service bills include bills for physician and therapy services, durable medical equipment, and ambulatory surgical center services. Billing and payment data in the Texas workers' compensation system come from a statewide database of medical charges, actual payments, and treatment codes, maintained by DWC under the provisions of the Texas Labor Code §413.007. Insurance carriers report these data to DWC using a medical billing/payment electronic data interchange process (EDI 837). The EDI version of the professional service bills is based on the CMS-1500 paper forms used by the Centers for Medicare and Medicaid Services. EDI 837 data covers the service years from 2005. The data integrity and reliability are relatively higher for the EDI datasets than the pre-2005 data collected by the tape-based process.

Since most injured employees visit a physician's office (Doctor of Medicine (MD) or Doctor of Osteopathic Medicine (DO)) for their first treatment, over 90 percent of the claims received at least one professional service (see Figure 3.1). The remaining claims received only hospital/institutional, dental, or pharmacy services. The lower rates from 2005 may indicate a problem of access since the number of primary care physicians who accepted workers' compensation patients decreased slightly from 2003 to 2005. REG's reports on the access to medical care have details about the changes in the number of physicians accepting workers' compensation patients (available at www.tdi.texas.gov/reports/report14.html). Also, the data for 2004–2005 may be incomplete as data submission was suspended for the transition to the EDI 837 system.

Figure 3.1: Percent of Claims Receiving at Least One Professional Service, by Service Year



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Changes in Medical Fee Guidelines

One factor that affects total and average costs is the change in per-service fees. Changes in service fees are partially explained by changes in regulatory policies. Professional service fees are regulated in the workers' compensation system with Medical Fee Guideline (MFG) establishing maximum reimbursements for medical services. Since 1998, there were two major changes in fee guidelines that should be noted.

First, the 2003 professional services fee guideline changed reimbursement rates to a uniform 125 percent of the Medicare billing rates from the existing 1996 MFG. The 1996 MFG established as maximum the lesser of the providers' usual fees and charges, or the maximum allowable reimbursement (MAR) rate based on relative values of services published by a third party. The adoption of the 2003 professional services fee guideline changed the reimbursement amounts for individual categories of services, raising the rate for certain categories of professional services such as evaluation and management services and spinal fusion, while lowering the rate for such services as disc and other surgeries. As a result, the cost impact of the 2003 fee guideline varied considerably for individual categories of services.

Second, from March 1, 2008, a new professional services fee guideline began to use a conversion factor of \$52.83 with the exception of surgery services which used a separate \$66.32 as a conversion factor, resulting in a rate increase for surgery services. These factors are adjusted annually using the Medicare Economic Index. Final fees are calculated by multiplying these conversion factors by relative value unit (RVU) and geographic practice cost index (GPCI), both maintained and adjusted by the Centers for Medicare and Medicaid Services. For example, adjustments in RVUs and GPCIs for office visit and therapeutic exercise services resulted in a 30 to 35 percent increase in these values for Austin area in the five years from 2008 to 2013.

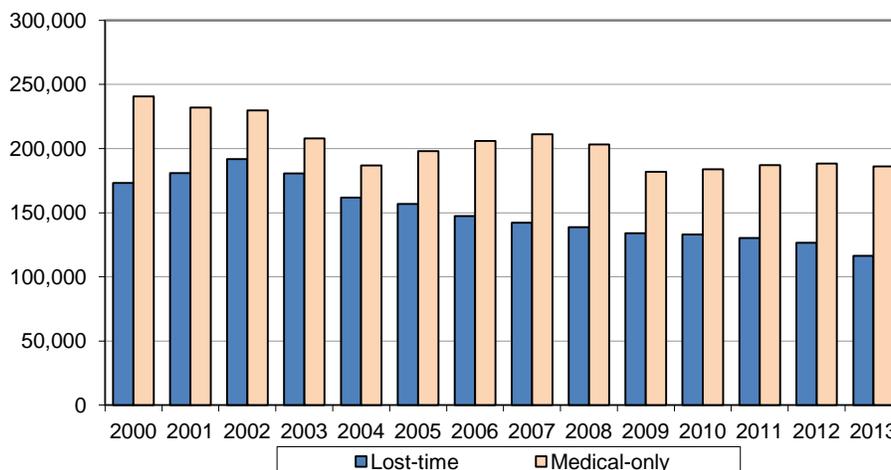
Cost and Utilization by Service Year

Professional Cost and Utilization by Claim Type

There was a significant decrease in the number of medical-only claims in the professional service data between 2000 and 2005 (see Figure 3.2). The number of lost-time claims, which are the main cost drivers in the workers' compensation system, actually increased until 2002, but has been decreasing steadily since then. For medical-only claims, unlike lost-time claims, the number of claims fluctuated after 2005, but the long-term trend was declining.

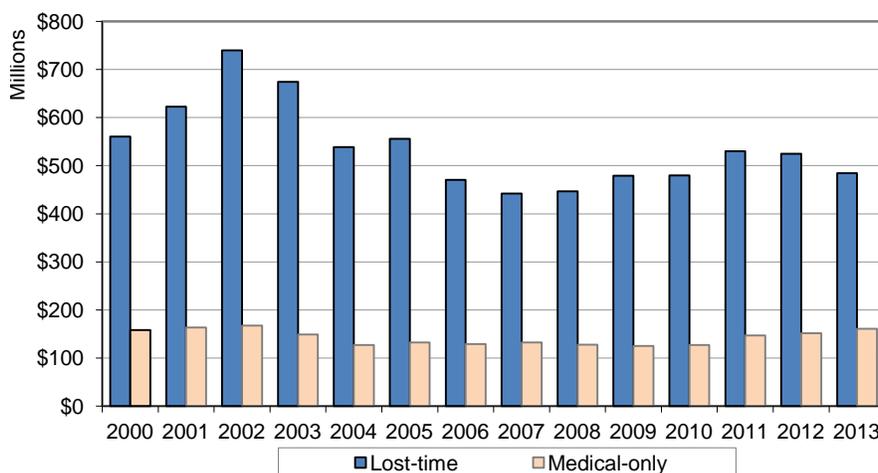
Figure 3.3 shows that the majority of health care costs were borne by lost-time claims (between 75 percent and 82 percent of the total cost). The total cost of lost-time claims increased from 2007 to 2011 while the number of claims decreased.

Figure 3.2: Number of Claims by Claim Type, Professional Services, by Service Year



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Figure 3.3: Total Professional Cost, by Claim Type, by Service Year



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of utilization, the number of visits—a measure of service frequency—peaked in 2003 and decreased since then (see Table 3.1). Lost-time claims had about 3.5 times more visits per claim than medical-only claims because lost-time claims had more serious injuries and were users of health care for a longer duration. The number of services received in each visit to a health care provider is a measure of intensity. This measure stayed relatively stable and similar over the years for both lost-time and medical-only claims. This indicates that the variations in service utilization were due more to service frequency (number of visits) than to service intensity (number of services per visit). And since the number of visits was mainly determined by the length of treatment, shorter durations of medical care resulted in decreasing number of visits per claim.

Table 3.1: Number of Visits and Services per Visit per Claim, by Claim Type, Professional Services

Service Year	Visits per Claim		Services per Visit	
	Lost-time Claims	Medical-only Claims	Lost-time Claims	Medical-only Claims
2000	17.44	4.94	3.40	3.13
2001	17.77	4.99	3.55	3.28
2002	19.29	5.08	3.86	3.42
2003	19.59	5.16	3.92	3.42
2004	18.53	5.04	3.69	3.25
2005	17.77	4.72	3.85	3.37
2006	15.42	4.48	3.39	3.20
2007	14.86	4.36	3.34	3.14
2008	14.61	4.16	3.31	3.13
2009	15.21	4.28	3.24	3.05
2010	14.99	4.21	3.28	3.03
2011	14.86	4.16	3.32	3.08
2012	14.86	4.25	3.38	3.06
2013	14.89	4.44	3.47	3.24

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Professional Cost and Utilization by Provider Type

Professional service providers are grouped into MD/DO, DC (Doctor of Chiropractic), PT/OT (physical/occupational therapist), ASC (ambulatory surgical center), DME (durable medical equipment) and the Other that includes all other providers. The MD/DO type includes not only Doctor of Medicine and Doctor of Osteopathic Medicine but also Clinical Psychologist, Doctor of Podiatric Medicine, Doctor of Optometry, and Psychologist. The DME provider type is used if the bill was for supplies. ASC services are sometimes included in hospital/institutional services in other states, but Texas medical EDI system receives ASC bills in the professional service bill set, and therefore we include ASC services in this section. Provider type details are more reliable since the implementation of the EDI 837 data collection in 2005.

About 95 percent of the claims received professional services from MD/DOs in 2013 (see Table 3.2). A significant change occurred in chiropractic services (DC): the share of claims receiving chiropractic services decreased from 13 percent in 2005 to 9 percent in 2013. This decline resulted from various cost control measures such as stricter billing and payment guidelines for physical medicine in the 2003 professional services fee guideline, 2004 preauthorization requirements for work hardening/conditioning services, and 2006 preauthorization requirements for physical and occupational therapy services. A decreasing percentage of the claims also received services from DME and ASC providers. On the other hand, a higher share of claims received PT or OT services since 2005.

Table 3.2: Percent of Claims Receiving Professional Service, by Provider Type, by Service Year

Provider Type	2005	2006	2007	2008	2009	2010	2011	2012	2013
ASC	3.8%	3.8%	3.4%	3.0%	3.2%	3.1%	3.2%	3.3%	3.1%
DC	13.3%	11.0%	9.0%	7.9%	8.2%	8.2%	7.5%	7.0%	8.8%
DME	11.4%	11.4%	10.9%	9.9%	10.7%	10.6%	9.7%	9.2%	8.1%
MD/DO	86.8%	93.4%	95.8%	96.3%	96.2%	95.8%	95.6%	94.9%	93.0%
PT/OT	18.7%	19.7%	20.4%	20.0%	20.4%	20.1%	20.6%	21.5%	22.5%
Other	22.2%	16.5%	13.7%	14.8%	16.4%	19.2%	22.4%	27.3%	26.3%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of total cost, chiropractors' costs decreased rapidly while the total cost for physical and occupational therapy services increased in recent years (see Table 3.3). Total payments to MD/DO increased substantially by 17 percent between 2005 and 2011 because of both the increasing per-service fees and the increasing share of claims utilizing MD/DO, but it decreased by 13 percent since 2011. Total cost for ASC services increased substantially during the period even though a smaller share of claims was receiving the services.

Table 3.3: Total Professional Cost, by Provider Type (Thousand Dollars), by Service Year

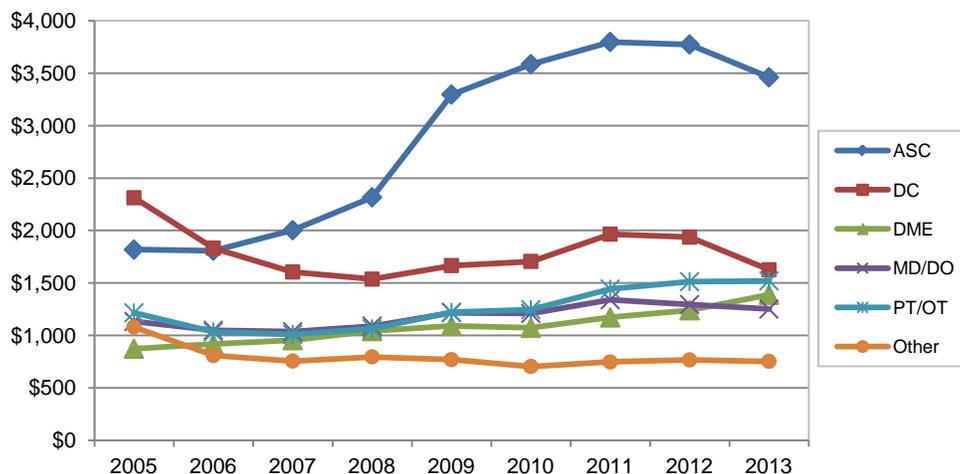
Provider Type	2005	2006	2007	2008	2009	2010	2011	2012	2013
ASC	\$24,734	\$24,095	\$24,180	\$23,561	\$33,189	\$34,726	\$38,092	\$39,749	\$32,382
DC	\$109,291	\$71,089	\$51,028	\$41,432	\$43,217	\$44,195	\$46,738	\$42,499	\$43,058
DME	\$35,407	\$36,930	\$36,695	\$35,242	\$36,800	\$36,046	\$36,093	\$35,931	\$34,116
MD/DO	\$348,767	\$345,905	\$350,321	\$358,568	\$369,825	\$367,308	\$406,449	\$386,477	\$351,987
PT/OT	\$80,729	\$71,740	\$72,691	\$72,818	\$78,544	\$79,316	\$94,355	\$102,106	\$103,443
Other	\$85,137	\$47,161	\$36,634	\$40,176	\$39,888	\$42,853	\$53,165	\$65,842	\$59,908

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

This resulted in a rapid increase in the average cost per claim for services provided by ASC (see Figure 3.4). The average cost per claim increased by 109 percent for ASC providers between 2005 and 2011, then decreased by 9 percent since 2011. ASC's 2009 increase was related to the new Ambulatory Surgical Center (ASC) Fee Guideline that went into effect in September 2008. This guideline set a reimbursement rate at 235 percent of the Medicare rate for ASC services, exclusive of implantables.

Professional Cost and Utilization by Service Type

Medical bills are normally submitted and processed using a service as the basic unit because the Medicare payment model used in Texas and most other states is basically a fee-for-service model. Services are unbundled (unless otherwise instructed to bundle multiple services) and billed for each service and the type and nature of the service is determined by entering a Current Procedural Terminology (CPT[®]) code, maintained by the American Medical Association, or a Healthcare Common Procedure Coding System (HCPCS) code in each bill. Service types are based on these service codes.

Figure 3.4: Average Cost per Claim by Provider Type, Professional Services, by Service Year

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

There may be different ways to classify service types depending on how we group various CPT/HCPCS codes. This report uses eight groups in the service type classification:

- DMEPOS: durable medical equipment, prosthetics, orthotics and supplies. This group consists of all HCPCS Level II codes, and includes ambulance services.
- Diag/Path/Lab: diagnostic, pathology, and laboratory services.
- E/M: evaluation and management services such as office visits.
- IR Exam & Report: impairment (or disability) rating examination services, special reports, physical performance tests, and range of motion tests. These services are not for treatment but for system-specific functions of the workers' compensation system.
- Other Services: this is a catch-all group for all services not in the other seven groups. However, about half of this group's total costs are for anesthesia services.
- Physical Medicine: all manipulative and physical therapies and exercises provided by chiropractors, physical/occupational therapists, and MD/DO.
- Surgery – Other: surgery services except for spinal surgeries.
- Surgery – Spinal: spinal surgeries including spine fusion, laminectomy, and laminotomy.

Physical medicine service bills are by far the most numerous bills accounting for about half of all professional bills. However, the number of 'unit billed' reported in the EDI data tables is not consistent and often incorrect. To create better measurements of utilization, a new service utilization unit is calculated for each bill (see Appendix A for more details).

For lost-time claims, the 2002 service year was the peak year for most services in terms of total cost (see Table 3.4). Increases and decreases were most prominent for Physical Medicine services that were the costliest service. Cost growth since 2000 was highest for DMEPOS, IR

Exam and Report, and Surgery – Other services. Costs for Surgery – Spinal and Physical Medicine services groups decreased substantially.

For medical-only claims, Physical Medicine service shows a pattern of increases and decreases similar to that of lost-time claims. Because of their less serious injuries, E/M services were the most costly service type for medical-only claims. Total cost for DMEPOS and E/M services increased most rapidly since 2005. Costs for Surgery – Spinal and Other Services groups decreased most significantly.

