

HEALTH CARE COST AND UTILIZATION
IN THE TEXAS WORKERS' COMPENSATION SYSTEM
2000-2014



TEXAS DEPARTMENT OF INSURANCE
WORKERS' COMPENSATION
RESEARCH AND EVALUATION GROUP

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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 data used in this report consists of medical billing and payment data submitted by insurance carriers to the Division of Workers' Compensation, covering professional, hospital/institutional, dental, and pharmacy services, updated as of September 2015. 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

- ★ Health care costs accounted for 68 percent of the total benefits in 2014 service year in the Texas workers' compensation system. Income benefits accounted for the remaining 32 percent.
- ★ The number of claims in 2014 decreased by one percent from 2013, and by 27 percent from 2000. In 2014, 94 percent of all claims received one or more professional services; 28 percent received hospital/institutional services; and 43 percent received pharmacy services.
- ★ Total health care cost in 2014 was \$1.14 billion, slightly down from \$1.20 billion in 2013. Total professional cost decreased by 5 percent from 2013, and by 13 percent since 2000. Hospital cost in 2014 decreased by 2 percent from 2013, but increased by 26 percent since 2000. Total cost for pharmacy services decreased by 12 percent since 2013 while decreasing by 24 percent since 2005.
- ★ The average cost per claim in 2014 decreased by 4 percent from 2013 for professional services, and increased by 0.6 percent for hospital services. Average cost per claim for pharmacy services decreased by 6 percent from 2013. Since 2000, average professional and hospital costs per claim increased by 21 percent and 89 percent, respectively. Average pharmacy cost per claim decreased by 1 percent since 2005.
- ★ Adjusted for inflation, the combined total cost of professional and hospital services decreased by 31 percent from 2000 to 2014, but in current prices without inflation adjustment, 2000 and 2014 costs were about the same.
- ★ In 2014, workers' compensation health care networks treated 43 percent of the claims, and accounted for 37 percent of the total health care cost. The average cost per claim in networks was 22 percent lower than that in non-network.
- ★ 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 0.07 percent in 2014.

PROFESSIONAL COST AND UTILIZATION

- ★ Between 92 percent and 98 percent of all claims received at least one professional service in each service year.
- ★ Changes in the cost trend primarily occurred between 2002 and 2008 coinciding with the changes in the 2003 professional services fee guideline. The revised Medical Fee Guideline of 2008 resulted in increasing cost between 2008 and 2011; total cost has stabilized since 2011.
- ★ The number of medical-only claims decreased by 25 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 an overall decrease of 34 percent between 2000 and 2014.
- ★ About 76 percent of professional costs in 2014 were for lost-time claims while they accounted for 39 percent of all claims. The total cost increased between 2007 and 2011, but decreased slightly since then.
- ★ The number of visits to health care providers (providers) per claim 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. 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 share of claims receiving services from chiropractors declined from 13 percent of all claims in 2005 to 9 percent in 2014. The share of claims receiving services from physical/occupational therapists increased from 20 percent in 2005 to 24 percent in 2014. The average cost per claim for ambulatory surgical centers increased by 103 percent between 2005 and 2011, but decreased by 12 percent since 2011. The average cost for chiropractors decreased by 35 percent since 2005.
- ★ For lost-time claims, Physical Medicine was the most expensive service group 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 61 percent and 52 percent, respectively. For medical-only claims, Evaluation and Management (E/M) services were the most costly service in 2014. Costs for Physical Medicine services decreased by 39 percent for lost-time claims and by 17 percent for medical-only claims, and costs for Spinal Surgery decreased by more than 70 percent for both claim types. The share of claims receiving DMEPOS, Diagnostics/Pathology/Lab services, and IR Exam & Report services continued to increase while those for Physical Medicine and Surgery services decreased.
- ★ The top 20 services accounted for 52 percent of the total cumulative professional cost from 2005 to 2014. The price per individual service for E/M and Lumbar Spine Fusion services has increased continually since 2003. The price per service for low back disc surgery decreased substantially in 2003 but increased moderately since 2008. The average price per service for durable medical equipment services increased significantly since 2005. Most other services showed a moderately increasing price trend.

HOSPITAL/INSTITUTIONAL COST AND UTILIZATION

- ★ In 2014, 28 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. However, 93 percent of these payments were for hospital services in 2014.
- ★ The number of claims receiving hospital/institutional services decreased by 33 percent since 2000. The total cost increased by 26 percent from 2000 to 2014, but it showed a great deal of fluctuation: costs increased by 39 percent from 2000 to 2002, decreased by 38 percent from 2003 to 2005, increased by 50 percent from 2006 to 2011, and decreased by 2 percent from 2012 to 2014.
- ★ Lost-time claims accounted for about 48 percent of all claims receiving hospital/institutional services in 2014 service year, but they accounted for 87 percent of the total hospital/institutional cost.
- ★ In 2014, 95 percent of lost-time claims received hospital outpatient services while only 11 percent received inpatient services. But hospital inpatient services accounted for 49 percent of the total cost, with hospital outpatient services accounting for 44 percent.

DENTAL COST AND UTILIZATION

- ★ Dental services accounted for 0.4 percent of all health care costs in 2014 (\$4.8 million), a slight increase from 0.3 percent in 2009.
- ★ Most common dental services were implant, crown, and root canal.

PHARMACY COST AND UTILIZATION

- ★ In 2014, 43 percent of those who received health care services received pharmacy services. Since 2005, lost-time and medical-only claims receiving pharmacy services decreased by 24 percent and by 23 percent, respectively. The decrease in the number of medical-only claims was significant after 2011.
- ★ In 2014, 54 percent of claims with pharmacy services were lost-time claims, but they accounted for 87 percent of the total cost.
- ★ In 2014, 58 percent of the total pharmacy cost was for legacy claims (15 percent of all pharmacy claims) with four or more years of maturity. New injuries accounted for 25 percent of the total pharmacy cost in 2014.
- ★ For lost-time claims, the most frequently prescribed and costly drug group until 2011 was Analgesics – Opioid. After 2011, the Central Nervous System Drugs 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 2014, the 'Others' drug group was the costliest.
- ★ Generic prescriptions accounted for 48 percent of the total pharmacy cost in 2005, and it increased steadily to 66 percent in 2014.

- ★ The use of N-drugs (drugs not recommended per the *Official Disability Guidelines – Treatment in Workers' Comp (ODG)/Appendix A, ODG Workers' Compensation Drug Formulary*) decreased substantially after the implementation of the pharmacy closed formulary in 2011. In terms of total cost, N-drugs accounted for 37 percent of all pharmacy costs for lost-time claims in 2011, but decreased to 11 percent in 2014. For medical-only claims, it decreased from 34 percent in 2011 to 14 percent in 2014.
- ★ The use of physical medicine services increased by 25 percent among N-drug users between 2011 and 2013, indicating some substitution of physical medicine for N-drugs.
- ★ New estimates indicate that, in 2011, 3 percent of prescriptions and cost were associated with compounded drugs. In 2014, at least 6 percent of pharmacy prescriptions and 11 percent of the pharmacy cost were associated with compounded drugs.
- ★ The use of hydrocodone combination products decreased by 25 percent two months after they were rescheduled from Schedule III to Schedule II controlled substance in October 2014. At the same time, the per-prescription price of these products increased by 47 percent.

SUMMARY: TRENDS IN CHANGING COST COMPONENTS

- ★ For lost-time claims, the average cost per claim for professional services increased by 27 percent from 2000 to 2014. When adjusted for inflation, the average cost per claim decreased by 12 percent. The number of claims and the level of utilization all decreased significantly, resulting in the overall decrease in the total cost by 16 percent. If we adjust for inflation, the total cost decreased by 42 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 the utilization of some services.
- ★ 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 in the utilization of services 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 limits on benefit amount or duration. Because there are no limits to medical benefits and no copayments or deductibles for patients, payers as well as legislators and regulators of workers' compensation insurance coverage 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/wcreg/index.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. These data are in turn transmitted to the Texas Department of Insurance, Division of Workers' Compensation (TDI-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 the 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 TDI-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. Bills with zero payment are also excluded from the cost analysis but they are included in the utilization metrics. These zero-payment bills may be for disputed services, denied services, or payment updates.

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 TDI-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 the injury, and cumulatively account for all payments up to a set period of maturity. For example, 2014 injury year data with six months maturity will cover claims with injuries that occurred in 2014, with services rendered within six months from the date of the injury for each claim. Service dates in this report will therefore span from January 1, 2014, to June 30, 2015.

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 after 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. For the majority of services, one bill equals to one instance of service. In some services such as physical therapy, multiple 15-minute sessions may be billed as a service, for which we calculated the number of sessions billed in each bill. A more detailed discussion about utilization metrics is presented in the Appendix A.

2. OVERVIEW: TOTAL HEALTH CARE COST

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 all 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 2014 (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 and consistent in income benefits than in health care benefits.

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

Service Year	Medical Benefits	Income Benefits	Medical Benefit Share
2000	\$1,038,040	\$755,480	57.9%
2001	\$1,168,096	\$822,764	58.7%
2002	\$1,348,808	\$959,634	58.4%
2003	\$1,242,049	\$872,159	58.7%
2004	\$980,076	\$740,507	57.0%
2005	\$1,113,214	\$627,884	63.9%
2006	\$1,077,185	\$551,886	66.1%
2007	\$1,097,428	\$547,198	66.7%
2008	\$1,120,194	\$565,032	66.5%
2009	\$1,137,448	\$580,130	66.2%
2010	\$1,156,522	\$553,854	67.6%
2011	\$1,254,666	\$552,514	69.4%
2012	\$1,227,397	\$543,169	69.3%
2013	\$1,198,826	\$532,375	69.2%
2014	\$1,141,559	\$527,560	68.4%

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 an explanation of 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, 2015.

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 databases, consisting of bills for professional, hospital/institutional, dental, and pharmacy services. Since the databases are separate, some claims may have bills in some databases but not in others. When all four databases are combined, there were about 305 thousand unique claims in 2014 (see 'Medical Combined' in Table 2.2). This represents a 27 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 94 percent of the claims received at least one professional service in 2014, only 28 percent of them received hospital/institutional service, and about 43 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 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	403,280	127,244			418,817
2001	401,745	130,651			417,852
2002	409,650	137,649			422,383
2003	376,165	126,988			385,815
2004	335,906	106,447			344,611
2005	338,640	92,067	565	172,163	366,376
2006	334,915	98,729	763	171,808	362,838
2007	337,706	103,462	1,135	180,391	367,017
2008	327,889	100,062	1,318	175,584	357,149
2009	303,118	92,284	1,234	160,776	327,026
2010	304,522	94,316	1,358	160,599	324,925
2011	305,182	96,082	1,378	156,991	323,880
2012	301,985	90,719	1,410	150,465	319,999
2013	291,655	87,117	1,470	141,078	309,102
2014	287,821	85,161	1,458	132,319	304,875

Note: Figures for 'Medical Combined' do not include dental and pharmacy services prior to 2005. Numbers of claims are slightly lower than previous reports because of data updates and the removal of claims with no payments in all bills. However, these removed claims are included in utilization metrics in later sections.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Since 2000, total professional costs decreased by 13 percent while hospital costs increased by 26 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 since 2012. 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 10 percent of total medical costs, fluctuated around \$150 million, and since 2011, pharmacy costs decreased significantly because of the pharmacy closed formulary.

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

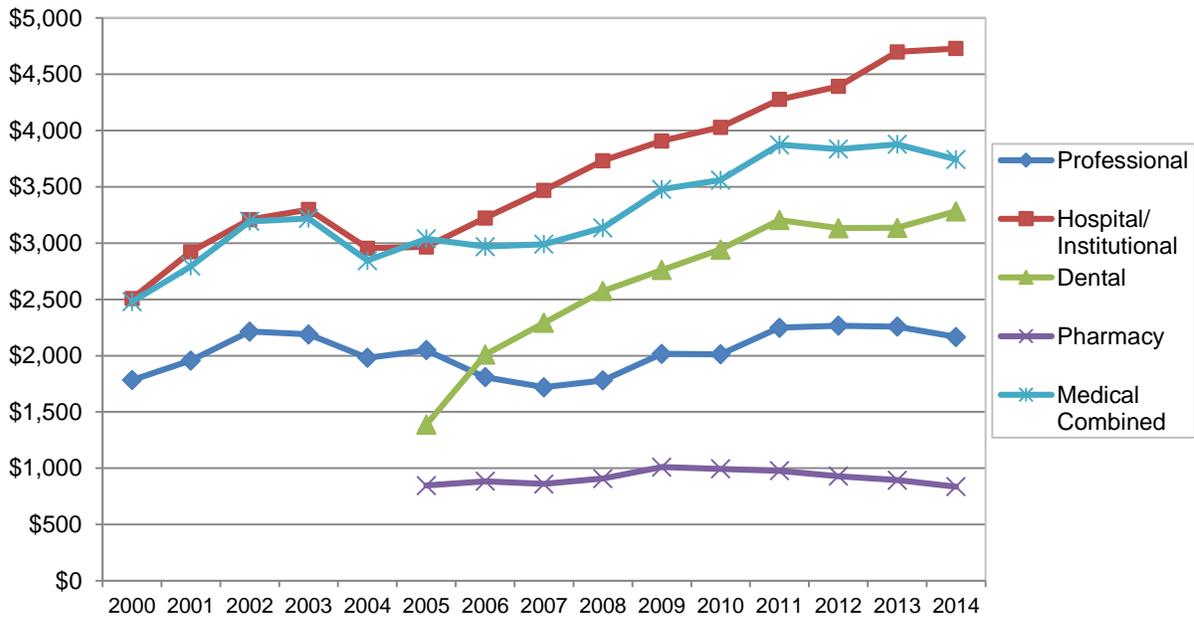
Service Year	Professional	Hospital/ Institutional	Dental	Pharmacy	Medical Combined
2000	\$719,116	\$318,924			\$1,038,040
2001	\$786,084	\$382,012			\$1,168,096
2002	\$906,988	\$441,820			\$1,348,808
2003	\$823,181	\$418,868			\$1,242,049
2004	\$665,591	\$314,486			\$980,076
2005	\$693,768	\$273,136	\$783	\$145,527	\$1,113,214
2006	\$605,501	\$318,302	\$1,533	\$151,848	\$1,077,185
2007	\$580,819	\$358,942	\$2,601	\$155,066	\$1,097,428
2008	\$583,816	\$373,464	\$3,394	\$159,521	\$1,120,194
2009	\$611,070	\$360,657	\$3,407	\$162,315	\$1,137,448
2010	\$612,901	\$379,981	\$3,998	\$159,641	\$1,156,522
2011	\$685,877	\$410,907	\$4,416	\$153,465	\$1,254,666
2012	\$684,628	\$398,475	\$4,417	\$139,877	\$1,227,397
2013	\$658,748	\$409,462	\$4,610	\$126,007	\$1,198,826
2014	\$623,510	\$402,696	\$4,786	\$110,567	\$1,141,559

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, 2015.

The average cost per claim increased by 22 percent for professional services and 89 percent for hospital services since 2000 (see Figure 2.1 and Table C1 in the [Appendix C](#)). The average cost per claim for pharmacy services increased by 18 percent by 2010, but it decreased by 15 percent from 2011 to 2014, mainly because of the new pharmacy closed formulary. Although total costs decreased or increased moderately over the past 10 years, average costs 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.

Figure 2.1: Average Cost per Claim, by Bill Type



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 2.4 to 2.6. 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 39 percent of the claims receiving professional services in 2014 were lost-time claims, but they accounted for 76 percent of the total professional costs. Lost-time claims accounted for 48 percent of hospital claims and 87 percent of hospital costs. In pharmacy, lost-time claims accounted for 54 percent of the claims and 87 percent of the pharmacy costs.

In 2014, compared to an overall average professional cost of \$2,166 in Figure 2.1, the average cost per claim was \$4,175 for lost-time claims, and \$859 for medical-only claims (see Table 2.4). Since 2000, the average cost for professional services increased by 27 percent for lost-time claims and by 30 percent for medical-only claims while total costs decreased for both types.

For hospital services, average cost increased by 104 percent for lost-time claims and by 28 percent for medical-only claims since 2000 (see Table 2.5). Total costs increased by 36 percent for lost-time claims during the period while total costs for medical-only claims decreased by 14 percent, mainly because of the decreasing number of claims in the system.

For pharmacy services, the average cost increased by 6 percent for lost-time claims while it decreased by 31 percent for medical-only claims (see Table 2.6). Total cost decreased by 19 percent and 46 percent for lost-time and medical-only claims, respectively.

Table 2.4: Total and Average Costs, by Claim Type, Professional 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
2000	172,135	\$565,979	\$3,288	231,271	\$153,137	\$662
2001	178,297	\$626,820	\$3,516	223,569	\$159,265	\$712
2002	188,522	\$742,498	\$3,939	221,243	\$164,491	\$743
2003	176,263	\$676,274	\$3,837	199,993	\$146,908	\$735
2004	156,223	\$538,989	\$3,450	179,741	\$126,601	\$704
2005	149,588	\$556,033	\$3,717	189,115	\$137,735	\$728
2006	140,897	\$470,970	\$3,343	194,101	\$134,531	\$693
2007	137,073	\$443,262	\$3,234	200,706	\$137,557	\$685
2008	134,191	\$449,924	\$3,353	193,761	\$133,892	\$691
2009	129,513	\$480,020	\$3,706	173,665	\$131,050	\$755
2010	128,662	\$480,009	\$3,731	175,904	\$132,892	\$755
2011	126,378	\$531,489	\$4,206	178,847	\$154,388	\$863
2012	123,134	\$528,156	\$4,289	178,894	\$156,472	\$875
2013	117,382	\$506,298	\$4,313	174,321	\$152,451	\$875
2014	113,425	\$473,585	\$4,175	174,443	\$149,925	\$859

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table 2.5: Total and Average Costs, by Claim Type, Hospital/Institutional 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
2000	61,101	\$257,428	\$4,213	66,188	\$61,496	\$929
2001	64,145	\$310,555	\$4,841	66,551	\$71,456	\$1,074
2002	71,995	\$369,218	\$5,128	65,692	\$72,602	\$1,105
2003	67,188	\$352,767	\$5,250	59,823	\$66,101	\$1,105
2004	55,180	\$263,063	\$4,767	51,282	\$51,423	\$1,003
2005	44,280	\$226,193	\$5,108	47,806	\$46,943	\$982
2006	46,286	\$259,159	\$5,599	52,464	\$59,143	\$1,127
2007	47,359	\$293,434	\$6,196	56,128	\$65,508	\$1,167
2008	47,323	\$316,558	\$6,689	52,755	\$56,906	\$1,079
2009	45,494	\$312,777	\$6,875	46,801	\$47,880	\$1,023
2010	46,066	\$327,363	\$7,106	48,256	\$52,619	\$1,090
2011	46,031	\$352,061	\$7,648	50,064	\$58,846	\$1,175
2012	43,753	\$346,309	\$7,915	46,974	\$52,166	\$1,111
2013	41,952	\$359,833	\$8,577	45,175	\$49,629	\$1,099
2014	40,715	\$350,015	\$8,597	44,453	\$52,681	\$1,185

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table 2.6: 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	93,751	\$118,108	\$1,260	78,446	\$27,418	\$350
2006	90,936	\$122,884	\$1,351	80,921	\$28,964	\$358
2007	91,238	\$125,524	\$1,376	89,200	\$29,542	\$331
2008	89,975	\$132,291	\$1,470	85,647	\$27,230	\$318
2009	85,991	\$133,464	\$1,552	74,818	\$28,850	\$386
2010	87,010	\$134,948	\$1,551	73,617	\$24,693	\$335
2011	85,342	\$130,749	\$1,532	71,678	\$22,717	\$317
2012	80,927	\$120,558	\$1,490	69,565	\$19,318	\$278
2013	76,124	\$107,933	\$1,418	64,983	\$18,074	\$278
2014	71,718	\$95,881	\$1,337	60,626	\$14,686	\$242

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

INFLATION ADJUSTED COST

All prices in this report are in current prices without adjustments for inflation. However, in a cost study spanning 15 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.

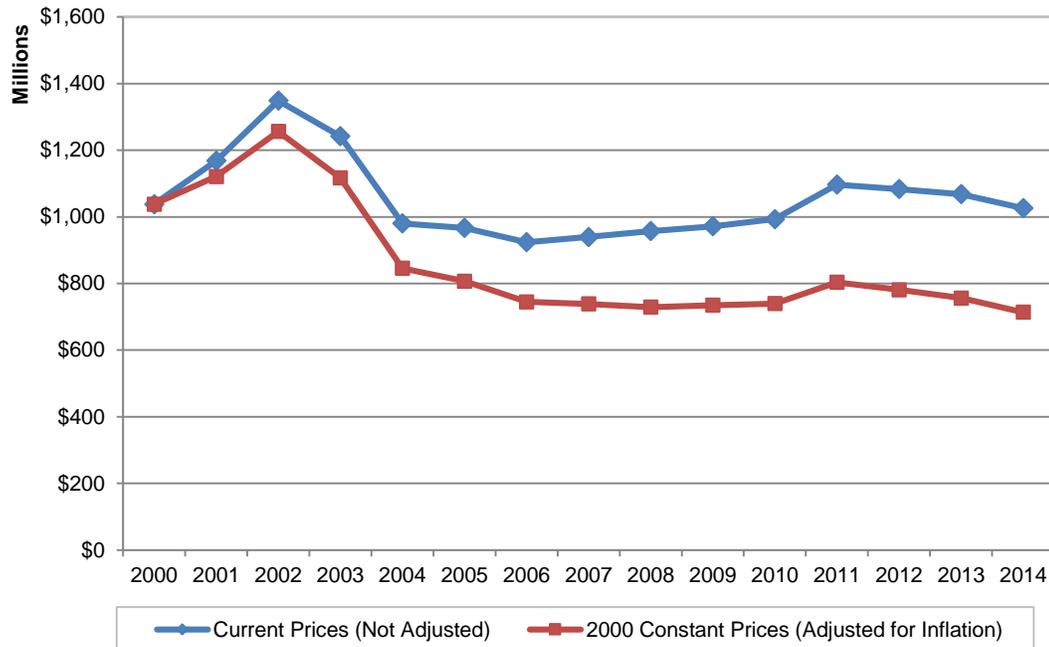
There are two indices commonly used to adjust inflationary price effects on health care costs. First, the Centers for Medicare and Medicaid Services publishes a nationwide measurement called the Medicare Economic Index (MEI) which measures the changes in the prices paid for health care inputs, and it 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 2014, MEI increased by about 2.6 percent annually (44 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 2.2 shows that the 2014 cost of professional and hospital services was about the same as in 2000 in current prices, but there was a 31 percent decrease in inflation-adjusted prices. Considering from 2005 and including pharmacy costs, total health care costs increased by 2 percent in current prices between 2005 and 2014, but decreased by 15 percent in inflation-adjusted prices.

