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Workers' Compensation Research and Evaluation Group

Health Care Cost and Utilization in the Texas Workers' Compensation System 1998-2011

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MEDICAL COST
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Executive Summary

This report presents fundamental metrics and indicators of the health care cost and utilization in the Texas workers' compensation system since 1998. The primary purpose of this report is to provide system participants with a set of comprehensive, general and consistent data and metrics for monitoring and analyzing the trends in health care cost and utilization.

The medical data used in this report consists of bills submitted by health care providers to the insurance carrier, covering professional, hospital/institutional, dental and pharmacy services, updated as of August 2012. Claims are grouped into 'lost-time' claims 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 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. The use of these two types will facilitate a more meaningful comparison with other states.

Overview: Total Health Care Cost and Utilization

- Health care costs accounted for 66 percent of the total benefits in 2010 service year in the Texas workers' compensation system. Income benefits accounted for the remaining 34 percent. Total health care cost in 2011 was \$1.06 billion.
- In 2011, 95 percent of all claims received one or more professional services. About 30 percent received hospital/institutional services. About 47 percent received pharmacy services.
- The number of claims decreased by 31 percent from 1998 to 2011.
- Since 1998, the total cost for professional services decreased by 5.7 percent while it increased by 18 percent for hospital/ institutional services. The average cost per claim increased by 39 percent for professional services and by 79 percent for hospital/institutional services during the same period. Pharmacy service costs have been at a stable level since 2005.
- For professional services, lost-time claims comprised 39 percent of the claims but accounted for 78 percent of the total cost in 2011 service year. Since 1998, the total cost for lost-time claims decreased by four percent while the total cost for medical-only claims decreased by nine percent. The average cost per claim increased since 1998 by 33 percent for lost-time claims, and by 37 percent for medical-only claims.
- For hospital/institutional services, the total cost for lost-time claims increased by 30 percent since 1998, with the average cost increasing by 94 percent. For medical-only claims, the total cost decreased by 27 percent with the average cost increasing by 14 percent.

- Adjusted for inflation, the combined total of professional and hospital costs decreased by 30 percent from 1998 to 2011. In current prices without inflation adjustment, the combined total increased by 1.8 percent. Since 2005, the total cost for health care services including pharmacy increased by 11 percent in unadjusted prices, but decreased by five percent in inflation-adjusted prices.
- Total health care costs in the workers' compensation system were equivalent to about 0.16 percent of the Texas gross domestic product in 1998, which decreased to just 0.09 percent in 2011.

Professional Cost and Utilization

- Between 92 percent and 98 percent of all claims received at least one professional service in each service year. This percentage was the lowest during the years from 2005 to 2009.
- Changes in the cost trend primarily occurred between 2002 and 2008 coinciding with the changes in the 2003 professional services fee guideline. Longer-term factors that affected costs were the changes in the number of claims and the level of service utilization.
- The number of medical-only claims decreased by 35 percent since 1998 but the majority of this decline occurred prior to 2005. The number of lost-time claims actually increased by eight percent from 1998 till 2002, and then continued to decline, resulting in the overall decrease by 28 percent since 1998.
- Around 78 percent of professional costs were for lost-time claims in 2011. The total cost continued to increase since 2007 although the number of lost-time claims decreased.
- The number of visits per claim to health care providers peaked in 2003 and decreased since then. Lost-time claims had about three and half times more visits per claim than medical-only claims in most years because of their more serious injuries and longer service period. The number of services per visit as a measure of utilization intensity was relatively similar across claim types and service years.
- In terms of provider type, the number of claims receiving chiropractic services declined most significantly while more claims received services from physical/occupational therapists. The average cost per claim increased most significantly for ambulatory surgical center providers.
- For lost-time claims, Physical Medicine was the most expensive service group in all years. The total cost for IR Exam and Report services and DMEPOS services grew rapidly. For medical-only claims, E/M services were the most costly service. The total cost for E/M services also increased most rapidly since 2005 because of increases in the professional services fee guideline. The share of claims receiving DMEPOS, Diag/Path/Lab services, and IR Exam & Report services continued to increase.
- The top 20 service (CPT/HCPCS) codes accounted for 51 percent of the total cumulative professional cost from 2005 to 2011. The price per service for E/M services increased continually since 2003. That for low back disc surgery decreased substantially in 2003

but increased moderately since 2008. The average price per service is also increasing steadily for durable medical equipment services. Most other services showed stable price trends.

Hospital/Institutional Cost and Utilization

- About 30 percent of all claims received at least one hospital or institutional service.
- Hospital/institutional bills included payments for services in hospital inpatient, hospital outpatient, skilled nursing facilities, home health care and other institutions. But 92 percent of these payments were for hospital services in 2011.
- Lost-time claims accounted for about 47 percent of all claims receiving hospital/institutional services in 2011 service year, but they accounted for 87 percent of the total hospital/institutional cost.
- In 2011, 95 percent of lost-time claims received hospital outpatient services while only 13 percent received inpatient services. But hospital inpatient services accounted for 48 percent of the total cost and hospital outpatient services for 45 percent.
- The number of claims receiving hospital/institutional services decreased by 34 percent since 1998. The total cost increased by 18 percent from 1998 to 2011, but it showed a great deal of fluctuation: costs increased by 35 percent until 2002, then decreased by 40 percent by 2005, and again increased by 46 percent by 2011.

Dental Cost and Utilization

- Dental services accounted for 0.3 percent of all health care costs in 2011.
- Most common services were implants and crowns.