Table 3.4: Total Professional Cost, by Service Type (Thousand Dollars)

Service Year	DMEPOS	Diag/Path/ Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
Lost-time Claims								
2000	\$40,695	\$62,755	\$95,886	\$31,980	\$33,859	\$189,211	\$54,399	\$51,475
2001	\$43,040	\$69,492	\$102,528	\$37,067	\$35,561	\$220,025	\$59,009	\$55,948
2002	\$51,831	\$82,453	\$108,943	\$52,604	\$44,229	\$254,643	\$70,192	\$74,607
2003	\$50,295	\$71,839	\$97,421	\$54,254	\$42,213	\$246,037	\$60,610	\$51,614
2004	\$43,386	\$53,719	\$79,872	\$57,305	\$32,007	\$201,354	\$45,855	\$24,715
2005	\$52,603	\$53,324	\$76,916	\$64,442	\$31,734	\$184,982	\$66,489	\$25,491
2006	\$52,026	\$47,732	\$66,170	\$58,475	\$27,727	\$133,604	\$62,961	\$21,699
2007	\$58,867	\$41,774	\$67,171	\$59,326	\$25,692	\$111,975	\$60,252	\$16,844
2008	\$58,760	\$44,710	\$69,678	\$57,817	\$26,300	\$106,247	\$67,058	\$16,127
2009	\$58,158	\$49,977	\$74,945	\$59,076	\$27,268	\$110,901	\$79,405	\$19,193
2010	\$60,908	\$48,434	\$76,842	\$57,173	\$26,430	\$111,669	\$81,168	\$17,200
2011	\$66,583	\$54,435	\$88,965	\$55,733	\$27,844	\$124,218	\$94,349	\$18,033
2012	\$67,854	\$58,013	\$86,848	\$54,283	\$25,781	\$123,290	\$92,257	\$16,136
2013	\$65,865	\$48,515	\$80,651	\$52,247	\$24,458	\$115,865	\$82,179	\$14,549
Medical-only Claims								
2000	\$8,950	\$21,214	\$40,919	\$10,133	\$8,711	\$48,755	\$13,878	\$6,036
2001	\$8,634	\$22,087	\$40,502	\$11,678	\$8,165	\$52,031	\$13,791	\$6,442
2002	\$9,548	\$22,821	\$39,946	\$14,031	\$8,591	\$52,061	\$13,173	\$7,218
2003	\$9,438	\$19,446	\$37,500	\$13,211	\$6,743	\$46,457	\$11,761	\$4,244
2004	\$8,915	\$14,839	\$35,642	\$13,026	\$4,236	\$39,145	\$9,602	\$1,908
2005	\$9,333	\$15,735	\$37,615	\$14,219	\$4,086	\$37,376	\$12,139	\$2,023
2006	\$9,887	\$16,627	\$39,125	\$14,211	\$4,330	\$29,653	\$13,485	\$1,877
2007	\$11,458	\$16,104	\$43,220	\$15,083	\$4,287	\$28,078	\$12,604	\$1,472
2008	\$11,009	\$16,176	\$43,615	\$13,923	\$3,984	\$26,077	\$12,008	\$1,314
2009	\$9,708	\$16,062	\$43,494	\$13,533	\$3,710	\$26,315	\$11,201	\$1,054
2010	\$9,479	\$15,573	\$46,448	\$12,936	\$3,700	\$26,707	\$11,419	\$996
2011	\$10,541	\$18,092	\$54,676	\$13,564	\$4,128	\$31,969	\$13,018	\$1,078
2012	\$10,979	\$17,979	\$56,720	\$13,143	\$4,170	\$34,924	\$12,872	\$813
2013	\$11,397	\$16,974	\$59,353	\$13,075	\$4,601	\$40,659	\$13,517	\$1,186

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Average costs per claim shown in Table 3.5 are influenced by the number of claims receiving each type of service and the intensity of service utilization such as the number of visits per claim and the number of services per visit. For lost-time claims, average costs for IR Exam & Report, and Surgery – Other services increased the most from 2000 to 2013. Spinal surgery services decreased the most during the same period. For medical-only claims, E/M and IR Exam & Report services increased the most while spinal surgery services decreased the most. Price changes per individual service are discussed later in this section.

Table 3.5: Average Professional Cost per Claim, by Service Type

Service Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
Lost-time Claims								
2000	\$591	\$627	\$611	\$286	\$449	\$2,580	\$1,107	\$3,057
2001	\$635	\$665	\$619	\$315	\$460	\$2,865	\$1,139	\$3,056
2002	\$677	\$718	\$615	\$400	\$511	\$3,000	\$1,178	\$3,534
2003	\$622	\$659	\$586	\$432	\$530	\$3,039	\$1,037	\$2,578
2004	\$555	\$555	\$548	\$495	\$515	\$2,824	\$887	\$1,563
2005	\$718	\$568	\$549	\$569	\$539	\$2,764	\$1,265	\$1,741
2006	\$716	\$526	\$499	\$552	\$496	\$2,298	\$1,242	\$1,726
2007	\$801	\$465	\$520	\$583	\$484	\$2,031	\$1,222	\$1,602
2008	\$827	\$503	\$551	\$580	\$514	\$2,019	\$1,398	\$1,806
2009	\$835	\$569	\$610	\$609	\$548	\$2,146	\$1,698	\$2,260
2010	\$858	\$544	\$626	\$591	\$545	\$2,169	\$1,752	\$2,296
2011	\$924	\$616	\$737	\$588	\$578	\$2,476	\$2,010	\$2,543
2012	\$953	\$677	\$742	\$588	\$564	\$2,571	\$2,036	\$2,615
2013	\$968	\$623	\$752	\$618	\$575	\$2,627	\$1,992	\$2,589
Medical-only Claims								
2000	\$156	\$185	\$196	\$81	\$107	\$950	\$349	\$2,223
2001	\$166	\$198	\$198	\$91	\$105	\$1,002	\$357	\$2,323
2002	\$179	\$202	\$194	\$105	\$106	\$993	\$338	\$2,513
2003	\$149	\$181	\$200	\$105	\$100	\$954	\$314	\$1,811
2004	\$125	\$153	\$211	\$109	\$103	\$877	\$294	\$1,072
2005	\$134	\$151	\$209	\$113	\$98	\$843	\$329	\$1,327
2006	\$123	\$148	\$208	\$107	\$94	\$685	\$340	\$1,277
2007	\$133	\$136	\$222	\$111	\$91	\$647	\$318	\$1,237
2008	\$137	\$142	\$232	\$105	\$88	\$662	\$316	\$1,381
2009	\$136	\$156	\$258	\$111	\$92	\$749	\$336	\$1,354
2010	\$132	\$150	\$271	\$104	\$93	\$773	\$337	\$1,389
2011	\$145	\$172	\$312	\$106	\$104	\$930	\$371	\$1,689
2012	\$147	\$174	\$322	\$101	\$104	\$984	\$368	\$1,418
2013	\$142	\$165	\$341	\$101	\$113	\$1,061	\$404	\$1,690

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of service utilization, the shares of claims receiving particular services increased for all services except Surgery – Spinal, Physical Medicine, and Other Services service groups (see Table 3.6). There was a slight decrease in the number of claims receiving Physical Medicine services while the share for Surgery – Spinal services decreased substantially. An increasing share of claims received DMEPOS, Diag/Path/Lab, and IR Exam & Report services. It should be noted that a significant number (52 percent to 70 percent) of medical-only claims received IR Exam & Report services in a given year even though most medical-only claims did not result in an impairment rating. These services for medical-only claims were typically reports rather than IR exams, but it indicates that non-treatment, system-specific services increased even in non-severe medical-only claims. It is also worthwhile to note that the share of claims receiving Physical Medicine services did not change significantly for either lost-time or medical-only claims.

Table 3.6: Percent of Claims Receiving Certain Professional Services

Service Year	DMEPOS	Diag/Path/ Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
Lost-time Claims								
2000	39.8%	57.8%	90.6%	64.6%	43.6%	42.4%	28.4%	9.7%
2001	37.5%	57.8%	91.6%	65.1%	42.7%	42.5%	28.6%	10.1%
2002	39.9%	59.8%	92.3%	68.5%	45.1%	44.2%	31.1%	11.0%
2003	44.8%	60.4%	92.1%	69.5%	44.1%	44.8%	32.4%	11.1%
2004	48.3%	59.8%	90.0%	71.5%	38.4%	44.1%	31.9%	9.8%
2005	46.8%	59.9%	89.3%	72.3%	37.6%	42.7%	33.5%	9.3%
2006	49.3%	61.5%	89.9%	71.9%	37.9%	39.4%	34.4%	8.5%
2007	51.6%	63.1%	90.8%	71.5%	37.3%	38.8%	34.7%	7.4%
2008	51.2%	64.1%	91.1%	71.8%	36.9%	37.9%	34.6%	6.4%
2009	52.0%	65.6%	91.7%	72.4%	37.1%	38.6%	34.9%	6.3%
2010	53.4%	67.0%	92.3%	72.7%	36.4%	38.7%	34.8%	5.6%
2011	55.3%	67.8%	92.7%	72.8%	36.9%	38.5%	36.0%	5.4%
2012	56.2%	67.7%	92.5%	72.9%	36.1%	37.9%	35.8%	4.9%
2013	58.4%	66.9%	92.1%	72.6%	36.5%	37.9%	35.4%	4.8%
Medical-only Claims								
2000	23.9%	47.5%	86.9%	51.7%	33.7%	21.3%	16.5%	1.1%
2001	22.5%	48.0%	88.3%	55.4%	33.5%	22.4%	16.6%	1.2%
2002	23.2%	49.3%	89.7%	58.0%	35.2%	22.8%	17.0%	1.3%
2003	30.5%	51.7%	90.3%	60.7%	32.4%	23.4%	18.0%	1.1%
2004	38.0%	51.8%	90.3%	63.7%	22.0%	23.9%	17.4%	1.0%
2005	35.2%	52.7%	91.0%	63.5%	21.1%	22.4%	18.6%	0.8%
2006	39.1%	54.6%	91.5%	64.4%	22.3%	21.0%	19.2%	0.7%
2007	40.8%	56.0%	92.1%	64.6%	22.2%	20.5%	18.8%	0.6%
2008	39.5%	56.1%	92.4%	65.4%	22.3%	19.4%	18.7%	0.5%
2009	39.4%	56.5%	92.8%	67.3%	22.1%	19.3%	18.3%	0.4%
2010	39.0%	56.4%	93.3%	67.7%	21.7%	18.8%	18.5%	0.4%
2011	38.9%	56.1%	93.5%	68.2%	21.3%	18.4%	18.7%	0.3%
2012	39.6%	54.9%	93.7%	69.1%	21.2%	18.9%	18.6%	0.3%
2013	43.2%	55.3%	93.3%	69.8%	21.8%	20.6%	18.0%	0.4%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of service intensity, the number of services per claim decreased significantly for E/M service and Other Services categories (see Table 3.7). Physical Medicine services peaked in 2003 and decreased substantially since then. Physical Medicine services were provided to about the same percentage of claims but with less frequency and intensity.

For most types of services, the number of services is equal to the number of bills. However, the unit of service for Physical Medicine service was recalculated to count the sessions billed (usually of 15 minutes duration) as specified in the professional services fee guideline. Therefore, the number of services for Physical Medicine services in Table 3.7 should be interpreted as index numbers roughly equivalent to sessions.

Table 3.7: Number of Services per Claim, by Service Type, Professional Services

Service Year	DMEPOS	Diag/Path/ Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
Lost-time Claims								
2000	7.7	6.9	11.4	4.2	6.1	82.4	3.8	5.1
2001	7.5	7.1	11.6	5.2	6.3	89.0	4.0	5.1
2002	7.5	7.9	12.8	5.9	6.3	104.2	4.5	5.9
2003	8.9	8.1	11.7	6.2	6.3	107.2	4.5	5.2
2004	10.9	7.4	9.3	5.9	5.0	96.1	4.1	4.7
2005	11.7	7.6	9.3	6.9	4.8	96.6	4.8	5.1
2006	9.9	7.2	7.9	6.1	4.3	70.3	4.8	5.4
2007	9.8	7.6	7.5	6.2	4.1	64.4	4.6	5.5
2008	9.5	7.9	7.4	6.3	3.9	62.9	4.5	5.3
2009	9.3	8.9	7.5	6.5	3.8	61.4	4.5	5.7
2010	8.7	9.5	7.5	6.3	3.8	60.4	4.5	5.8
2011	8.6	10.0	7.4	6.4	3.8	59.6	4.6	5.4
2012	8.2	12.5	7.3	6.1	3.7	60.0	4.7	5.1
2013	8.6	13.2	7.2	6.3	3.5	61.8	4.5	5.0
Medical-only Claims								
2000	3.3	2.6	3.8	2.2	3.2	35.6	1.9	3.9
2001	3.3	2.7	3.8	2.7	3.1	36.5	1.9	4.1
2002	3.4	2.7	3.8	2.8	3.2	38.2	1.9	4.3
2003	3.7	2.7	3.6	2.8	3.0	37.8	1.9	4.0
2004	4.3	2.6	3.1	2.8	2.4	33.4	1.8	3.6
2005	4.3	2.6	3.0	3.1	2.1	32.2	1.8	4.0
2006	4.0	2.6	2.9	2.9	2.1	26.9	1.9	4.1
2007	3.9	2.6	2.8	2.7	2.1	25.0	1.9	4.1
2008	3.7	2.6	2.8	2.7	2.1	24.4	1.8	4.1
2009	3.6	2.6	2.8	2.7	2.0	24.4	1.7	3.8
2010	3.4	2.7	2.8	2.7	2.0	24.3	1.7	4.2
2011	3.2	2.7	2.8	2.7	2.0	24.8	1.7	4.0
2012	3.1	2.9	2.8	2.7	1.9	25.3	1.7	3.2
2013	3.7	2.9	2.9	2.8	2.0	27.1	1.8	3.4

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Cost and Utilization by Injury Year

Costs by service year, as we have presented above, account for economic costs of all services delivered in a calendar year regardless of one's injury date. Thus, service year statistics include both new injuries and old injuries. However, most studies from the insurance industry or actuarial reports frequently present statistics by injury year, which often exclude old injuries. Therefore, we report injury year statistics in this section.

For injury year statistics, services within a set length of time from the injury date are summed up to show different levels of maturity. In this report, we used three maturity periods of 6 months, 12 months, and 24 months after the injury date for each injury year. Medical-only claims often receive only a few treatments, and the services and costs are mostly accounted for by the six-month maturity data. On the other hand, lost-time claims have more serious injuries that may require surgeries, rehabilitation services, and pharmacy services for pain management, necessitating a longer maturity for analysis.

The data for the 2013 injury year with six-month maturity covers all new injuries that occurred in the 2013 calendar year and accounts for all services received within six months from the injury. This means that service bills up to June 30, 2014, are analyzed. For 2011 injury year with 24-month maturity, data covers claims with injury date from January 1, 2011, to December 31, 2011, and services up to December 31, 2013. As the maturity increases, there will be more services provided and total costs increase accordingly.

In the longer maturity time frames, only some of the claims would be receiving services in the later years, and therefore the average cost is diluted as the number of claims for each injury year remains the same and the additional costs borne only by some claims are divided by the large number of claims that no longer require medical services. In the later part of this section, we present a slightly different configuration for maturity that separates all claims by mutually exclusive groups by service date.

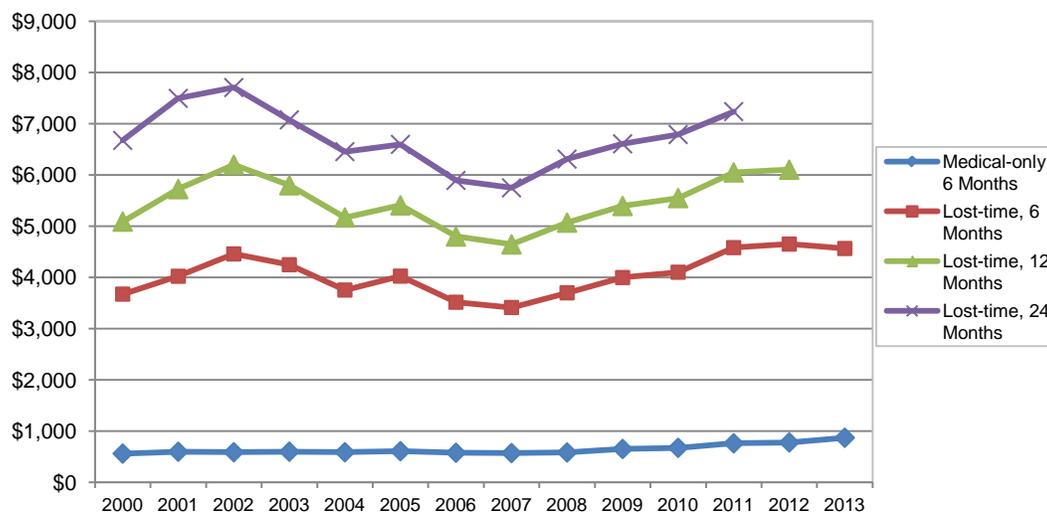
For lost-time claims, total costs in each injury year increase significantly as maturity increases while medical-only claims costs increase only slightly as we extend the maturity horizon (see Table 3.8). Since 2000, total costs declined the most, by 17 percent, for lost-time claims at 24-month maturity. Year-over-year decreases in total cost are greater in longer maturity, indicating that costs are declining faster in treating older injuries than new injuries. For both claim types, the total number of claims decreased faster than total costs, at around 25 percent to 35 percent. As a result, average cost per claim increased substantially.

Table 3.8: Total Cost, by Injury Year, by Maturity and Claim Type, Professional Services

Injury Year	6 Months			12 Months			24 Months		
	Total Cost (Thousand Dollars)	Number of Claims	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Claims	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Claims	Average Cost per Claim
Lost-time Claims									
2000	\$258,812	70,418	\$3,675	\$371,488	72,957	\$5,092	\$499,075	74,752	\$6,676
2001	\$282,715	70,254	\$4,024	\$416,033	72,657	\$5,726	\$554,863	74,001	\$7,498
2002	\$308,793	69,236	\$4,460	\$437,334	70,533	\$6,200	\$548,959	71,212	\$7,709
2003	\$264,890	62,338	\$4,249	\$366,710	63,212	\$5,801	\$457,513	64,636	\$7,078
2004	\$223,107	59,414	\$3,755	\$318,021	61,485	\$5,172	\$400,832	62,070	\$6,458
2005	\$230,960	57,357	\$4,027	\$315,232	58,276	\$5,409	\$387,695	58,749	\$6,599
2006	\$200,779	57,085	\$3,517	\$277,233	57,751	\$4,800	\$342,109	58,032	\$5,895
2007	\$197,890	57,959	\$3,414	\$271,920	58,523	\$4,646	\$338,288	58,825	\$5,751
2008	\$218,264	58,985	\$3,700	\$302,283	59,600	\$5,072	\$377,852	59,857	\$6,313
2009	\$218,870	54,725	\$3,999	\$297,881	55,195	\$5,397	\$365,994	55,367	\$6,610
2010	\$235,188	57,316	\$4,103	\$320,452	57,720	\$5,552	\$392,905	57,850	\$6,792
2011	\$261,549	57,066	\$4,583	\$347,606	57,430	\$6,053	\$416,706	57,559	\$7,240
2012	\$254,651	54,739	\$4,652	\$335,963	55,027	\$6,105			
2013	\$222,079	48,631	\$4,567						
Medical-only Claims									
2000	\$111,764	198,642	\$563	\$130,229	201,714	\$646	\$147,259	204,209	\$721
2001	\$114,033	190,630	\$598	\$132,825	193,614	\$686	\$148,483	195,514	\$759
2002	\$109,993	186,739	\$589	\$125,287	188,666	\$664	\$137,026	189,739	\$722
2003	\$103,250	172,270	\$599	\$115,857	173,652	\$667	\$124,910	174,768	\$715
2004	\$93,603	158,959	\$589	\$104,517	160,822	\$650	\$111,929	161,861	\$692
2005	\$103,645	170,186	\$609	\$113,767	171,401	\$664	\$120,888	172,126	\$702
2006	\$103,497	178,752	\$579	\$113,656	179,855	\$632	\$120,073	180,460	\$665
2007	\$105,881	184,996	\$572	\$115,383	186,036	\$620	\$121,933	186,645	\$653
2008	\$104,236	178,419	\$584	\$112,286	179,391	\$626	\$117,632	179,965	\$654
2009	\$103,582	158,817	\$652	\$110,740	159,612	\$694	\$115,509	160,116	\$721
2010	\$109,877	162,838	\$675	\$118,093	163,625	\$722	\$123,389	164,087	\$752
2011	\$126,492	165,884	\$763	\$135,613	166,703	\$814	\$141,173	167,195	\$844
2012	\$129,812	166,398	\$780	\$138,698	167,168	\$830			
2013	\$144,607	165,910	\$872						

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Average costs per claim differed substantially between medical-only claims and lost-time claims (see Figure 3.5). For medical-only claims, figures are shown only for the six-month maturity since most of them received all their services within that time frame. For lost-time claims, varying maturities did not result in any significant differences in the cost trends. The figure also indicates that the general trend in the average cost was an increase until 2002, a decrease until 2007, and an increase until 2011. Average costs were stable in 2012 and 2013.