Figure 2.2: Professional and Hospital Costs in Current and Inflation-Adjusted Prices, by Service Year



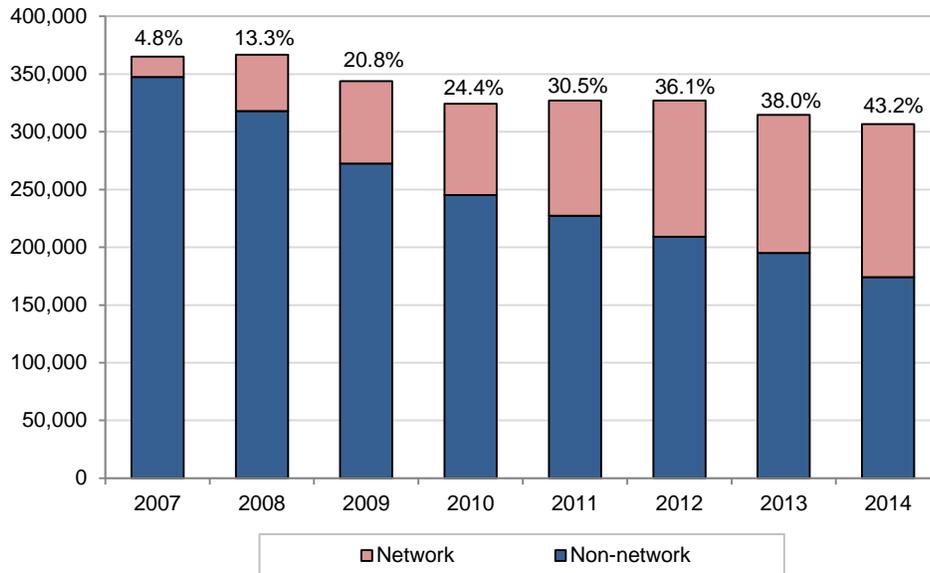
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 2014, 20 certified networks were treating injured employees.

Figure 2.3 shows the number of network and non-network claims in the combined professional, hospital, and pharmacy data. In 2014 service year, 132,655 injured employees were treated in networks, accounting for 43 percent of all injured employees. Networks' share of the total health care cost had increased since 2006 at about the same rate as their share of the total claims (see Figure 2.4). In 2014, networks accounted for 37 percent of the total medical cost.

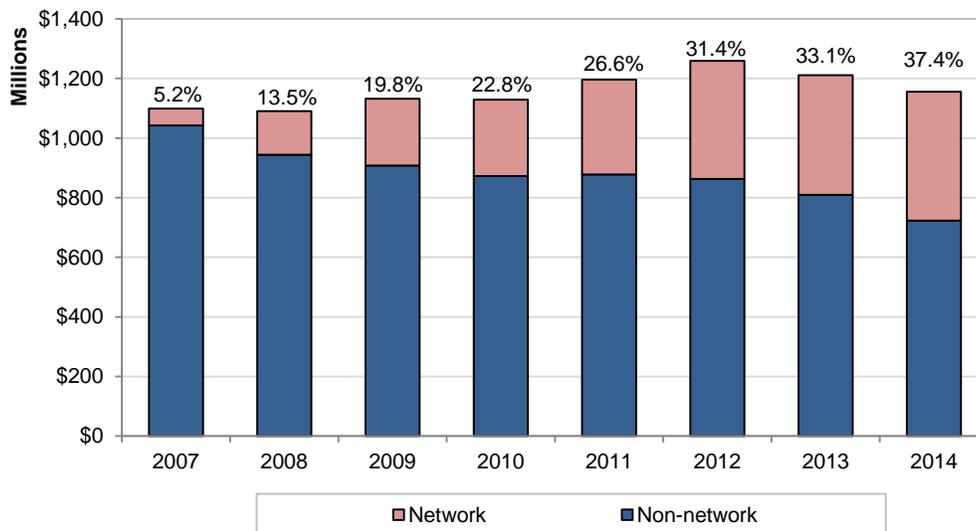
Figure 2.3: Number of Claims by Network Status, by Service Year



Note: Claims' network status were obtained through Data Calls, which cover a period from June to May. Service years are organized accordingly. For example, Service Year 2014 covers service dates from June 1, 2013 to May 31, 2014.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Figure 2.4: Total Health Care Cost by Network Status, by Service Year

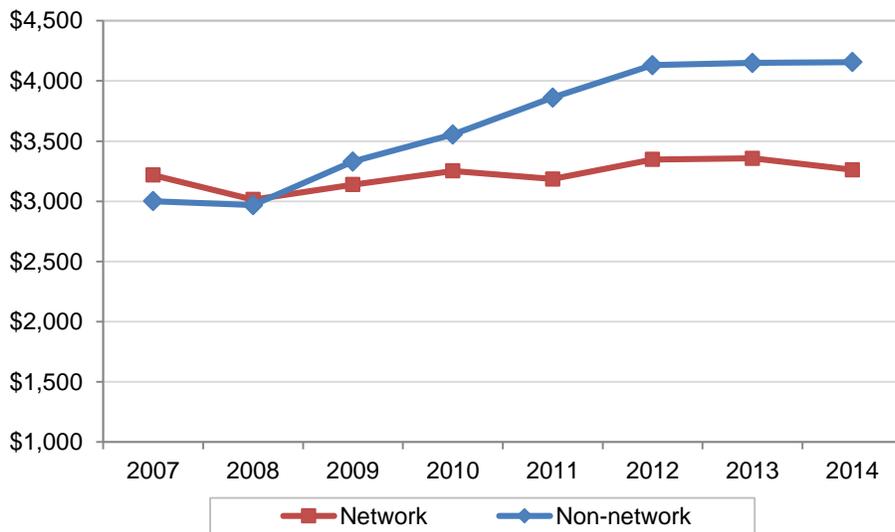


Note: Claims' network status were obtained through Data Calls, which cover a period from June to May. Service years are organized accordingly. For example, Service Year 2014 covers service dates from June 1, 2013 to May 31, 2014.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 health care cost per claim was similar to that of non-network until 2009 (see Figure 2.5). But since 2009, it remained substantially below that of non-network. In 2014, the average cost per claim in networks was 22 percent lower than 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 TDI-DWC's adopted fee guidelines.

Figure 2.5: Average Health Care Cost per Claim, by Service Year



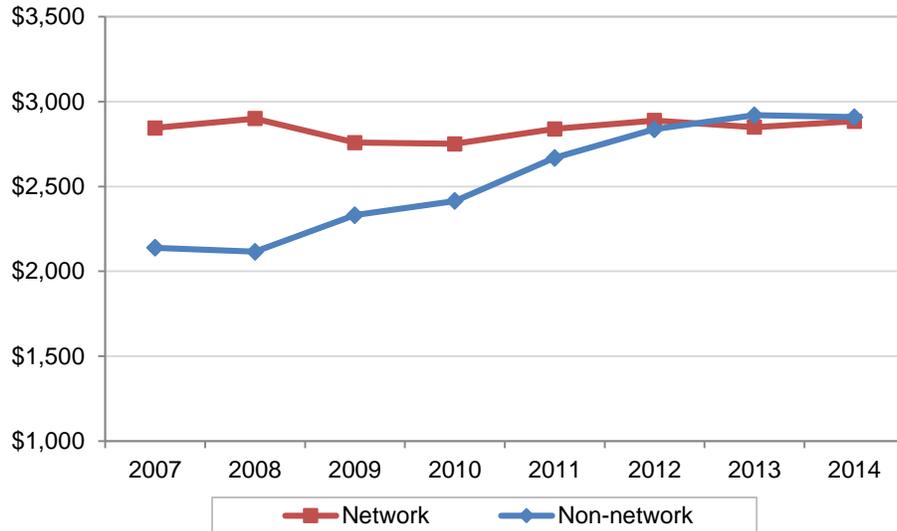
Note: Claims' network status were obtained through Data Calls, which cover a period from June to May. Service years are organized accordingly. For example, Service Year 2014 covers service dates from June 1, 2013 to May 31, 2014.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Another possible factor is networks' heightened focus on initial care, which tends to increase health care costs initially but decrease long-term costs. Figure 2.6 shows the average health care cost per claim by injury year for the first six months after an 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 for initial care stayed about the same since 2007, non-network average cost increased steadily. Despite the higher initial medical cost by injury year, per-claim cost in networks by service year (in Figure 2.5) was lower than that of non-network because of a relatively lower share of claims with long-term care costs in networks.

Figure 2.6: Average Health Care Cost per Claim, by Injury Year, Six Months after Injury



Note: Claims' network status were obtained through Data Calls, which cover a period from June to May. Injury years are organized accordingly. For example, Injury Year 2014 covers claims with injury dates from June 1, 2013 to May 31, 2014.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 2.7). This GDP share decreased from 0.14 percent in 2000 to 0.07 percent in 2014. Texas GDP grew by 125 percent since 2000 while the total WC medical cost increased by 10 percent in the same period. 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 coverage (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/wcreg/index.html). The most recent non-subscription survey in 2014 showed that 67 percent of Texas private sector employers were subscribers to the workers' compensation system and 80 percent of the employees in the private sector were employed by these subscribers.

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. More recent estimates are not available.

Table 2.7: 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	\$1,113	0.11%
2006	\$1,055,959	\$1,077	0.10%
2007	\$1,147,970	\$1,097	0.10%
2008	\$1,202,104	\$1,120	0.09%
2009	\$1,146,647	\$1,137	0.10%
2010	\$1,248,511	\$1,157	0.09%
2011	\$1,350,773	\$1,255	0.09%
2012	\$1,449,330	\$1,227	0.08%
2013	\$1,557,193	\$1,199	0.08%
2014	\$1,648,036	\$1,142	0.07%

Note: 2000–2004 health care costs are for professional and hospital costs only. Pharmacy and dental costs are added for 2005–2014.

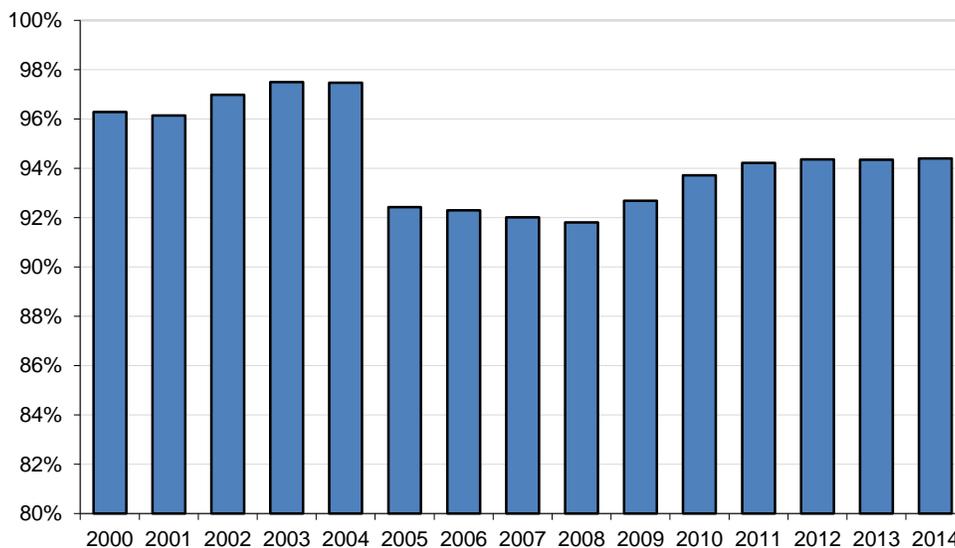
Sources: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015. Texas GDP figures in current dollars are from the Bureau of Economic Analysis, U.S. Department of Commerce.

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 TDI-DWC under the provisions of the Texas Labor Code §413.007. Insurance carriers report these data to TDI-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/wcreg/index.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, 2015.

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. Texas conversion factors are adjusted for inflation using the Medicare Economic Index (see Table 3.1). On the other hand, Centers for Medicare and Medicaid Services (CMS) adjust Medicare conversion factor annually because the relative value unit (RVU) and the geographic practice cost index (GPCI) for a service change along with practice cost, inflation, and relative values of procedures. In short, CMS's RVUs and GPICs may change significantly year by year, and their changes affect Texas fee levels independent of Texas's conversion factor. Therefore, changes in RVUs and GPICs for each service determines the service's final price in Texas. Mainly because of the increase in RVUs and GPICs, Texas' fee level for non-surgery services increased from 139 percent of Medicare in 2008 to 161 percent of Medicare in 2012, which decreased to 156 percent in 2014. For surgery services, Texas' fees were 195 percent of Medicare in 2014.

For each service, MAR is calculated by multiplying Texas conversion factors by RVU and GPCI for the service. For example, adjustments in RVUs and GPICs for office visit (service code 99213) resulted in a 36 percent increase in the Texas MAR for the Austin area in the five years from 2008 to 2014 (see Table 3.2). MARs for some services such as MRI decreased significantly as their RVU and GPCI decreased. Cost increases in 2009 and 2011 were largely due to increases in RVUs and GPICs.

Table 3.1: Changes in Medicare and Texas Fee Schedule Factors

	2008	2009	2010	2011	2012	2013	2014	Changes 2008-2014
Medicare Conversion Factor	38.09	36.07	36.87	33.98	34.04	34.02	35.82	-5.9%
Texas Conversion Factor	\$53	\$54	\$55	\$55	\$55	\$55	\$56	5.5%
Texas Conversion Factor (Surgery)	\$66	\$67	\$68	\$68	\$69	\$69	\$70	5.5%
Texas Price as a Percentage of Medicare Price	139%	149%	150%	161%	161%	163%	156%	12.2%
Texas Price as a Percentage of Medicare Price (Surgery)	174%	187%	185%	202%	202%	204%	195%	12.2%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table 3.2: Fee Schedule Comparisons for Selected Services

	2008	2009	2010	2011	2012	2013	2014	Changes 2008-2014
99213 - Office visit, established patient								
GPCIs * RVUs	1.58	1.69	1.80	2.02	2.06	2.13	2.04	28.9%
Medicare MAR	\$60	\$61	\$65	\$68	\$70	\$73	\$73	21.2%
Texas MAR	\$84	\$91	\$98	\$110	\$113	\$118	\$114	36.0%
Average Pay	\$70	\$76	\$81	\$97	\$100	\$103	\$101	45.2%
29827 - Arthroscopic surgery, shoulder/rotator cuff								
GPCIs * RVUs	28.31	28.02	28.31	31.15	31.08	31.28	30.20	6.7%
Medicare MAR	\$1,044	\$1,011	\$1,021	\$1,058	\$1,058	\$1,064	\$1,082	3.7%
Texas MAR	\$1,877	\$1,888	\$1,931	\$2,133	\$2,141	\$2,172	\$2,113	12.6%
Average Pay	\$1,228	\$1,543	\$1,633	\$1,838	\$2,036	\$2,020	\$1,913	55.8%
72100 - X-ray, lower spine								
GPCIs * RVUs	1.02	1.05	1.04	1.20	1.11	1.09	1.03	1.0%
Medicare MAR	\$39	\$38	\$38	\$41	\$38	\$37	\$37	-5.0%
Texas MAR	\$54	\$56	\$57	\$65	\$61	\$60	\$57	6.6%
Average Pay	\$38	\$41	\$42	\$50	\$47	\$46	\$45	18.6%
72148 - MRI, lumbar spine								
GPCIs * RVUs	14.87	14.44	12.62	13.72	12.76	11.29	6.92	-53.5%
Medicare MAR	\$566	\$521	\$455	\$466	\$434	\$384	\$248	-56.2%
Texas MAR	\$786	\$775	\$686	\$748	\$700	\$624	\$386	-50.9%
Average Pay	\$423	\$448	\$442	\$511	\$503	\$454	\$297	-29.8%
97110 - Therapeutic exercises								
GPCIs * RVUs	0.71	0.77	0.79	0.87	0.90	0.94	0.90	26.6%
Medicare MAR	\$27	\$28	\$28	\$29	\$31	\$32	\$32	19.1%
Texas MAR	\$38	\$42	\$43	\$47	\$49	\$52	\$50	33.6%
Average Pay	\$32	\$35	\$36	\$43	\$44	\$45	\$43	34.3%

Note: RVU = relative value unit. GPCI = geographic practice cost index. MAR = maximum allowable reimbursement.

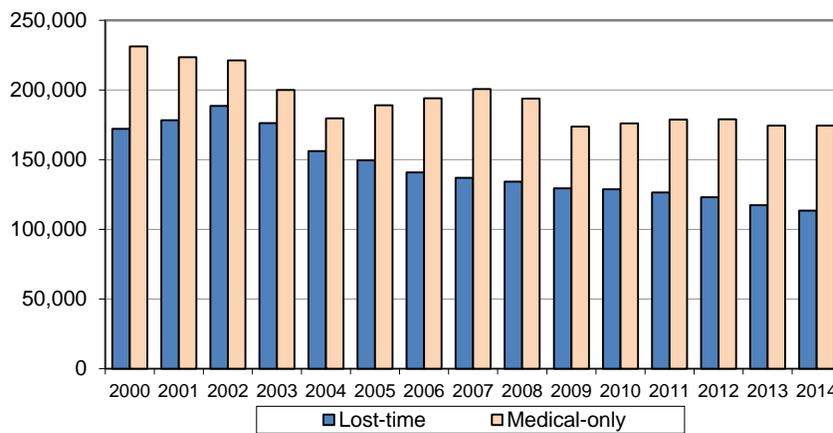
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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.

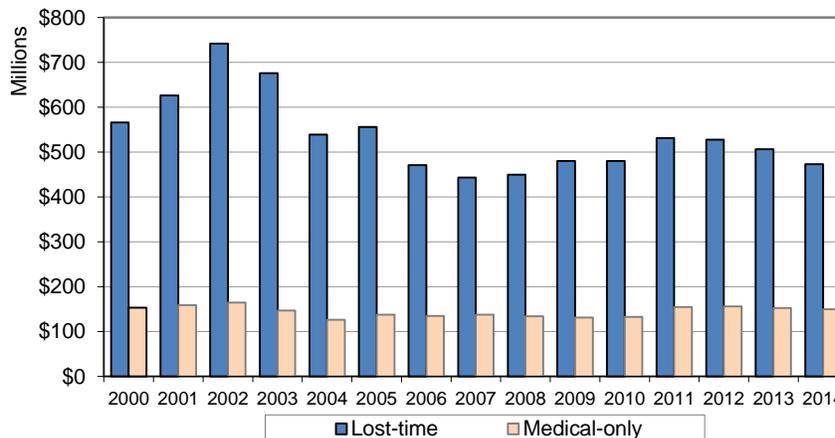
Figure 3.2: Number of Claims by Claim Type, Professional Services, by Service Year



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

In terms of utilization, the number of visits—a measure of service frequency—peaked in 2003 and decreased since then (see Table 3.3). 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 received 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, a shorter duration of medical care resulted in a decreasing number of visits per claim. Possible causes of the decreasing number of visits and shorter duration may include less severe injuries and better safety practices at workplaces, preauthorization requirement and treatment guidelines, stricter utilization reviews, denials of service or payment, better treatment, and enhanced return-to-work efforts.

Table 3.3: 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	17.3	4.9	3.4	3.1
2001	17.7	4.9	3.5	3.3
2002	19.2	5.0	3.9	3.4
2003	19.5	5.1	3.9	3.4
2004	18.5	5.0	3.7	3.2
2005	17.7	4.8	3.8	3.3
2006	15.4	4.5	3.4	3.1
2007	14.8	4.4	3.4	3.1
2008	14.6	4.2	3.3	3.1
2009	15.2	4.3	3.2	3.0
2010	15.0	4.3	3.3	3.0
2011	14.9	4.2	3.3	3.0
2012	14.9	4.2	3.4	3.0
2013	14.9	4.3	3.5	3.2
2014	14.9	4.3	3.7	3.4

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 94 percent of the claims received professional services from MD/DOs in 2014 (see Table 3.4). A significant change occurred in chiropractic services (DC): the share of claims receiving chiropractic services decreased from 13 percent in 2005 to 7 percent in 2012, which increased to 9 percent in 2014. 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.

There was a rapid increase in the share of 'Other' provider type, which includes non-physician providers such as physician assistants, nurse practitioners, and ambulance services. Note also that the 'Other' group includes bills without valid data about the provider type and license number. The number of missing data increased in recent years, partly due to the transition to the national provider identification (NPI) system. Previously, state license numbers with provider type information were reported. However, NPIs do not have information about provider license type, and if a bill is submitted with only with an NPI for the provider, the provider type data will be missing.

Table 3.4: Percent of Claims Receiving Professional Service, by Provider Type, by Service Year

Provider Type	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
ASC	4.0%	3.9%	3.4%	2.8%	2.9%	2.8%	2.7%	2.4%	2.1%	1.9%
DC	12.7%	10.6%	8.6%	7.5%	7.8%	7.7%	7.1%	6.6%	8.6%	9.3%
DME	10.1%	9.9%	9.4%	8.4%	9.2%	9.1%	8.2%	7.4%	6.7%	6.3%
MD/DO	92.5%	95.6%	96.1%	96.5%	96.6%	96.1%	95.7%	94.8%	94.4%	93.6%
PT/OT	19.5%	20.1%	20.5%	20.1%	20.7%	20.4%	21.0%	22.1%	23.3%	24.2%
Other	13.0%	12.3%	12.3%	13.4%	15.1%	17.8%	20.6%	25.7%	26.0%	26.6%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 3.5). Total payments to MD/DO increased substantially by 13 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 17 percent since 2011 as fees stabilized and the number of claims continued to decrease. Total cost for ASC services increased substantially in the same period even though a smaller share of claims was receiving the services. It decreased substantially in 2013 and 2014, but the large increase in the 'Other' provider type indicates that ASC's decrease may be related to a data problem identifying provider types. Data issues will be further investigated by the REG and TDI-DWC.

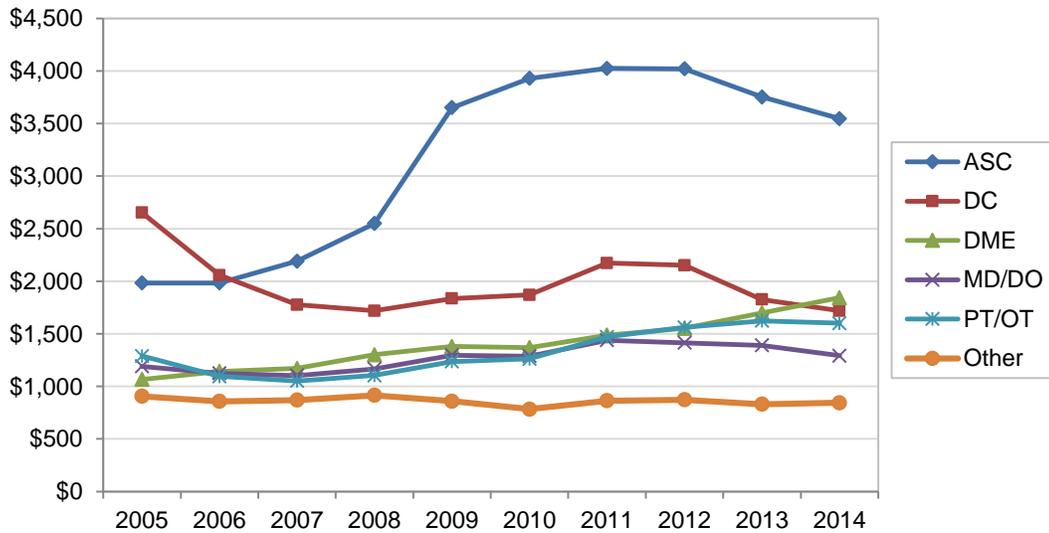
Table 3.5: Total Professional Cost, by Provider Type (Thousand Dollars), by Service Year

Provider Type	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
ASC	\$26,738.49	\$25,594	\$25,058	\$23,013	\$32,451	\$33,350	\$32,635	\$29,201	\$22,981	\$19,781
DC	\$114,459	\$72,957	\$51,449	\$42,114	\$43,423	\$44,080	\$47,159	\$42,981	\$45,865	\$45,984
DME	\$36,611	\$37,969	\$37,075	\$36,054	\$38,522	\$38,046	\$37,237	\$34,904	\$33,412	\$33,162
MD/DO	\$373,227	\$359,706	\$357,869	\$369,226	\$379,610	\$376,579	\$420,185	\$404,940	\$382,716	\$348,150
PT/OT	\$85,190	\$73,560	\$72,934	\$72,784	\$77,576	\$78,264	\$94,050	\$104,449	\$110,405	\$111,656
Other	\$39,936	\$35,244	\$36,086	\$40,277	\$39,186	\$42,363	\$54,392	\$67,816	\$62,972	\$64,590

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Despite the difficulty in identifying provider types and calculating total costs, average costs are relatively unaffected. The average cost per claim increased by 103 percent for ASCs between 2005 and 2012, then decreased by 12 percent since 2011 (see Figure 3.4). 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. Except for DC, average costs increased for all providers: by 73 percent for DME, by 24 percent for PT/OT, and by 9 percent for MD/DO providers.