Pharmacy Cost and Utilization

- In 2011, 47 percent of those who received health care services received pharmacy services. Since 2005, both lost-time and medical-only claims receiving pharmacy services decreased by 13 percent and by 11 percent, respectively.
- In 2011, 54 percent of pharmacy service claims were lost-time claims, but they accounted for 89 percent of the total cost.
- In 2011, 62 percent of the total pharmacy cost was for legacy claims with four or more years of maturity. New injuries accounted for about 20 percent to 22 percent of the total cost since 2005.
- For lost-time claims, the most frequently prescribed and costly drug group was the Analgesics – Opioid group. Central Nervous System drugs (comprising anticonvulsants, anti-anxiety agents, anti-depressants and hypnotics) had the highest average cost per claim among these claims.

- For medical-only claims, the ‘Analgesics – Anti-inflammatory’ drug group (including NSAID) was the most common, and usually most costly, drug group.
- Generic prescriptions accounted for about half of the total pharmacy cost since 2005. The average cost per prescription for brand drugs was four times higher than that of generic drugs. For older claims with more than three years of maturity, generic drugs accounted for 73 percent of prescriptions and 44 percent of the total cost in 2011.
- Status “N” drug usage was higher in lost-time claims at 29 percent of the total pharmacy cost in 2011, compared to 20 percent in medical-only claims. The cost share of N-drugs in the total cost was the highest for the Analgesics – Opioid drug group at 35 percent to 40 percent of the total cost since 2005.

Summary: Trends in Changing Cost Components

- For lost-time claims, the average cost per claim for professional services increased by 33.2 percent from 1998 to 2011. Adjusted for inflation, the average cost per claim decreased by 8.8 percent. The number of claims and the level of utilization all decreased, resulting in the overall decrease in the total cost by four percent. If we adjust for inflation, the total cost decreased by 24.3 percent.
- The main factor in the overall decrease in costs was the large decline in the number of claims. The average cost per claim increased substantially because of increases in cost per service and in utilization in some services. But the total cost decreased because the number of claims decreased more steeply than the level of utilization or the cost per service.
- Trends are similar for both claim types, but medical-only claims showed a higher rate of decrease in the number of claims and a lower rate of decrease in utilization than lost-time claims.



1. Introduction and Methodological Notes

This report presents fundamental metrics and indicators of health care cost and utilization in the Texas workers' compensation system since 1998. Health care, consisting of payments for professional, hospital and institutional, dental and pharmacy services, is one of the major benefits provided by workers' compensation (WC) system for injured employees. Injured employees receive health care benefits that pay necessary medical care to treat work-related injury or illness without a limit in benefit payments or duration. Because there are no limits to benefits, copayments, deductibles and other burdens on the part of the patients, payers as well as the legislators and the regulators of the workers' compensation insurance pay close attention to the changes and trends in health care costs and service utilization.

The primary purpose of this report is to provide system participants with a set of comprehensive, general and consistent data and metrics for monitoring and analyzing the trends in health care cost and utilization. In addition to summarizing major cost and utilization statistics, this report also provides drill-down analyses by claim type, provider type, service type, maturity, facility type, and drug type. For other issues on WC health care and income benefits, refer to other reports by the Texas Department of Insurance, WC Research and Evaluation Group (REG) that can be found at the REG's reports page (www.tdi.texas.gov/reports/report9.html).

Data Sources

The medical data underlying REG's health care cost and utilization studies is comprised of bills submitted by the service providers to the insurance carrier for payment. This data is in turn transmitted to the Texas Department of Insurance, Division of Workers' Compensation (TDI-DWC). Medical data underwent a major change in 2005 when data collection transitioned to EDI standards from a paper-based system. The number of bills collected for 2004 service year, the last service year of the pre-EDI, was initially unusually low, but the current data for the pre-EDI period was extensively updated in 2010. 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 bills collected by TDI-DWC relates to direct payments to health care providers. Other costs such as bill and utilization reviews, dispute resolution expenses and costs paid to third parties are not included. These bills, however, include information about bill review actions taken by the insurance carriers such as payment decisions and payment amounts. Using this information, bills for services deemed not compensable are deleted from both cost and utilization analyses.

Claim Types

All claims are classified as (1) ‘lost-time’ claims if they receive medical as well as income benefits, or (2) ‘medical-only’ claims if they receive medical benefits only without any income benefits. Income benefits include short-term temporary as well as long-term disability payments as defined by TDI-DWC (for more information, see www.tdi.texas.gov/wc/employee/incomeben.html). Claims that receive medical and income benefits are those that have more than seven days of lost time. This group is roughly equivalent to ‘permanent partial disability’ claims used by other workers’ compensation reports. ‘Medical-only’ type 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 to all claims regardless of their injury date. In comparison, injury year statistics are organized by the year of injury, and cumulatively account for all payments up to a set period of maturity. For example, a 2011 injury year data with six months maturity covers claims with injury date between January 1, 2011, and December 31, 2011, with services rendered within six months from the date of injury for each claim. Service dates span from January 1, 2011, to June 30, 2012.

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 comparable sets of data to compare new injury trends across years. Despite their partial nature, injury year analyses are preferred in actuarial studies for developing cost trends and setting insurance rates. When appropriate, we show cost development patterns using 6 months, 12 months and 24 months maturity. More than 80 percent of total professional costs are incurred within 24 months post injury. To account for long-tail effects of severe injuries on health care costs, some tables show separate maturity groups that include four years or more of maturity. The longer maturity is especially necessary for pharmacy services for which more than 60 percent of total costs are for the claims with four years or longer maturity.