Figure 3.5: Average Cost per Claim, by Injury Year by Claim Type, Professional Services

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

A slightly different configuration for the maturity is presented in Tables 3.9 and 3.10. Total costs are shown for each service year but all services are grouped into one of four maturity groups. The 'In the First Year' group is for new injuries and sums the payments for all services that are provided in a service year to any claim within one year from the date of injury. The 'In the Second Year' maturity group is for the previous year's injury claims and totals all services that are provided between 366 days and 730 days from the injury date, and so on. This second year group does not include any services given within one year of injury unlike an 'injury year data with 24-month maturity' that includes all services from 0 to 730 days from the injury date.

The majority of the claims (78 percent in 2013) are in the first-year maturity group since this includes most of the medical-only claims. The other three groups are mostly made up of lost-time claims. In terms of total cost, the majority of costs occurred for treating new claims in the first-year maturity group. Again we note that this measure is different from the injury year data in Table 3.8, since figures for the 12-months maturity in Table 3.8 are inclusive of the 6-months maturity data while the four groups in Table 3.9 each sums up a group of services that are mutually exclusive. Table 3.10 shows the average cost for each maturity group shown in Table 3.9.

Since there are more claims in the first year maturity group, their cost is the largest, reaching 72 percent of the total in 2013. Services for claims with four or more years of maturity accounted for 13 percent of the total cost in 2013. Cost shares of the second and third year maturity groups are decreasing while those of one year or less and four years or longer maturity groups are increasing since the early 2000s. Average cost is the highest in the second year (see Table 3.10). This is most likely because surgeries and other major treatments are provided in the second year. Note that these average costs are accumulative. For example, if a 2012 claim receives medical

care for two years, the average cost in the first two years is roughly \$4,542, which is the sum of \$1,838 for the first year services in 2012 and \$2,704 for the second year services in 2013.

Table 3.9: Total Cost, by Service Year by Maturity, Professional Services (Thousand Dollars)

Service Year	In the First Year	In the Second Year	In the Third Year	4th Year and Older	Total
2000	\$495,574	\$105,792	\$40,680	\$76,807	\$718,852
2001	\$528,692	\$127,839	\$49,047	\$80,419	\$785,997
2002	\$572,129	\$158,486	\$68,049	\$108,228	\$906,891
2003	\$516,303	\$137,786	\$62,649	\$106,344	\$823,081
2004	\$422,594	\$105,845	\$46,564	\$90,525	\$665,527
2005	\$454,372	\$96,514	\$42,582	\$95,031	\$688,500
2006	\$393,827	\$83,470	\$33,831	\$88,456	\$599,584
2007	\$391,179	\$74,163	\$29,930	\$78,927	\$574,200
2008	\$402,468	\$71,054	\$27,057	\$74,204	\$574,782
2009	\$417,693	\$78,699	\$28,281	\$79,315	\$603,989
2010	\$422,841	\$75,486	\$30,213	\$78,519	\$607,060
2011	\$485,235	\$76,783	\$30,145	\$85,045	\$677,209
2012	\$479,806	\$77,296	\$28,109	\$90,824	\$676,035
2013	\$461,570	\$68,682	\$27,819	\$86,980	\$645,051

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Table 3.10: Average Cost per Claim, by Service Year by Maturity, Professional Services

Service Year	In the First Year	In the Second Year	In the Third Year	4th Year and Older
2000	\$1,525	\$2,033	\$1,522	\$1,587
2001	\$1,661	\$2,253	\$1,700	\$1,556
2002	\$1,805	\$2,642	\$2,086	\$1,837
2003	\$1,783	\$2,622	\$2,054	\$1,822
2004	\$1,615	\$2,466	\$1,894	\$1,686
2005	\$1,661	\$2,519	\$2,046	\$1,810
2006	\$1,407	\$2,401	\$1,899	\$1,845
2007	\$1,365	\$2,316	\$1,912	\$1,798
2008	\$1,436	\$2,305	\$1,901	\$1,850
2009	\$1,633	\$2,563	\$2,005	\$2,027
2010	\$1,636	\$2,607	\$2,155	\$2,077
2011	\$1,849	\$2,823	\$2,376	\$2,331
2012	\$1,838	\$2,808	\$2,359	\$2,586
2013	\$1,834	\$2,704	\$2,408	\$2,627

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Professional Cost and Utilization by Service Type

In terms of utilization trends, an increasing percentage of claims received DMEPOS, Surgery–Other, and IR Exam & Report services in recent years, while the percentage of claims receiving Physical Medicine, Surgery – Spinal, and Other services decreased (see Table 3.11). These results are similar to those of the service-year data shown in Table 3.6. Overall percentages in injury year are somewhat higher than those in service year since this table excludes old claims that were included in Table 3.6. As we increase maturity from 12 months, these statistics tend to increase somewhat proportionately.

Table 3.11: Percent of Claims Receiving Certain Professional Services, Lost-time Claims, by Injury Year at 12 Months Post Injury

Injury Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
2000	48.7%	79.2%	95.3%	77.6%	59.4%	60.9%	40.5%	10.1%
2001	48.7%	80.7%	95.9%	81.7%	61.0%	62.9%	43.5%	11.2%
2002	54.2%	84.8%	97.3%	85.2%	65.0%	65.0%	46.5%	11.4%
2003	63.9%	86.3%	97.5%	87.1%	63.2%	65.9%	49.0%	10.7%
2004	66.9%	83.2%	96.1%	87.1%	53.9%	64.3%	47.5%	9.5%
2005	65.0%	85.8%	96.9%	88.0%	54.4%	63.2%	51.2%	8.8%
2006	69.8%	86.5%	97.3%	87.6%	54.6%	60.3%	52.3%	7.7%
2007	71.7%	87.2%	97.7%	86.9%	53.8%	59.3%	52.1%	6.3%
2008	70.9%	87.5%	97.9%	87.9%	53.6%	58.6%	52.4%	5.6%
2009	71.9%	88.2%	98.4%	89.3%	53.0%	59.8%	51.8%	5.1%
2010	71.3%	88.0%	98.6%	89.0%	52.2%	59.2%	51.3%	4.8%
2011	71.6%	87.8%	98.7%	89.1%	51.9%	57.9%	52.6%	4.3%
2012	71.8%	87.0%	98.7%	89.0%	50.4%	57.7%	52.0%	3.8%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of cost by service type, average cost per lost-time claim increased the most for IR Exam & Report services, by 103 percent since 2000 (see Table 3.12). This increase was in line with a 41 percent increase in the utilization of these services: from 5.9 services per claim for 2000 injury year to 8.3 services for 2013 injury year (see Table 3.13). Surgery – Other and DMEPOS services also showed large increases in the average cost per claim and in utilization. The average cost per claim for Physical Medicine services decreased significantly since its peak in 2002 with a corresponding decrease in the number of services per claim. For Physical Medicine services, the main factor in cost reduction appears to be the decrease in service intensity shown in Table 3.13. The number of services per claim was highest in 2002 and it decreased by 53 percent by 2012. On the other hand, for Surgery – Spinal services, the decrease in the percent of claims receiving the service (in Table 3.11) was greater than the decrease in the number of services (in Table 3.13).

Table 3.12: Average Cost per Claim by Service Type, Professional Services, Lost-time Claims, by Injury Year at 12 Months Post Injury

Injury Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
2000	\$521	\$804	\$901	\$344	\$430	\$3,305	\$1,318	\$2,692
2001	\$576	\$909	\$939	\$442	\$466	\$3,579	\$1,395	\$2,763
2002	\$582	\$957	\$937	\$510	\$491	\$3,738	\$1,429	\$2,765
2003	\$563	\$833	\$873	\$606	\$481	\$3,471	\$1,161	\$1,699
2004	\$546	\$701	\$789	\$632	\$480	\$2,983	\$1,220	\$1,542
2005	\$659	\$720	\$800	\$702	\$513	\$2,761	\$1,498	\$1,726
2006	\$636	\$649	\$735	\$704	\$488	\$2,125	\$1,473	\$1,596
2007	\$694	\$573	\$747	\$736	\$484	\$1,885	\$1,486	\$1,621
2008	\$695	\$636	\$824	\$728	\$533	\$2,031	\$1,865	\$1,798
2009	\$685	\$652	\$878	\$740	\$541	\$2,159	\$2,138	\$1,964
2010	\$702	\$646	\$937	\$714	\$553	\$2,292	\$2,262	\$2,021
2011	\$777	\$717	\$1,044	\$705	\$582	\$2,566	\$2,488	\$2,149
2012	\$824	\$676	\$1,049	\$699	\$577	\$2,669	\$2,518	\$2,316

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Table 3.13: Number of Services per Claim, Professional Services, Lost-time Claims, by Injury Year at 12 Months Post Injury

Injury Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
2000	6.9	8.3	17.3	5.9	6.5	110.6	3.9	4.9
2001	7.4	9.1	18.8	7.6	7.0	125.2	4.3	5.1
2002	7.9	9.8	20.2	8.4	6.9	145.8	4.6	5.3
2003	11.4	10.1	16.8	8.8	6.1	139.1	4.5	4.8
2004	13.1	8.6	13.2	8.3	4.5	118.1	4.5	4.4
2005	13.7	9.1	12.8	9.2	4.5	107.3	5.1	5.0
2006	11.5	8.7	10.9	8.5	4.2	80.2	5.1	4.9
2007	10.9	8.7	10.2	8.3	3.9	72.0	5.0	4.7
2008	10.4	9.1	10.3	8.6	3.9	72.1	5.0	4.5
2009	10.0	8.9	10.2	8.5	3.8	69.6	5.0	4.6
2010	9.0	8.8	10.1	8.3	3.6	68.2	5.1	4.2
2011	8.9	9.6	10.0	8.3	3.6	67.0	5.3	3.9
2012	8.3	9.6	9.9	8.3	3.5	68.4	5.3	4.2

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Cost per Service by Injury Year for Selected Professional Services

For payment purposes, providers and billers use more than 10,000 different medical services (by CPT or HCPCS code) that, along with multipart modifiers, represent specific services, procedures, and supplies. However, a few common services account for the majority of costs. The top 10 services accounted for 41 percent of the total payments (\$5.6 billion) from 2005 to 2013 while 52 percent and 74 percent of the total costs were associated with the top 20 and the top 100 services, respectively. The top 20 service codes in terms of total payments are shown in Table 3.14. They are mainly codes in E/M, Physical Medicine, IR Exam & Report, and Diag/Path/Lab services.

Table 3.14: Top 20 Services by Total Payments in 2005–2013

Rank	CPT/ HCPCS	Total Pay (Thousand Dollars)	Description
1	97110	\$534,056	Therapeutic procedure, one or more areas, each 15 minutes
2	99213	\$385,180	Office or other outpatient visit for evaluation and management of established patient
3	99456	\$364,707	Work related or medical disability exam by other than treating physician
4	97799	\$292,407	Unlisted physical medicine/rehabilitation service or procedure
5	99214	\$204,826	Office or other outpatient visit for evaluation and management of established patient
6	99204	\$128,453	Office or other outpatient visit for evaluation and management of new patient
7	99203	\$115,034	Office or other outpatient visit for evaluation and management of new patient
8	97140	\$103,139	Manual therapy techniques, one or more regions, each 15 minutes
9	97750	\$97,178	Physical performance test or measurement, with written report, each 15 minutes
10	97530	\$94,929	Therapeutic activities, direct patient contact by the provider
11	97546	\$81,250	Work hardening/conditioning; each additional hour
12	97112	\$80,288	Therapeutic procedure, one or more areas, each 15 minutes; neuromuscular reeducation
13	99080	\$71,762	Special reports such as insurance forms, more than the information conveyed in the usual medical communications or standard reporting form
14	99455	\$62,538	Work related or medical disability exam by treating physician
15	73721	\$61,737	Magnetic resonance imaging, any joint of lower extremity; without contrast material
16	73221	\$54,735	Magnetic resonance imaging, any joint of upper extremity; without contrast material
17	72148	\$52,485	Magnetic resonance imaging, spinal canal and contents, lumbar; without contrast material
18	99212	\$48,589	Office or other outpatient visit for evaluation and management of established patient
19	97001	\$46,901	Physical therapy evaluation
20	29881	\$41,774	Arthroscopy, knee, surgical; with meniscectomy

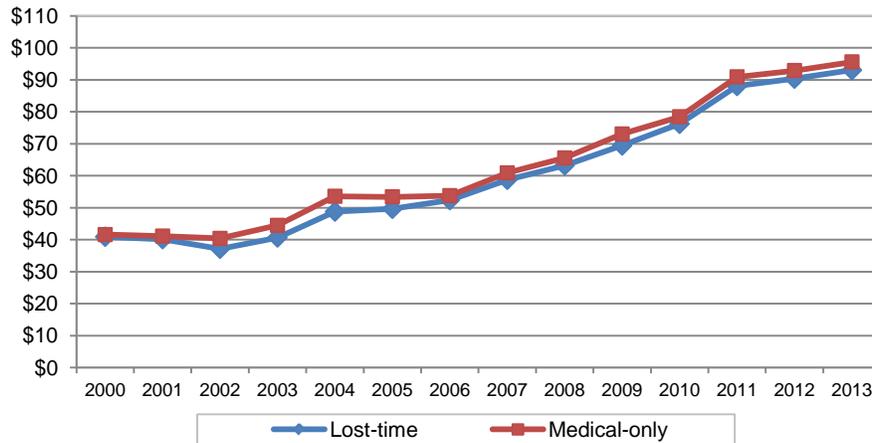
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Figures 3.6 through 3.13 present average costs per service for selected services. When some of the top 20 services are in the same service group, we have selected only a representative service to avoid duplication. We also show surgery, DME, and other services that may not be in the top 20 but are of interest. The results are by injury year so that cost patterns can be compared with each other. An appropriate length of maturity is selected for each service.

Office Visit – 99213

This service is the most common and costly service in the E/M service group. Cost per service increased since 2002 mainly because of changes in the professional services fee guideline. Similar to most other services, the average cost increased at a lower rate since 2012.

Figure 3.6: Average Cost per Service - Office/Outpatient Visit, Established Patient (99213), by Injury Year at Six Months Post Injury

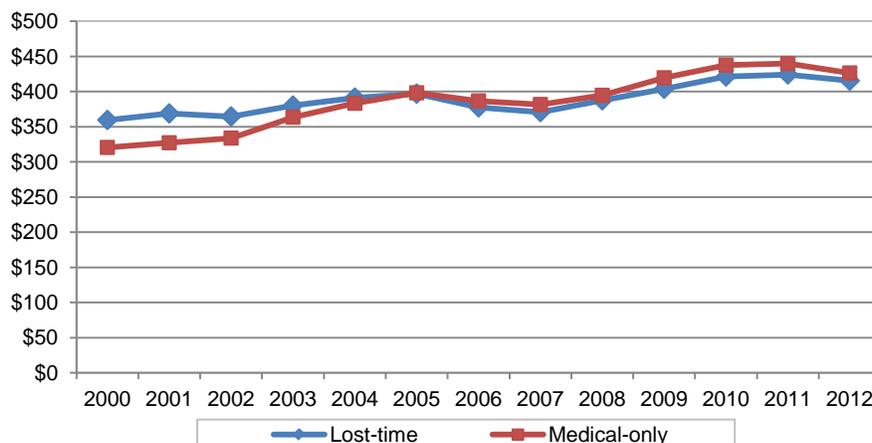


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Disability Examination – 99456

This service is billed by an examining physician who is not the treating physician. Total cost is almost six times larger than the service by treating physicians (CPT/HCPCS 99455). But the average cost and the cost trend are similar for both codes.