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, 2015.

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.

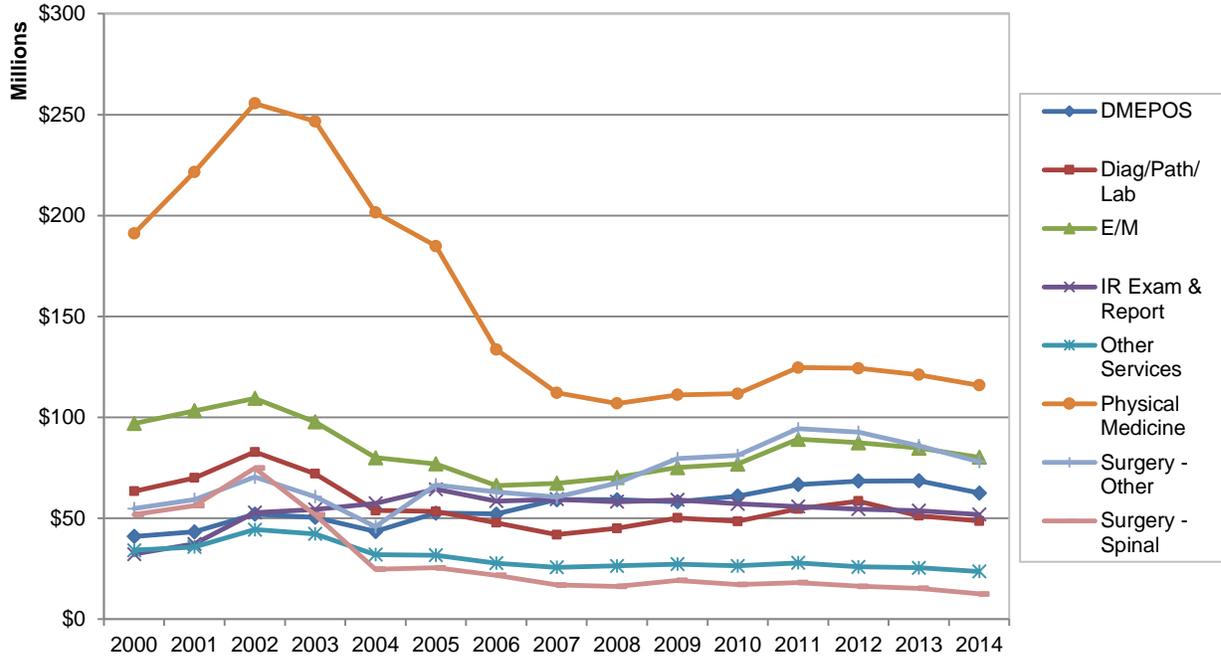
There may be different ways to classify service types depending on how we group various CPT/HCPCS codes. This report uses eight groups in the service type classification:

- ★ 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 physical medicine 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 Figure 3.5 and Table C2 in [Appendix C](#)). Increases and decreases were most prominent in Physical Medicine services, which were the costliest services. 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.

Figure 3.5: Total Professional Cost, by Service Type, Lost-time Claims (Thousand Dollars)

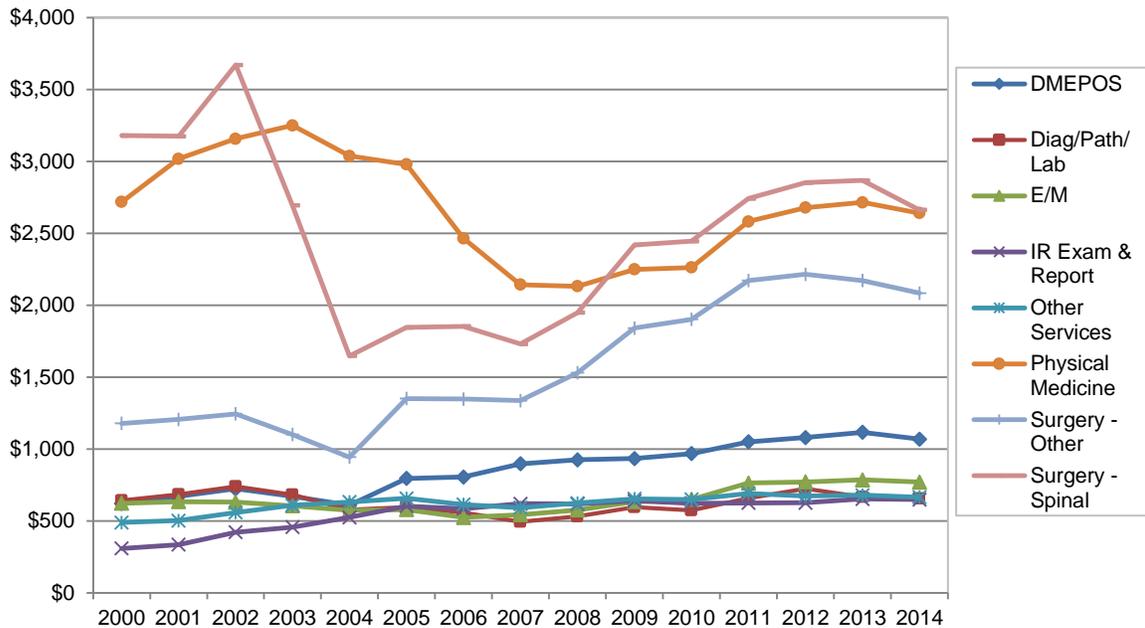


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

For medical-only claims, Physical Medicine service shows a pattern of increases and decreases similar to that of lost-time claims (see Table C2 in [Appendix C](#)). 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.

Average costs per claim shown in Figure 3.6 (and Table C3 in the [Appendix C](#)) are influenced by the number of claims receiving each type of service and utilization intensity 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, Surgery – Other, and DMEPOS services increased by more than 70 percent from 2000 to 2014. Spinal surgery services decreased the most, by 16 percent, in the same period. For medical-only claims, E/M services increased the most while spinal surgery services decreased the most. Price changes per individual service are discussed later in this section.

Figure 3.6: Average Professional Cost per Claim by Service Type, Lost-time Claims



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

In terms of service utilization, the shares of claims receiving particular services increased for all services except Surgery – Spinal, Physical Medicine, and ‘Other’ service groups (see Table 3.6). There was a slight decrease in the share 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 (48 percent to 68 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 even though total cost of Physical Medicine decreased significantly.

Table 3.6: Percent of Claims Receiving Certain Professional Services

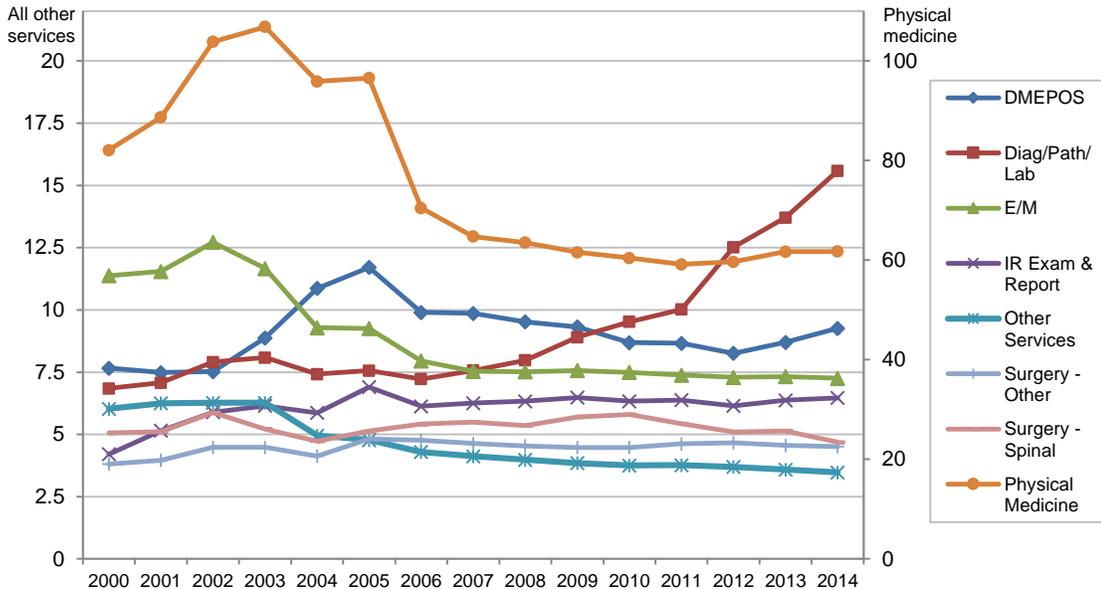
Service Year	DMEPOS	Diag/Path/ Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
Lost-time Claims								
2000	38.3%	57.3%	90.4%	60.8%	40.7%	40.8%	27.0%	9.5%
2001	36.2%	57.4%	91.4%	62.5%	40.0%	41.2%	27.6%	9.9%
2002	38.2%	59.5%	92.0%	66.5%	42.2%	42.9%	30.0%	10.8%
2003	42.6%	60.0%	91.7%	67.5%	39.5%	43.1%	31.3%	10.9%
2004	45.7%	59.7%	89.3%	70.0%	32.5%	42.5%	31.1%	9.6%
2005	44.2%	59.9%	88.9%	71.4%	32.3%	41.5%	32.9%	9.2%
2006	45.9%	60.7%	89.7%	70.9%	32.1%	38.5%	33.2%	8.3%
2007	48.1%	61.8%	90.5%	70.0%	31.7%	38.2%	33.0%	7.1%
2008	47.7%	63.1%	90.7%	70.2%	31.6%	37.4%	32.9%	6.2%
2009	48.2%	64.9%	91.6%	71.4%	32.2%	38.2%	33.4%	6.2%
2010	49.0%	65.8%	92.0%	71.3%	31.7%	38.4%	33.1%	5.5%
2011	50.3%	65.6%	92.4%	70.7%	32.0%	38.2%	34.4%	5.2%
2012	51.5%	65.6%	92.1%	70.7%	31.3%	37.7%	34.0%	4.6%
2013	52.3%	65.5%	92.0%	70.2%	32.0%	38.0%	33.7%	4.6%
2014	51.5%	65.3%	91.9%	70.5%	31.4%	38.7%	33.0%	4.2%
Medical-only Claims								
2000	23.1%	47.1%	86.5%	48.0%	32.2%	20.8%	16.0%	1.1%
2001	21.7%	47.7%	87.7%	53.8%	32.0%	22.0%	16.2%	1.1%
2002	22.4%	49.0%	89.1%	57.0%	33.6%	22.4%	16.5%	1.2%
2003	28.6%	51.3%	89.4%	59.5%	28.5%	22.8%	17.6%	1.1%
2004	35.0%	51.6%	89.4%	62.6%	17.0%	23.3%	17.1%	0.9%
2005	32.3%	52.2%	89.9%	62.6%	16.5%	21.8%	18.2%	0.8%
2006	34.7%	53.2%	90.2%	64.0%	17.2%	20.7%	18.4%	0.8%
2007	36.3%	54.3%	90.9%	64.2%	17.5%	20.5%	17.7%	0.6%
2008	35.2%	54.6%	91.4%	65.0%	17.7%	19.1%	17.6%	0.5%
2009	35.1%	55.3%	92.1%	66.9%	17.7%	19.2%	17.4%	0.5%
2010	33.9%	55.0%	92.4%	67.3%	17.0%	18.6%	17.5%	0.4%
2011	33.5%	54.4%	92.9%	67.2%	16.7%	18.2%	17.8%	0.3%
2012	34.2%	53.2%	93.1%	68.2%	16.7%	18.6%	17.5%	0.3%
2013	34.7%	53.3%	92.6%	67.8%	17.2%	19.6%	16.6%	0.3%
2014	33.7%	52.8%	92.3%	68.4%	17.4%	20.4%	15.9%	0.3%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

In terms of service intensity, the number of services per claim decreased significantly for E/M service and 'Other' Services categories (see Figure 3.7 and Table C4 in the [Appendix C](#)). 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.

Diag/Path/Lab services per claim increased by more than 100 percent since 2006. However, this increase in utilization was not translated into an increase in cost because a significant number of bills (40 percent in 2014) were not paid after bill/utilization reviews by the insurance carriers. In general, between 15 percent and 40 percent of all professional bills have zero payment, and the share of zero-payment bills increased in recent years.

Figure 3.7: Number of Professional Services per Claim by Service Type, Lost-time Claims



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 reports 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 an easier comparison.

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 use 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 2014 injury year with six-month maturity covers all new injuries that occurred in the 2014 calendar year and accounts for all services received within six months from the injury. This means that service bills up to June 30, 2015, are analyzed. For the 2012 injury year with 24-month maturity, data covers claims with an injury date from January 1, 2012, to December 31, 2012, and services up to December 31, 2014. As a result, costs and utilization of 2012 injury year claims will be affected by changes in fee schedules and policies in the 2014 service year. As the maturity increases, there will be more services provided and total costs increase accordingly.

For lost-time claims, total costs in each injury year increased significantly as maturity increases while medical-only claims' costs increased only slightly as we extend the maturity horizon (see Table 3.7). Since 2000, total costs declined the most, by 20 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 20 percent to 35 percent. As a result, average cost per claim increased substantially by 22 percent and 35 percent for lost-time and medical-only claims, respectively, at 12-month maturity.

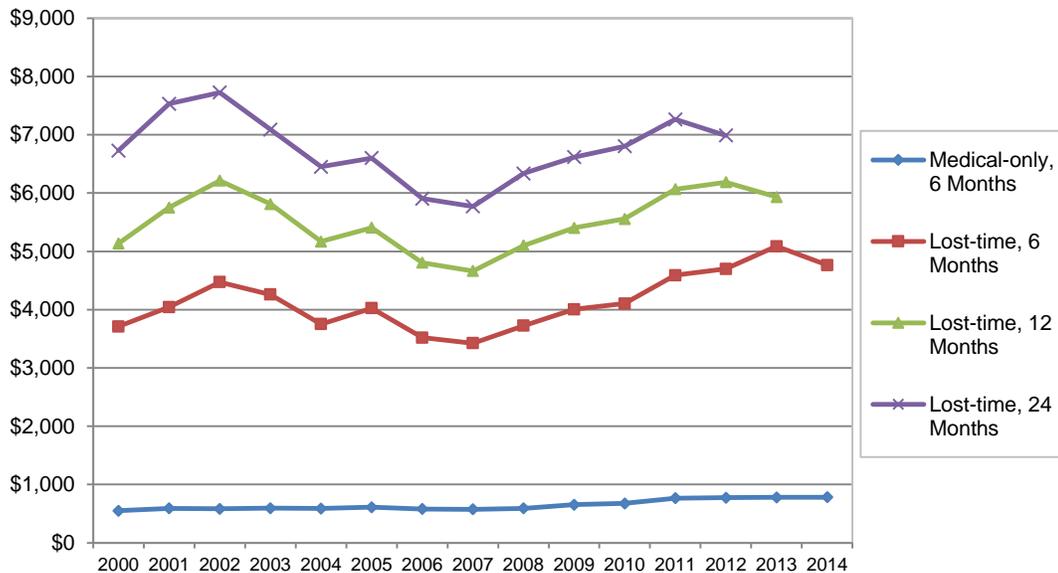
Table 3.7: Total Cost, by Injury Year, by Maturity and Claim Type, Professional Services

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	\$261,390	71,578	\$3,652	\$374,689	74,181	\$5,051	\$503,050	76,104	\$6,610
2001	\$284,197	70,575	\$4,027	\$418,000	73,090	\$5,719	\$557,351	74,541	\$7,477
2002	\$309,644	69,476	\$4,457	\$438,359	70,905	\$6,182	\$550,194	71,626	\$7,681
2003	\$265,565	62,527	\$4,247	\$367,470	63,466	\$5,790	\$458,340	64,857	\$7,067
2004	\$222,977	59,126	\$3,771	\$317,726	61,230	\$5,189	\$400,401	61,849	\$6,474
2005	\$230,840	56,678	\$4,073	\$315,107	57,717	\$5,460	\$387,783	58,210	\$6,662
2006	\$200,935	56,415	\$3,562	\$277,539	57,172	\$4,854	\$342,635	57,498	\$5,959
2007	\$198,450	57,330	\$3,462	\$272,851	57,996	\$4,705	\$339,553	58,348	\$5,819
2008	\$219,679	58,419	\$3,760	\$303,966	59,132	\$5,140	\$379,369	59,434	\$6,383
2009	\$219,252	54,302	\$4,038	\$298,239	54,838	\$5,439	\$366,426	55,040	\$6,657
2010	\$235,214	56,904	\$4,134	\$320,616	57,350	\$5,591	\$393,540	57,512	\$6,843
2011	\$261,944	56,719	\$4,618	\$348,466	57,137	\$6,099	\$418,184	57,291	\$7,299
2012	\$257,240	54,764	\$4,697	\$340,494	55,114	\$6,178	\$402,268	55,262	\$7,279
2013	\$247,342	52,539	\$4,708	\$326,511	52,921	\$6,170			
2014	\$231,672	51,886	\$4,465						
Medical-only Claims									
2000	\$109,205	193,325	\$565	\$127,047	196,212	\$648	\$143,322	198,551	\$722
2001	\$112,582	186,067	\$605	\$130,906	188,895	\$693	\$146,048	190,688	\$766
2002	\$109,168	182,199	\$599	\$124,291	183,985	\$676	\$135,820	184,903	\$735
2003	\$102,585	168,194	\$610	\$115,112	169,435	\$679	\$124,127	170,348	\$729
2004	\$93,734	155,153	\$604	\$104,816	156,765	\$669	\$112,370	157,595	\$713
2005	\$103,809	163,168	\$636	\$113,970	164,264	\$694	\$121,029	164,880	\$734
2006	\$103,902	168,820	\$615	\$114,224	169,845	\$673	\$120,727	170,367	\$709
2007	\$106,425	175,831	\$605	\$116,061	176,804	\$656	\$122,692	177,344	\$692
2008	\$105,449	170,439	\$619	\$113,685	171,320	\$664	\$119,266	171,835	\$694
2009	\$104,008	152,266	\$683	\$111,272	153,036	\$727	\$116,046	153,466	\$756
2010	\$110,212	156,332	\$705	\$118,506	157,059	\$755	\$123,719	157,431	\$786
2011	\$126,927	159,046	\$798	\$135,989	159,791	\$851	\$141,407	160,187	\$883
2012	\$128,811	159,098	\$810	\$136,639	159,759	\$855	\$141,027	160,169	\$880
2013	\$129,390	155,880	\$830	\$137,286	156,617	\$877			
2014	\$129,784	156,242	\$831						

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Average costs per claim differed substantially between medical-only claims and lost-time claims (see Figure 3.8). For medical-only claims, figures are shown only for the six-month maturity since most of them received all of 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 or decreasing since 2011 except the cost measured at 6-month maturity, which peaked in 2013 and decreased in 2014. This late-peaking at 6-month maturity is a departure from earlier years. It may indicate some peculiarity in new injury claims.

Figure 3.8: Average Cost per Claim, by Injury Year by Claim Type, Professional Services



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

A slightly different configuration for the maturity is presented in Table 3.8 and Figure 3.9. 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.

Table 3.8: 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	\$495,609	\$105,804	\$40,705	\$76,826	\$718,943
2001	\$528,726	\$127,843	\$49,049	\$80,464	\$786,082
2002	\$572,169	\$158,507	\$68,050	\$108,256	\$906,981
2003	\$516,316	\$137,787	\$62,648	\$106,369	\$823,119
2004	\$422,604	\$105,845	\$46,565	\$90,531	\$665,545
2005	\$454,407	\$96,545	\$42,601	\$100,205	\$693,758
2006	\$394,338	\$83,537	\$33,881	\$93,713	\$605,468
2007	\$392,504	\$74,419	\$30,048	\$83,833	\$580,805
2008	\$405,809	\$71,508	\$27,221	\$79,235	\$583,773
2009	\$418,923	\$78,858	\$28,332	\$84,896	\$611,009
2010	\$423,197	\$75,527	\$30,223	\$83,930	\$612,876
2011	\$486,326	\$76,975	\$30,195	\$92,361	\$685,858
2012	\$481,563	\$77,690	\$28,185	\$97,156	\$684,594
2013	\$468,288	\$70,085	\$28,285	\$92,032	\$658,691
2014	\$450,768	\$65,408	\$24,312	\$82,944	\$623,432

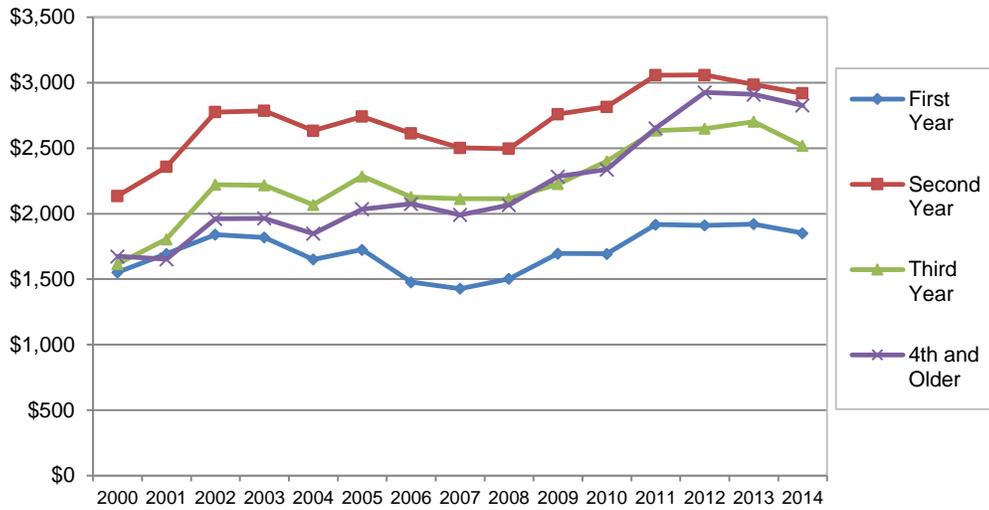
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

The majority of the claims (80 percent in 2014) 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 3.7, since figures for the 12-months maturity in Table 3.7 are inclusive of the 6-months maturity data while the four groups in Table 3.8 each sums up a group of services that are mutually exclusive. Figure 3.9 shows the average cost for each maturity group (see Table C5 in the [Appendix C](#) for data).