Measuring Service Utilization

When evaluating long-term patterns and trends in health care service utilization, a consistent and proper unit of service must be chosen to reflect the differences in frequency and intensity of services. The basic units for utilization analysis are based on straightforward measures: the number of visits to a health care provider as a measure of service frequency, and the number of services provided in one visit as a measure of service intensity. While the number of visits is an

uncomplicated measurement, the number of services will depend on the way service bills are submitted by the providers.

Number of Visits

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

Number of Services

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

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

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

Utilization Metrics for Physical Medicine Services

Physical medicine service bills are by far the most numerous bills, accounting for about half of all professional bills. Sixty five million service bills out of 135 million total bills from 1998 to 2011 were physical medicine services. In addition, 85 percent of these bills are charges for one unit of service. Most of these are service-based codes that are billed as one service regardless of time involved. The remaining 15 percent of the physical medicine bills were charges for multiple treatment sessions in one bill using time-based codes, usually in increments of 15 minutes, and therefore considering these bills as one service would underestimate or miscalculate

the actual level of service utilization. Therefore, special attention has been given to these bills by adjusting their units of service.

Considering the above 15 percent of physical medicine services with multiple billed units, there were eight CPT codes that together accounted for 98 percent of the total cost of the multiple service bills. 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

The number of visits is a measure of frequency and the number of services during a visit is a measure of intensity. The level of total utilization is a function of frequency and 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 will be counted as one service utilization for all codes except for the eight physical medicine codes that are recoded.



2. Overview: Total Health Care Cost and Utilization

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

We begin by comparing health care costs with income (or indemnity) benefit costs, which, together, make up the whole benefits paid to injured employees and health care providers in the workers' compensation system. At the end of this section, we also present discussions about 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, which combine professional and hospital/institutional 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 56 percent in 1998 to 66 percent in 2010 (see Table 2.1). Professional and hospital costs grew by 29 percent from 1998 to 2002. These increases provided compelling rationale for the subsequent workers' compensation reforms by the Texas legislature. Since 2002, the total cost of both health care and income benefits has declined primarily as a result of these reforms. The decline was more prominent in income benefits than in health care benefits which increased slightly in recent years.

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

Service Year	Medical Benefits	Income Benefits	Medical Benefit Share
1998	\$1,043,709	\$816,338	56.11%
1999	\$1,158,317	\$802,169	59.08%
2000	\$1,037,977	\$890,044	53.84%
2001	\$1,167,943	\$919,979	55.94%
2002	\$1,348,630	\$880,152	60.51%
2003	\$1,241,087	\$758,519	62.07%
2004	\$980,048	\$638,361	60.56%
2005	\$949,760	\$569,219	62.53%
2006	\$906,004	\$508,837	64.04%
2007	\$919,801	\$521,098	63.84%
2008	\$934,372	\$570,841	62.08%
2009	\$954,001	\$535,365	64.05%
2010	\$972,743	\$498,614	66.11%
2011	\$1,062,181		

Notes: Medical benefits include professional and hospital benefits only. 2010 income benefits are preliminary since they require longer period to develop fully.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Costs by Bill Type

Since the data availability varies among different types of bills, a more consistent analysis may require separating health care payments by bill type. Texas workers' compensation medical bills are collected as four separate data bases, each consisting of bills for professional, hospital/institutional, dental and pharmacy services. Since each bill type database is separate from each other, some claims may have bills only in some databases and not in others. When all four databases are combined, there were about 332 thousand unique claims in 2011 (see 'Medical Combined' in Table 2.2). This represents a 31 percent decrease in the number of claims from 1998.

Numbers of unique claims are available from 1998 by bill type (see Table 2.2). Dental and pharmacy data are not available prior to 2005. While about 95 percent of these claims received at least one professional service, only about 30 percent of them received hospital/institutional service, and about 47 percent of the claims received pharmacy services in 2011. In other words, about half of the claims did not receive pharmacy services, and 70 percent of the claims received their medical services in professional offices and ambulatory surgical centers only. A noticeable trend in the table is the consistent decrease in the overall number of claims being treated in the workers' compensation system.

Table 2.2: Number of Unique Claims, by Bill Type

Service Year	Professional	Hospital/ Institutional	Dental	Pharmacy	Medical Combined
1998	465,299	153,906			483,876
1999	436,672	146,349			454,939
2000	413,745	132,031			430,133
2001	412,625	135,397			429,373
2002	421,462	142,662			434,629
2003	388,474	131,909			398,411
2004	348,615	111,197			357,624
2005	354,758	98,553	622	176,425	382,274
2006	353,229	108,554	882	177,728	380,507
2007	353,385	112,426	1,231	184,744	381,227
2008	341,808	108,927	1,352	181,171	370,945
2009	315,745	98,649	1,270	164,067	340,109
2010	316,590	100,132	1,389	160,449	335,491
2011	315,558	101,251	1,392	154,995	332,408

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Since 1998, total professional costs decreased by 5.7 percent while hospital costs increased by 18 percent (see Table 2.3). However, total professional costs have been growing steadily since 2007. It increased by 12 percent from 2010 to 2011 in part because of increased fees per service.

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

Service Year	Professional	Hospital/ Institutional	Dental	Pharmacy	Medical Combined
1998	\$715,845	\$327,865			\$1,043,709
1999	\$805,208	\$353,110			\$1,158,317
2000	\$719,027	\$318,950			\$1,037,977
2001	\$786,006	\$381,936			\$1,167,943
2002	\$906,883	\$441,747			\$1,348,630
2003	\$823,142	\$417,946			\$1,241,087
2004	\$665,563	\$314,485			\$980,048
2005	\$684,181	\$265,579	\$775	\$136,561	\$1,087,096
2006	\$597,245	\$308,759	\$1,504	\$140,686	\$1,048,194
2007	\$571,816	\$347,985	\$2,526	\$146,200	\$1,068,528
2008	\$571,889	\$362,484	\$3,271	\$143,802	\$1,081,446
2009	\$601,495	\$352,506	\$3,362	\$144,842	\$1,102,205
2010	\$603,375	\$369,369	\$3,941	\$141,330	\$1,118,015
2011	\$675,189	\$386,991	\$4,128	\$135,567	\$1,201,876

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, 2012.