Figure 3.7: Average Cost per Service – Disability Examination (99456), by Injury Year at 12 Months Post Injury

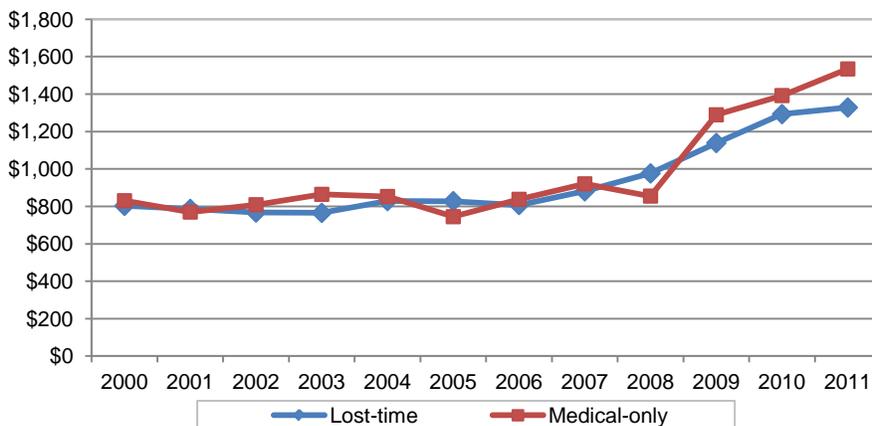


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Lumbar Spine Fusion – 22612

Surgery services in general require longer maturity due to their nature of service, and Figure 3.8 shows average costs at the 24-month maturity. There was a steep increase in price per service provided to medical-only patients in 2009. The increase in the prices coincides with changes in the 2008 professional services fee guideline.

Figure 3.8: Average Cost per Service – Lumbar Spine Fusion (22612), by Injury Year at 24 Months Post Injury

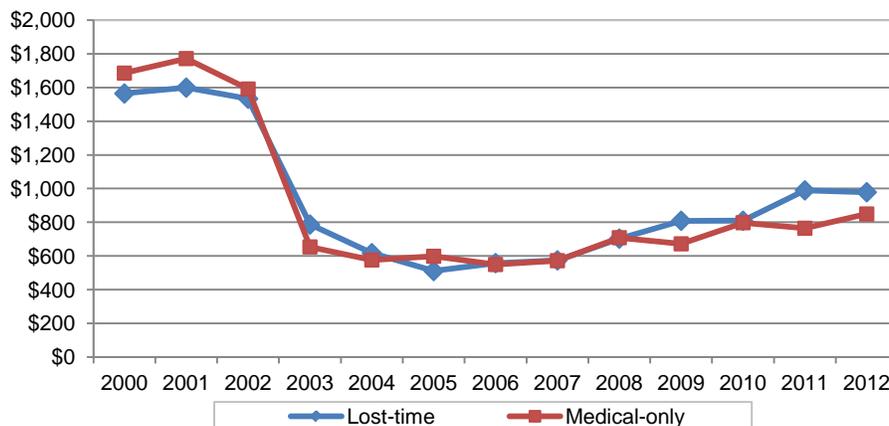


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Low Back Disc Surgery – 63030

Unlike the above spinal fusion, the average cost of low back disc surgery services decreased because of the changes in the 2003 medical fee guideline. While Figure 3.9 is for the 12-month maturity, data for the 24-month maturity is very similar, indicating that these services are provided in the first year.

Figure 3.9: Average Cost per Service – Low Back Disc Surgery (63030), by Injury Year at 12 Months Post Injury

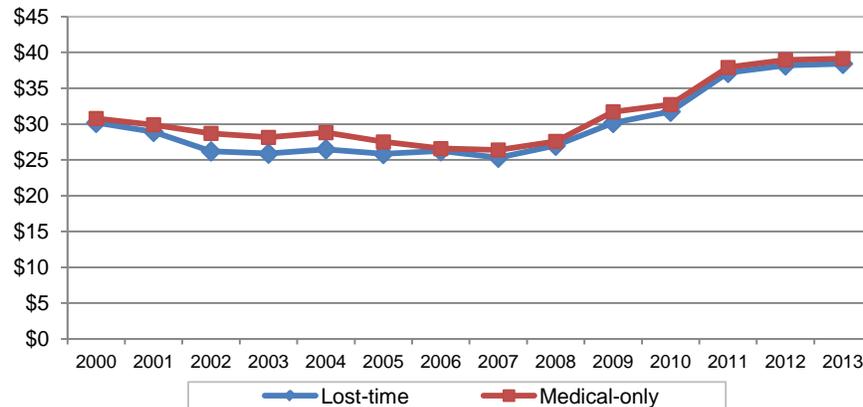


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Therapeutic Exercises – 97110

This physical medicine service is the most common and costly service code. Figure 3.10 shows an average cost per 15-minute session, which fluctuated around \$30 per session, with a minor decrease around 2007 and a steady increase since 2008. It indicates that the substantial decrease in total costs for physical medicine was more due to changes in utilization than to changes in the unit price.

Figure 3.10: Average Cost per Service – Therapeutic Exercises (97110), by Injury Year at Six Months Post Injury

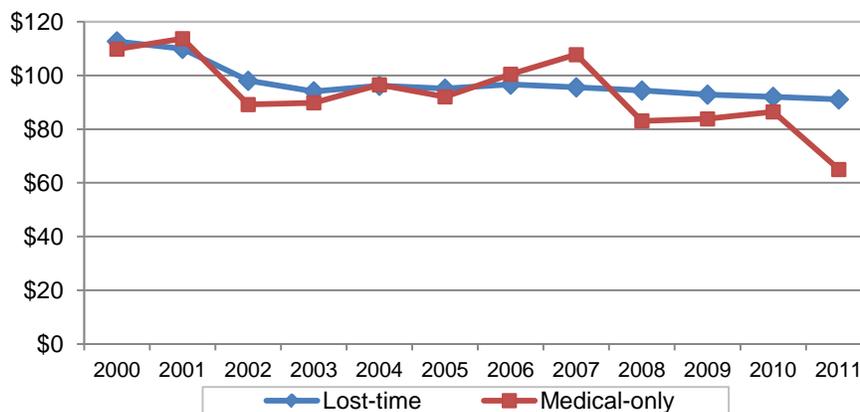


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Chronic Pain Management/Rehabilitation Service – 97799

This service is used to bill for ‘unlisted physical medicine service,’ including diverse services with different prices. Figure 3.11 shows only those for chronic pain management, distinguished by the chronic pain (CP) modifier in the bill. The average price per service showed a long-term decrease.

Figure 3.11: Average Cost per Service – Chronic Pain Management/Rehabilitation Service (97799 with Modifier ‘CP’), by Injury Year at 24 Months Post Injury

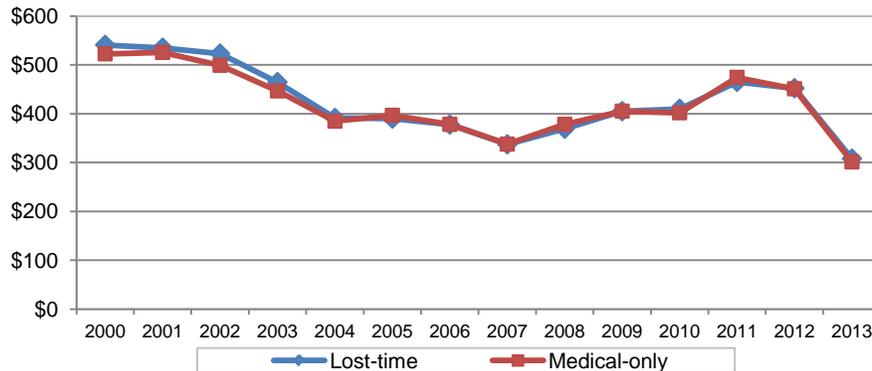


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

MRI – 73721

This service is one of the three MRI services in the top 20 services. The effect of the 2003 professional services fee guideline on diagnostic services was negative while the 2008 fee schedule appears to have increased the reimbursement rate. It decreased noticeably in 2013.

Figure 3.12: Average Cost per Service – MRI Joint of Lower Extremity without Dye (73721), by Injury Year at Six Months Post Injury

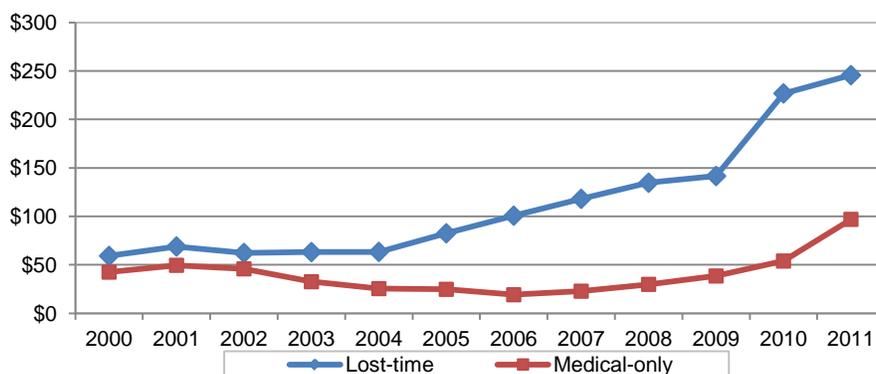


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Durable Medical Equipment, Miscellaneous – E1399

Ranked 25th in total payments among all service codes, E1399 is the most costly DME code. It is used for miscellaneous charges for supplies (\$32.8 million total for 2005–2013). Because this code is a catch-all category, apparent price increases may be due to a changing mix of supplies toward higher-cost items. The increase in the average cost was accompanied by a significant decrease in the number of claims receiving this service, from 8,536 in 2005 to 2,887 in 2011 injury year for lost-time claims, and from 11,668 to 1,581 for medical-only claims during the same period.

Figure 3.13: Average Cost per Service – Durable Medical Equipment, Miscellaneous (E1399), by Injury Year at 24 Months Post Injury



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

4. Cost and Utilization for Hospital/Institutional Services

Hospital/institutional services include hospital inpatient and outpatient services, services in skilled nursing facilities, home health care, and other services provided at special facilities. However, about 90 percent of the bills are associated with hospital services. The majority of hospital bills (about 70 percent) are for services provided within the first six months from the injury date. Services at ASC are included in the professional service dataset and discussed in Section 3.

Hospital outpatient services were reimbursed on a fair and reasonable basis until DWC adopted a new hospital fee guideline, effective from March 2008. Billing and reimbursements for inpatient services were based on the 1997 fee guideline that specified different methods depending on the types of hospital and service. The new 2008 guideline standardized reimbursement methods using the Medicare model. In general, reimbursement rates were 200 percent of Medicare for outpatient services and 143 percent of Medicare for inpatient services.

Total Cost and Utilization for Hospital/Institutional Services

Slightly less than a third of all claims that received health care benefits had one or more hospital/institutional service bills (see Table 4.1). This share was highest in 2003 at 33 percent and decreased since then to 29 percent in 2013.

Table 4.1: Number and Share of Claims That Received Hospital/Institutional Services

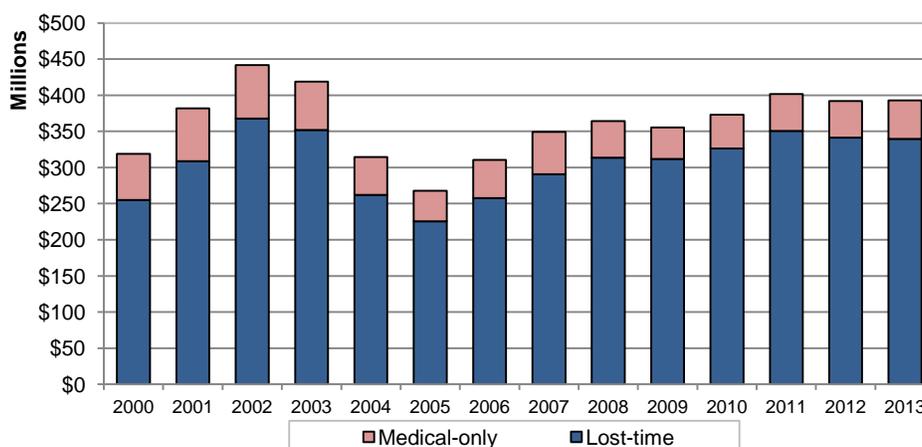
Service Year	Claims - Medical Combined	Claims - Hospital/Institutional*	Hospital/Institutional Claim Share	Lost-time Claims	Medical-only Claims
2000	430,133	132,032	30.7%	62,317	69,765
2001	429,373	135,397	31.5%	65,735	69,706
2002	434,629	142,662	32.8%	73,904	68,792
2003	398,411	131,909	33.1%	69,331	62,599
2004	357,624	111,197	31.1%	57,514	53,698
2005	382,291	98,651	25.8%	47,346	51,326
2006	380,694	108,571	28.5%	50,076	58,517
2007	381,229	112,430	29.5%	50,743	61,713
2008	371,311	108,971	29.3%	50,808	58,181
2009	340,565	98,717	29.0%	48,256	50,471
2010	336,125	100,290	29.8%	48,602	51,693
2011	334,298	102,723	30.7%	48,714	54,020
2012	330,820	97,833	29.6%	46,307	51,536
2013	318,676	92,575	29.0%	42,588	49,995

*: Total counts include a few claims that cannot be classified as either lost time or medical only.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014

Figure 4.1 presents a cumulative graph of total hospital costs by service year summing lost-time and medical-only claims costs. In terms of claim type, lost-time claims accounted for between 45 percent and 50 percent in the number of claims, but they accounted for over 85 percent of the total cost in each service year. Medical-only claims, even when utilizing hospital or institutional services, used relatively low-cost services. After the 2002 peak of \$442 million, the total cost decreased substantially to \$268 million in 2005 and increased to about \$350 million in 2007 with a slight increase to \$393 million in 2013. Because the cost share of lost-time claims is so dominant, some tables and figures in this section will only consider lost-time claims.

Figure 4.1: Total Cost, by Service Year by Claim Type, Hospital/Institutional Services



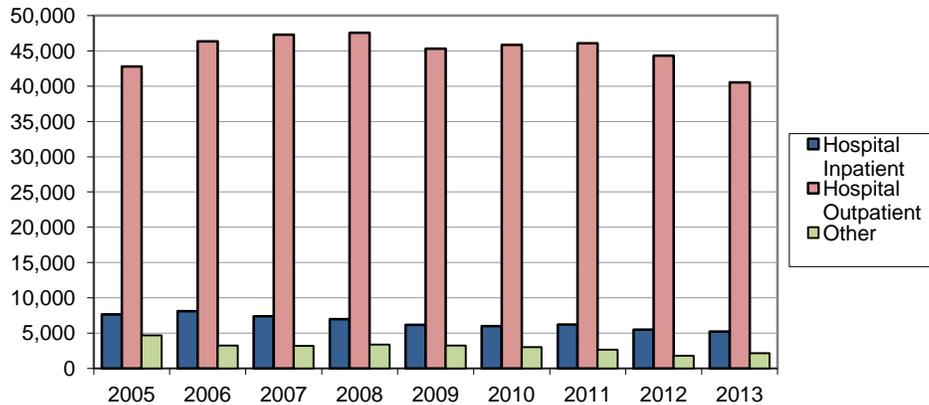
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Hospital/Institutional Costs by Facility Type

Facility codes in the hospital billing data separate bills by the type of institution (hospital or skilled nursing facility) and by the nature of service location (inpatient or outpatient). This analysis focuses on the post-EDI period due to the availability of more reliable facility codes in the EDI 837 data.

Most claims received hospital outpatient services (see Figure 4.2). The data may be duplicative since one claim could receive several types of services and be counted multiple times. But out of about 43,000 unique lost-time claims in 2013, less than 7,500 claims used services other than hospital outpatient services. Hospital outpatient claims represented 90 percent of all claims in 2005, which increased to 98 percent in 2013. The share of claims receiving hospital inpatient services decreased from 16 percent to 13 percent in the same period.

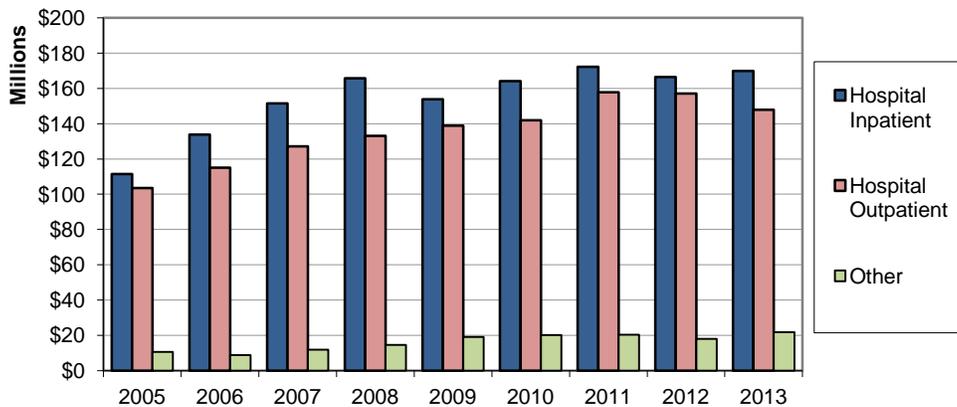
Figure 4.2: Number of Claims, by Facility Type, Hospital/Institutional Services, Lost-time Claims



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

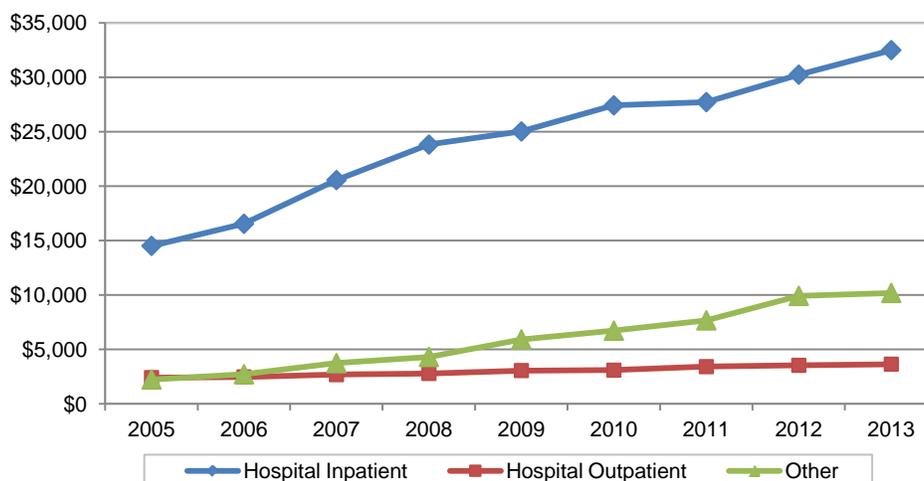
Despite the fact that hospital outpatient services are the most commonly used services, total cost for hospital inpatient services is slightly greater than that for hospital outpatient services, 50 percent vs. 44 percent of the total, respectively, in 2013 (see Figure 4.3).