Since there are more claims in the first year maturity group, their cost is the largest, reaching 72 percent of the total cost in 2014. Services for claims with four or more years of maturity accounted for 13 percent of the total cost in 2014. Cost shares of the second and third year maturity groups decreased while those of one year or less and four years or longer maturity groups increased since the early 2000s. Average cost is the highest in the second year (see Figure 3.9). This is most likely because surgeries and other major treatments are provided in the second year. In recent years, the average cost increased substantially for third year claims and those with four or more years of maturity. As the number of claims in the system decreased, remaining claims may be ones with more severe injury.

Note that these average costs are accumulative. For example, if a claim with a 2013 injury year receives medical care for two years, the average cost in the first two years is roughly \$4,768, which is the sum of \$1,852 for the first year services in 2013 and \$2,916 for the second year services in 2014.

Figure 3.9: Average Cost per Claim, by Service Year by Maturity, Professional Services



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Professional Cost and Utilization by Service Type

In terms of utilization trends by injury year, an increasing percentage of claims received DMEPOS, Surgery – Other, and IR Exam & Report services in recent years, while the percentage of claims receiving Surgery – Spinal, Other services, and Physical Medicine decreased (see Table 3.9). These results are similar to those of the service-year data shown in Table 3.6. Overall percentages in the injury year are somewhat higher than those in the service year since Table 3.9 excludes old claims that were included in Table 3.6.

Table 3.9: Percent of Claims Receiving Certain Professional Services, Lost-time Claims, by Injury Year at 12 Months after Injury

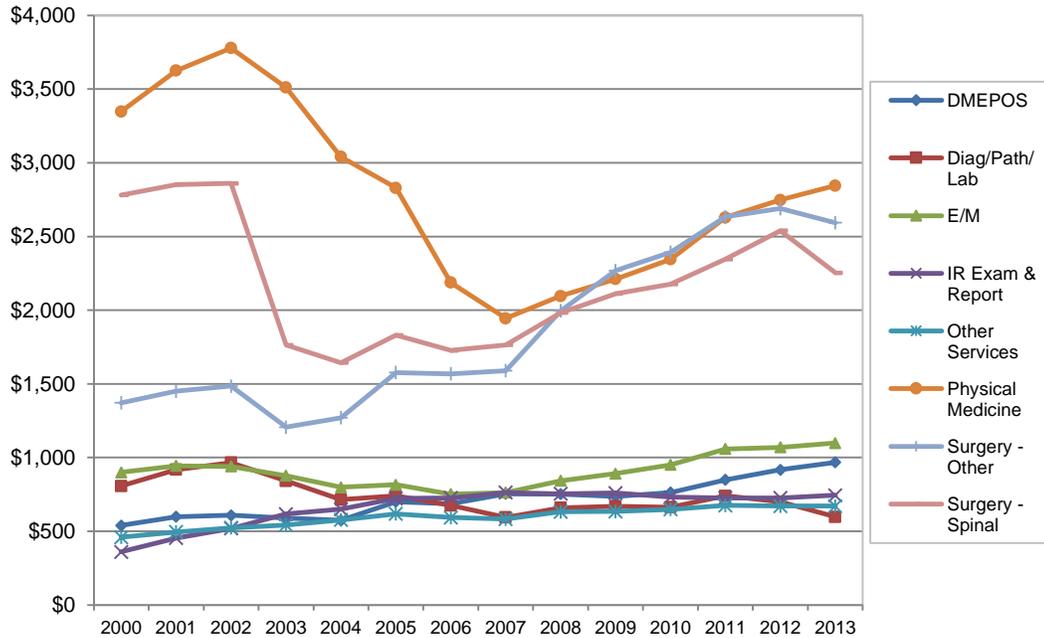
Injury Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
2000	46.6%	78.4%	94.9%	73.6%	55.3%	59.6%	38.6%	9.7%
2001	46.8%	79.9%	95.5%	79.4%	57.1%	62.0%	41.7%	10.8%
2002	51.7%	83.8%	96.9%	83.5%	60.7%	64.0%	44.7%	11.0%
2003	61.0%	85.3%	96.9%	85.3%	56.0%	65.0%	47.0%	10.3%
2004	64.0%	82.2%	95.4%	85.4%	45.0%	63.4%	46.0%	9.0%
2005	61.9%	84.6%	96.3%	86.6%	46.0%	62.5%	49.5%	8.4%
2006	65.6%	84.4%	96.4%	86.2%	45.7%	59.5%	50.1%	7.2%
2007	67.4%	85.4%	97.0%	85.6%	45.6%	58.5%	49.6%	5.9%
2008	66.6%	85.8%	97.3%	86.6%	46.1%	57.7%	49.9%	5.2%
2009	67.4%	86.7%	97.8%	88.2%	46.0%	58.9%	49.4%	4.9%
2010	66.4%	86.5%	98.1%	87.9%	45.1%	58.4%	49.0%	4.5%
2011	66.2%	86.0%	98.2%	87.6%	45.3%	57.2%	50.2%	4.0%
2012	66.3%	85.5%	98.2%	87.4%	44.3%	57.0%	49.5%	3.6%
2013	66.8%	85.3%	97.9%	86.7%	44.8%	57.7%	49.1%	3.4%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

In terms of cost by service type, average cost per lost-time claim increased the most for IR Exam & Report services, by 107 percent since 2000 (see Figure 3.10 and Table C6 in the [Appendix C](#)). This increase was in line with a 42 percent increase in the utilization of these services: from 5.8 services per claim for 2000 injury year to 8.7 services for 2014 injury year (see Figure 3.11 and Table C7 in the [Appendix C](#)). Surgery – Other and DMEPOS services also showed large increases in the average cost per claim and in utilization.

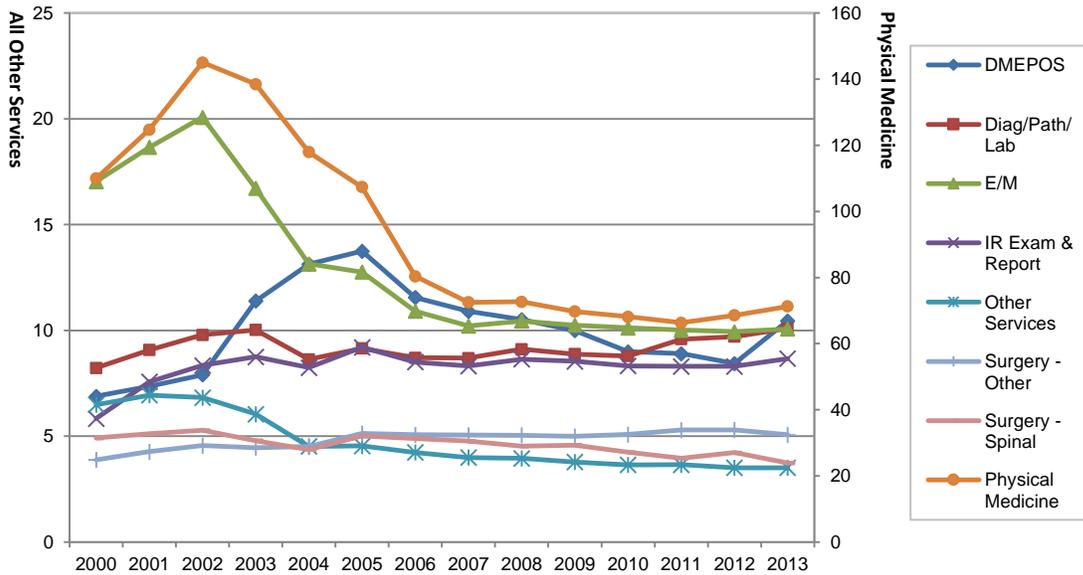
The average cost per claim for Physical Medicine services decreased significantly since its peak in 2002 with a corresponding decrease in the number of services per claim. For Physical Medicine services, the main factor in cost reduction appears to be the decrease in service intensity. The number of services per claim was highest in 2002 and it decreased by 53 percent by 2012. Since 2008, the average cost per claim increased significantly for Physical Medicine and surgery services. Since utilization levels did not increase as much, the main cost driver appears to be the fee schedule increases.

Figure 3.10: Average Cost per Claim by Service Type, Professional Services, Lost-time Claims, by Injury Year at 12 Months after Injury



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Figure 3.11: Number of Services per Claim, Professional Services, Lost-time Claims, by Injury Year at 12 Months after Injury



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 of \$6.3 billion from 2005 to 2014 while 52 percent and 73 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 3.10. They are mainly E/M, Physical Medicine, IR Exam & Report, and Diag/Path/Lab services.

Figure 3.12 shows average costs per service for selected services, normalized in the 2000 price (see Table C8 in [Appendix C](#) for real dollar amounts). 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: 6 months for office visit, therapeutic exercises, and MRI; 12 months for disability exam and low back disc surgery; and 24 months for lumbar spine fusion, chronic pain management, and DME.

The cost per service increased significantly since 2000 for DME (533 percent of the 2000 price), office visit (219 percent), and lumbar spine fusion (207 percent). Office visit and surgery prices increased mainly because of fee schedule increases. For DME, a changing mix of supplies toward higher-cost items accounts for the increase. Another reason for the DME's high rate of increase is the low base it had in 2000: it changed from \$79 per claim in 2000 to \$419 in 2013.

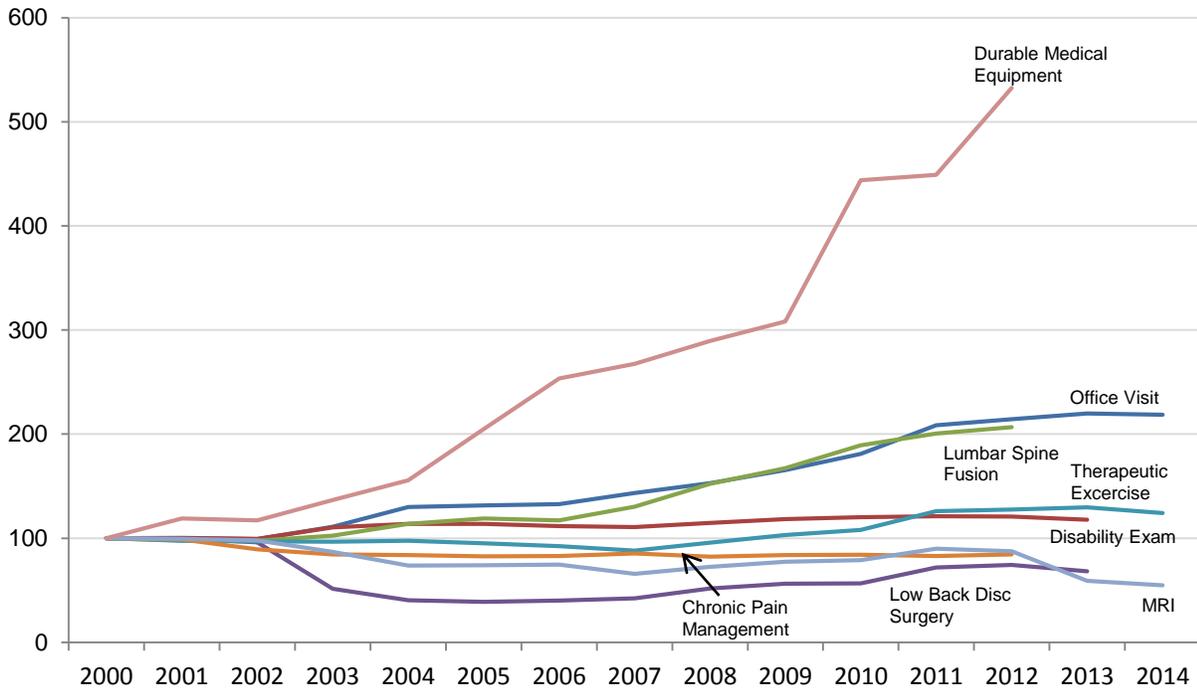
The cost per service for therapeutic exercise (124 percent) and disability exam (118 percent) increased moderately, while those for chronic pain management (84 percent), low back disc surgery (68 percent), and MRI (55 percent) decreased substantially.

Table 3.10: Top 20 Services by Total Payments in 2005–2014 Service Years

Rank	CPT/HCPCS	Total Pay (Thousand Dollars)	Description
1	97110	\$602,945	Therapeutic procedure, one or more areas, each 15 minutes
2	99213	\$442,190	Office or other outpatient visit for evaluation and management of established patient
3	99456	\$406,538	Work related or medical disability exam by other than treating physician
4	97799	\$315,499	Unlisted physical medicine/rehabilitation service or procedure
5	99214	\$231,743	Office or other outpatient visit for evaluation and management of established patient
6	99204	\$145,278	Office or other outpatient visit for evaluation and management of new patient
7	99203	\$133,570	Office or other outpatient visit for evaluation and management of new patient
8	97140	\$115,987	Manual therapy techniques, one or more regions, each 15 minutes
9	97530	\$112,682	Therapeutic activities, direct patient contact by the provider
10	97750	\$106,062	Physical performance test or measurement, with written report, each 15 minutes
11	97112	\$95,651	Therapeutic procedure, one or more areas, each 15 minutes; neuromuscular reeducation
12	97546	\$86,997	Work hardening/conditioning; each additional hour
13	99080	\$79,782	Special reports such as insurance forms, more than the information conveyed in the usual medical communications or standard reporting form
14	99455	\$67,908	Work related or medical disability exam by treating physician
15	73721	\$65,947	Magnetic resonance imaging, any joint of lower extremity; without contrast material
16	73221	\$58,679	Magnetic resonance imaging, any joint of upper extremity; without contrast material
17	72148	\$55,292	Magnetic resonance imaging, spinal canal and contents, lumbar; without contrast material
18	97001	\$53,273	Physical therapy evaluation
19	99212	\$52,110	Office or other outpatient visit for evaluation and management of established patient
20	29881	\$45,873	Arthroscopy, knee, surgical; with meniscectomy

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Figure 3.12: Average Cost per Service by Injury Year, Normalized in 2000 Price



Note: For chronic pain management, only bills with “CP” modifier are considered.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 ambulatory surgery centers (ASCs) 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 March 2008. Billing and reimbursements for inpatient services were based on the 1997 fee guideline that specified different methods depending on the types of hospitals and services. 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 30 percent 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 28 percent in 2014.

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

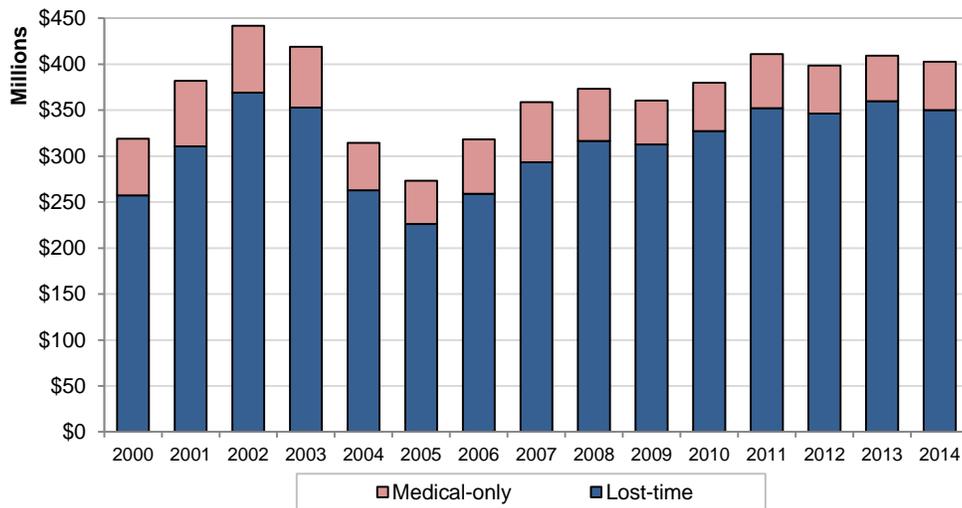
Service Year	Claims - Medical Combined	Claims - Hospital/Institutional*	Hospital/Institutional Claim Share	Lost-time Claims	Medical-only Claims
2000	418,817	127,244	30.4%	61,101	66,188
2001	417,852	130,651	31.3%	64,145	66,551
2002	422,383	137,649	32.6%	71,995	65,692
2003	385,815	126,988	32.9%	67,188	59,823
2004	344,611	106,447	30.9%	55,180	51,282
2005	366,376	92,067	25.1%	44,280	47,806
2006	362,838	98,729	27.2%	46,286	52,464
2007	367,017	103,462	28.2%	47,359	56,128
2008	357,149	100,062	28.0%	47,323	52,755
2009	327,026	92,284	28.2%	45,494	46,801
2010	324,925	94,316	29.0%	46,066	48,256
2011	323,880	96,082	29.7%	46,031	50,064
2012	319,999	90,719	28.3%	43,753	46,974
2013	309,102	87,117	28.2%	41,952	45,175
2014	304,875	85,161	27.9%	40,715	44,453

Note *: 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, 2015

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 about 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 \$273 million in 2005 and increased to about \$411 million in 2011 with a slight decrease to \$403 million in 2014. 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



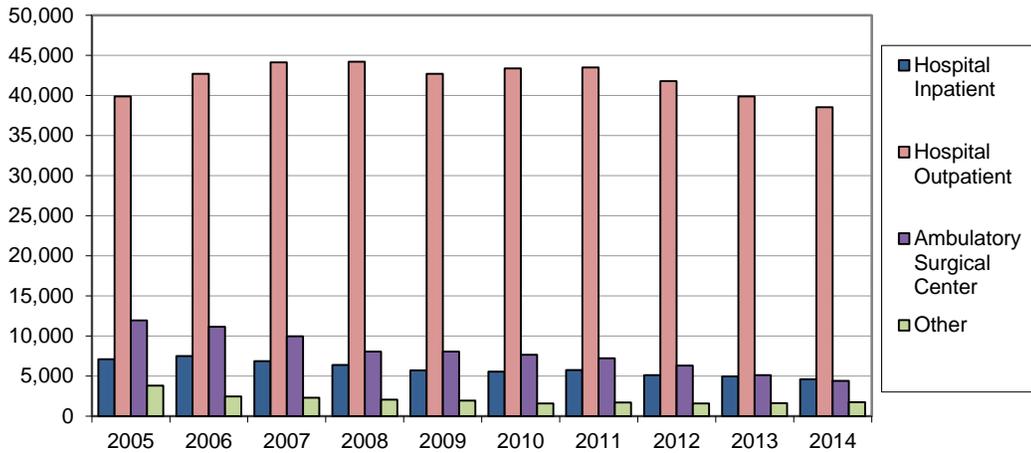
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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). We also show the data for ambulatory surgical centers (ASCs) from the professional services bills. This analysis focuses on the post-EDI period due to the availability of more reliable facility codes in the EDI 837 data.

Most lost-time claims received hospital outpatient services (see Figure 4.2). Hospital outpatient claims represented 90 percent of all claims in 2005, which increased to 95 percent in 2014. Out of about 40,000 unique lost-time claims in 2014, 4,604 claims received inpatient services, and 4,604 claims received services at ASCs. The share of claims receiving hospital inpatient services decreased from 16 percent (7,093 claims) to 11 percent (4,604) in the same period. Claims receiving services at ASCs also decreased from 27 percent (11,938) in 2005 to 11 percent (4,393) in 2014.

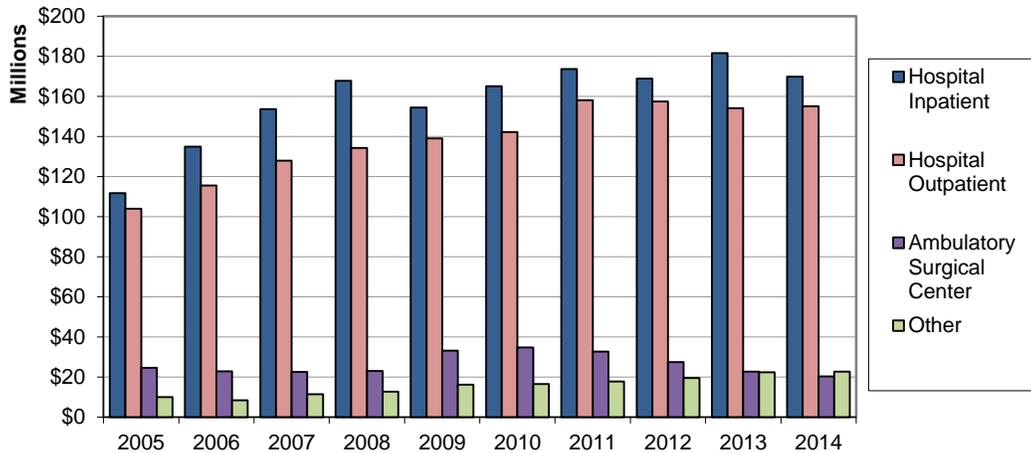
Figure 4.2: Number of Claims, by Facility Type, Hospital/Institutional Services, Lost-time Claims



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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, 49 percent vs. 44 percent of the total, respectively, in 2014 (see Figure 4.3).

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

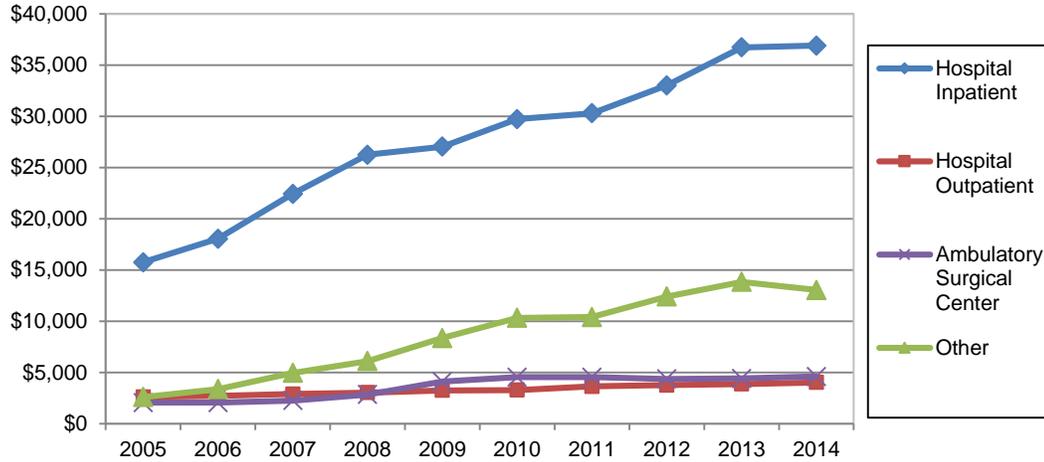


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 the revised hospital fee guideline went into effect. The average cost of service at ASCs was 79 percent of hospital outpatient service in 2005. After the 2008 ASC fee guideline, it increased to 126 percent in 2009 and 115 percent in 2014. The most recent service year data indicates that the hospital cost continued to grow faster than the professional cost. Average cost per claim for inpatient services increased by 9 percent in 2012, and by 11 percent in 2013, but by only 0.5 percent in 2014.