The average cost per claim increased by 39 percent for professional services and 79 percent for hospital services (see Table 2.4). With decreases or modest increases in total cost over the past 13 years, the main causes for the increase in the average cost per claim may lie in the declining number of low-cost claims, an increase in scheduled fees and price increases due to inflation. The increase in the average hospital cost was comparatively high.

Total and Average Costs by Claim Type

Claims with more than seven days of lost work days because of compensable work-related injury are classified as 'lost-time' claims. These claims receive income benefits for lost time and disability. Lost-time claims are roughly equivalent to permanent partial disability (PPD) claims reported by other states. The remaining claims are classified as 'medical-only' claims. Average costs shown in Table 2.4 were weighted averages of lost-time and medical-only claims. About 40 percent of the claims receiving professional services in 2011 were lost-time claims, but they accounted for 78 percent of the total cost. Lost-time claims accounted for 87 percent of hospital costs and 89 percent of pharmacy costs.

Table 2.4: Average Cost per Claim, by Bill Type

Service Year	Professional	Hospital/ Institutional	Dental	Pharmacy	Medical Combined
1998	\$1,538	\$2,130			\$2,157
1999	\$1,844	\$2,413			\$2,546
2000	\$1,738	\$2,416			\$2,413
2001	\$1,905	\$2,821			\$2,720
2002	\$2,152	\$3,096			\$3,103
2003	\$2,119	\$3,168			\$3,115
2004	\$1,909	\$2,828			\$2,740
2005	\$1,929	\$2,695	\$1,246	\$774	\$2,844
2006	\$1,691	\$2,844	\$1,706	\$792	\$2,755
2007	\$1,618	\$3,095	\$2,052	\$791	\$2,803
2008	\$1,673	\$3,328	\$2,420	\$794	\$2,915
2009	\$1,905	\$3,573	\$2,647	\$883	\$3,241
2010	\$1,906	\$3,689	\$2,838	\$881	\$3,332
2011	\$2,140	\$3,822	\$2,966	\$875	\$3,616

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Medical-only claims, although often more numerous than lost-time claims, account for a small portion of costs. Because of this vast difference in costs by claim type, meaningful averages need to be presented by claim type. Since 1998, the average cost for professional services increased by 33 percent for lost-time claims and by 37 percent for medical-only claims while total costs decreased for both types (see Table 2.5).

For hospital services, average cost increased by 94 percent for lost-time claims and by 14 percent for medical-only claims (see Table 2.6). Total costs increased by 30 percent for lost-time claims during the period. For pharmacy services, the average cost for lost-time claims increased by 21 percent while it decreased by 24 percent for medical-only claims (see Table 2.7). The general cost trends were dominated by changes in lost-time claims cost measures.

Inflation Adjusted Cost

In a cost study spanning 14 years, the effects of inflation on current prices are often significant. Unlike utilization measures, costs are nominal values that may increase simply because of price inflation. Figures in this report 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 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 costs for inflation, which will provide us with some indication about how large the effects of price inflation may be on cost changes.

Table 2.5: 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
1998	178,070	\$546,936	\$3,071	287,426	\$168,909	\$588
1999	177,652	\$614,518	\$3,459	259,164	\$190,690	\$736
2000	173,075	\$560,299	\$3,237	240,792	\$158,728	\$659
2001	180,812	\$622,809	\$3,445	231,927	\$163,197	\$704
2002	191,894	\$739,835	\$3,855	229,677	\$167,048	\$727
2003	180,628	\$674,548	\$3,734	207,931	\$148,594	\$715
2004	161,851	\$538,477	\$3,327	186,824	\$127,086	\$680
2005	156,655	\$552,135	\$3,525	198,168	\$132,045	\$666
2006	147,030	\$466,653	\$3,174	206,279	\$130,592	\$633
2007	141,753	\$438,133	\$3,091	211,706	\$133,683	\$631
2008	138,549	\$443,496	\$3,201	203,324	\$128,393	\$631
2009	133,867	\$476,280	\$3,558	181,939	\$125,215	\$688
2010	132,740	\$475,783	\$3,584	183,894	\$127,591	\$694
2011	128,268	\$524,796	\$4,091	187,332	\$150,393	\$803

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

Service Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Costs (Thousand Dollars)	Cost per Claim	Number of Claims	Total Costs (Thousand Dollars)	Cost per Claim
1998	70,867	\$257,572	\$3,635	83,112	\$70,292	\$846
1999	68,463	\$281,287	\$4,109	77,947	\$71,823	\$921
2000	62,308	\$254,943	\$4,092	69,772	\$64,007	\$917
2001	65,744	\$308,708	\$4,696	69,696	\$73,228	\$1,051
2002	73,938	\$367,838	\$4,975	68,757	\$73,909	\$1,075
2003	69,356	\$350,645	\$5,056	62,572	\$67,300	\$1,076
2004	57,538	\$262,225	\$4,557	53,674	\$52,260	\$974
2005	47,245	\$223,341	\$4,727	51,329	\$42,238	\$823
2006	49,791	\$255,123	\$5,124	58,784	\$53,636	\$912
2007	50,485	\$288,861	\$5,722	61,966	\$59,125	\$954
2008	50,744	\$311,526	\$6,139	58,203	\$50,958	\$876
2009	48,208	\$309,020	\$6,410	50,452	\$43,487	\$862
2010	48,471	\$323,099	\$6,666	51,668	\$46,269	\$896
2011	47,609	\$335,465	\$7,046	53,652	\$51,526	\$960