Figure 4.3: Total Cost, by Facility Type, Hospital/Institutional Services, Lost-time Claims



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

The average cost per claim was much higher for hospital inpatient services, and it increased much faster than outpatient or other facility services (see Figure 4.4). But its growth rate was slightly lower from 2009 to 2011 after a new hospital fee guideline went into effect. The most recent service year data indicates that the hospital cost continued to grow faster than the professional cost.

Figure 4.4: Cost per Claim, by Facility Type, Hospital/Institutional Services, Lost-time Claims

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Hospital/Institutional Costs by Injury Year

While costs by injury year show only partial pictures of the total costs by disregarding old and legacy claims, they may be more informative if the primary concern is for new injuries. Total cost for medical-only claims increased substantially in 2013 (see Table 4.2). Total costs for new injuries at 12-month and 24-month maturities all decreased since 2000 for medical-only claims. Costs for lost-time claims increased for all maturities.

Table 4.2: Total Hospital/Institutional Cost (Thousand Dollars), by Injury Year at 6, 12, and 24 Months Post Injury

Injury Year	Lost-time Claims			Medical-only Claims		
	6 Months	12 Months	24 Months	6 Months	12 Months	24 Months
2000	\$120,698	\$165,704	\$226,355	\$43,568	\$50,635	\$58,675
2001	\$145,486	\$200,634	\$262,493	\$50,317	\$57,715	\$64,435
2002	\$158,462	\$212,738	\$262,730	\$44,626	\$50,865	\$55,781
2003	\$155,408	\$198,164	\$228,816	\$45,372	\$49,593	\$52,523
2004	\$113,317	\$137,415	\$165,411	\$37,181	\$39,890	\$42,187
2005	\$118,094	\$144,038	\$173,444	\$36,103	\$38,754	\$40,867
2006	\$146,024	\$175,128	\$204,835	\$42,998	\$45,468	\$47,664
2007	\$174,595	\$206,806	\$241,325	\$48,824	\$51,313	\$53,970
2008	\$181,512	\$219,224	\$259,685	\$41,016	\$42,721	\$44,430
2009	\$161,738	\$195,137	\$230,260	\$35,088	\$36,889	\$38,485
2010	\$177,432	\$212,023	\$246,011	\$38,725	\$40,805	\$43,038
2011	\$195,473	\$231,718	\$265,511	\$42,792	\$45,393	\$46,801
2012	\$190,664	\$224,239		\$41,408	\$43,591	
2013	\$184,653			\$47,346		

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

The number of claims decreased by more than 20 percent since 2000 for both lost-time and medical-only claims, but the decrease was slightly larger for medical-only claims (see Table 4.3). Average cost per claim increased greatly for lost-time claims: 94 percent increase since 2000 for the 6-month maturity group and 42 percent increase for the 24-month maturity group (see Table 4.4). It is difficult to calculate the per-service cost and per-claim utilization for hospital services because hospital bills are not separated by individual services. Nevertheless, the large increase in the average cost per claim indicates an increase in service fees and utilization. The increase in the average cost was greater for the 6-month maturity group than for 12-month and 24-month groups, implying that the cost increase was driven by increases in the cost of initial services.

Table 4.3: Number of Claims Receiving Hospital/Institutional Services, by Injury Year at 6, 12, and 24 Months Post Injury

Injury Year	Lost-time Claims			Medical-only Claims		
	6 Months	12 Months	24 Months	6 Months	12 Months	24 Months
2000	34,026	38,162	41,168	62,674	64,142	65,222
2001	36,147	40,793	43,517	62,513	63,924	64,757
2002	38,501	42,435	44,231	61,243	62,249	62,834
2003	35,392	38,322	39,590	56,339	57,165	57,572
2004	30,213	32,340	33,685	49,181	49,766	50,122
2005	27,547	29,701	31,006	48,344	48,942	49,281
2006	30,530	32,465	33,419	55,250	55,831	56,117
2007	32,279	34,125	35,125	58,319	58,810	59,090
2008	32,920	34,833	35,780	55,078	55,511	55,751
2009	29,827	31,460	32,275	47,609	47,949	48,187
2010	31,471	33,157	33,928	49,159	49,543	49,773
2011	31,946	33,364	34,078	51,328	51,758	51,976
2012	30,152	31,494		48,819	49,174	
2013	26,863			48,049		

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Table 4.4: Average Hospital/Institutional Cost per Claim, by Injury Year at 6, 12, and 24 Months Post Injury

Injury Year	Lost-time Claims			Medical-only Claims		
	6 Months	12 Months	24 Months	6 Months	12 Months	24 Months
2000	\$3,547	\$4,342	\$5,498	\$695	\$789	\$900
2001	\$4,025	\$4,918	\$6,032	\$805	\$903	\$995
2002	\$4,116	\$5,013	\$5,940	\$729	\$817	\$888
2003	\$4,391	\$5,171	\$5,780	\$805	\$868	\$912
2004	\$3,751	\$4,249	\$4,911	\$756	\$802	\$842
2005	\$4,287	\$4,850	\$5,594	\$747	\$792	\$829
2006	\$4,783	\$5,394	\$6,129	\$778	\$814	\$849
2007	\$5,409	\$6,060	\$6,870	\$837	\$873	\$913
2008	\$5,514	\$6,294	\$7,258	\$745	\$770	\$797
2009	\$5,423	\$6,203	\$7,134	\$737	\$769	\$799
2010	\$5,638	\$6,395	\$7,251	\$788	\$824	\$865
2011	\$6,119	\$6,945	\$7,791	\$834	\$877	\$900
2012	\$6,323	\$7,120		\$848	\$886	
2013	\$6,874			\$985		

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Professional and Hospital/Institutional Costs Combined

Data by claim type in this report will help stakeholders compare Texas numbers with other states' costs. Many reports published by other workers' compensation agencies and research organizations primarily report on claims with more than seven days of lost time. This group of claims is roughly equivalent to the lost-time claims in this report. In addition, in some reports, 'medical' costs often combine professional and hospital costs. To facilitate comparisons with these type of reports, Table 4.5 presents the number of claims, the total cost, and the average cost per claim by claim type combining professional and hospital/institutional services. Services are by injury year with 12 months of maturity.

For example, *CompScope Medical Benchmarks* from the Workers' Compensation Research Institute (WCRI) showed that, for 2012/2013 claims, Texas' average cost was \$9,847 for claims with greater than seven days of lost time and \$1,036 for claims with seven days or less of lost time, combining professional and hospital costs. These compare closely with \$10,140 and \$1,057 for 2012 injury year in Table 4.5. The small differences may be due to different definitions for the injury year and maturity and different treatments for extreme values, outliers, and cases with missing data. Also, our results are based on all bills in the workers' compensation system instead of samples used by WCRI. In terms of the number of claims, the share of 'greater than seven days of lost time' claims in the WCRI report was 24 percent of all claims while it was also 24 percent for the lost-time claims in Table 4.5.

Table 4.5: Number of Claims, Total and Average Costs, Professional and Hospital/Institutional Services Combined, by Injury Year at 12 Months Post Injury

Injury Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Cost (Thousand Dollars)	Average Cost per Claim	Number of Claims	Total Cost (Thousand Dollars)	Average Cost per Claim
2000	74,057	\$537,192	\$7,254	214,020	\$180,862	\$845
2001	73,544	\$616,667	\$8,385	206,364	\$190,540	\$923
2002	71,376	\$650,072	\$9,108	198,471	\$176,151	\$888
2003	63,603	\$564,874	\$8,881	181,190	\$165,451	\$913
2004	61,822	\$455,437	\$7,367	168,010	\$144,407	\$860
2005	58,653	\$459,270	\$7,830	176,999	\$152,521	\$862
2006	58,055	\$452,360	\$7,792	186,549	\$159,123	\$853
2007	58,820	\$478,726	\$8,139	192,715	\$166,697	\$865
2008	59,862	\$521,507	\$8,712	185,581	\$155,007	\$835
2009	55,393	\$493,018	\$8,900	164,361	\$147,629	\$898
2010	57,931	\$532,474	\$9,192	168,305	\$158,898	\$944
2011	57,655	\$579,324	\$10,048	171,924	\$181,007	\$1,053
2012	55,248	\$560,202	\$10,140	172,393	\$182,288	\$1,057

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

5. Cost and Utilization for Dental Services

Payments for dental services in the Texas workers' compensation system accounted for about 0.4 percent of the total health care cost in 2013 (as discussed in Table 2.3). The majority of the dental cost was for medical-only claims, but the average cost per claim for lost-time claims was about twice that for the medical-only claims. This ratio is relatively low compared to the pattern found in professional or pharmacy costs where lost-time claims have overwhelmingly dominant costs.

Table 5.1: Number of Claims, Total and Average Costs per Claim for Dental Services, by Claim Type

Service Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Cost	Cost per Claim	Number of Claims	Total Cost	Cost per Claim
2005	199	\$300,654	\$1,511	423	\$478,164	\$1,130
2006	280	\$613,709	\$2,192	602	\$895,479	\$1,488
2007	388	\$1,029,484	\$2,653	844	\$1,511,325	\$1,791
2008	411	\$1,183,064	\$2,879	943	\$2,127,643	\$2,256
2009	359	\$1,444,990	\$4,025	913	\$1,938,855	\$2,124
2010	417	\$1,797,071	\$4,310	975	\$2,169,427	\$2,225
2011	407	\$1,757,129	\$4,317	1,006	\$2,489,931	\$2,475
2012	441	\$1,551,031	\$3,517	1,009	\$2,836,622	\$2,811
2013	434	\$1,845,410	\$4,252	1,070	\$2,669,076	\$2,494

Note: Since the collection of dental billing data began in 2005, the table indicates that 2005 and 2006 data may be incomplete.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

The top 10 most billed dental procedures are shown in Table 5.2. They accounted for 50 percent of the total dental cost during the nine year period. Most common services were implant, crown, and root canal procedures.

Table 5.2: Top 10 Dental Services, by Total Cost (2005–2013 Cumulative Totals)

Rank	HCPCS	Number of Claims	Total Cost	Procedure Description
1	D6010	796	\$3,367,856	Surgical placement of implant body: endosteal implant
2	D3310	1,941	\$2,105,268	Endodontic therapy, anterior tooth (excluding final restoration)
3	D2750	1,211	\$2,043,159	Crown-porcelain fused to high noble metal
4	D2740	1,191	\$1,884,574	Crown-porcelain/ceramic substrate
5	D6750	551	\$1,136,094	Crown-porcelain fused to high noble metal
6	D6240	622	\$946,020	Pontic-porcelain fused to high noble metal
7	D2751	462	\$801,886	Crown-porcelain fused to predominantly base metal
8	D9999	1,095	\$676,055	Unspecified adjunctive procedure, by report
9	D2950	1,882	\$618,096	Core build-up, including any pins
10	D7210	1,242	\$600,332	Surgical removal of erupted tooth requiring elevation of mucoperiosteal flap and removal of bone and/or section of tooth

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Total dental payments are broken down by hospital referral region (HRR) in Table 5.3 shown in a descending order of the average cost per claim. HRRs are developed by the *Dartmouth Atlas of Health Care* project. In Texas, there are 24 HRRs constructed using Medicare hospitalization records and patient referral patterns. Two HRRs are removed from our analysis: ‘Texarkana’ and ‘Shreveport’ HRRs that are primarily located in Arkansas and Louisiana, respectively. Texas HRRs also roughly correspond to major metropolitan areas. For this analysis, patients’ HRRs are assigned based on injured employees’ home ZIP codes since facility ZIP codes are incomplete in the data.

The largest five metro areas (Houston, Dallas, Fort Worth, San Antonio, and Austin) accounted for 70 percent of the claims and 74 percent of the total payments, which is along the lines of the shares observed in the overall medical data. The geographical distribution for the dental claims and services are similar to those of other types of medical services.

Table 5.3: Number of Claims and Cost per Claim (2005–2013 Cumulative Totals), by HRR, Dental Services

HRR	Number of Claims	Total Cost	Cost per Claim
Odessa	199	\$842,530	\$4,234
Longview	77	\$309,924	\$4,025
Houston	2,077	\$7,555,792	\$3,638
Bryan	88	\$313,605	\$3,564
Fort Worth	959	\$3,411,222	\$3,557
Victoria	72	\$242,865	\$3,373
Dallas	1,580	\$5,184,796	\$3,282
San Antonio	944	\$2,952,722	\$3,128
McAllen	126	\$366,269	\$2,907
Lubbock	237	\$687,340	\$2,900
Austin	522	\$1,432,025	\$2,743
Beaumont	172	\$470,616	\$2,736
Tyler	235	\$638,634	\$2,718
Abilene	148	\$402,119	\$2,717
Temple	161	\$430,714	\$2,675
Wichita Falls	85	\$204,215	\$2,403
Harlingen	134	\$307,929	\$2,298
San Angelo	68	\$153,871	\$2,263
El Paso	231	\$495,660	\$2,146
Corpus Christi	221	\$468,988	\$2,122
Waco	142	\$277,654	\$1,955
Amarillo	256	\$479,918	\$1,875
Total	8,734	\$27,629,409	\$3,163
Sum of 5 Metro HRRs	6,082	\$20,536,557	\$3,377
Share of 5 Metro HRRs	69.6%	74.3%	

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Note: Five metropolitan areas are Austin, Dallas, Fort Worth, Houston, and San Antonio.

6. Cost and Utilization for Pharmacy Services

This section reports the total and average cost for pharmacy benefits from 2005 to 2013. These costs are further analyzed by the brand/generic status, the “N” drug status, and the maturity, which reflect major changes in the pharmacy benefit rules.

Pharmacy benefits in the Texas workers’ compensation system are based on the rules contained in the Texas Administrative Code, Chapter 134, Subchapter F. These rules cover commonly used definitions, initial pharmaceutical coverage, prescribing of generics and over-the-counter drugs in addition to brand name drugs, a pharmacy fee guideline, open and closed formularies, rules pertaining to the transition to a closed formulary from an open formulary, and other pharmaceutical provisions. Changes in these rules are one of the most significant factors that affect the trends in pharmacy cost and utilization. For more information about pharmacy benefits, see the information page at www.tdi.texas.gov/wc/pharmacy/index.html.

The pharmaceutical services guideline and the pharmacy fee guideline, first adopted in 2002, apply to the dispensing and reimbursement of prescription drugs and nonprescription drugs or over-the-counter medications for outpatient use in the Texas workers' compensation system. Doctors are required to consider generic equivalents or over-the-counter alternatives whenever clinically appropriate. The reimbursement rate is based on the Average Wholesale Price (AWP) with a multiplier (currently 1.25 for generic drugs and 1.09 for brand name drugs). Injured employees are entitled to receive clinically necessary pharmacy benefits for the first seven days after the injury regardless of the claim’s liability or compensability status since the insurance carriers may be reimbursed for these payments from the Subsequent Injury Fund (SIF).

DWC began implementing a closed formulary guideline in September 2011. For injuries on or after September 1, 2011, pharmacy benefits are subject to the closed formulary that requires preauthorization for drugs identified with a status of “N” in the current edition of the *Official Disability Guidelines Treatment in Workers' Comp, Appendix A – ODG Workers' Compensation Drug Formulary*, or any compound that contains a "N" status drug, and any investigational or experimental drug. As of October 2014, there are 164 entities on the “N” list. Legacy claims—claims occurred prior to September 1, 2011—became subject to the closed formulary beginning on September 1, 2013.

Utilization of Pharmacy Services by Claim Type

About 47 percent of all claims received at least one pharmacy service in 2013. Claims were about equally represented by lost-time and medical-only types (see Table 6.1). Lost-time claims decreased by 23 percent since 2005, and medical-only claims decreased by 14 percent in the same period.

Table 6.1: Number of Claims and Shares, by Claim Type, Pharmacy Services

Service Year	All Medical, Number of Claims	Pharmacy Lost-time Claims		Pharmacy Medical-only Claims	
		Number of Claims	Share in All Medical	Number of Claims	Share in All Medical
2005	382,291	96,780	25.3%	80,441	21.0%
2006	380,694	94,190	24.7%	84,705	22.3%
2007	381,229	93,638	24.6%	91,386	24.0%
2008	371,311	93,213	25.1%	88,821	23.9%
2009	340,565	89,071	26.2%	77,794	22.8%
2010	336,125	89,002	26.5%	75,167	22.4%
2011	334,298	86,658	25.9%	73,282	21.9%
2012	330,820	81,833	24.7%	71,516	21.6%
2013	318,676	74,520	23.4%	68,828	21.6%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Total and Average Costs by Claim Type

Although there was about an equal number of lost-time and medical-only claims, costs were dominated by lost-time claims at \$105 million in 2013, accounting for 87 percent of the total pharmacy cost (see Table 6.2). Accordingly, the average pharmacy cost per claim for lost-time claims was about seven times greater than the average cost for medical-only claims.