Figures may change as bills are updated by insurance carriers, but the rate of increase appears to be slowing.

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, 2015.

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 with 6-month maturity increased by 23 percent between 2005 and 2014 (see Table 4.2). Costs for lost-time claims with 6-month maturity increased by 70 percent in the same period.

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

Injury Year	Lost-time Claims			Medical-only Claims		
	6 Months	12 Months	24 Months	6 Months	12 Months	24 Months
2000	\$122,050	\$167,289	\$228,320	\$42,218	\$49,051	\$56,709
2001	\$145,946	\$201,318	\$263,343	\$49,870	\$57,046	\$63,599
2002	\$158,696	\$213,070	\$263,181	\$44,413	\$50,560	\$55,358
2003	\$155,777	\$198,577	\$229,209	\$45,005	\$49,184	\$52,163
2004	\$113,582	\$137,703	\$165,826	\$36,953	\$39,695	\$41,923
2005	\$118,295	\$144,423	\$174,274	\$36,104	\$38,750	\$40,866
2006	\$146,505	\$175,746	\$205,650	\$43,161	\$45,690	\$47,868
2007	\$175,771	\$208,199	\$242,976	\$49,961	\$52,543	\$55,153
2008	\$182,867	\$220,597	\$261,046	\$41,777	\$43,541	\$45,276
2009	\$162,038	\$195,442	\$230,590	\$35,154	\$36,965	\$38,590
2010	\$177,774	\$212,690	\$247,706	\$38,980	\$41,063	\$43,208
2011	\$195,914	\$232,285	\$266,501	\$43,105	\$45,650	\$46,984
2012	\$193,528	\$228,265	\$261,447	\$40,607	\$42,410	\$43,699
2013	\$204,835	\$239,371		\$40,052	\$42,013	
2014	\$201,621			\$44,244		

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

The number of claims decreased by more than 20 percent since 2000 for both lost-time and medical-only claims (see Table 4.3). Average cost per claim increased significantly for lost-time claims: 106 percent increase since 2000 for the 6-month maturity group, 71 percent for the 12-month group, and 52 percent for the 24-month 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 after Injury

Injury Year	Lost-time Claims			Medical-only Claims		
	6 Months	12 Months	24 Months	6 Months	12 Months	24 Months
2000	33,930	38,049	41,070	60,068	61,410	62,363
2001	35,790	40,409	43,139	60,250	61,517	62,261
2002	38,017	41,945	43,743	59,108	60,007	60,482
2003	34,903	37,802	39,003	54,373	55,095	55,439
2004	29,429	31,470	32,767	47,427	47,919	48,195
2005	26,270	28,370	29,655	45,047	45,547	45,829
2006	28,655	30,588	31,561	49,498	50,015	50,250
2007	30,453	32,284	33,295	52,938	53,363	53,608
2008	31,101	33,023	34,000	49,956	50,347	50,546
2009	28,570	30,183	31,020	44,220	44,523	44,728
2010	30,306	31,964	32,729	45,926	46,268	46,443
2011	30,684	32,107	32,816	47,607	47,963	48,131
2012	29,027	30,393	31,007	44,685	44,981	45,141
2013	27,935	29,257		43,230	43,529	
2014	27,171			42,417		

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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

Injury Year	Lost-time Claims			Medical-only Claims		
	6 Months	12 Months	24 Months	6 Months	12 Months	24 Months
2000	\$3,597	\$4,397	\$5,559	\$703	\$799	\$909
2001	\$4,078	\$4,982	\$6,105	\$828	\$927	\$1,021
2002	\$4,174	\$5,080	\$6,017	\$751	\$843	\$915
2003	\$4,463	\$5,253	\$5,877	\$828	\$893	\$941
2004	\$3,860	\$4,376	\$5,061	\$779	\$828	\$870
2005	\$4,503	\$5,091	\$5,877	\$801	\$851	\$892
2006	\$5,113	\$5,746	\$6,516	\$872	\$914	\$953
2007	\$5,772	\$6,449	\$7,298	\$944	\$985	\$1,029
2008	\$5,880	\$6,680	\$7,678	\$836	\$865	\$896
2009	\$5,672	\$6,475	\$7,434	\$795	\$830	\$863
2010	\$5,866	\$6,654	\$7,568	\$849	\$887	\$930
2011	\$6,385	\$7,235	\$8,121	\$905	\$952	\$976
2012	\$6,667	\$7,510	\$8,432	\$909	\$943	\$968
2013	\$7,333	\$8,182		\$926	\$965	
2014	\$7,420			\$1,043		

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

PROFESSIONAL AND HOSPITAL/INSTITUTIONAL COSTS COMBINED

Data by claim type in this report will help stakeholders compare Texas' costs 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 types 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 2013/2014 claims, Texas' average cost was \$10,565 for claims with greater than seven days of lost time and \$1,098 for claims with seven days or less of lost time, combining professional and hospital costs. These compare closely with \$10,633 and \$1,098 for 2013 injury year in Table 4.5. The small differences may be due to different definitions for the injury year and maturity, and different treatments of extreme values, outliers, and cases with missing data. Also, the results in this report 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 23 percent of all claims while it was 25 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 after 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	75,304	\$541,979	\$7,197	208,055	\$176,099	\$846
2001	74,045	\$619,318	\$8,364	201,422	\$187,951	\$933
2002	71,778	\$651,429	\$9,076	193,757	\$174,851	\$902
2003	63,899	\$566,047	\$8,858	176,960	\$164,295	\$928
2004	61,574	\$455,428	\$7,396	163,987	\$144,512	\$881
2005	58,131	\$459,530	\$7,905	170,050	\$152,721	\$898
2006	57,523	\$453,284	\$7,880	177,459	\$159,913	\$901
2007	58,344	\$481,049	\$8,245	184,868	\$168,605	\$912
2008	59,439	\$524,562	\$8,825	178,663	\$157,226	\$880
2009	55,112	\$493,681	\$8,958	158,826	\$148,237	\$933
2010	57,631	\$533,306	\$9,254	162,745	\$159,569	\$980
2011	57,424	\$580,751	\$10,113	165,963	\$181,638	\$1,094
2012	55,415	\$568,759	\$10,264	165,936	\$179,049	\$1,079
2013	53,220	\$565,882	\$10,633	163,316	\$179,299	\$1,098

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 2014 (as illustrated 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	181	\$301,314	\$1,665	384	\$482,178	\$1,256
2006	235	\$613,593	\$2,611	528	\$919,846	\$1,742
2007	342	\$1,014,753	\$2,967	794	\$1,586,048	\$1,998
2008	390	\$1,175,703	\$3,015	928	\$2,218,065	\$2,390
2009	343	\$1,440,375	\$4,199	891	\$1,966,314	\$2,207
2010	402	\$1,789,767	\$4,452	957	\$2,208,543	\$2,308
2011	385	\$1,764,491	\$4,583	993	\$2,651,938	\$2,671
2012	422	\$1,568,374	\$3,717	988	\$2,848,397	\$2,883
2013	433	\$1,939,372	\$4,479	1,037	\$2,670,151	\$2,575
2014	430	\$1,857,685	\$4,320	1,028	\$2,927,909	\$2,848

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, 2015.

The top 10 most billed dental procedures are shown in Table 5.2. They accounted for 49 percent of the total dental cost during the ten-year period. Most common services were implant, crown, and root canal procedures.

Table 5.2: Top 10 Dental Services, by Total Cost (2005–2014 Cumulative Totals)

Rank	HCPSCS	Number of Claims	Total Cost	Procedure Description
1	D6010	890	\$4,051,072	Surgical placement of implant body: endosteal implant
2	D3310	2,117	\$2,458,783	Endodontic therapy, anterior tooth (excluding final restoration)
3	D2740	1,419	\$2,379,319	Crown-porcelain/ceramic substrate
4	D2750	1,265	\$2,299,067	Crown-porcelain fused to high noble metal
5	D6750	575	\$1,296,026	Crown-porcelain fused to high noble metal
6	D6240	653	\$1,075,427	Pontic-porcelain fused to high noble metal
7	D2751	519	\$979,995	Abutment supported porcelain fused to metal crown (high noble metal)
8	D2950	2,132	\$759,834	Core build-up, including any pins
9	D7210	1,378	\$733,835	Surgical removal of erupted tooth requiring elevation of mucoperiosteal flap and removal of bone and/or section of tooth
10	D9999	922	\$720,997	Unspecified adjunctive procedure, by report

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 69 percent of the claims and 73 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 (2005–2014 Cumulative Totals), by HRR, Dental Services

HRR	Number of Claims	Total Cost	Cost per Claim
Odessa	219	\$1,121,562	\$5,121
Houston	2,236	\$9,034,493	\$4,040
Longview	85	\$336,778	\$3,962
Fort Worth	1,047	\$3,928,670	\$3,752
Bryan	98	\$360,847	\$3,682
Abilene	159	\$570,728	\$3,589
Dallas	1,692	\$6,023,942	\$3,560
Victoria	80	\$283,519	\$3,544
San Antonio	1,000	\$3,300,782	\$3,301
Lubbock	263	\$839,975	\$3,194
McAllen	140	\$426,114	\$3,044
Austin	590	\$1,738,338	\$2,946
Temple	190	\$553,668	\$2,914
Wichita Falls	89	\$258,393	\$2,903
Tyler	263	\$756,624	\$2,877
Beaumont	187	\$525,361	\$2,809
San Angelo	75	\$209,293	\$2,791
Harlingen	141	\$380,448	\$2,698
Corpus Christi	241	\$650,151	\$2,698
Waco	153	\$333,403	\$2,179
El Paso	248	\$539,208	\$2,174
Amarillo	280	\$541,832	\$1,935
Total	9,476	\$32,714,130	\$3,452
Sum of 5 Metro HRRs	6,565	\$24,026,225	\$3,660
Share of 5 Metro HRRs	69.3%	73.4%	

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

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

6. COST AND UTILIZATION FOR PHARMACY SERVICES

This section reports the total and average cost for pharmacy benefits from 2005 to 2014. 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 28 Texas Administrative Code (TAC), [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.

TDI-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 September 2015, there are 168 drugs with the status of “N” in the drug formulary. Legacy claims— injuries that occurred prior to September 1, 2011—became subject to the closed formulary beginning September 1, 2013.

UTILIZATION OF PHARMACY SERVICES BY CLAIM TYPE

About 43 percent of all claims received at least one pharmacy service in 2014. Claims were about equally represented by lost-time and medical-only types (see Table 6.1). Lost-time claims decreased by 24 percent since 2005, and medical-only claims decreased by 23 percent in the same period. Claims receiving pharmacy services decreased at a greater rate than the overall claims since 2011, indicating that the pharmacy closed formulary reduced pharmacy utilization.

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	366,376	93,751	25.6%	78,446	21.4%
2006	362,838	90,936	25.1%	80,921	22.3%
2007	367,017	91,238	24.9%	89,200	24.3%
2008	357,149	89,975	25.2%	85,647	24.0%
2009	327,026	85,991	26.3%	74,818	22.9%
2010	324,925	87,010	26.8%	73,617	22.7%
2011	323,880	85,342	26.3%	71,678	22.1%
2012	319,999	80,927	25.3%	69,565	21.7%
2013	309,102	76,124	24.6%	64,983	21.0%
2014	304,875	71,718	23.5%	60,626	19.9%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 \$96 million in 2014, 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. Since the pharmacy closed formulary took effect in 2011, for lost-time claims, the number of claims decreased by 16 percent, total cost by 27 percent, and the cost per claim by 13 percent.

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	93,751	\$118,108	\$1,260	78,446	\$27,418	\$350
2006	90,936	\$122,884	\$1,351	80,921	\$28,964	\$358
2007	91,238	\$125,524	\$1,376	89,200	\$29,542	\$331
2008	89,975	\$132,291	\$1,470	85,647	\$27,230	\$318
2009	85,991	\$133,464	\$1,552	74,818	\$28,850	\$386
2010	87,010	\$134,948	\$1,551	73,617	\$24,693	\$335
2011	85,342	\$130,749	\$1,532	71,678	\$22,717	\$317
2012	80,927	\$120,558	\$1,490	69,565	\$19,318	\$278
2013	76,124	\$107,933	\$1,418	64,983	\$18,074	\$278
2014	71,718	\$95,881	\$1,337	60,626	\$14,686	\$242

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 2014, 58 percent of the total cost was for claims that were in their fourth or later year (37 months or more) after their injury dates. This was an 8 percent decrease from 64 percent share in 2013. This decrease coincided with the pharmacy closed formulary being applied to legacy claims beginning September 2013. 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	\$27,402	\$13,604	\$11,546	\$92,975
2006	\$27,787	\$14,101	\$10,557	\$99,403
2007	\$31,551	\$13,603	\$10,361	\$99,551
2008	\$32,757	\$14,132	\$10,320	\$102,312
2009	\$33,704	\$15,955	\$11,057	\$101,599
2010	\$32,706	\$15,690	\$10,790	\$100,455
2011	\$30,667	\$14,035	\$10,339	\$98,422
2012	\$27,379	\$13,558	\$9,501	\$89,438
2013	\$25,590	\$11,686	\$8,721	\$80,009
2014	\$27,992	\$10,939	\$7,251	\$64,384

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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	118,060	19,533	12,209	37,750
2006	120,097	18,590	10,808	36,835
2007	132,143	17,236	9,702	34,926
2008	129,231	17,110	9,126	32,945
2009	116,961	17,188	9,173	30,676
2010	118,884	15,779	8,774	29,422
2011	118,811	14,457	7,716	27,706
2012	114,874	13,949	7,023	25,625
2013	107,899	12,899	6,594	23,635
2014	102,613	11,626	5,975	21,100

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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	\$232	\$696	\$946	\$2,463
2006	\$231	\$759	\$977	\$2,699
2007	\$239	\$789	\$1,068	\$2,850
2008	\$253	\$826	\$1,131	\$3,106
2009	\$288	\$928	\$1,205	\$3,312
2010	\$275	\$994	\$1,230	\$3,414
2011	\$258	\$971	\$1,340	\$3,552
2012	\$238	\$972	\$1,353	\$3,490
2013	\$237	\$906	\$1,323	\$3,385
2014	\$273	\$941	\$1,214	\$3,051

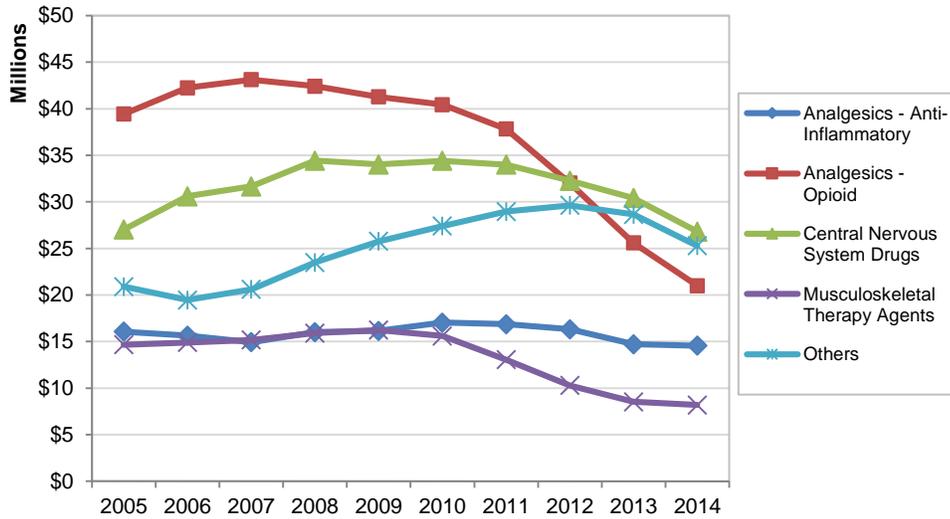
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 Drugs 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 Drugs group. In the 'Others' group are all remaining drugs including dermatologicals, pharmaceutical chemicals and adjuvants, ulcer drugs, and corticosteroids.

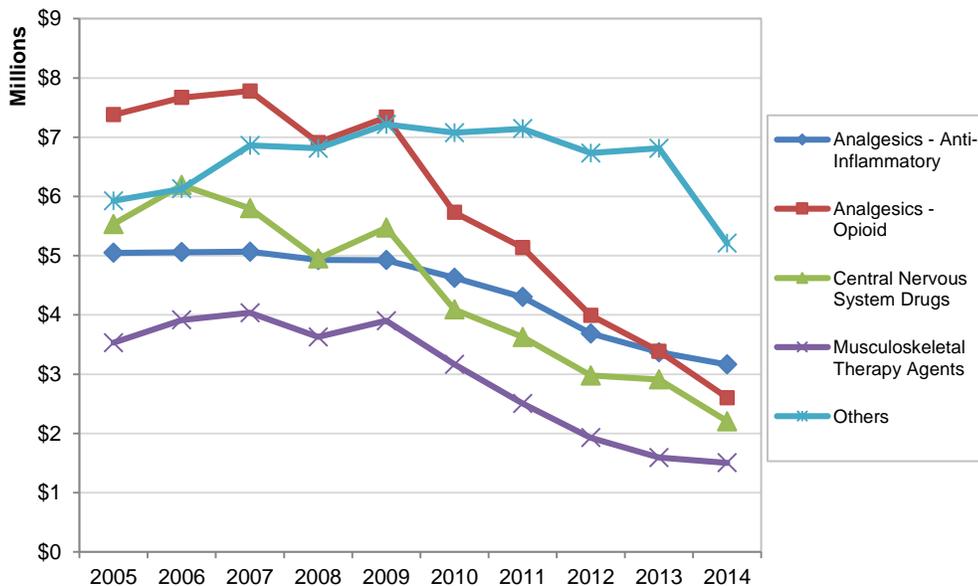
The four named drug groups accounted for 74 percent of the total pharmacy costs for lost-time claims, and 65 percent of medical-only claims costs in 2014 (see Figures 6.1 and 6.2). Among lost-time claims, the total costs of all drug groups decreased since 2010. The most significant factor in the decrease was the pharmacy closed formulary. Notably, the total cost of Analgesics – Opioid and Musculoskeletal Therapy Agents decreased by 48 percent since 2010. Although relatively small, the total costs for medical-only claims also decreased significantly. New injuries are dominant in medical-only claims, and the decrease since 2008 may have been related to treatment guidelines and new pharmacy benefit rules including 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, 2015.

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

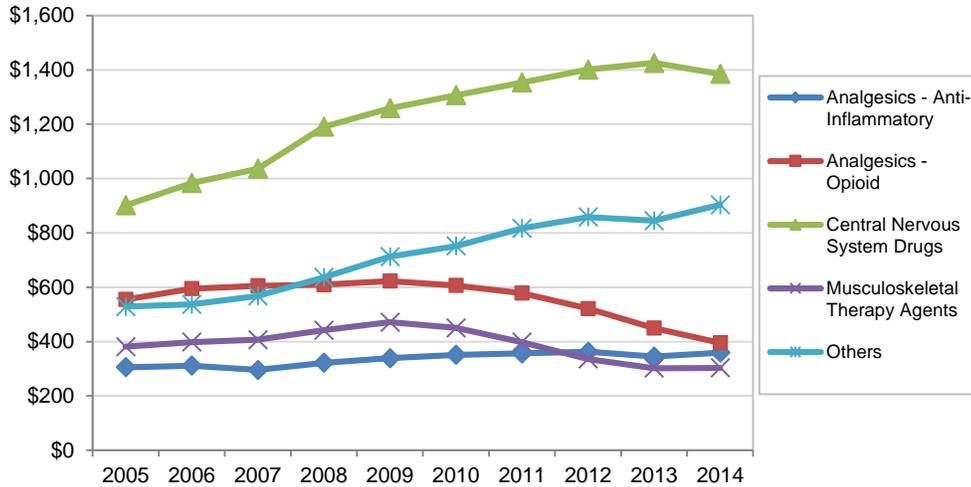


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 lower rate. The average cost per claim for the 'Others' group increased moderately, while average costs for Analgesics and Musculoskeletal Therapy

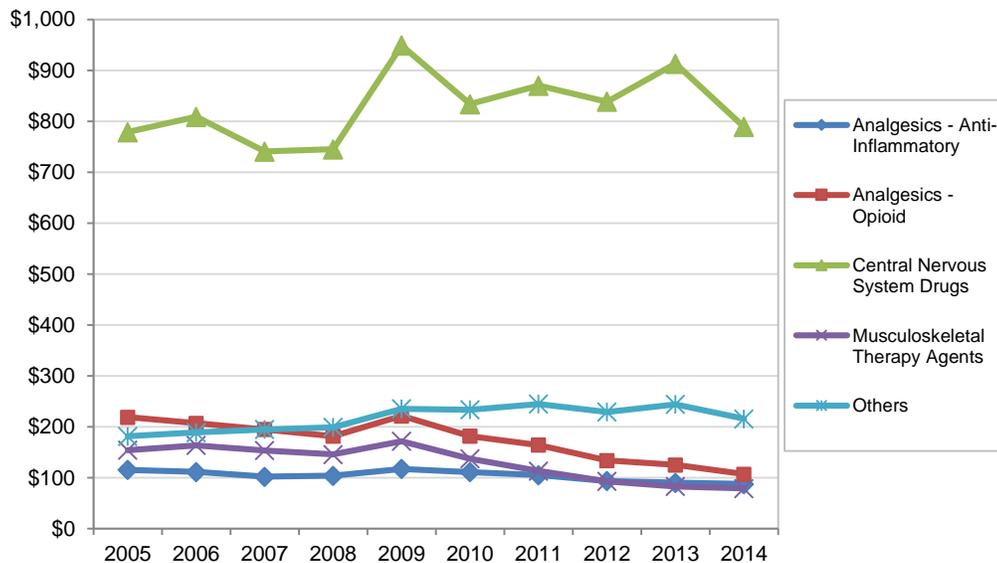
Agents remained relatively stable. The average cost per claim for opioids decreased since 2010 by 35 percent among lost-time claims and by 41 percent among medical-only claims. The share of claims receiving certain drugs was the lowest for CNS Drugs for both claim types (see Table 6.6).

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, 2015.

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, 2015.