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

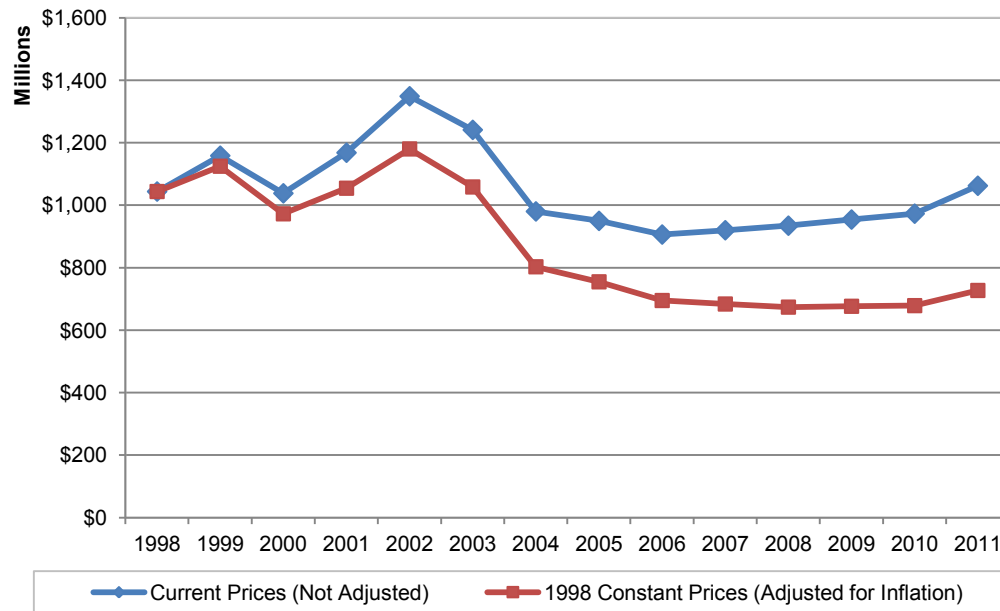
Service Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Costs (Thousand Dollars)	Cost per Claim	Number of Claims	Total Costs (Thousand Dollars)	Cost per Claim
2005	96,328	\$114,802	\$1,192	80,131	\$21,759	\$272
2006	93,110	\$117,815	\$1,265	84,666	\$22,871	\$270
2007	93,231	\$122,750	\$1,317	91,559	\$23,450	\$256
2008	92,751	\$124,331	\$1,340	88,460	\$19,471	\$220
2009	87,665	\$123,708	\$1,411	76,435	\$21,133	\$276
2010	87,178	\$125,022	\$1,434	73,298	\$16,309	\$222
2011	83,518	\$120,819	\$1,447	71,507	\$14,748	\$206

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

There are two indices commonly used to adjust inflationary price effects in health care costs. First, the Center for Medicare and Medicaid Services (CMS) publishes a nation-wide measurement called the Medicare Economic Index (MEI) which measures the changes in the prices paid for health care inputs to adjust and update its 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 1998 to 2011, MEI increased by about three percent annually (46 percent total). As a comparison, CPI medical care indices on average were slightly higher than the MEI. Individual CPI indices are published separately for large metropolitan areas of Houston and Dallas, and regional averages for medium and small cities. Averaging these four CPI indices result in an increase of 60 percent from 1998 to 2011 with a 3.7 percent annual rate.

Figure 2.1 shows a 1.8 percent increase in total professional and hospital costs in current prices since 1998, but a 30 percent decrease in inflation-adjusted prices using the MEI. Considering only from 2005 to include pharmacy costs, total health care costs increased by 10.6 percent in current prices and decreased by 4.8 percent in inflation-adjusted prices.

Figure 2.1: Professional and Hospital Costs in Current and Inflation-Adjusted Prices

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Health Care Cost and Texas GDP

Total WC health care costs account for less than one tenth of one percent of the Texas Gross Domestic Product (GDP) (see Table 2.8). This GDP share decreased from 0.16 percent in 1998 to 0.1 percent in 2006, and remained at about the same level until 2011 even though pharmacy and dental costs were added to the table since 2005. The actual decline in the share of GDP would be higher if the tables' health care costs prior to 2005 included pharmacy and dental costs.

Table 2.8 also presents informational figures of total Texas wages, standard workers' compensation premiums, and the amount of Texas payrolls covered by the workers' compensation insurance. These figures come from the REG's report "Costs to Employers and Efficiencies in the Texas Workers' Compensation System" (September 2011, available at REG's reports page (www.tdi.texas.gov/reports/report9.html)). An estimated 66 to 73 percent of Texas employees in the private sector (measured by payroll amount) are covered by workers' compensation insurance. If we add government and public employers who are legally required to subscribe to the workers' compensation system, about 80 percent of Texas workers are covered by the workers' compensation system even though workers' comp is not mandatory in Texas. Table 2.8 also shows that the total health care cost is consistently less than 50 percent of the standard premium.