Table 6.2: Total and Average Costs per Claim, by Claim Type, Pharmacy Services

Service Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Cost (Thousand Dollars)	Cost per Claim	Number of Claims	Total Cost (Thousand Dollars)	Cost per Claim
2005	96,780	\$117,412	\$1,214	80,441	\$21,650	\$269
2006	94,190	\$121,851	\$1,301	84,705	\$22,478	\$266
2007	93,638	\$124,106	\$1,326	91,386	\$22,998	\$252
2008	93,213	\$131,152	\$1,407	88,821	\$20,859	\$235
2009	89,071	\$133,165	\$1,495	77,794	\$23,218	\$299
2010	89,002	\$134,683	\$1,513	75,167	\$18,308	\$244
2011	86,658	\$130,217	\$1,503	73,282	\$16,229	\$221
2012	81,833	\$119,872	\$1,466	71,516	\$15,359	\$215
2013	74,520	\$105,341	\$1,425	68,828	\$15,461	\$230

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Pharmacy Cost and Utilization by Maturity Group

Lost-time claims received pharmacy benefits for a longer period than medical-only claims. In each service year, we can separate all services into distinct maturity groups depending on how long each claim has been receiving WC benefits. Table 6.3 shows that, in 2013, 63 percent of the total cost was for claims that were in their 4th or later year (37 months or more) after their injury dates. These 'legacy' claims accounted for 15 percent of all claims while most claims

were in their first year of treatment (see Table 6.4). The relatively large share of the first-year maturity group was mainly due to the large number of short-term, medical-only claims in this group. The average cost per claim increased greatly with increases in maturity (see Table 6.5).

Table 6.3: Total Cost, by Maturity Group, Pharmacy Services (Thousand Dollars)

Service Year	First Year Maturity	Second Year Maturity	Third Year Maturity	4+ Years Maturity
2005	\$27,389	\$13,590	\$11,540	\$86,543
2006	\$27,734	\$14,075	\$10,528	\$91,993
2007	\$31,388	\$13,508	\$10,325	\$91,884
2008	\$32,466	\$14,050	\$10,252	\$95,242
2009	\$33,673	\$15,946	\$11,056	\$95,707
2010	\$32,698	\$15,690	\$10,789	\$93,815
2011	\$30,648	\$14,027	\$10,312	\$91,458
2012	\$27,316	\$13,539	\$9,486	\$84,891
2013	\$25,170	\$11,442	\$8,583	\$75,607

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Table 6.4: Number of Claims, by Maturity Group, Pharmacy Services

Service Year	First Year Maturity	Second Year Maturity	Third Year Maturity	4+ Years Maturity
2005	121,883	20,933	13,096	37,463
2006	125,969	20,027	11,821	36,442
2007	136,208	18,372	10,360	34,337
2008	133,811	18,731	10,179	32,991
2009	120,510	18,729	10,222	31,388
2010	121,938	16,580	9,348	29,067
2011	121,974	14,985	8,035	26,956
2012	117,930	14,502	7,301	24,951
2013	110,139	13,391	6,834	23,206

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Table 6.5: Average Pharmacy Cost per Claim, by Maturity Group

Service Year	First Year Maturity	Second Year Maturity	Third Year Maturity	4+ Years Maturity
2005	\$225	\$649	\$881	\$2,310
2006	\$220	\$703	\$891	\$2,524
2007	\$230	\$735	\$997	\$2,676
2008	\$243	\$750	\$1,007	\$2,887
2009	\$279	\$851	\$1,082	\$3,049
2010	\$268	\$946	\$1,154	\$3,228
2011	\$251	\$936	\$1,283	\$3,393
2012	\$232	\$934	\$1,299	\$3,402
2013	\$229	\$854	\$1,256	\$3,258

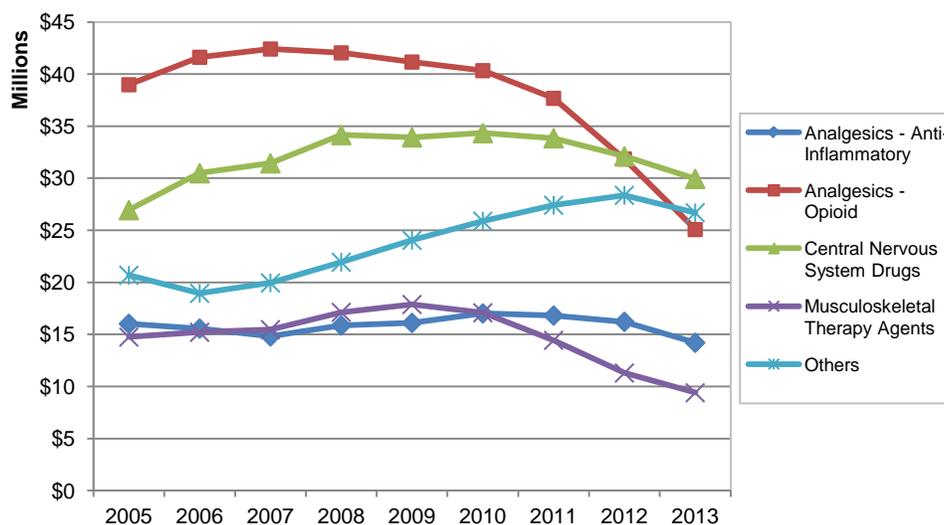
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Pharmacy Cost and Utilization by Drug Group

Drugs are classified into five major groups: Analgesics – Anti-Inflammatory including the so-called NSAIDs, Analgesics – Opioid, Central Nervous System (CNS) Drugs, Musculoskeletal Therapy Agents, and all others in ‘Others’ group. The CNS drug group comprises anti-anxiety agents, anti-depressants, hypnotics, and anticonvulsants. Although we grouped anticonvulsants with the CNS drugs following the Therapeutic Classification System used by Medi-Span, they may be clinically classified with musculoskeletal therapy agents. Anticonvulsants—mainly Gabapentin, Lyrica, Topamax, and Neurontin—account for about half of the total cost within the CNS drug group. In the ‘Others’ group are all remaining drugs including dermatologicals, pharmaceutical chemicals and adjuvants, ulcer drugs, and corticosteroids.

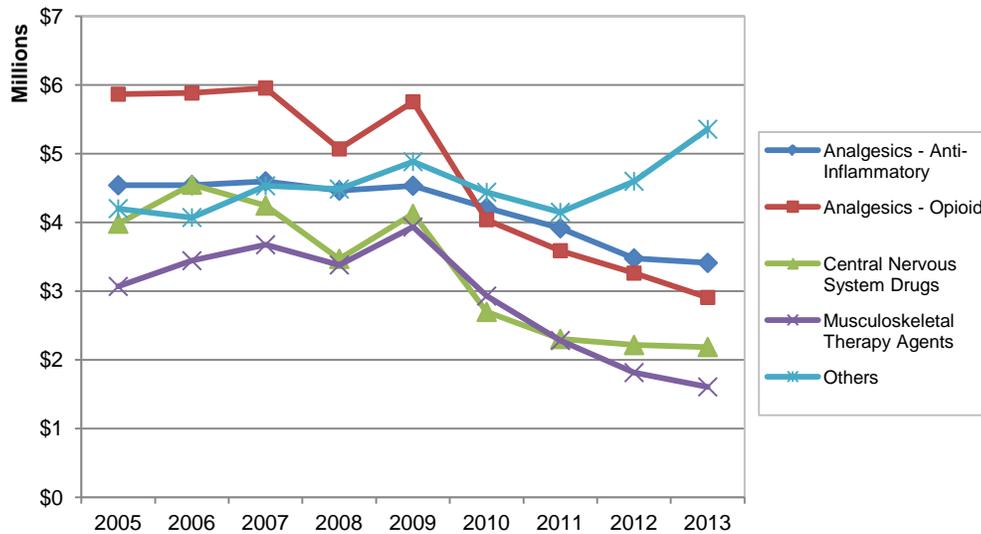
The four named drug groups accounted for 74 percent of the total pharmacy costs for lost-time claims, and 65 percent of medical-only claims costs in 2013 (see Figures 6.1 and 6.2). Among lost-time claims, total costs of Analgesics – Opioid and Musculoskeletal Therapy Agents groups decreased since 2007 while the Others category drugs showed a significant increase. Although relatively small, the total costs for medical-only claims increased in all groups until 2007, and then decreased significantly since then, with the exception of the Others group. New injuries are dominant in medical-only claims, and the decrease since 2008 may have been related to medical fee and treatment guidelines and/or new pharmacy benefit rules such as the pharmacy closed formulary.

Figure 6.1: Total Pharmacy Cost, by Service Year by Drug Group, Lost-time Claims



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

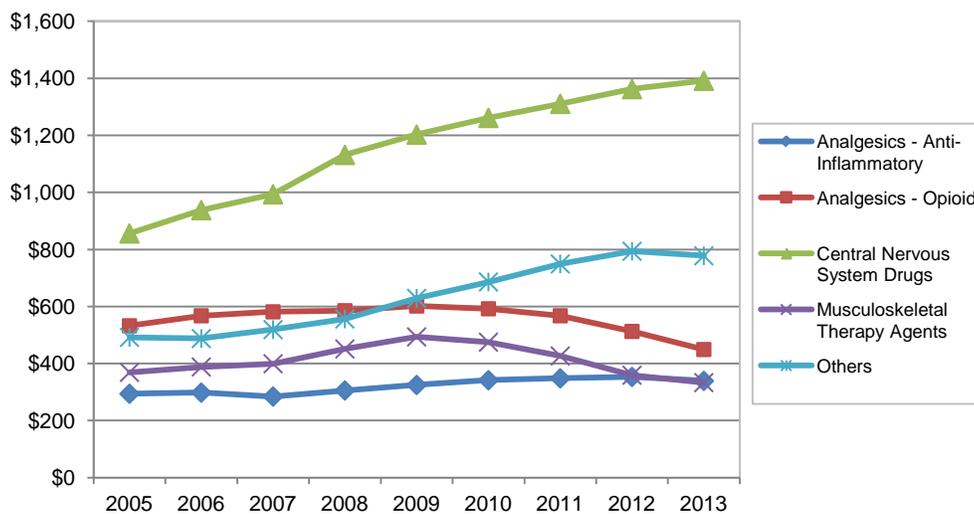
Figure 6.2: Total Pharmacy Cost, by Service Year by Drug Group, Medical-only Claims



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

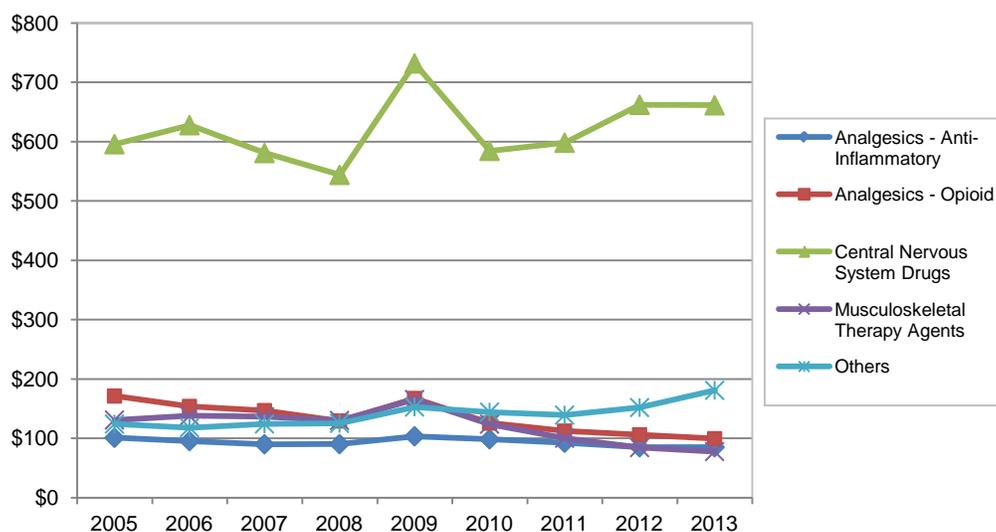
The average pharmacy cost per claim was highest for CNS drugs for both lost-time and medical-only claims as shown in Figures 6.3 and 6.4. It increased at a consistently high rate since 2005; although, the average cost for medical-only claims increased at a slower rate. The average cost per claim for the Others group increased moderately, while average costs for Analgesics and Musculoskeletal Therapy Agents remained relatively stable. The share of claims receiving certain drugs was the lowest for CNS drugs for both claim types (see Table 6.6).

Figure 6.3: Average Pharmacy Cost per Claim, by Service Year by Drug Group, Lost-time Claims



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Figure 6.4: Average Pharmacy Cost per Claim, by Service Year by Drug Group, Medical-only Claims



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Table 6.6: Percent of Claims Receiving Certain Drug Groups, by Service Year

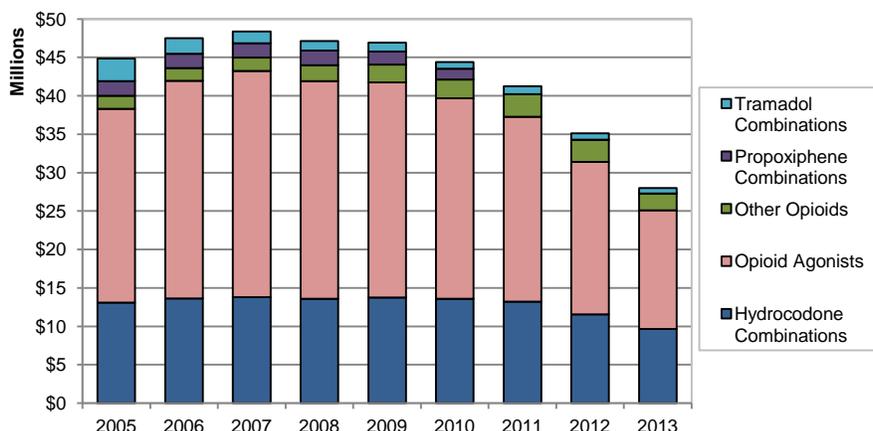
Drug Group	2005	2006	2007	2008	2009	2010	2011	2012	2013
Lost-time Claims									
Analgesics - Anti- Inflammatory	56.30%	55.44%	55.62%	55.67%	55.69%	56.00%	55.74%	56.10%	56.19%
Analgesics - Opioid	75.64%	77.85%	77.89%	77.05%	76.79%	76.53%	76.59%	75.92%	74.90%
Central Nervous System Drugs	32.52%	34.50%	33.79%	32.38%	31.68%	30.58%	29.80%	28.81%	28.88%
Musculoskeletal Therapy Agents	41.31%	41.62%	41.37%	40.73%	40.68%	40.41%	39.06%	38.45%	37.88%
Others	43.46%	41.24%	41.05%	42.31%	42.94%	42.38%	42.22%	43.67%	46.05%
Medical-only Claims									
Analgesics - Anti- Inflammatory	55.90%	56.24%	55.89%	55.69%	56.31%	56.93%	57.62%	57.17%	58.24%
Analgesics - Opioid	42.57%	45.14%	44.39%	44.15%	44.21%	42.76%	43.61%	43.00%	42.49%
Central Nervous System Drugs	8.31%	8.55%	8.00%	7.18%	7.24%	6.14%	5.26%	4.68%	4.80%
Musculoskeletal Therapy Agents	29.13%	29.46%	29.47%	29.23%	30.57%	31.44%	31.09%	30.04%	30.00%
Others	42.09%	40.71%	39.92%	40.33%	41.09%	40.92%	40.64%	42.32%	43.01%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

While CNS drugs had the highest average cost per claim, Analgesics – Opioid group drugs were the most costly in terms of total cost until 2011. Because of the rapidly increasing per-claim cost and a decreasing use of opioids, CNS drugs surpassed the use of opioid drugs in total cost.

The Analgesics – Opioid drug group can be further classified into five subclasses to analyze trends in utilization and costs within the opioid group. Among these subclasses, the ‘opioid agonists’ subclass accounted for about 55 percent of total opioid drug costs in 2013, followed by the ‘hydrocodone combinations’ subclass (see Figure 6.5).

Figure 6.5: Costs of Opioids, by Service Year by Drug Subclass



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of maturity, pharmacy services serve more long-term claims than professional or hospital services. To explore differences by maturity, we compared services within the first three years (36 months) after injuries with services for older injuries with more than three years maturity—often called “legacy claims.” Tables 6.7–6.9 present total cost, average cost per prescription, and average cost per claim by drug group broken down by maturity. These tables are totals of lost-time and medical-only claims, but there are more medical-only claims in the ‘0 to 3 Years’ maturity group. For legacy claims, the Analgesics – Opioid group was the most costly drug group in terms of total cost until 2011 before the closed formulary (see Table 6.7). For claims with up to three years maturity, opioids were also the most costly drugs until 2009, but Analgesics – Anti-inflammatory and Others drug groups were most costly in 2013.

Table 6.7: Total Cost by Service Year, by Drug Group by Maturity (Thousand Dollars)

Maturity	Drug Group	2005	2006	2007	2008	2009	2010	2011	2012	2013
0 to 3 Years	Analgesics - Anti-Inflammatory	\$11,682	\$11,251	\$11,414	\$12,144	\$12,658	\$13,340	\$12,794	\$11,811	\$10,011
	Analgesics - Opioid	\$13,144	\$13,117	\$13,895	\$13,611	\$13,792	\$12,629	\$11,644	\$9,970	\$7,734
	Central Nervous System Drugs	\$8,374	\$9,413	\$9,982	\$10,178	\$10,425	\$10,070	\$9,799	\$9,319	\$8,465
	Musculoskeletal Therapy Agents	\$8,411	\$8,643	\$9,300	\$10,207	\$11,587	\$10,530	\$8,436	\$6,436	\$5,189
	Others	\$10,908	\$9,913	\$10,631	\$10,628	\$12,214	\$12,608	\$12,314	\$12,805	\$13,795
More than 3 Years	Analgesics - Anti-Inflammatory	\$8,886	\$8,857	\$8,004	\$8,184	\$7,994	\$7,897	\$7,941	\$7,881	\$7,607
	Analgesics - Opioid	\$31,708	\$34,390	\$34,476	\$33,505	\$33,127	\$31,747	\$29,624	\$25,148	\$20,253
	Central Nervous System Drugs	\$22,554	\$25,623	\$25,703	\$27,448	\$27,637	\$26,969	\$26,353	\$25,018	\$23,666
	Musculoskeletal Therapy Agents	\$9,413	\$10,014	\$9,848	\$10,305	\$10,232	\$9,485	\$8,290	\$6,682	\$5,826
	Others	\$13,982	\$13,109	\$13,853	\$15,799	\$16,718	\$17,717	\$19,249	\$20,161	\$18,256

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

The average cost per prescription for the legacy claims was highest for the Analgesics – Opioid group since 2005, but by 2010, per-prescription cost of Others and CNS drugs were higher than that of the Analgesics – Opioid group (see Table 6.8). Among the ‘0 to 3 Years’ maturity group, CNS drugs were the most costly per prescription in all years. The high and increasing average cost of the Others drug group may be in part due to the inclusion of compounded drugs in the category.