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

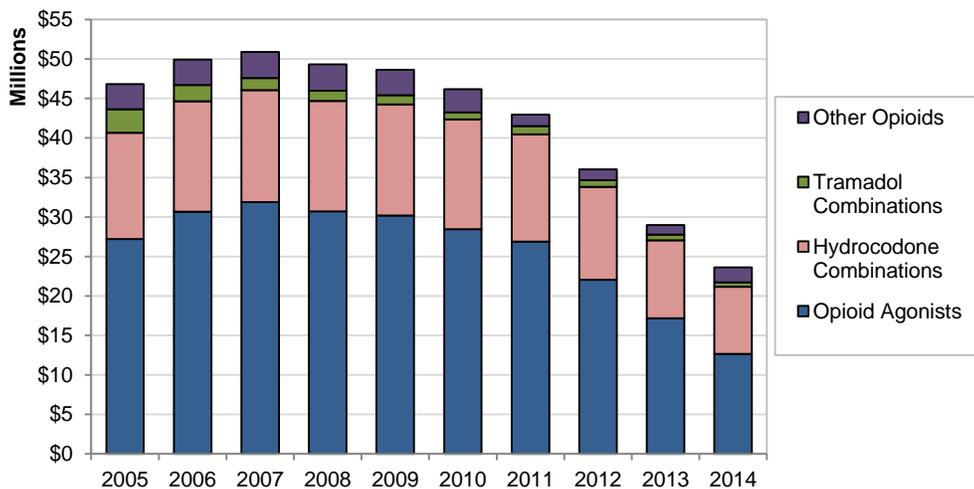
Drug Group	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Lost-time Claims										
Analgesics - Anti-Inflammatory	56.1%	55.2%	55.4%	55.3%	55.4%	55.8%	55.5%	55.7%	56.2%	56.5%
Analgesics - Opioid	75.8%	78.2%	78.1%	77.4%	77.1%	76.6%	76.7%	75.9%	74.9%	74.0%
Central Nervous System Drugs	32.0%	34.2%	33.5%	32.1%	31.4%	30.3%	29.4%	28.5%	28.0%	27.0%
Musculoskeletal Therapy Agents	41.0%	41.2%	40.9%	40.0%	40.1%	39.9%	38.5%	37.8%	37.1%	37.7%
Others	42.2%	39.9%	39.8%	41.0%	42.1%	41.9%	41.6%	42.7%	44.6%	39.1%
Medical-only Claims										
Analgesics - Anti-Inflammatory	55.7%	56.0%	55.5%	55.3%	56.0%	56.6%	57.0%	56.6%	57.4%	59.5%
Analgesics - Opioid	42.9%	45.8%	44.7%	44.4%	44.3%	42.8%	43.6%	42.8%	41.6%	40.0%
Central Nervous System Drugs	9.1%	9.5%	8.8%	7.8%	7.7%	6.7%	5.8%	5.1%	4.9%	4.6%
Musculoskeletal Therapy Agents	29.1%	29.6%	29.4%	29.0%	30.3%	31.3%	30.8%	29.8%	29.5%	31.4%
Others	41.6%	40.1%	39.5%	39.9%	41.0%	41.1%	40.7%	42.2%	42.9%	39.8%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

While CNS Drugs had the highest average cost per claim, Analgesics – Opioid group drugs were the most costly in terms of total cost at \$43 million in 2011. In 2014, the total cost of opioids decreased to \$24 million while total costs if CNS and ‘Others’ drug groups were about \$30 million each.

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 54 percent of total opioid drug costs in 2014, followed by the ‘hydrocodone combinations’ subclass (see Figure 6.5).

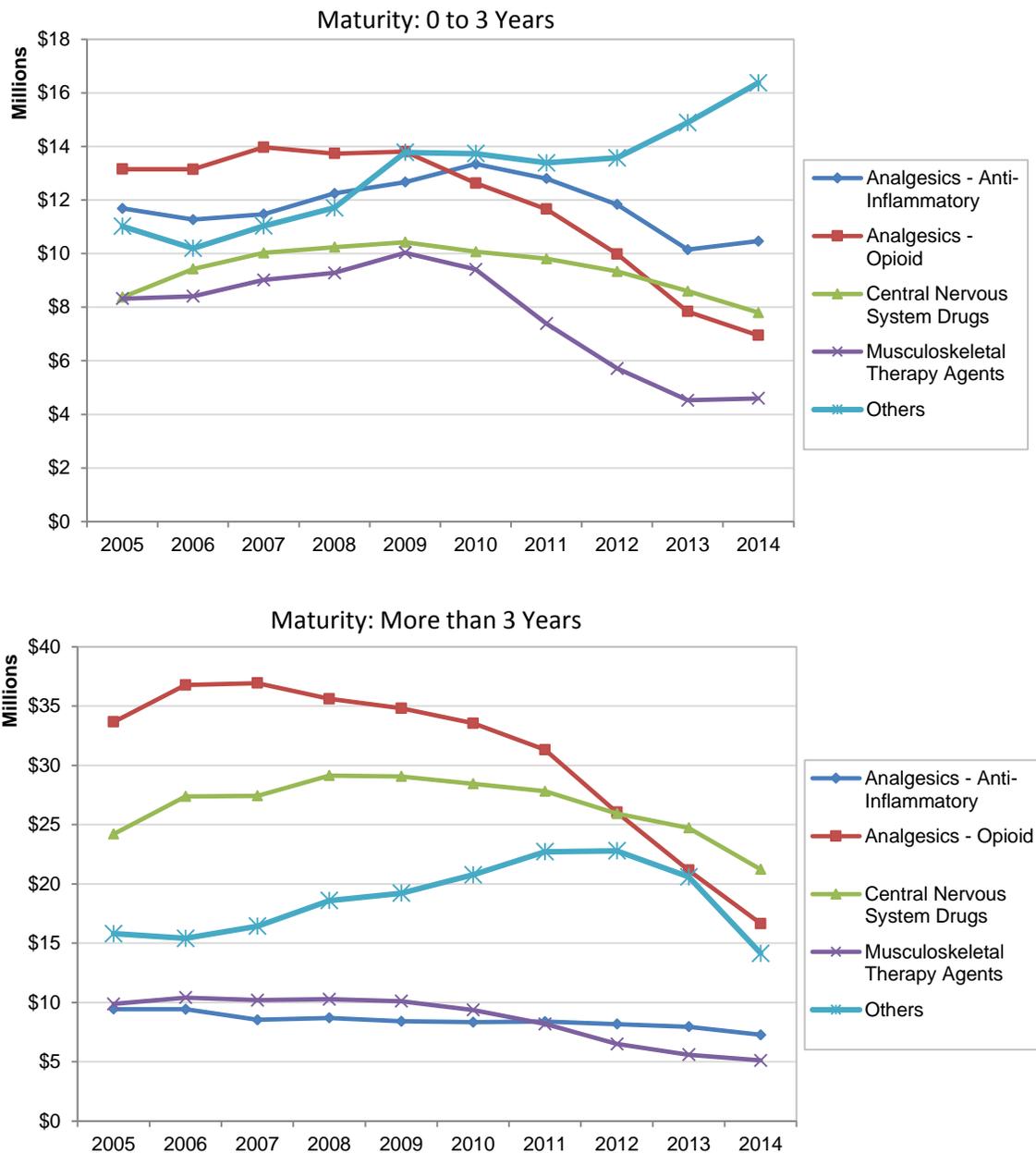
Figure 6.5: Costs of Opioids, by Service Year by Drug Subclass



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 injury with services for older injuries with more than three years maturity—often called “legacy claims.” Figure 6.6 presents total cost by drug group broken down by maturity (see Table C9 in the [Appendix C](#) for data), showing totals of lost-time and medical-only claims. Note that there are more medical-only claims in the ‘0 to 3 Years’ maturity group, while those in the ‘more than 3 years maturity’ are mostly lost-time claims.

Figure 6.6: Total Cost by Service Year, by Drug Group



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

For legacy claims, the Analgesics – Opioid group was the most costly drug group in terms of total cost until 2011 before the closed formulary, but its cost decreased rapidly after the pharmacy closed formulary. For claims with up to three years maturity, opioids were also the most costly drugs until 2009, but 'Others' drug group was most costly in 2014.

For legacy claims, the average cost per prescription 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 6.7). 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 6.7: Average Cost per Prescription by Service Year, by Drug Group by Maturity

Maturity	Drug Group	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
0 to 3 Years	Analgesics - Anti-Inflammatory	\$69	\$65	\$63	\$69	\$76	\$78	\$75	\$74	\$68	\$72
	Analgesics - Opioid	\$46	\$46	\$48	\$48	\$50	\$46	\$44	\$42	\$38	\$37
	Central Nervous System Drugs	\$91	\$98	\$108	\$119	\$123	\$124	\$126	\$139	\$150	\$149
	Musculoskeletal Therapy Agents	\$69	\$70	\$73	\$80	\$88	\$82	\$68	\$60	\$52	\$53
	Others	\$68	\$58	\$58	\$74	\$95	\$99	\$97	\$97	\$117	\$136
More than 3 Years	Analgesics - Anti-Inflammatory	\$109	\$107	\$108	\$116	\$120	\$124	\$129	\$140	\$148	\$154
	Analgesics - Opioid	\$131	\$141	\$151	\$150	\$148	\$147	\$144	\$137	\$126	\$114
	Central Nervous System Drugs	\$117	\$122	\$129	\$140	\$145	\$148	\$153	\$165	\$185	\$199
	Musculoskeletal Therapy Agents	\$92	\$95	\$101	\$108	\$111	\$109	\$102	\$96	\$95	\$101
	Others	\$109	\$98	\$109	\$133	\$155	\$165	\$173	\$185	\$195	\$199

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

In terms of the average cost per claim, CNS Drugs were also the costliest (see Table 6.8). Cost increases were greater for legacy claims than for new injury claims. Per-claim cost for CNS drugs among legacy claims grew by 57 percent since 2005, 'Others' drug group by 88 percent, and Analgesics – Anti-inflammatory drugs by 63 percent. Average cost per claim for Analgesics – Opioid drugs decreased by 33 percent and 12 percent among new and legacy claims, respectively, mostly since 2011.

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

Maturity	Drug Group	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
0 to 3 Years	Analgesics - Anti-Inflammatory	\$147	\$141	\$134	\$146	\$163	\$169	\$164	\$158	\$143	\$152
	Analgesics - Opioid	\$168	\$161	\$163	\$164	\$179	\$164	\$151	\$137	\$117	\$112
	Central Nervous System Drugs	\$431	\$467	\$496	\$547	\$600	\$611	\$631	\$674	\$679	\$641
	Musculoskeletal Therapy Agents	\$183	\$184	\$185	\$196	\$225	\$205	\$167	\$138	\$118	\$120
	Others	\$193	\$187	\$190	\$202	\$254	\$250	\$250	\$256	\$292	\$365
More than 3 Years	Analgesics - Anti-Inflammatory	\$521	\$567	\$555	\$628	\$666	\$702	\$759	\$790	\$819	\$848
	Analgesics - Opioid	\$1,173	\$1,279	\$1,355	\$1,394	\$1,459	\$1,475	\$1,471	\$1,329	\$1,158	\$1,028
	Central Nervous System Drugs	\$1,269	\$1,376	\$1,417	\$1,628	\$1,769	\$1,810	\$1,893	\$1,913	\$1,968	\$1,997
	Musculoskeletal Therapy Agents	\$578	\$624	\$642	\$713	\$760	\$748	\$717	\$629	\$586	\$623
	Others	\$995	\$1,048	\$1,162	\$1,366	\$1,468	\$1,682	\$1,948	\$1,993	\$1,828	\$1,866

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 6.9 shows that lost-time claims accounted for about 81 percent of the total cost in 2005 and 87 percent in 2014. Among lost-time claims, generic drugs accounted for 66 percent of the total cost in 2014. The number of claims receiving brand-name drugs decreased significantly, but per-claim and per-prescription costs for brand drugs increased. Generic drug prescriptions were far more numerous than brand drugs, 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. Note that 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 6.9.

The number of claims receiving brand name drugs and total cost decreased substantially in both new and legacy groups especially after the 2011 pharmacy closed formulary (see Table 6.10). The number of claims receiving generic drugs fluctuated moderately in the 0 to 3 year maturity claim group with noticeable decreases after 2011. Average per-claim and per-prescription costs increased substantially.

Table 6.9: Total and Average Costs, by Generic Status by Claim Type

Service Year	Brand					Generic				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Avg. Cost per Rx	Avg. Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Avg. Cost per Rx	Avg. Cost per Claim
Lost-time Claims										
2005	\$58,052	354,252	54,462	\$164	\$1,066	\$53,737	834,455	85,141	\$64	\$631
2006	\$62,326	353,261	50,486	\$176	\$1,235	\$58,041	902,760	85,620	\$64	\$678
2007	\$62,564	327,060	47,618	\$191	\$1,314	\$60,188	898,567	86,469	\$67	\$696
2008	\$71,333	334,232	46,543	\$213	\$1,533	\$58,490	879,907	85,093	\$66	\$687
2009	\$72,464	313,078	42,994	\$231	\$1,685	\$58,050	849,521	81,258	\$68	\$714
2010	\$70,759	284,699	39,447	\$249	\$1,794	\$61,349	878,806	82,864	\$70	\$740
2011	\$64,361	239,257	33,619	\$269	\$1,914	\$62,500	893,382	81,891	\$70	\$763
2012	\$53,675	185,225	27,029	\$290	\$1,986	\$61,746	832,383	78,067	\$74	\$791
2013	\$45,152	144,784	23,230	\$312	\$1,944	\$58,031	745,822	73,717	\$78	\$787
2014	\$32,091	97,346	18,621	\$330	\$1,723	\$60,865	713,629	70,112	\$85	\$868
Medical-only Claims										
2005	\$14,613	108,664	31,925	\$134	\$458	\$12,131	249,561	67,325	\$49	\$180
2006	\$15,143	102,951	29,544	\$147	\$513	\$13,549	274,651	72,843	\$49	\$186
2007	\$14,736	91,525	29,527	\$161	\$499	\$14,206	283,271	80,893	\$50	\$176
2008	\$14,002	78,725	28,012	\$178	\$500	\$12,477	245,303	77,591	\$51	\$161
2009	\$14,940	74,131	22,898	\$202	\$652	\$13,274	235,749	68,357	\$56	\$194
2010	\$11,769	54,440	18,158	\$216	\$648	\$11,952	222,656	68,290	\$54	\$175
2011	\$9,787	41,140	12,739	\$238	\$768	\$11,556	221,958	67,726	\$52	\$171
2012	\$6,896	26,613	8,504	\$259	\$811	\$10,645	204,633	66,609	\$52	\$160
2013	\$6,502	21,910	7,162	\$297	\$908	\$10,245	188,495	62,428	\$54	\$164
2014	\$4,776	14,335	5,926	\$333	\$806	\$9,670	176,216	58,785	\$55	\$164

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table 6.10: Total and Average Costs, by Generic Status by Maturity

Service Year	Brand					Generic				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Avg. Cost per Rx	Avg. Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Avg. Cost per Rx	Avg. Cost per Claim
0 to 3 Years										
2005	\$23,231	194,420	62,031	\$119	\$375	\$25,890	586,836	121,567	\$44	\$213
2006	\$23,966	181,976	56,444	\$132	\$425	\$26,994	635,088	127,050	\$43	\$212
2007	\$24,787	173,444	55,546	\$143	\$446	\$29,263	669,805	137,336	\$44	\$213
2008	\$27,528	172,018	54,617	\$160	\$504	\$28,846	635,477	134,454	\$45	\$215
2009	\$28,748	159,825	47,784	\$180	\$602	\$30,505	612,146	123,401	\$50	\$247
2010	\$25,765	135,226	40,876	\$191	\$630	\$32,379	629,185	125,895	\$51	\$257
2011	\$20,691	102,831	31,493	\$201	\$657	\$33,398	646,190	125,843	\$52	\$265
2012	\$15,611	70,818	22,359	\$220	\$698	\$33,279	612,197	122,477	\$54	\$272
2013	\$13,433	55,161	18,924	\$244	\$710	\$30,642	551,939	115,315	\$56	\$266
2014	\$12,149	44,612	16,366	\$272	\$742	\$32,394	542,622	110,137	\$60	\$294
More than 3 Years										
2005	\$49,434	268,496	26,226	\$184	\$1,885	\$39,977	497,180	33,688	\$80	\$1,187
2006	\$53,503	274,235	25,045	\$195	\$2,136	\$44,596	542,323	33,979	\$82	\$1,312
2007	\$52,513	245,141	22,921	\$214	\$2,291	\$45,131	512,033	32,337	\$88	\$1,396
2008	\$57,807	240,937	21,173	\$240	\$2,730	\$42,121	489,733	30,294	\$86	\$1,390
2009	\$58,656	227,384	19,261	\$258	\$3,045	\$40,819	473,124	28,227	\$86	\$1,446
2010	\$56,762	203,913	17,764	\$278	\$3,195	\$40,922	472,276	27,213	\$87	\$1,504
2011	\$53,456	177,563	15,799	\$301	\$3,384	\$40,657	469,111	25,721	\$87	\$1,581
2012	\$44,960	141,020	13,932	\$319	\$3,227	\$39,112	424,807	23,886	\$92	\$1,637
2013	\$38,221	111,533	12,045	\$343	\$3,173	\$37,634	382,365	22,412	\$98	\$1,679
2014	\$24,719	67,068	8,583	\$369	\$2,880	\$38,140	347,220	20,212	\$110	\$1,887

Note: Rx = prescription.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

In terms of pharmacy utilization, the average number of prescriptions increased for generic drugs (see Table 6.11). For legacy claims, the average number of generic prescriptions per claim increased by 16 percent since 2005 while brand drugs decreased by 24 percent, mostly in 2014. For generic drugs, the primary reason for the increase in the drug cost per claim was the increase in utilization. For brand drugs, the increase in the average cost per claim was largely due to increases in the average cost per prescription.

Table 6.11: Average Number of Prescriptions per Claim, by Generic Status by Maturity

Maturity	Drug Type	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
0 to 3 Years	Brand	3.1	3.2	3.1	3.1	3.3	3.3	3.3	3.2	2.9	2.7
	Generic	4.8	5.0	4.9	4.7	5.0	5.0	5.1	5.0	4.8	4.9
More than 3 Years	Brand	10.2	10.9	10.7	11.4	11.8	11.5	11.2	10.1	9.3	7.8
	Generic	14.8	16.0	15.8	16.2	16.8	17.4	18.2	17.8	17.1	17.2

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 6.12 shows that the share of generic drugs continued to increase since 2005 in terms of the number of prescription for both new and legacy claims. However, in terms of total cost, the share of generic drugs increased only 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.

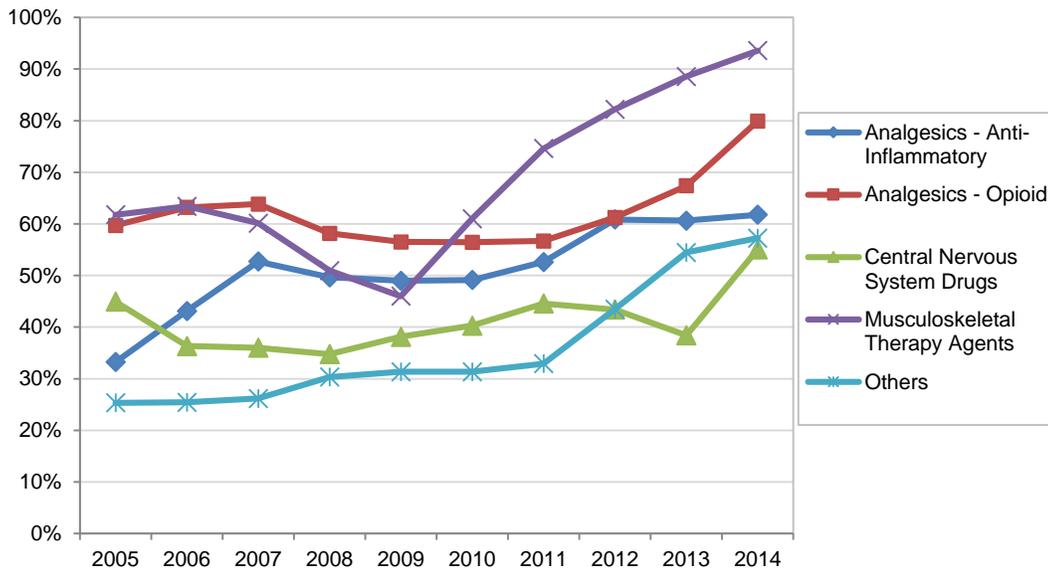
Table 6.12: Shares of Generic Drugs, by Service Year by Maturity

Maturity	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
By Number of Prescription										
0 to 3 Years	75.1%	77.7%	79.4%	78.7%	79.3%	82.3%	86.3%	89.6%	90.9%	92.4%
More than 3 Years	64.9%	66.4%	67.6%	67.0%	67.5%	69.8%	72.5%	75.1%	77.4%	83.8%
By Total Cost										
0 to 3 Years	52.7%	53.0%	54.1%	51.2%	51.5%	55.7%	61.7%	68.1%	69.5%	72.7%
More than 3 Years	44.7%	45.5%	46.2%	42.2%	41.0%	41.9%	43.2%	46.5%	49.6%	60.7%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

In terms of drug group, the generic substitution rate increased in all groups since the 2011 pharmacy closed formulary (see Figure 6.7). The Musculoskeletal Therapy Agents drug group had the highest rate of generic substitution in 2013 at 94 percent, after increasing rapidly since 2010. The generic substitution rate of the Analgesics – Opioid drug group fluctuated around 60 percent until 2012, but increased rapidly to 67 percent in 2013 and to 80 percent in 2014.

Figure 6.7: Generic Drug's Share in Total Cost, by Service Year by Drug Group



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

EFFECTS OF THE PHARMACY CLOSED FORMULARY

The pharmacy closed formulary that went into effect on September 1, 2011, and updated monthly, currently contains approximately 168 chemical drugs with 'N' drug status which requires preauthorization. One hundred of these have generic equivalents, and 39 of them are opioids and related drugs. Drugs with a 'Y' status do not require preauthorization. Drugs that are not identified in the *ODG Workers' Compensation Drug Formulary* or that do not have a valid drug code for identification are classified as 'Other' drugs in this report. The majority of 'Other' drugs are pharmacy bills associated with compounded drugs such as chemicals and compounding fees.

Claims with injury dates on or after September 1, 2011, became subject to the closed formulary, and under a transitional rule, all claims in the Texas workers' compensation system are subject to the closed formulary beginning September 1, 2013 regardless of the injury date. Note that the pharmacy closed formulary affected only new injuries in the last four months of 2011 and all new claims since 2012.

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 initially. About a quarter of those who received pharmacy services received at least one N-drug in 2005 (see Table 6.13). In 2014, only 4 percent of the claims received N-drugs. In terms of cost, N-drug usage was higher for lost-time claims at about 32 percent of the total pharmacy cost in 2011 compared to 27 percent for medical-only claims. N-drug usage was significantly lower in 2014, accounting for 8 percent and 9 percent of the total cost for lost-time and medical-only claims, respectively.

The average cost per claim was considerably higher for lost-time claims due to their longer service duration and resulting higher utilization. Among lost-time claims, the average cost of N-drugs per claim was about 40 percent higher than that of Y-drugs in 2014. The per-prescription cost was much higher for N-drugs, which more than doubles the per-prescription cost of non-N-drugs. The total cost of 'Other' drugs increased since 2011, by 51 percent, from \$18 million to \$27 million. Among medical-only claims, the average cost of N-drugs per claim also increased substantially while the absolute number of claims and total cost decreased.