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

Service Year	Texas GDP (Millions)	Total Health Care Cost (Millions)	Health Care Cost as a Percentage of GDP (%)	Texas Total Wages (Millions)	Texas Standard Premium (Millions)	Payroll Covered by WC (Millions)	Percent of Texas Private Employees Covered by WC (%)
1998	\$634,812	\$1,044	0.16%				
1999	\$671,632	\$1,158	0.17%	\$251,622	\$2,364	\$181,069	71.96%
2000	\$732,987	\$1,038	0.14%	\$276,416	\$2,522	\$199,091	72.03%
2001	\$765,740	\$1,168	0.15%	\$286,571	\$2,675	\$202,291	70.59%
2002	\$785,434	\$1,349	0.17%	\$281,706	\$2,987	\$196,045	69.59%
2003	\$827,139	\$1,241	0.15%	\$284,093	\$3,427	\$206,792	72.79%
2004	\$906,893	\$980	0.11%	\$300,899	\$3,314	\$206,623	68.67%
2005	\$970,997	\$1,087	0.11%	\$324,047	\$3,197	\$223,862	69.08%
2006	\$1,055,959	\$1,048	0.10%	\$356,669	\$3,322	\$244,635	68.59%
2007	\$1,147,970	\$1,069	0.09%	\$388,499	\$3,128	\$266,018	68.47%
2008	\$1,202,104	\$1,081	0.09%	\$407,100	\$2,736	\$266,966	65.58%
2009	\$1,146,647	\$1,102	0.10%	\$386,581	\$2,402	\$257,292	66.56%
2010	\$1,207,494	\$1,118	0.09%				
2011	\$1,332,000	\$1,202	0.09%				

Note: 2005-2011 health care costs include pharmacy and dental costs.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

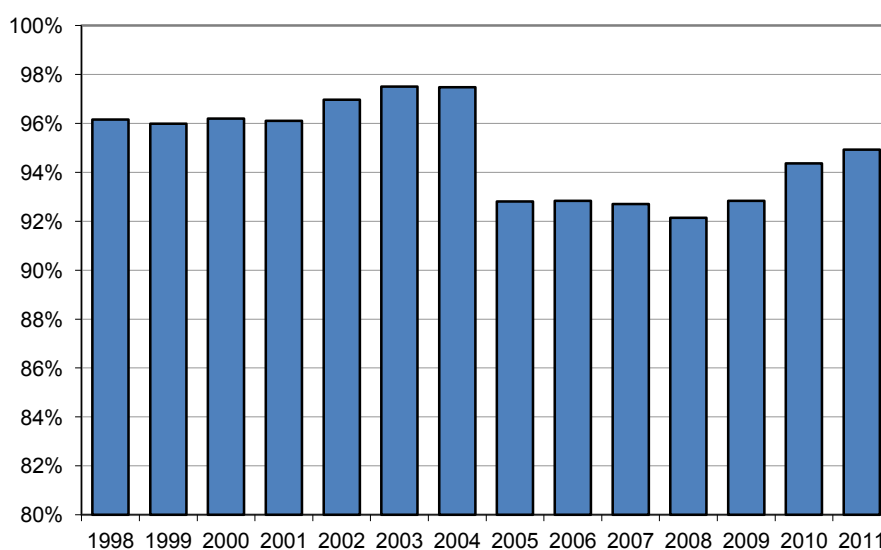


3. Cost and Utilization for Professional Services

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 the Texas Department of Insurance, Division of Workers' Compensation (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). Professional service bills include bills for physician and therapy services, durable medical equipment, and ambulatory surgical center services. The EDI version of the professional service bills is based on the CMS-1500 paper forms used by the Center 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 pre-2005 data collected by paper-based process.

Since most injured employees visit a doctor's office (MD or 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. Also, the data for 2004–2005 may be incomplete as data submission was suspended for the transition to the EDI 837 system. 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/report9.html).

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



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Changes in Medical Fee Guidelines

One factor that affects total and average costs is the change in fees per service. Changes in service prices are partially explained by changes in regulatory policies. In a certain sense, prices are regulated in the workers' compensation system to the extent that Medical Fee Guidelines (MFG) establishing guidelines for maximum reimbursements for medical services are adopted and adjusted. Since 1998, there were two major changes in fee guidelines that should be noted in understanding cost trends in this report.

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 fixed at \$52.83 with the exception of surgery services which use a separate \$66.32 as a conversion factor, resulting in a rate increase for surgery services. These factors are to be adjusted annually using the Medicare Economic Index.

Professional Cost and Utilization by Claim Type

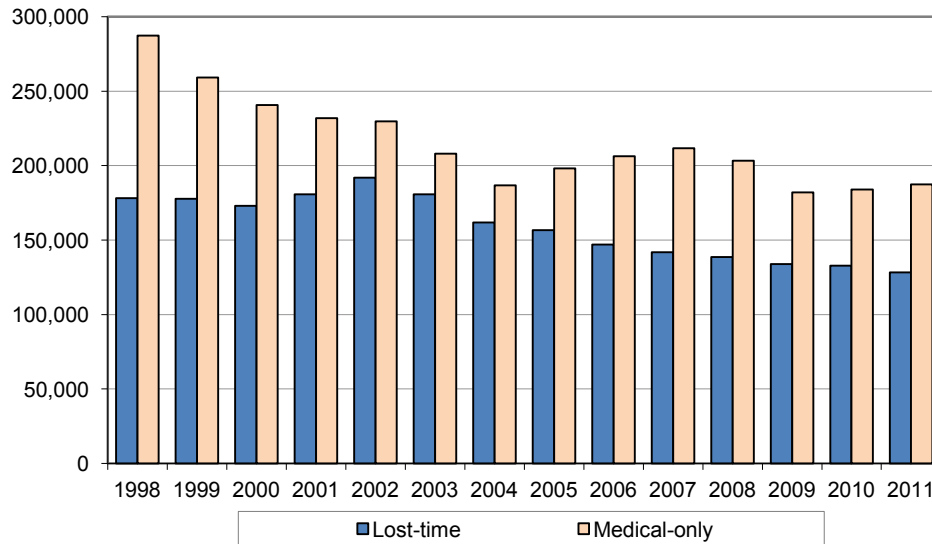
There is a significant decrease in the number of medical-only type claims in the professional service data between 1998 and 2005 (see Figure 3.2). The number of lost-time claims, which are the main cost drivers in the workers' compensation system, actually increased till 2002, but has been decreasing steadily since then. For medical-only claims, unlike lost-time claims, the number of claims fluctuated since 2005, but the long term trend appears to be on the decline.