Table 6.8: Average Cost per Prescription by Service Year, by Drug Group by Maturity

Maturity	Drug Group	2005	2006	2007	2008	2009	2010	2011	2012	2013
0 to 3 Years	Analgesics - Anti-Inflammatory	\$64	\$59	\$58	\$62	\$70	\$73	\$70	\$69	\$64
	Analgesics - Opioid	\$43	\$42	\$45	\$44	\$46	\$43	\$41	\$40	\$36
	Central Nervous System Drugs	\$82	\$87	\$98	\$104	\$108	\$108	\$112	\$125	\$136
	Musculoskeletal Therapy Agents	\$64	\$64	\$68	\$76	\$89	\$83	\$71	\$61	\$55
	Others	\$57	\$45	\$46	\$56	\$77	\$84	\$82	\$83	\$96
More than 3 Years	Analgesics - Anti-Inflammatory	\$100	\$97	\$99	\$102	\$109	\$115	\$121	\$133	\$139
	Analgesics - Opioid	\$122	\$129	\$140	\$138	\$138	\$138	\$137	\$132	\$121
	Central Nervous System Drugs	\$109	\$113	\$121	\$131	\$136	\$140	\$146	\$160	\$178
	Musculoskeletal Therapy Agents	\$85	\$87	\$94	\$101	\$106	\$106	\$100	\$95	\$94
	Others	\$93	\$75	\$90	\$110	\$140	\$152	\$161	\$173	\$179

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of the average cost per claim, CNS drugs were also the costliest (see Table 6.9). Cost increases were greater for legacy claims than for new injury claims. Per-claim cost for CNS drugs among legacy claims grew by 61 percent since 2005, Others drug group by 88 percent, and Analgesics – Anti-inflammatory drugs by 60 percent.

Table 6.9: Average Cost per Claim by Service Year, by Drug Group by Maturity

Maturity	Drug Group	2005	2006	2007	2008	2009	2010	2011	2012	2013
0 to 3 Years	Analgesics - Anti-Inflammatory	\$144	\$132	\$129	\$139	\$158	\$168	\$162	\$158	\$147
	Analgesics - Opioid	\$162	\$154	\$157	\$156	\$172	\$159	\$147	\$133	\$115
	Central Nervous System Drugs	\$403	\$436	\$468	\$505	\$561	\$578	\$598	\$640	\$639
	Musculoskeletal Therapy Agents	\$177	\$178	\$183	\$204	\$246	\$221	\$184	\$149	\$130
	Others	\$179	\$167	\$173	\$171	\$212	\$221	\$221	\$231	\$259
More than 3 Years	Analgesics - Anti-Inflammatory	\$488	\$530	\$520	\$575	\$602	\$660	\$722	\$765	\$781
	Analgesics - Opioid	\$1,108	\$1,206	\$1,278	\$1,309	\$1,360	\$1,401	\$1,414	\$1,304	\$1,126
	Central Nervous System Drugs	\$1,197	\$1,313	\$1,361	\$1,566	\$1,694	\$1,751	\$1,845	\$1,895	\$1,927
	Musculoskeletal Therapy Agents	\$547	\$599	\$618	\$702	\$743	\$749	\$724	\$646	\$607
	Others	\$876	\$889	\$994	\$1,161	\$1,263	\$1,488	\$1,729	\$1,819	\$1,649

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Pharmacy Cost and Utilization by Brand/Generic Status

The pharmaceutical service guideline in 2002 required doctors to prescribe generic drugs when available and clinically appropriate. Table 6.10 shows that lost-time claims accounted for about 88 percent of the total cost in 2005 and 90 percent in 2013. Among lost-time claims, generic drugs accounted for 56 percent of the total cost. The number of claims receiving brand-name drugs decreased significantly, but per-claim and per-prescription costs increased. More generic drugs were used in 2013. However, generic drug prescriptions were far more numerous, and their unit price per prescription was typically about a quarter of a brand drug. In terms of average cost per claim, brand-name drugs were two to four times costlier than generic drugs. Since each claim may have received both generic and brand drugs, the total cost per claim (shown earlier in Table 6.2) would be some combination of the two averages in Table 6.10.

Table 6.10: Total and Average Costs, by Generic Status by Claim Type

Service Year	Brand					Generic				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim
Lost-time Claims										
2005	\$57,576	383,869	56,698	\$150	\$1,015	\$53,521	899,939	87,930	\$59	\$609
2006	\$61,593	385,578	52,785	\$160	\$1,167	\$57,748	992,215	88,591	\$58	\$652
2007	\$61,720	349,022	49,174	\$177	\$1,255	\$59,645	968,063	88,739	\$62	\$672
2008	\$70,755	363,062	48,517	\$195	\$1,458	\$57,940	974,224	88,156	\$59	\$657
2009	\$72,292	340,326	44,894	\$212	\$1,610	\$57,919	918,244	84,119	\$63	\$689
2010	\$70,603	308,681	40,661	\$229	\$1,736	\$61,240	940,951	84,743	\$65	\$723
2011	\$64,083	256,117	34,552	\$250	\$1,855	\$62,261	944,889	83,146	\$66	\$749
2012	\$53,377	195,269	27,930	\$273	\$1,911	\$61,384	875,442	78,945	\$70	\$778
2013	\$44,248	151,436	23,811	\$292	\$1,858	\$56,422	770,661	72,132	\$73	\$782
Medical-only Claims										
2005	\$11,050	96,132	32,343	\$115	\$342	\$9,973	240,495	69,048	\$41	\$144
2006	\$11,247	92,183	30,605	\$122	\$367	\$11,016	272,154	76,202	\$40	\$145
2007	\$10,826	80,807	29,851	\$134	\$363	\$11,840	279,435	82,898	\$42	\$143
2008	\$10,244	71,612	28,663	\$143	\$357	\$10,281	248,900	80,504	\$41	\$128
2009	\$11,614	67,468	23,556	\$172	\$493	\$11,229	233,053	71,123	\$48	\$158
2010	\$8,172	46,134	18,081	\$177	\$452	\$9,777	214,261	69,822	\$46	\$140
2011	\$6,282	32,580	12,694	\$193	\$495	\$9,529	214,313	69,301	\$44	\$138
2012	\$5,018	22,589	8,474	\$222	\$592	\$9,539	207,917	68,590	\$46	\$139
2013	\$4,939	19,703	7,682	\$251	\$643	\$9,664	202,767	66,208	\$48	\$146

Note: Rx = prescription.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

The number of claims receiving brand name drugs decreased substantially in both new and legacy groups (see Table 6.11). The number of claims receiving generic drugs fluctuated moderately in the 0 to 3 year maturity claim group while its cost increased. For brand drugs, an

increasing cost per prescription and a decreasing number of claims resulted in an increasing average cost per claim.

Table 6.11: Total and Average Costs, by Generic Status by Maturity

Service Year	Brand					Generic				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim
0 to 3 Years										
2005	\$23,209	213,441	65,085	\$109	\$357	\$25,879	634,032	126,369	\$41	\$205
2006	\$23,898	204,447	60,306	\$117	\$396	\$26,956	706,056	133,850	\$38	\$201
2007	\$24,648	188,705	58,097	\$131	\$424	\$29,123	727,626	142,131	\$40	\$205
2008	\$27,348	192,603	57,682	\$142	\$474	\$28,587	712,035	140,414	\$40	\$204
2009	\$28,734	178,228	50,414	\$161	\$570	\$30,478	667,249	128,404	\$46	\$237
2010	\$25,759	151,177	42,510	\$170	\$606	\$32,377	678,979	129,606	\$48	\$250
2011	\$20,666	114,567	32,937	\$180	\$627	\$33,373	692,532	129,316	\$48	\$258
2012	\$15,585	78,214	23,655	\$199	\$659	\$33,210	656,513	125,909	\$51	\$264
2013	\$13,169	60,846	20,239	\$216	\$651	\$30,120	589,140	117,899	\$51	\$255
More than 3 Years										
2005	\$45,416	266,560	25,914	\$170	\$1,753	\$37,616	506,402	33,546	\$74	\$1,121
2006	\$48,942	273,314	24,641	\$179	\$1,986	\$41,808	558,313	33,666	\$75	\$1,242
2007	\$47,898	241,124	22,317	\$199	\$2,146	\$42,362	519,872	31,923	\$81	\$1,327
2008	\$53,651	242,067	20,808	\$222	\$2,578	\$39,634	511,085	30,454	\$78	\$1,301
2009	\$55,172	229,566	19,259	\$240	\$2,865	\$38,670	484,048	28,984	\$80	\$1,334
2010	\$53,016	203,638	17,308	\$260	\$3,063	\$38,640	476,232	27,002	\$81	\$1,431
2011	\$49,699	174,127	15,275	\$285	\$3,254	\$38,415	466,612	25,133	\$82	\$1,528
2012	\$42,810	139,643	13,532	\$307	\$3,164	\$37,713	426,821	23,362	\$88	\$1,614
2013	\$36,017	110,292	11,850	\$327	\$3,039	\$35,966	384,260	22,048	\$94	\$1,631

Note: Rx = prescription.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of pharmacy utilization, the average number of prescriptions increased for generic drugs (see Table 6.12). For legacy claims, the average number of generic prescriptions per claim increased by 15 percent since 2005 while brand drugs decreased by 10 percent. For generic drugs, the primary reason for the increase in the drug cost per claim was the increase in utilization while the increase in brand drug cost per claim was largely due to increases in the average cost per prescription.

Table 6.12: Average Number of Prescriptions per Claim, by Generic Status by Maturity

Maturity	Drug Type	2005	2006	2007	2008	2009	2010	2011	2012	2013
0 to 3 Years	Brand	3.3	3.4	3.2	3.3	3.5	3.6	3.5	3.3	3.0
	Generic	5.0	5.3	5.1	5.1	5.2	5.2	5.4	5.2	5.0
More than 3 Years	Brand	10.3	11.1	10.8	11.6	11.9	11.8	11.4	10.3	9.3
	Generic	15.1	16.6	16.3	16.8	16.7	17.6	18.6	18.3	17.4

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Overall, the use of generic drugs in lieu of brand name drugs is indicated by the increasing share of generics in the total cost and utilization. Table 6.13 shows that the share of generic drugs increased in terms of the number of prescription for both new and legacy claims. However, in terms of total cost, the share of generic drugs decreased slightly until 2008 for both new and legacy claims, mainly because of the lower cost of generic drugs. Since 2008, shares of generic drugs increased in the number of prescriptions and the total cost.

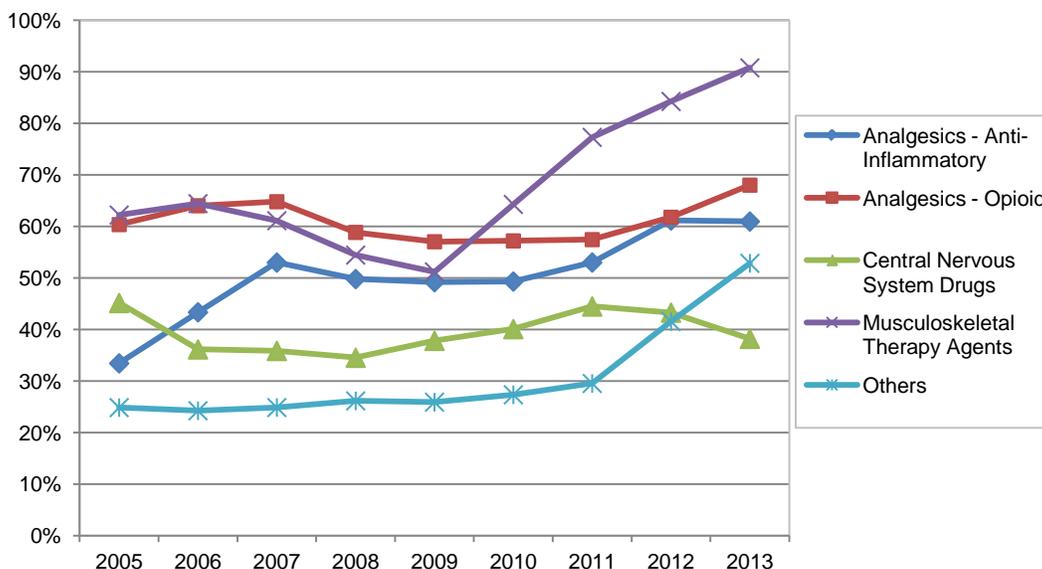
Table 6.13: Shares of Generic Drugs, by Service Year by Maturity

Maturity	2005	2006	2007	2008	2009	2010	2011	2012	2013
By Number of Prescription									
0 to 3 Years	74.9%	77.7%	79.4%	78.7%	79.0%	81.8%	85.9%	89.4%	90.6%
More than 3 Years	65.6%	67.3%	68.3%	67.8%	67.9%	70.1%	72.8%	75.4%	77.7%
By Total Cost									
0 to 3 Years	52.8%	53.1%	54.2%	51.1%	51.6%	55.7%	61.8%	68.1%	69.5%
More than 3 Years	45.4%	46.2%	46.9%	42.4%	41.4%	42.2%	43.6%	46.8%	49.9%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of drug group, the Musculoskeletal Therapy Agents drug group had the highest rate of generic substitution in 2013 at 91 percent, after increasing rapidly since 2010 (see Figure 6.6). The Analgesics – Opioid drug group maintained about a 60 percent generic substitution rate since 2005 but the rate increased since 2010. Other drug groups generally showed a slight increasing trend in generic substitution since 2010 except CNS drugs.

Figure 6.6: Generic Drug's Share in Total Cost, by Service Year by Drug Group



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

Pharmacy Cost and Utilization by N-drug Status

The pharmacy closed formulary that went into effect on September 1, 2011, and updated monthly, currently contains approximately 164 chemical entities with ‘N’ drug status which requires preauthorization. Hundred of these have generic equivalents, and 37 of them are opioids and related entities. Claims with injury dates on or after September 1, 2011, are subject to the closed formulary, and under a transitional rule, all claims in the Texas workers’ compensation system are subject to the closed formulary regardless of the injury date beginning September 1, 2013. The pharmacy closed formulary affected only new injuries in the last four months of 2011 and all new claims since 2012. N-drug data in this report is not sufficient to evaluate the full effect of the closed formulary on legacy claims.

About a third of those who received pharmacy services received at least one N-drug in 2005 (see Table 6.14). There were a small number of claims (about 2,000) that received solely N-drugs. N-drug uses decreased significantly since 2011 in terms of the number of prescriptions and the number of claims even though only new claims were subject to the closed formulary. N-drug usage was higher for lost-time claims at about 29 percent of the total pharmacy cost in 2011 and 13 percent in 2013. N-drug usage was significantly lower in medical-only claims, accounting for 21 percent of the total cost in 2011 and 8 percent in 2013.