Table 6.13: Total and Average Costs, by N-drug Status by Claim Type

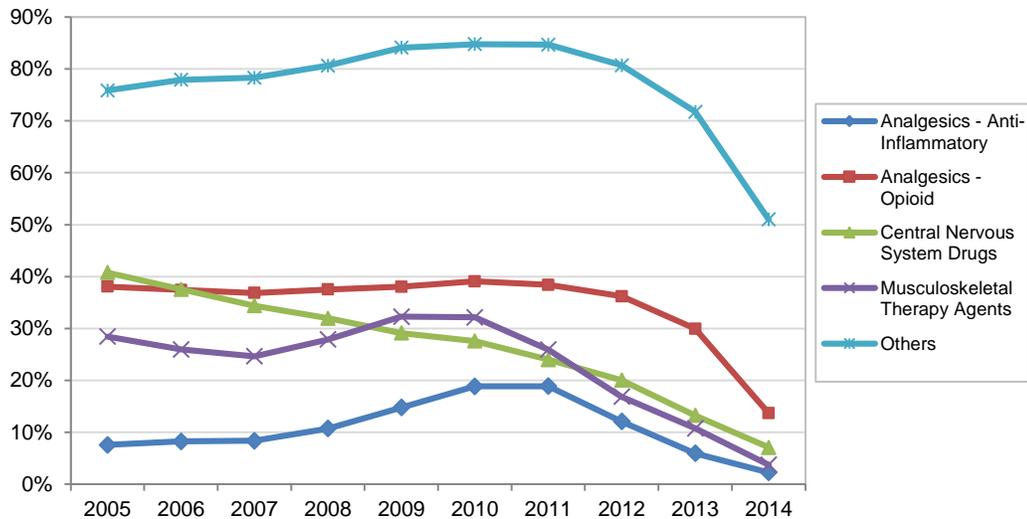
Service Year	N-drug				Y-drug				Other			
	Total Cost ('000 Dollars)	Claims	Avg. Cost per Rx	Avg. Cost per Claim	Total Cost ('000 Dollars)	Claims	Avg. Cost per Rx	Avg. Cost per Claim	Total Cost ('000 Dollars)	Claims	Avg. Cost per Rx	Avg. Cost per Claim
Lost-time Claims												
2005	\$34,101	44,114	\$116	\$773	\$59,038	84,292	\$83	\$700	\$24,969	40,856	\$98	\$611
2006	\$36,844	43,569	\$123	\$846	\$63,700	83,520	\$86	\$763	\$22,340	35,278	\$81	\$633
2007	\$37,616	42,987	\$133	\$875	\$67,232	84,325	\$91	\$797	\$20,675	32,693	\$80	\$632
2008	\$41,090	42,605	\$146	\$964	\$72,326	83,609	\$95	\$865	\$18,875	27,746	\$96	\$680
2009	\$43,128	41,071	\$158	\$1,050	\$72,048	80,356	\$94	\$897	\$18,288	22,197	\$122	\$824
2010	\$45,388	40,651	\$169	\$1,117	\$72,229	81,502	\$92	\$886	\$17,331	19,638	\$127	\$883
2011	\$41,664	31,481	\$191	\$1,323	\$71,034	81,295	\$88	\$874	\$18,050	17,940	\$127	\$1,006
2012	\$31,616	21,025	\$205	\$1,504	\$66,501	77,519	\$89	\$858	\$22,441	19,809	\$144	\$1,133
2013	\$19,061	13,363	\$231	\$1,426	\$63,750	73,171	\$91	\$871	\$25,122	22,318	\$174	\$1,126
2014	\$7,221	5,753	\$268	\$1,255	\$61,468	69,304	\$94	\$887	\$27,192	21,765	\$191	\$1,249
Medical-only Claims												
2005	\$6,949	16,513	\$100	\$421	\$14,414	63,307	\$65	\$228	\$6,056	29,448	\$77	\$206
2006	\$7,154	17,781	\$101	\$402	\$15,921	66,992	\$68	\$238	\$5,890	28,053	\$75	\$210
2007	\$7,053	18,417	\$110	\$383	\$16,370	74,489	\$68	\$220	\$6,119	28,131	\$73	\$218
2008	\$7,258	18,487	\$132	\$393	\$14,942	72,771	\$69	\$205	\$5,029	22,700	\$82	\$222
2009	\$8,432	17,480	\$147	\$482	\$15,301	65,128	\$72	\$235	\$5,118	15,812	\$109	\$324
2010	\$7,235	15,963	\$153	\$453	\$12,868	64,550	\$65	\$199	\$4,591	14,360	\$109	\$320
2011	\$6,040	10,305	\$178	\$586	\$11,995	64,450	\$60	\$186	\$4,681	12,956	\$115	\$361
2012	\$3,719	3,968	\$211	\$937	\$10,668	63,353	\$57	\$168	\$4,931	13,675	\$126	\$361
2013	\$2,877	2,450	\$247	\$1,174	\$9,807	59,159	\$57	\$166	\$5,389	13,764	\$144	\$392
2014	\$1,387	1,366	\$270	\$1,015	\$8,741	55,049	\$56	\$159	\$4,557	14,023	\$147	\$325

Note: Rx = prescription. 'Other' drugs are those with missing drug codes or whose status cannot be identified by the formulary drug list by NDC code.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

In terms of N-drug use by drug group, the share of N-drugs in the total cost, excluding 'Other' drugs, decreased by 63 percent for the Analgesics – Opioid drug group: from 38 percent of the total in 2005 to 14 percent in 2014 (see Figure 6.8 and Table C10 in the [Appendix C](#)). Prior to 2011, this share was growing for all drug groups except CNS Drugs. After implementation of the closed formulary, N-drug shares decreased substantially since 2011 in all drug groups.

Figure 6.8: Share of N-drug Cost in Each Drug Group, by Service Year



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 6.14). Cost shares of N-drugs and the number of claims receiving N-drugs decreased substantially since 2011 for both maturity groups. There was not much difference in the average cost per claim between N-drugs and Y-drugs even though N-drugs are twice as expensive per prescription. Utilization for Y-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. Data from 2014 also clearly showed that the pharmacy closed formulary began to have effects on legacy claims as well.

As N-drug usage decreased, pharmacy services increased in 'Other' drugs that are not listed as either 'N' or 'Y' drugs in the formulary. In 2010, 'Other' drugs accounted for 14 percent (\$22 million) of the total pharmacy cost of \$160 million. In 2014, they accounted for 29 percent (\$32 million) of the total \$111 million. We estimate that at least one third of these 'Other' drugs are compounded drugs. The usage of compounded drugs is discussed in the next section.

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

Service Year	N-drug				Y-drug				Other			
	Total Cost (in '000)	Number of Claims	Avg. Cost per Rx	Avg. Cost per Claim	Total Cost (in '000)	Number of Claims	Avg. Cost Per Rx	Avg. Cost per Claim	Total Cost (in '000)	Number of Claims	Avg. Cost per Rx	Avg. Cost per Claim
0 to 3 Years												
2005	\$10,237	40,270	\$73	\$254	\$31,541	116,885	\$60	\$270	\$10,774	52,524	\$65	\$205
2006	\$10,779	41,123	\$76	\$262	\$32,639	119,744	\$61	\$273	\$9,027	47,573	\$51	\$190
2007	\$10,817	42,117	\$79	\$257	\$35,537	129,396	\$63	\$275	\$9,162	46,722	\$50	\$196
2008	\$12,450	43,188	\$92	\$288	\$36,351	128,522	\$65	\$283	\$8,408	38,476	\$66	\$219
2009	\$14,959	42,043	\$109	\$356	\$36,237	119,487	\$65	\$303	\$9,519	28,000	\$99	\$340
2010	\$15,471	40,848	\$118	\$379	\$35,109	121,111	\$62	\$290	\$8,606	25,470	\$106	\$338
2011	\$12,487	28,349	\$135	\$440	\$33,957	122,112	\$58	\$278	\$8,597	23,148	\$106	\$371
2012	\$6,896	13,294	\$148	\$519	\$31,810	118,892	\$57	\$268	\$11,733	25,500	\$124	\$460
2013	\$2,924	6,621	\$157	\$442	\$28,687	111,734	\$55	\$257	\$14,387	27,303	\$159	\$527
2014	\$1,446	3,948	\$156	\$366	\$27,259	105,754	\$56	\$258	\$17,477	28,553	\$174	\$612
More than 3 Years												
2005	\$30,813	21,896	\$138	\$1,407	\$41,911	33,536	\$102	\$1,250	\$20,250	18,763	\$121	\$1,079
2006	\$33,219	21,523	\$145	\$1,543	\$46,982	33,268	\$107	\$1,412	\$19,203	16,430	\$109	\$1,169
2007	\$33,853	20,462	\$161	\$1,654	\$48,066	31,707	\$114	\$1,516	\$17,632	14,695	\$112	\$1,200
2008	\$35,898	18,975	\$178	\$1,892	\$50,917	29,960	\$121	\$1,699	\$15,497	12,421	\$119	\$1,248
2009	\$36,601	17,533	\$189	\$2,088	\$51,112	28,017	\$120	\$1,824	\$13,886	10,372	\$138	\$1,339
2010	\$37,152	16,696	\$201	\$2,225	\$49,987	26,902	\$120	\$1,858	\$13,316	8,812	\$138	\$1,511
2011	\$35,217	14,221	\$221	\$2,476	\$49,071	25,561	\$118	\$1,920	\$14,134	8,061	\$139	\$1,753
2012	\$28,440	12,329	\$226	\$2,307	\$45,359	23,675	\$122	\$1,916	\$15,639	8,250	\$156	\$1,896
2013	\$19,014	9,506	\$252	\$2,000	\$44,870	22,169	\$127	\$2,024	\$16,124	9,101	\$177	\$1,772
2014	\$7,162	3,264	\$314	\$2,194	\$42,950	20,018	\$132	\$2,146	\$14,272	7,535	\$195	\$1,894

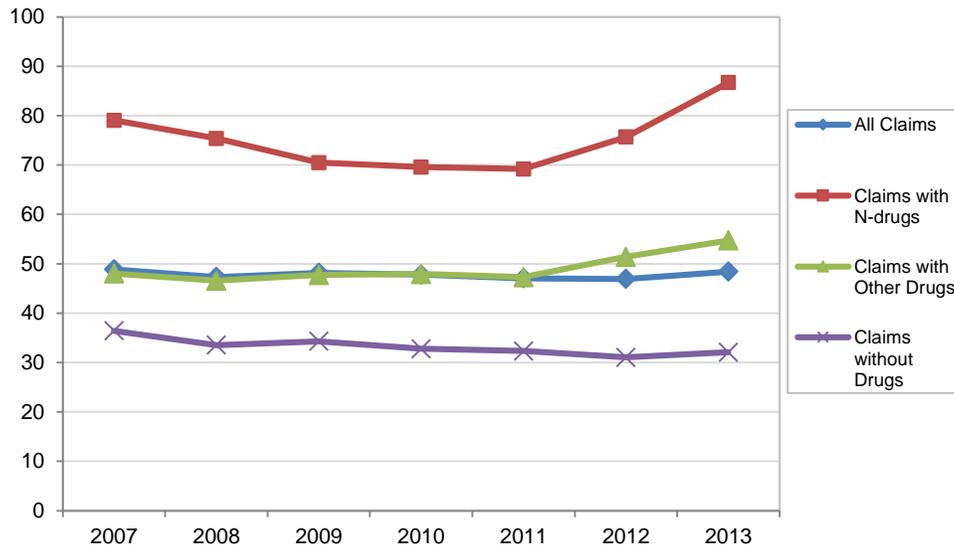
Note: Rx = prescription.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

While the usage of N-drugs decreased since 2011, the data shows that this decrease did not cause an overall increase in non-N-drugs. N-drugs decreased absolutely without being substituted by other drugs. However, Table 6.14 also shows that the use of 'Other' drugs increased rapidly among new injury claims from the total cost of \$8.6 million in 2011 to \$17.5 million in 2014. The number of claims receiving 'Other' drugs also increased by 23 percent in the same period. 'Other' drugs are those that are not classified either as 'N' or 'Y' drugs by the formulary or those drugs submitted without a valid code to classify. A large part of these 'Other' drugs are related to an increasing use of compounded drugs.

Another potential substitution effect of the pharmacy closed formulary, especially in regard to a decreased access to opioids and other pain medicine, is the use of non-pharmacologic treatments such as physical medicine services. The cost and utilization of physical medicine services continued to decrease significantly because of the preauthorization requirement and other regulatory measures implemented since 2002 (as seen in Figures 3.5, 3.10 and 3.11). Figure 3.11 showed that the number of physical medicine services per claim increased in 2012 and 2013 for the first time since 2002. It is difficult to prove whether this increase was directly related to the decrease in N-drugs or not. Nevertheless, since 2011, utilization metrics of physical medicine increased among those receiving pharmacy services (see Figure 6.9 and Table 6.15). Since 2011, utilization of physical medicine services increased by 25 percent among those with N-drugs, and by 16 percent among those with 'Other' drugs while it decreased by one percent among those without pharmacy services. A lower utilization of N-drugs and opioids after the pharmacy closed formulary appears to be related to an increase in physical medicine services.

Figure 6.9: Number of Physical Medicine Services per Claim by Drug Status, 12 Months after Injury



Note: Figures are presented by fiscal injury year covering a year from September to August. For example, Fiscal Injury Year 2011 covers new claims with an injury date from September 1, 2010 to August 31, 2011, and the 12-month maturity covers services up to August 31, 2012.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table 6.15: Number of Physical Medicine Services per Claim by N-drug Status, 12 Months after Injury

Fiscal Injury Year	All Claims	Claims with "N" Drugs	Claims with Other Drugs only	Claims without Drugs
2007	48.9	79.1	48.0	36.4
2008	47.3	75.4	46.6	33.5
2009	48.1	70.5	47.7	34.3
2010	47.8	69.6	47.9	32.8
2011	47.1	69.2	47.3	32.3
2012	46.9	75.7	51.4	31.0
2013	48.4	86.7	54.7	32.1
Rate of change (2011-2013)	2.9%	25.3%	15.8%	-0.8%

Note: Figures are presented by fiscal injury year covering a year from September to August. For example, Fiscal Injury Year 2011 covers new claims with an injury date from September 1, 2010 to August 31, 2011, and the 12-month maturity covers services up to August 31, 2012.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

COST AND UTILIZATION OF COMPOUNDED DRUGS

Drug compounding is a specialty service that provides injured employees with certain pharmaceutical products in dosage forms, strength, or delivery methods that are not available commercially. The vast majority of compounded drugs are topical pain medications, for which there is a growing debate about their effectiveness and cost. In this section, we present initial estimates of the prevalence and cost of compounded drugs in the Texas workers' compensation system.

One difficulty in analyzing compounded drugs is the fact that pharmacy bills do not have data that identifies them as a compounded drug prescription. However, Texas regulation requires each ingredient (billing line) of a compounded drug to be listed and calculated separately ([28 TAC §134.502](#)). Therefore, we used chemicals and pharmaceutical adjuvants as an indicator for compounding, and separated bills that contained one or more billing lines of these ingredients as compounded drugs.

The billing line share of compounded drugs increased from 3.4 percent in 2010 to 6.4 percent in 2014 (see Table 6.16). Because of the rapid increase in the cost per ingredient (billing line), the cost share of compounded drugs increased significantly from 3.7 percent of the total pharmacy cost in 2010 to 12.4 percent in 2014 (see Table 6.17). A typical compounded drug contained about 3.2 ingredients (billing lines) and cost \$646 in 2014 (see Table 6.18). The average cost of a compounded drug increased by 109 percent between 2010 and 2013, but it decreased slightly in 2014 from 2013.

The top 10 most common ingredients in compounded drugs in 2014 are shown in Table 6.19. The absolute number of claims receiving compounded drugs is somewhat small, but the average cost per ingredient (billing line) and the average cost per claim are relatively high.

Table 6.16: Number and Cost of Ingredients (Lines) by N-drug Status

Service Year	Compounded Drug: Number of Ingredients (Lines)				Share of Compounded Drug Billing Lines in Total Billing Lines
	N-drug	Y-drug	Other	Total	
2010	468	897	48,679	50,044	3.4%
2011	210	492	53,984	54,686	3.8%
2012	156	597	66,670	67,423	5.2%
2013	80	410	58,398	58,888	5.1%
2014	28	774	64,441	65,243	6.4%

Note: Billing lines with no payment are removed from analysis.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table 6.17: Cost of Compounded Drugs by Bill Lines, by N-drug Status

Service Year	Compounded Drug Cost by N-drug Status at the Bill Line Level				Total Pharmacy Cost	Cost Share of Compounded Drugs
	N-drug	Y-drug	Other	Total Cost		
2010	\$97,867	\$122,639	\$5,644,743	\$5,865,249	\$159,641,212	3.7%
2011	\$57,053	\$70,060	\$5,972,831	\$6,099,944	\$153,465,233	4.0%
2012	\$37,277	\$77,880	\$9,151,541	\$9,266,698	\$139,876,717	6.6%
2013	\$42,262	\$89,296	\$12,820,038	\$12,951,596	\$126,006,502	10.3%
2014	\$23,649	\$93,416	\$13,581,063	\$13,698,128	\$110,567,076	12.4%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table 6.18: Number and Cost by Compounded Drug

Service Year	Number of Compounded Drugs	Number of Ingredients (Lines)	Total Cost	Average Cost per Compounded Drug	Average Number of Ingredients (Lines) per Compounded Drug
2010	18,535	51,082	\$5,865,249	\$316	2.8
2011	18,364	55,741	\$6,099,944	\$332	3.0
2012	20,560	68,975	\$9,266,698	\$451	3.4
2013	19,636	60,097	\$12,951,596	\$660	3.1
2014	21,200	66,999	\$13,698,128	\$646	3.2

Note: Bill lines with no payment are included if there is one or more ingredients with non-zero payment in the compounded drug.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table 6.19: Top 10 Ingredients (Lines) in Compounded Drugs (Service Year 2014)

	Drug Name	Number of Ingredients (Lines)	Number of Claims	Total Pay	Average Cost per Ingredient (Line)	Average Cost per Claim
1	GABAPENTIN	5,364	1,617	\$2,622,195	\$489	\$1,622
2	FLURBIPROFEN	5,293	1,304	\$2,303,591	\$436	\$1,755
3	TRAMADOL HCL	2,995	616	\$1,043,867	\$349	\$1,695
4	BACLOFEN	4,765	1,361	\$1,004,482	\$216	\$737
5	FLUTICASONE PROPIONATE	312	128	\$941,057	\$3,016	\$7,352
6	CYCLOBENZAPRINE HCL	3,969	1,179	\$584,922	\$147	\$496
7	VERSAPRO	4,203	716	\$584,525	\$139	\$816
8	KETAMINE HCL	875	349	\$482,361	\$551	\$1,382
9	KETOPROFEN	1,508	588	\$339,731	\$229	\$570
10	MELOXICAM	2,460	400	\$305,561	\$124	\$764

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Another aspect of the compounded drugs is the high concentration of a small number of providers prescribing them. Top 10 individual prescribing doctors (or pain management clinics) accounted for 50 percent of all bills, and the top 20 providers accounted for 64 percent of all bills for compounded drugs.

In addition, the majority of the bills have a National Drug Code (NDC) that is not identified in the pharmacy closed formulary. As a result, compounded drugs are classified as 'Other' drugs in Table 6.16, being neither N nor Y drugs. Given the rapid increase in the use of these ingredients, an expanded coverage of all NDC codes may be necessary in the formulary. About 20 percent of 'Other' drugs in Table 6.17 have missing or '999' NDC codes. The majority of '999' code bills appear to be bills for compounding fees.

RESCHEDULING HYDROCODONE COMBINATION PRODUCTS AS SCHEDULE II DRUGS

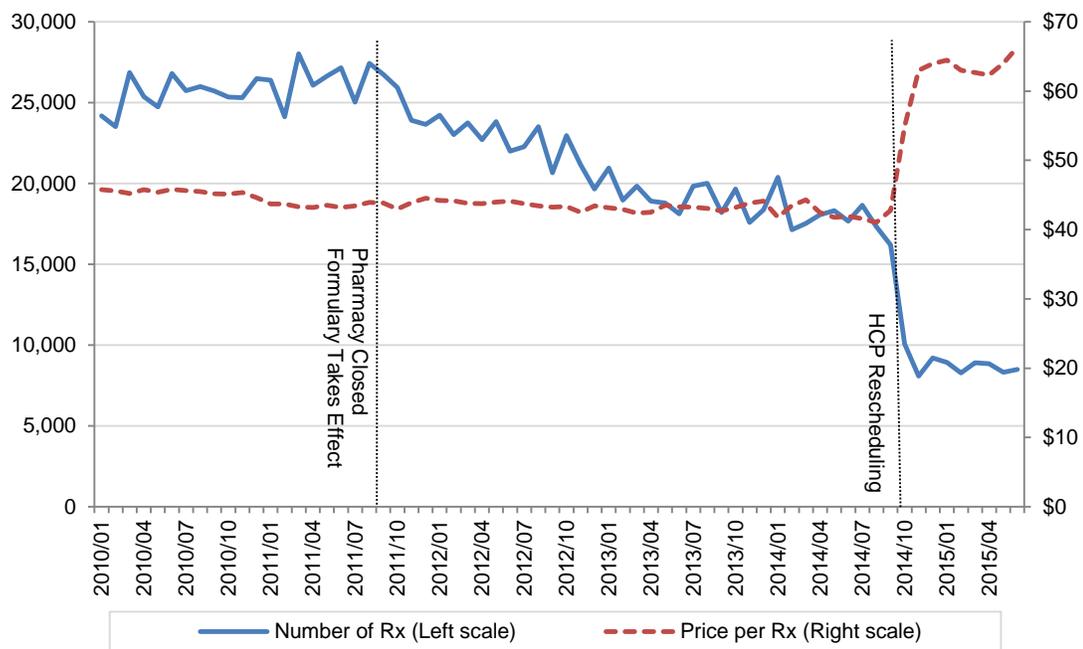
Hydrocodone combination products (HCPs) are one of the most prescribed drugs, accounting for 56 percent of all opioid prescriptions and 36 percent of the opioid cost in 2014. However, HCPs were not "N" status drugs in the pharmacy closed formulary, and they were classified as Schedule III controlled substances by the Drug Enforcement Agency (DEA). Beginning October 6, 2014, HCPs became Schedule II drugs. For Schedule II drugs, no refills are allowed without a new office visit with a physician, and prescriptions are allowed for a maximum of 90 days only with three pre-dated 30-day prescriptions. In comparison, Schedule III drugs can be prescribed for six months, and over-the-phone refills are allowed.

Even before this rescheduling, the pharmacy closed formulary had a gradual effect on the use of HCPs as the overall use of opioids decreased. From August 2011 to September 2014, the number of HCP prescription decreased by 41 percent (see Figure 6.10) and its cost decreased by 43 percent. The

rescheduling of HCPs impacted their utilization in a similar pattern as if they had been classified as “N” drugs by the formulary. From September 2014 to November 2014, the number of prescriptions decreased by 50 percent and the total cost of HCPs decreased by 27 percent. Since then, the monthly number of HCP prescriptions has been stable at about 8,500 a month.

Per-claim utilization of HCPs also decreased from about 1.4 prescriptions per claim in 2011 to 1.1 prescriptions in 2015. However, the cost per HCP prescription increased by 47 percent from September 2014 to November 2014, possibly indicating a higher cost of dispensing the drug due to Schedule II regulations.

Figure 6.10: Number of HCP Prescriptions and Price, by Month



Note: HCP = Hydrocodone Combination Product.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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 costs decreased by 30 percent between 2002 and 2007. Between 2007 and 2014, costs increased by 9 percent. With pharmacy and dental costs (data available only from 2005) included, all health care costs increased by three percent between 2005 and 2014 service years.

Analyzing by provider bill type, the total cost of professional services decreased by 13 percent since 2000 while the total cost of hospital services increased by 26 percent. Pharmacy cost decreased by 12 percent from 2005 to 2014. However, because the number of claims decreased by more than 20 percent, the average costs per claim increased at a greater rate: since 2000, average professional cost increased by 22 percent, and average hospital cost increased by 89 percent, while average pharmacy cost per claim decreased by 1 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 and changes in the Medicare payment model. 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, or vice versa, to result in the same level of total cost.