Figure 3.3 shows that the majority of health care costs were for lost-time claims (76 percent to 82 percent of the total cost). The total cost of lost-time claims increased since 2005 while the number of claims decreased.

In terms of utilization, the number of visits—a measure of service frequency—peaked in 2003 and decreased since then (see Table 3.1). Lost-time claims had about 3.5 times more visits per claim than medical-only claims. This was mainly due to the fact that lost-time claims had more serious injuries and were under doctors' 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 similar over the years for both lost-time and medical-only claims, with minimal

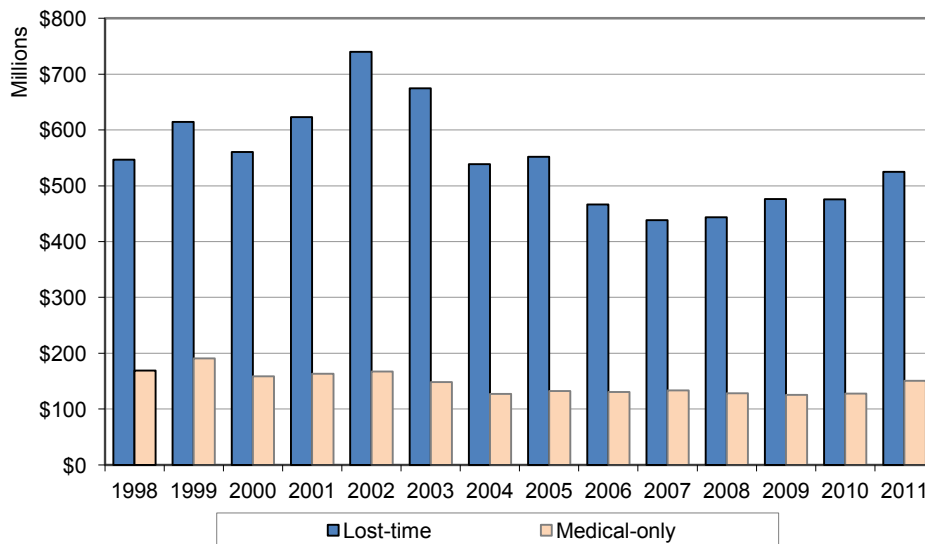
differences between the claim types. This indicates that the variations in service utilization were due more to service frequency (number of visits) than to service intensity (number of services per visit). And since the number of visits was mainly determined by the length of treatment, claims may be under doctors' care for a shorter period of time since 2003 as seen in the decreasing visits per claim.

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



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Figure 3.3: Total Professional Cost, by Claim Type



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

Service Year	Visits per Claim		Services per Visit	
	Lost-time Claims	Medical-only Claims	Lost-time Claims	Medical-only Claims
1998	16.35	4.38	3.35	3.12
1999	16.51	4.66	3.35	3.08
2000	17.44	4.94	3.40	3.13
2001	17.77	4.99	3.55	3.28
2002	19.29	5.08	3.87	3.42
2003	19.60	5.15	3.92	3.42
2004	18.53	5.03	3.69	3.24
2005	17.69	4.67	3.82	3.30
2006	15.46	4.51	3.35	3.11
2007	14.92	4.39	3.30	3.04
2008	14.69	4.18	3.27	3.03
2009	15.28	4.28	3.20	2.97
2010	15.05	4.22	3.23	2.95
2011	14.85	4.24	3.23	2.99

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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 Other that include all other providers. The MD/DO type includes not only Doctor of Medicine and Doctor of Osteopathy 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. Provider type details are available only in the EDI 837 data since 2005.

About 96 percent of the claims that received professional services in 2011 did so from MD/DOs (see Table 3.2). The most significant change occurred for chiropractic services (DC): the share of claims receiving chiropractic services decreased from 13.3 percent in 2005 to 7.5 percent in 2011. This decline in the use of chiropractic services 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. The DME and ASC providers also received a decreasing percentage of the claims. On the other hand, a higher share of claims received services from PT or OT since 2005.

In terms of total cost, chiropractors' costs decreased rapidly while the total cost for services provided by physical and occupational therapists increased in recent years. Total payments to

MD/DO increased substantially by 15 percent since 2005 due to both the increasing per-service fee and to the increasing share of claims utilizing MD/DO. Total cost for ASC type increased substantially even though a smaller share of claims was receiving the service. This resulted in a rapid increase in the average cost per claim for services provided by ASC (see Figure 3.4). The average cost per claim increased by 107 percent for ASC providers since 2005. The large increase in 2009 reflected the changes in the 2008 professional services fee guideline, which paid a higher rate for surgery services. As a result, while the number of claims that received ASC services decreased, its total cost and average cost increased substantially.