Table 6.14: Total and Average Costs, by N-drug Status by Claim Type

Service Year	N-drug					Other				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim
Lost-time Claims										
2005	\$33,473	254,562	33,909	\$131	\$987	\$83,939	1,122,854	95,294	\$75	\$881
2006	\$37,798	268,413	34,126	\$141	\$1,108	\$84,054	1,194,220	92,662	\$70	\$907
2007	\$37,898	250,018	33,014	\$152	\$1,148	\$86,208	1,146,458	92,201	\$75	\$935
2008	\$39,422	246,011	32,961	\$160	\$1,196	\$91,730	1,131,133	91,653	\$81	\$1,001
2009	\$40,340	236,263	32,048	\$171	\$1,259	\$92,826	1,055,419	87,405	\$88	\$1,062
2010	\$41,388	231,551	31,530	\$179	\$1,313	\$93,295	1,046,228	87,204	\$89	\$1,070
2011	\$37,232	202,404	27,655	\$184	\$1,346	\$92,985	1,031,725	85,056	\$90	\$1,093
2012	\$25,978	135,761	18,369	\$191	\$1,414	\$93,894	973,193	80,906	\$96	\$1,161
2013	\$13,920	68,003	11,382	\$205	\$1,223	\$91,421	891,455	74,034	\$103	\$1,235
Medical-only Claims										
2005	\$4,789	44,783	10,393	\$107	\$461	\$16,860	305,510	79,062	\$55	\$213
2006	\$4,987	47,131	11,550	\$106	\$432	\$17,491	326,866	82,904	\$54	\$211
2007	\$4,789	41,387	11,423	\$116	\$419	\$18,209	332,389	89,397	\$55	\$204
2008	\$4,570	36,025	12,423	\$127	\$368	\$16,288	292,771	86,428	\$56	\$188
2009	\$5,889	39,436	12,707	\$149	\$463	\$17,329	268,136	75,579	\$65	\$229
2010	\$4,392	30,086	11,153	\$146	\$394	\$13,916	236,048	73,009	\$59	\$191
2011	\$3,434	23,828	8,967	\$144	\$383	\$12,795	228,990	71,527	\$56	\$179
2012	\$2,132	12,011	3,437	\$177	\$620	\$13,228	226,535	70,811	\$58	\$187
2013	\$1,228	6,676	2,188	\$184	\$561	\$14,234	224,898	68,403	\$63	\$208

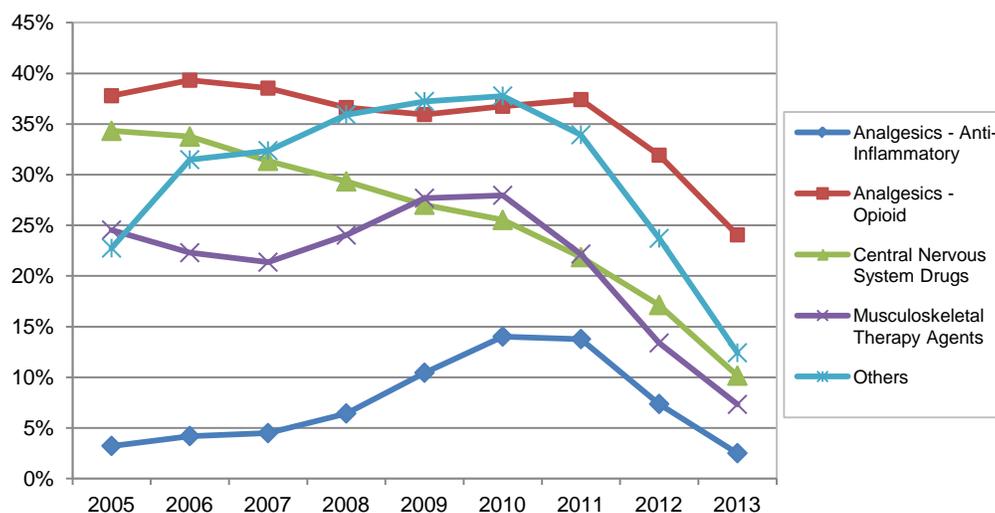
Note: Rx = prescription.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

The average cost per claim was considerably higher for lost-time claims due to their longer service duration and resultant higher utilization. Among lost-time claims, the average cost of N-drugs per claim was about 20 percent higher than that of non-N-drugs until 2012. In 2013, N-drug cost per claim was about the same as non-N-drugs. The per-prescription cost was much higher for N-drugs—more than doubles that of non-N-drugs. Among medical-only claims, the average cost of N-drugs per claim was more than twice that of non-N-drugs.

In terms of N-drug use by drug group, the share of N-drugs in the total cost was highest for the Analgesics – Opioid drug group (see Figure 6.7). Prior to 2011, this share was growing for all drug groups except CNS drugs. For CNS drugs, the share of N-drugs was decreasing even though the average cost per claim was increasing. N-drug shares decreased substantially since 2011 in all drug groups.

Figure 6.7: Share of N-drug Cost in Each Drug Group, by Service Year



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

In terms of N-drug use by maturity, we compared pharmacy services given within three years from injury (0 to 36 months of maturity) with services for more mature claims (more than 36 months of maturity) (see Table 6.15). Cost shares of N-drugs decreased substantially since 2011. The number of claims receiving N-drugs also decreased rapidly. There was not much difference in the average cost per claim between N-drugs and non-N-drugs even though N-drugs are twice as expensive as other drugs per prescription. Utilization for non-N-drugs was much higher. Among 0 to 3 years maturity group, there was a significant decrease in the number of claims, prescriptions, and costs for N-drugs in 2012, reflecting the effect of the closed formulary on new claims. 2013 data also clearly showed that the pharmacy closed formulary began to have effects on legacy claims.

Table 6.15: Total and Average Costs, by N-drug Status by Maturity

Service Year	N-drug					Other				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim
0 to 3 Years										
2005	\$8,889	106,517	27,151	\$83	\$327	\$43,631	803,085	141,158	\$54	\$309
2006	\$9,583	112,074	28,420	\$86	\$337	\$42,753	851,624	142,948	\$50	\$299
2007	\$9,505	103,444	27,966	\$92	\$340	\$45,716	868,641	150,635	\$53	\$303
2008	\$10,754	103,536	30,131	\$104	\$357	\$46,014	823,618	148,302	\$56	\$310
2009	\$12,949	106,861	30,545	\$121	\$424	\$47,726	759,445	134,677	\$63	\$354
2010	\$13,413	103,502	29,376	\$130	\$457	\$45,764	741,717	134,044	\$62	\$341
2011	\$10,807	86,089	24,624	\$126	\$439	\$44,180	735,658	132,397	\$60	\$334
2012	\$5,487	41,746	11,537	\$131	\$476	\$44,854	712,003	129,053	\$63	\$348
2013	\$1,897	15,790	5,796	\$120	\$327	\$43,298	656,299	121,219	\$66	\$357
More than 3 Years										
2005	\$29,374	192,828	18,545	\$152	\$1,584	\$57,169	625,279	36,585	\$91	\$1,563
2006	\$33,202	203,470	18,456	\$163	\$1,799	\$58,791	669,462	35,561	\$88	\$1,653
2007	\$33,183	187,961	17,545	\$177	\$1,891	\$58,701	610,206	33,560	\$96	\$1,749
2008	\$33,238	178,500	16,189	\$186	\$2,053	\$62,004	600,278	32,189	\$103	\$1,926
2009	\$33,279	168,838	15,142	\$197	\$2,198	\$62,428	564,110	30,624	\$111	\$2,039
2010	\$32,367	158,135	14,141	\$205	\$2,289	\$61,448	540,558	28,336	\$114	\$2,169
2011	\$29,860	140,142	12,742	\$213	\$2,343	\$61,598	524,996	26,289	\$117	\$2,343
2012	\$22,623	106,026	10,848	\$213	\$2,085	\$62,267	487,697	24,488	\$128	\$2,543
2013	\$13,251	58,889	8,037	\$225	\$1,649	\$62,356	460,023	22,901	\$136	\$2,723

Note: Rx = prescription.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

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7. Summary: Trends in Changing Cost Components

Medical costs, combining professional and hospital costs, in the Texas workers' compensation system increased by 30 percent between 2000 and 2002, then decreased substantially until 2007. Since 2007, costs increased moderately. With pharmacy and dental costs (data available only since 2005) included, all health care costs increased by 6 percent between 2005 and 2013 service years.

Analyzing by provider bill type, the total cost of professional services decreased by 10 percent since 2000 while the total cost of hospital services increased by 23 percent. Pharmacy cost decreased by 14 percent from 2005 to 2013. However, because the number of claims decreased by more than 20 percent, the average costs per claim increased at a greater rate: since 2000, professional average cost increased by 23 percent, and hospital cost by 76 percent, while pharmacy average cost increased by 6 percent since 2005.

Changes in the total health care cost over time are results of changes in total cost's components that include the number of claims treated, the level of utilization for health care services, and the level of prices or fees paid for such services. An increase in total cost may be due to an increase in claims, utilization, fees, or any combinations of all three.

Prices per service are adjusted periodically through changes in the medical services fee guidelines. At the same time, prices are also subject to increases in the price inflation. Many observers in the workers' compensation system note that the changes in total cost are often a result of changing level of service utilization that is affected by treatment guidelines and rules regarding preauthorization. It is also plausible that the changes in prices and utilization are negatively related so that, when price decreases, the level of utilization increases to result in the same level of total cost, or vice versa.

Data presented in this report indicates that the main factor behind the increase in the average cost per claim is the significant decrease in the number of claims treated while the price per service and the level of utilization increased. The number of claims decreased by 27 percent and 30 percent for professional and hospital services, respectively, from 2000 to 2013.

To evaluate the relative significance of cost components in the overall change, we present a summary table of cost components in Table 7.1. In addition to the number of claims, the utilization metric is further divided into the frequency and the intensity components. Prices can also be divided into changes due to inflation and changes in real prices. It should be noted that Table 7.1 is limited to professional services because professional bills are the only data set that contains sufficient information about utilization metrics.

Table 7.1 summarizes the rate of change in these components since 2000 in three distinct time periods. From 2000 to 2002, system costs generally increased rapidly. From 2002 to 2007, system costs declined equally rapidly due to various reforms implemented during the period, including new fee guidelines, preauthorization rules, and the reorganization of the regulatory agency itself from Texas Workers' Compensation Commission to Division of Workers' Compensation in the Texas Department of Insurance. The period from 2007 to 2013 represents a maturing stage of these and continuing reforms. This period showed a continuing decrease in the number of claims, a stable utilization level, and an increasing trend in fees for service.

The four columns numbered from (1) to (4) represent the four basic components of system costs: the number of claims, the service frequency (visits), the service intensity, and the service price. By multiplying these components, we get the total cost (shown in the (5) column). After dividing the total cost by the number of claims, we get the average cost per claim, that is (6) = (5) ÷ (1). Price columns (4), (5), and (6) are shown in current prices without adjustments for price inflation as column series (a) and with adjustments for inflation using MEI in column series (b).

Table 7.1: Percent Changes in Costs and Utilization in Current and Inflation-Adjusted Prices, by Claim Type, Professional Services for Selected Time Periods

Time Period	Number of Claims (1)	Number of Visits (2)	Number of Services per Visit (3)	Cost per Service		Total Cost		Cost per Claim	
				Current Price (4a)	2000 Price (4b)	Current Price (5a)	2000 Price (5b)	Current Price (6a)	2000 Price (6b)
Lost-time Claims									
2000-2002	10.8%	10.6%	13.8%	-5.3%	-11.9%	32.0%	22.9%	19.1%	10.9%
2002-2007	-25.8%	-22.9%	-13.6%	21.0%	2.1%	-40.2%	-49.6%	-19.4%	-32.0%
2007-2013	-18.2%	0.2%	4.0%	28.6%	15.8%	9.6%	-1.3%	34.0%	20.6%
2000-2013	-32.8%	-14.6%	2.2%	47.2%	4.2%	-13.6%	-38.8%	28.6%	-9.0%
Medical-only Claims									
2000-2002	-4.6%	2.9%	9.4%	-1.7%	-8.5%	5.5%	-1.7%	10.6%	3.0%
2002-2007	-8.1%	-14.3%	-10.4%	12.0%	-5.5%	-21.0%	-33.3%	-14.0%	-27.4%
2007-2013	-11.8%	2.0%	4.5%	29.3%	16.5%	21.5%	9.4%	37.8%	24.1%
2000-2013	-22.7%	-10.0%	2.4%	42.3%	0.7%	1.4%	-28.2%	31.1%	-7.2%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2014.

For lost-time claims, average cost per claim increased by 28.6 percent from 2000 to 2013 (see column 6a). Adjusted for inflation, the average cost per claim decreased by 9 percent (column 6b) since inflationary prices increased by 41 percent during the same period according to the MEI. The number of claims and the level of utilization all decreased, resulting in the overall decrease in the total cost by 13.6 percent (column 5a). If we adjust for inflation, the total cost decreased by 38.8 percent since 2000 (column 5b). The decrease in utilization was mainly through reduced service frequency while the service intensity increased slightly.

The main factor in the overall decrease in total costs was the large decline in the number of claims. Because the number of claims decreased more steeply than the level of utilization, the overall cost decreased in spite of the increase in the cost per service.

Medical-only claims showed similar trends with a higher rate of decrease in the number of claims and a lower rate of decrease in utilization. Since 2000, the total costs increased by 1.4 percent while the number of medical-only claims decreased by 22.7 percent. The price per service increased by 42.3 percent, but the increase was less than 1 percent if we adjust for inflation.



Appendix A: Measuring Service Utilization

A measurement for service utilization can be decomposed into two measures: service frequency and service intensity. Total utilization is a product of frequency and intensity. Service frequency is measured by the number of visits to a particular health care provider on a given day. Service intensity is measured by the number of services in a given visit.

Number of Visits

The number of visits is the unit of service in measuring and comparing service frequency. A unique service visit is identified by a ‘visit ID’ that is unique to the day of the visit and the doctor or provider ID. A unique visit ID accounts for a visit to a doctor’s office on a given day regardless of the number of services or bills associated with that visit whether the bill was paid by the insurance carrier or not. Since bills do not provide service time, multiple visits to a same provider on a same day are counted as one visit.

Number of Services

A visit consists of one or more services and a service is identified by a unique service code known as American Medical Association’s Current Procedural Terminology (CPT) or Medicare’s Healthcare Common Procedure Coding System (HCPCS). Each bill is considered a ‘service.’ Even though one bill is equal to one service, certain services are customarily billed in a multi-unit bill or a bundle. In these cases, the number of services is based on the days/units specified in the bill.

However, it is not a simple matter to properly count the number of services from the medical bills. Some codes such as anesthesia and injection services are billed by units like milliliters or milligrams. These service bills are treated as one unit of service due to the inconsistent nature of unit measures reported.

Physical medicine services are the one service group that requires further attention regarding service units. These services are billed according to special billing rules. Therefore in this study, these bills are adjusted to produce accurate measurements of utilization to the extent possible. This procedure is detailed in the section below.

Utilization Metrics for Physical Medicine Services

Physical medicine service bills are by far the most numerous bills, accounting for about half of all professional bills. Sixty five million service bills out of 135 million total bills from 1998 to

2011 were physical medicine services. In addition, 85 percent of these bills are charges for one unit of service. Most of these are service-based codes that are billed as one service regardless of time involved. The remaining 15 percent of the physical medicine bills were charges for multiple treatment sessions in one bill using time-based codes, usually in increments of 15 minutes, and therefore considering these bills as one service would underestimate or miscalculate the actual level of service utilization. Therefore, special attention has been given to these bills by adjusting their units of service.

Considering the above 15 percent of physical medicine services with multiple billed units, there were eight CPT codes that together accounted for 98 percent of the total cost of the multiple service bills. These are therapy exercises (97110), neuromuscular reeducation (97112), aquatic therapy/exercises (97113), manual therapy (97140), therapeutic activities (97530), work hardening (97545 and 97546), and other physical medicine procedures (97799). For these service codes, a new service utilization unit was calculated based on multiple factors including amount of charges, actual payments, units billed, and the median charge and pay amounts. In addition, work hardening and rehabilitation procedures had special billing rules that sometimes confused some billers and payers/reviewers, resulting in inconsistent units billed. The units for these codes were adjusted statistically.

Qualitative Service Intensity

Another potential dimension in the utilization measurement is the qualitative difference in service intensity. For example, some CPT/HCPCS codes are already differentiated by service intensity or qualitative differences. There are different CPT codes for office visits of different length and quality. A suitable measurement of intensity could be created as a unit of service intensity—for example by assigning one unit for 99201, two units for 99202 and so on—relative to other codes. But even this measurement is inadequate to distinguish qualitative differences among these service codes. In this study, one billed service is counted as one service utilization for all codes except for the eight physical medicine codes that are recoded.

Appendix B: Calculating Income Benefits by Service Year

Income benefits replace a portion of wages an injured employee loses because of a work-related injury or illness. There are four types of income benefits: temporary income benefits (TIBs), impairment income benefits (IIBs), supplemental income benefits (SIBs), and lifetime income benefits (LIBs).

TIBs are paid to any injured employee who loses all or some of their wages for more than seven days. TIBs end on the day one reaches the maximum medical improvement or at the end of 104

weeks from the eighth day of disability. For this reason, TIBs may be paid out over two or three service years. IIBs are paid if one has a permanent impairment from a work-related injury or illness. When the health care provider determines one has reached MMI, the health care provider will determine if there is any permanent physical damage to one's body as a result of the injury or illness, and assign an impairment rating (IR). Three weeks of IIBs are paid for each percentage of impairment. Since IIBs are paid after TIBs end, income benefits may cover several service years.

For those with an IR of 15 percent or more, SIBs are paid after IIBs if one has not returned to work because of impairment. SIBs may be paid up to 401 weeks from the date of injury. Finally, LIBs are paid for lifetime for certain severe disabilities such as loss of both feet, eyes, or hands. Detailed information about income benefits is available at the DWC's information page at www.tdi.texas.gov/wc/employee/incomeben.html.

While income benefits may cover multiple service years, only total amounts of benefit are reported to DWC. Even though the injury date, begin and end dates of benefits, and the weeks of benefits paid are also reported, previous reports analyzed income benefits using the injury year, making it difficult to compare with medical data which is in service year. Also, most recent injury year claims were not reported since income benefits had not ended.

To remedy these problems, we calculated income benefit payments by service year. Its result is presented in Table 1.1. Total benefit amounts were divided by the number of benefit weeks, and applied to weeks following the injury date. This resulted in benefits being divided into multiple service years. Then total benefits were summed by each service year.

The key issue is how to determine the number of benefit weeks. Insurance carriers report this number along with the amount of weekly benefits (compensation rates), and service begin and end dates. However, these reported data do not correspond to each other, or are extreme, in 30 percent of the claims. Some may be due to data entry errors or temporary benefit suspensions.

For those 30 percent cases, we used reported benefit weeks, calculated weeks based on compensation rates, or calculated weeks based on service dates. When two of the three measures match within a certain acceptable range, we used the matching weeks. When all three measures are different, we compared measurements of absolute difference, and selected one of the two closest measures with higher data reliability. Given the limitations in data, this resulted in best estimates of income benefits by service year and allowed us to compare with medical costs reported by service year.





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Per Chapter 405 of the *Texas Labor Code*, the Workers' Compensation Research and Evaluation Group (REG) at the Texas Department of Insurance is responsible for conducting professional studies and research on various system issues, including:

- the delivery of benefits;
 - litigation and controversy related to workers' compensation;
 - insurance rates and rate-making procedures;
 - rehabilitation and reemployment of injured employees;
 - the quality and cost of medical benefits;
 - employer participation in the workers' compensation system;
 - employment health and safety issues; and
 - other matters relevant to the cost, quality, and operational effectiveness of the workers' compensation system.
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