Data presented in this report indicate 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 29 percent and 33 percent for professional and hospital services, respectively, from 2000 to 2014.

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 (number of visits) and the intensity (number of services per visit) 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 three distinct time periods. From 2000 to 2002, system costs generally increased rapidly, continuing the pattern of growth seen in the 1990s. From 2002 to 2007, system costs declined equally rapid due to various reforms implemented during the period, including new fee guidelines, preauthorization rules, and the reorganization of the regulatory agency itself from the Texas Workers' Compensation Commission to the Division of Workers' Compensation in the Texas Department of Insurance. The period from 2007 to 2014 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	9.5%	11.2%	13.8%	-5.3%	-11.9%	31.2%	22.2%	19.8%	11.6%
2002-2007	-27.3%	-21.8%	-13.2%	21.0%	2.2%	-40.3%	-49.6%	-17.9%	-30.7%
2007-2014	-17.3%	0.0%	9.6%	17.8%	4.3%	6.8%	-5.4%	29.1%	14.3%
2000-2014	-34.1%	-13.0%	8.2%	34.9%	-6.1%	-16.3%	-41.8%	27.0%	-11.6%
Medical-only Claims									
2000-2002	-4.3%	3.9%	9.4%	-1.2%	-8.0%	7.4%	0.0%	12.3%	4.6%
2002-2007	-9.3%	-10.8%	-10.1%	15.0%	-3.0%	-16.4%	-29.4%	-7.8%	-22.2%
2007-2014	-13.1%	-2.6%	9.1%	18.0%	4.5%	9.0%	-3.5%	25.4%	11.0%
2000-2014	-24.6%	-9.7%	7.3%	34.0%	-6.8%	-2.1%	-31.9%	29.9%	-9.6%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

For lost-time claims, average cost per claim increased by 27 percent from 2000 to 2014 (see column 6a). Adjusted for inflation, the average cost per claim decreased by 12 percent (column 6b) since inflationary prices increased by 44 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 16 percent (column 5a). If we adjust for inflation, the total cost decreased by 42 percent since 2000 (column 5b). The decrease in utilization was mainly through reduced service frequency (visits) while the service intensity increased slightly since 2007.

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 despite the increase in the cost per service.

Medical-only claims showed similar trends with a lower rate of decrease in the number of claims and a lower rate of decrease in utilization. Since 2000, the total cost increased by 2 percent while the number of medical-only claims decreased by 25 percent. The price per service increased by 34 percent, but it decreased by 7 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 the same provider on the 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 as a result 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 (MMI) 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 due to 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 benefits are reported to TDI-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 2.1. 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 of 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 the best estimates of

income benefits by service year and allowed us to compare income benefits with medical costs reported by service year.

APPENDIX C: ADDITIONAL DATA

Table C1: Data for Figure 2.1 (Average Cost per Claim, by Bill Type)

Service Year	Professional	Hospital/ Institutional	Dental	Pharmacy	Medical Combined
2000	\$1,783	\$2,506			\$2,479
2001	\$1,957	\$2,924			\$2,795
2002	\$2,214	\$3,210			\$3,193
2003	\$2,188	\$3,298			\$3,219
2004	\$1,981	\$2,954			\$2,844
2005	\$2,049	\$2,967	\$1,387	\$845	\$3,038
2006	\$1,808	\$3,224	\$2,010	\$884	\$2,969
2007	\$1,720	\$3,469	\$2,291	\$860	\$2,990
2008	\$1,781	\$3,732	\$2,575	\$909	\$3,136
2009	\$2,016	\$3,908	\$2,761	\$1,010	\$3,478
2010	\$2,013	\$4,029	\$2,944	\$994	\$3,559
2011	\$2,247	\$4,277	\$3,205	\$978	\$3,874
2012	\$2,267	\$4,392	\$3,132	\$930	\$3,836
2013	\$2,259	\$4,700	\$3,136	\$893	\$3,878
2014	\$2,166	\$4,729	\$3,282	\$836	\$3,744

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, 2015.

Table C2: 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	\$41,037	\$63,434	\$96,998	\$32,297	\$34,197	\$191,122	\$54,845	\$51,897
2001	\$43,320	\$69,995	\$103,285	\$37,323	\$35,778	\$221,556	\$59,288	\$56,275
2002	\$52,034	\$82,867	\$109,465	\$52,825	\$44,397	\$255,592	\$70,432	\$74,881
2003	\$50,481	\$72,097	\$97,785	\$54,444	\$42,315	\$246,635	\$60,750	\$51,710
2004	\$43,466	\$53,834	\$80,010	\$57,417	\$32,053	\$201,518	\$45,907	\$24,743
2005	\$52,639	\$53,353	\$76,928	\$64,457	\$31,730	\$184,848	\$66,550	\$25,525
2006	\$52,159	\$47,777	\$66,239	\$58,498	\$27,784	\$133,652	\$63,086	\$21,766
2007	\$59,186	\$41,893	\$67,356	\$59,483	\$25,741	\$112,169	\$60,490	\$16,943
2008	\$59,245	\$45,049	\$70,247	\$58,196	\$26,472	\$106,940	\$67,513	\$16,257
2009	\$58,233	\$50,148	\$75,176	\$59,114	\$27,325	\$111,178	\$79,524	\$19,282
2010	\$61,001	\$48,494	\$76,906	\$57,161	\$26,457	\$111,693	\$81,113	\$17,182
2011	\$66,744	\$54,632	\$89,161	\$55,836	\$27,957	\$124,614	\$94,385	\$18,158
2012	\$68,440	\$58,512	\$87,434	\$54,564	\$25,985	\$124,295	\$92,613	\$16,312
2013	\$68,593	\$51,263	\$84,777	\$53,786	\$25,519	\$121,063	\$85,964	\$15,330
2014	\$62,509	\$48,665	\$80,240	\$51,898	\$23,717	\$115,916	\$78,091	\$12,548
Medical-only Claims								
2000	\$8,625	\$20,543	\$39,825	\$9,822	\$8,380	\$46,868	\$13,441	\$5,617
2001	\$8,376	\$21,601	\$39,759	\$11,425	\$7,948	\$50,511	\$13,515	\$6,130
2002	\$9,351	\$22,416	\$39,435	\$13,813	\$8,434	\$51,128	\$12,943	\$6,969
2003	\$9,255	\$19,195	\$37,142	\$13,024	\$6,644	\$45,864	\$11,629	\$4,151
2004	\$8,836	\$14,727	\$35,508	\$12,917	\$4,189	\$38,985	\$9,551	\$1,884
2005	\$10,908	\$16,042	\$38,216	\$15,162	\$4,532	\$38,003	\$12,650	\$2,221
2006	\$11,923	\$16,983	\$39,892	\$14,637	\$4,660	\$30,300	\$13,997	\$2,120
2007	\$13,593	\$16,412	\$44,062	\$15,376	\$4,664	\$28,665	\$13,157	\$1,622
2008	\$13,136	\$16,529	\$45,031	\$14,361	\$4,309	\$26,494	\$12,575	\$1,440
2009	\$12,215	\$16,384	\$44,947	\$14,000	\$3,978	\$26,642	\$11,636	\$1,236
2010	\$12,087	\$15,837	\$47,582	\$13,355	\$3,938	\$27,048	\$11,839	\$1,206
2011	\$15,160	\$18,336	\$55,470	\$14,018	\$4,363	\$32,389	\$13,513	\$1,139
2012	\$15,702	\$17,902	\$56,790	\$13,216	\$4,233	\$34,936	\$12,928	\$761
2013	\$12,783	\$15,651	\$57,054	\$12,452	\$4,281	\$37,366	\$11,889	\$959
2014	\$11,928	\$14,470	\$55,538	\$12,582	\$4,303	\$39,087	\$11,223	\$793

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table C3: 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	\$622	\$643	\$623	\$309	\$489	\$2,718	\$1,178	\$3,180
2001	\$672	\$684	\$634	\$335	\$502	\$3,018	\$1,206	\$3,175
2002	\$723	\$739	\$631	\$422	\$559	\$3,158	\$1,245	\$3,671
2003	\$672	\$681	\$605	\$457	\$608	\$3,250	\$1,101	\$2,694
2004	\$609	\$577	\$573	\$525	\$631	\$3,038	\$944	\$1,647
2005	\$796	\$595	\$578	\$604	\$657	\$2,980	\$1,351	\$1,845
2006	\$806	\$559	\$524	\$585	\$614	\$2,464	\$1,347	\$1,853
2007	\$897	\$494	\$543	\$620	\$592	\$2,143	\$1,337	\$1,730
2008	\$925	\$532	\$577	\$618	\$624	\$2,132	\$1,530	\$1,948
2009	\$934	\$597	\$634	\$639	\$654	\$2,249	\$1,841	\$2,420
2010	\$968	\$573	\$649	\$623	\$649	\$2,263	\$1,902	\$2,445
2011	\$1,049	\$659	\$763	\$625	\$691	\$2,582	\$2,171	\$2,741
2012	\$1,080	\$725	\$771	\$627	\$674	\$2,679	\$2,215	\$2,852
2013	\$1,117	\$667	\$785	\$652	\$680	\$2,715	\$2,172	\$2,868
2014	\$1,069	\$657	\$770	\$649	\$665	\$2,641	\$2,084	\$2,663
Medical-only Claims								
2000	\$161	\$188	\$199	\$88	\$112	\$973	\$363	\$2,307
2001	\$173	\$203	\$203	\$95	\$111	\$1,029	\$373	\$2,429
2002	\$189	\$207	\$200	\$110	\$113	\$1,032	\$354	\$2,665
2003	\$162	\$187	\$208	\$109	\$117	\$1,005	\$331	\$1,949
2004	\$140	\$159	\$221	\$115	\$137	\$929	\$310	\$1,171
2005	\$178	\$163	\$225	\$128	\$145	\$920	\$368	\$1,457
2006	\$177	\$164	\$228	\$118	\$140	\$755	\$393	\$1,419
2007	\$187	\$151	\$241	\$119	\$133	\$696	\$371	\$1,370
2008	\$193	\$156	\$254	\$114	\$125	\$717	\$369	\$1,527
2009	\$201	\$171	\$281	\$121	\$129	\$800	\$386	\$1,575
2010	\$202	\$164	\$293	\$113	\$132	\$826	\$385	\$1,659
2011	\$253	\$189	\$334	\$117	\$146	\$993	\$424	\$1,827
2012	\$257	\$188	\$341	\$108	\$141	\$1,048	\$414	\$1,533
2013	\$211	\$168	\$354	\$105	\$143	\$1,094	\$410	\$1,856
2014	\$203	\$157	\$345	\$105	\$141	\$1,098	\$405	\$1,753

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table C4: 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	6.8	11.4	4.2	6.0	82.1	3.8	5.1
2001	7.5	7.1	11.6	5.2	6.2	88.7	4.0	5.1
2002	7.5	7.9	12.7	5.9	6.3	103.8	4.5	5.9
2003	8.9	8.1	11.7	6.1	6.3	106.8	4.5	5.2
2004	10.9	7.4	9.3	5.9	5.0	95.9	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	70.5	4.8	5.4
2007	9.9	7.6	7.5	6.3	4.1	64.7	4.6	5.5
2008	9.5	8.0	7.5	6.3	4.0	63.5	4.5	5.4
2009	9.3	8.9	7.6	6.5	3.8	61.6	4.5	5.7
2010	8.7	9.5	7.5	6.3	3.8	60.4	4.5	5.8
2011	8.7	10.0	7.4	6.4	3.8	59.1	4.6	5.4
2012	8.3	12.5	7.3	6.1	3.7	59.6	4.7	5.1
2013	8.7	13.7	7.3	6.4	3.6	61.7	4.6	5.1
2014	9.3	15.6	7.3	6.5	3.5	61.7	4.5	4.7
Medical-only Claims								
2000	3.3	2.6	3.7	2.1	3.2	35.1	1.8	3.9
2001	3.3	2.7	3.7	2.6	3.1	36.1	1.8	4.1
2002	3.4	2.7	3.8	2.8	3.2	37.9	1.9	4.3
2003	3.6	2.7	3.5	2.8	3.0	37.7	1.9	4.1
2004	4.3	2.6	3.1	2.8	2.4	33.4	1.8	3.6
2005	4.4	2.7	3.0	3.1	2.2	32.6	1.9	4.1
2006	4.1	2.7	2.9	2.9	2.2	27.2	1.9	4.2
2007	4.0	2.7	2.9	2.7	2.1	25.3	1.9	4.2
2008	3.8	2.6	2.8	2.7	2.1	24.6	1.8	4.2
2009	3.8	2.7	2.8	2.7	2.0	24.5	1.7	4.0
2010	3.5	2.7	2.8	2.7	2.0	24.4	1.7	4.5
2011	3.4	2.8	2.8	2.7	2.0	24.8	1.7	4.1
2012	3.2	2.9	2.8	2.7	2.0	25.3	1.7	3.1
2013	3.7	2.9	2.8	2.8	2.0	26.3	1.7	3.5
2014	4.1	3.1	2.8	2.8	2.0	27.2	1.7	3.4

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table C5: 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	\$1,553	\$2,136	\$1,616	\$1,674
2001	\$1,693	\$2,358	\$1,806	\$1,652
2002	\$1,840	\$2,776	\$2,222	\$1,961
2003	\$1,819	\$2,786	\$2,217	\$1,964
2004	\$1,651	\$2,633	\$2,067	\$1,848
2005	\$1,725	\$2,742	\$2,287	\$2,035
2006	\$1,478	\$2,613	\$2,127	\$2,074
2007	\$1,428	\$2,503	\$2,114	\$1,992
2008	\$1,503	\$2,496	\$2,114	\$2,066
2009	\$1,697	\$2,761	\$2,226	\$2,284
2010	\$1,693	\$2,816	\$2,401	\$2,338
2011	\$1,917	\$3,057	\$2,635	\$2,653
2012	\$1,911	\$3,059	\$2,649	\$2,927
2013	\$1,921	\$2,985	\$2,703	\$2,910
2014	\$1,852	\$2,919	\$2,518	\$2,827

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table C6: Average Cost per Claim by Service Type, Professional Services, Lost-time Claims, by Injury Year at 12 Months after Injury

Injury Year	DMEPOS	Diag/Path/ Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
2000	\$539	\$807	\$900	\$360	\$459	\$3,348	\$1,372	\$2,782
2001	\$599	\$918	\$944	\$454	\$496	\$3,626	\$1,450	\$2,852
2002	\$609	\$966	\$940	\$519	\$523	\$3,779	\$1,485	\$2,860
2003	\$589	\$842	\$878	\$617	\$542	\$3,511	\$1,207	\$1,764
2004	\$574	\$714	\$798	\$649	\$577	\$3,041	\$1,270	\$1,643
2005	\$701	\$742	\$816	\$723	\$619	\$2,830	\$1,577	\$1,831
2006	\$688	\$675	\$752	\$727	\$593	\$2,188	\$1,568	\$1,727
2007	\$754	\$595	\$763	\$763	\$582	\$1,945	\$1,590	\$1,765
2008	\$752	\$659	\$843	\$754	\$633	\$2,096	\$1,996	\$1,982
2009	\$737	\$670	\$891	\$759	\$634	\$2,211	\$2,268	\$2,112
2010	\$763	\$663	\$950	\$732	\$649	\$2,346	\$2,393	\$2,177
2011	\$849	\$741	\$1,058	\$726	\$676	\$2,630	\$2,634	\$2,347
2012	\$918	\$700	\$1,069	\$726	\$672	\$2,748	\$2,690	\$2,539
2013	\$968	\$598	\$1,099	\$745	\$671	\$2,845	\$2,594	\$2,254

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table C7: Number of Services per Claim, Professional Services, Lost-time Claims, by Injury Year at 12 Months after Injury

Injury Year	DMEPOS	Diag/Path/ Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
2000	6.9	8.2	17.0	5.8	6.5	109.9	3.9	4.9
2001	7.4	9.1	18.7	7.6	6.9	124.7	4.3	5.1
2002	7.9	9.8	20.1	8.3	6.8	145.1	4.6	5.3
2003	11.4	10.0	16.7	8.7	6.0	138.5	4.5	4.8
2004	13.1	8.6	13.1	8.2	4.5	118.0	4.5	4.4
2005	13.7	9.1	12.8	9.2	4.5	107.4	5.1	5.0
2006	11.6	8.7	10.9	8.5	4.2	80.4	5.1	4.9
2007	10.9	8.7	10.2	8.3	4.0	72.5	5.0	4.8
2008	10.5	9.1	10.4	8.6	4.0	72.7	5.0	4.5
2009	10.0	8.9	10.2	8.5	3.8	69.7	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	3.7	66.3	5.3	4.0
2012	8.4	9.7	9.9	8.3	3.5	68.6	5.3	4.2
2013	10.5	10.1	10.1	8.7	3.5	71.3	5.1	3.7

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table C8: Average Cost per Service for Selected Services

Injury Year	Office Visit	Disability Exam	Lumbar Spine Fusion	Low Back Disc Surgery	Therapeutic Exercise	Chronic Pain Management	MRI	DME
2000	\$46	\$394	\$915	\$1,853	\$34	\$124	\$578	\$79
2001	\$46	\$396	\$896	\$1,849	\$33	\$123	\$575	\$94
2002	\$46	\$392	\$892	\$1,778	\$33	\$111	\$566	\$92
2003	\$51	\$436	\$938	\$955	\$33	\$105	\$503	\$108
2004	\$60	\$449	\$1,040	\$749	\$33	\$104	\$426	\$122
2005	\$61	\$449	\$1,089	\$718	\$33	\$103	\$429	\$161
2006	\$61	\$440	\$1,071	\$746	\$32	\$103	\$432	\$200
2007	\$66	\$437	\$1,191	\$781	\$30	\$106	\$381	\$211
2008	\$70	\$452	\$1,394	\$958	\$33	\$103	\$419	\$228
2009	\$76	\$467	\$1,530	\$1,045	\$35	\$104	\$448	\$243
2010	\$83	\$474	\$1,733	\$1,051	\$37	\$105	\$457	\$349
2011	\$96	\$478	\$1,835	\$1,333	\$43	\$103	\$520	\$354
2012	\$99	\$476	\$1,890	\$1,379	\$44	\$105	\$506	\$419
2013	\$101	\$465		\$1,266	\$44		\$342	
2014	\$101				\$43		\$317	

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table C9: Total Cost by Service Year, by Drug Group by Maturity (Thousand Dollars)

Maturity	Drug Group	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
0 to 3 Years	Analgesics - Anti-Inflammatory	\$11,683	\$11,267	\$11,470	\$12,246	\$12,670	\$13,345	\$12,801	\$11,835	\$10,147	\$10,464
	Analgesics - Opioid	\$13,153	\$13,145	\$13,969	\$13,732	\$13,805	\$12,630	\$11,657	\$9,982	\$7,835	\$6,949
	Central Nervous System Drugs	\$8,374	\$9,428	\$10,028	\$10,242	\$10,430	\$10,071	\$9,808	\$9,334	\$8,601	\$7,799
	Musculoskeletal Therapy Agents	\$8,319	\$8,409	\$9,018	\$9,281	\$10,030	\$9,411	\$7,385	\$5,713	\$4,526	\$4,598
	Others	\$11,023	\$10,196	\$11,031	\$11,708	\$13,780	\$13,730	\$13,389	\$13,575	\$14,889	\$16,372
More than 3 Years	Analgesics - Anti-Inflammatory	\$9,437	\$9,429	\$8,535	\$8,691	\$8,402	\$8,333	\$8,380	\$8,178	\$7,947	\$7,264
	Analgesics - Opioid	\$33,660	\$36,781	\$36,941	\$35,612	\$34,819	\$33,547	\$31,312	\$26,037	\$21,154	\$16,651
	Central Nervous System Drugs	\$24,202	\$27,379	\$27,437	\$29,143	\$29,063	\$28,444	\$27,822	\$25,929	\$24,722	\$21,226
	Musculoskeletal Therapy Agents	\$9,874	\$10,410	\$10,200	\$10,265	\$10,103	\$9,368	\$8,188	\$6,500	\$5,596	\$5,106
	Others	\$15,802	\$15,404	\$16,437	\$18,601	\$19,212	\$20,762	\$22,720	\$22,793	\$20,589	\$14,137

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

Table C10: Pharmacy Cost by Drug Group, by N-Drug Status

Drug Group	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
N-Drugs Total Cost (in Thousand Dollars)										
Analgesics - Anti-Inflammatory	\$1,440	\$1,568	\$1,553	\$2,090	\$2,918	\$3,787	\$3,641	\$2,026	\$908	\$329
Analgesics - Opioid	\$15,216	\$15,233	\$15,935	\$16,849	\$17,107	\$17,256	\$16,187	\$12,905	\$8,587	\$3,173
Central Nervous System Drugs	\$11,703	\$12,882	\$12,182	\$12,013	\$11,076	\$10,253	\$8,720	\$6,841	\$4,281	\$1,935
Musculoskeletal Therapy Agents	\$4,588	\$4,393	\$4,291	\$5,132	\$6,188	\$5,769	\$3,880	\$1,952	\$1,004	\$311
Others	\$8,103	\$9,923	\$10,708	\$12,264	\$14,271	\$15,556	\$15,276	\$11,613	\$7,158	\$2,861
Y-Drugs Total Cost (in Thousand Dollars)										
Analgesics - Anti-Inflammatory	\$17,562	\$17,402	\$16,986	\$17,400	\$16,835	\$16,302	\$15,639	\$14,724	\$14,325	\$14,097
Analgesics - Opioid	\$24,750	\$25,456	\$27,305	\$28,079	\$27,881	\$26,895	\$25,959	\$22,741	\$20,096	\$20,018
Central Nervous System Drugs	\$17,014	\$21,416	\$23,233	\$25,576	\$26,948	\$26,923	\$27,586	\$27,302	\$28,004	\$25,379
Musculoskeletal Therapy Agents	\$11,546	\$12,528	\$13,112	\$13,268	\$12,985	\$12,179	\$11,079	\$9,621	\$8,313	\$7,967
Others	\$2,579	\$2,818	\$2,966	\$2,945	\$2,699	\$2,797	\$2,766	\$2,782	\$2,820	\$2,749
N-Drug Cost Share in Total Cost (N + Y drugs)										
Analgesics - Anti-Inflammatory	7.6%	8.3%	8.4%	10.7%	14.8%	18.9%	18.9%	12.1%	6.0%	2.3%
Analgesics - Opioid	38.1%	37.4%	36.9%	37.5%	38.0%	39.1%	38.4%	36.2%	29.9%	13.7%
Central Nervous System Drugs	40.8%	37.6%	34.4%	32.0%	29.1%	27.6%	24.0%	20.0%	13.3%	7.1%
Musculoskeletal Therapy Agents	28.4%	26.0%	24.7%	27.9%	32.3%	32.1%	25.9%	16.9%	10.8%	3.8%
Others	75.9%	77.9%	78.3%	80.6%	84.1%	84.8%	84.7%	80.7%	71.7%	51.0%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2015.

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Health Care Cost and Utilization in the Texas Workers' Compensation System 2000-2014

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