Table 3.2: Percent of Claims Receiving at Least One Professional Service, by Provider Type

Provider Type	2005	2006	2007	2008	2009	2010	2011
ASC	3.8%	3.8%	3.4%	3.0%	3.2%	3.0%	3.1%
DC	13.3%	11.0%	9.0%	7.9%	8.2%	8.2%	7.5%
DME	11.4%	11.4%	10.9%	9.9%	10.7%	10.6%	9.7%
MD/DO	86.9%	93.4%	95.8%	96.3%	96.3%	95.9%	95.7%
PT/OT	18.7%	19.7%	20.4%	20.0%	20.4%	20.0%	20.6%
Other	22.2%	16.5%	13.7%	14.8%	16.4%	19.1%	22.2%

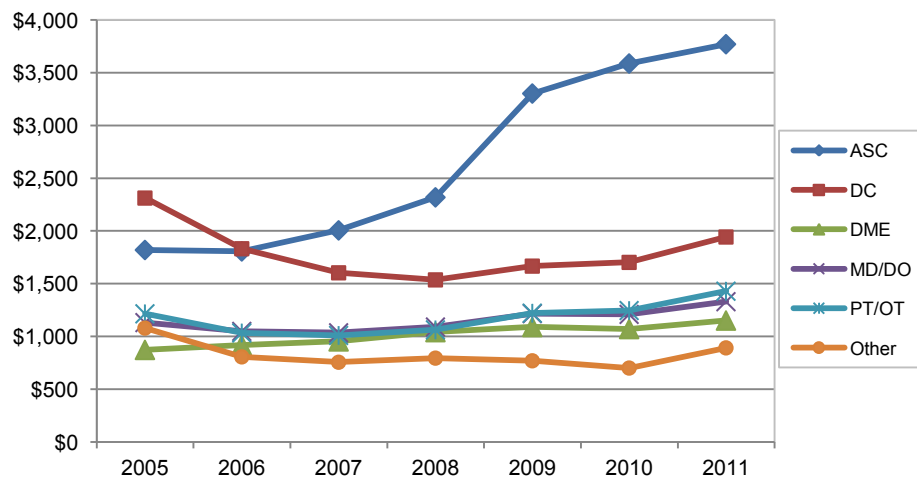
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

Provider Type	2005	2006	2007	2008	2009	2010	2011
ASC	\$24,721	\$24,087	\$24,156	\$23,549	\$33,225	\$34,638	\$37,396
DC	\$109,362	\$71,113	\$51,043	\$41,442	\$43,250	\$44,101	\$45,828
DME	\$35,408	\$36,997	\$36,673	\$35,226	\$36,766	\$35,888	\$35,137
MD/DO	\$348,825	\$346,161	\$350,602	\$358,796	\$369,900	\$367,269	\$401,646
PT/OT	\$80,722	\$71,764	\$72,661	\$72,774	\$78,499	\$78,973	\$92,763
Other	\$85,143	\$47,124	\$36,681	\$40,103	\$39,855	\$42,506	\$62,419

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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 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. Some clarifications should be noted for the following groups:

- 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.
- 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. These services are usually included in E/M, physical medicine and other groups in other studies.
- 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. They also pose some difficulties in deciphering proper service units of utilization since each bill may include any number of 15-minute sessions. The number of unit billed is not consistent and often incorrect. There are eight CPT codes that together account for 98 percent of total physical medicine costs since 1998. Depending on the frequency distributions of charges, payments, units billed and median charge and pay amounts, a new service utilization unit is calculated for each bill if the bill has one of these eight CPT codes. 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).

In terms of total cost, the service year 2002 was the peak year for most services for lost-time claims (see Table 3.4). Increases and decreases were most prominent for Physical Medicine

services. Physical Medicine was the most costly service group in 2002 and still remained the most costly service in 2011. Cost growth since 1998 was highest for DMEPOS, IR Exam and Report, and Surgery – Other services.

For medical-only claims, Physical Medicine service shows a pattern of increases and decreases similar to that of lost-time claims. Because of their less serious injuries, E/M services were the most costly service type for medical-only claims. Total cost for E/M services also increased most rapidly since 2005 due to the increases in the new professional service fee guideline.

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

Service Year	DMEPOS	Diag/Path/ Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
Lost-time Claims								
1998	\$35,526	\$60,992	\$93,803	\$33,514	\$49,272	\$160,657	\$57,777	\$55,353
1999	\$38,646	\$59,514	\$92,428	\$32,528	\$114,689	\$171,518	\$55,561	\$49,566
2000	\$40,691	\$62,734	\$95,867	\$31,945	\$33,856	\$189,188	\$54,390	\$51,478
2001	\$43,069	\$69,504	\$102,532	\$37,054	\$35,579	\$220,103	\$59,025	\$55,942
2002	\$51,843	\$82,478	\$108,958	\$52,628	\$44,249	\$254,803	\$70,218	\$74,654
2003	\$50,300	\$71,881	\$97,464	\$54,279	\$42,203	\$246,154	\$60,607	\$51,601
2004	\$43,356	\$53,742	\$79,874	\$57,330	\$32,031	\$201,485	\$45,888	\$24,729
2005	\$52,116	\$52,942	\$76,509	\$63,977	\$31,472	\$183,915	\$65,870	\$25,334
2006	\$51,606	\$47,354	\$65,731	\$57,974	\$27,497	\$132,584	\$62,311	\$21,587
2007	\$58,351	\$41,439	\$66,768	\$58,757	\$25,354	\$111,075	\$59,684	\$16,703
2008	\$58,183	\$44,531	\$69,380	\$57,266	\$26,044	\$105,555	\$66,542	\$15,990
2009	\$57,465	\$49,799	\$74,765	\$58,702	\$27,021	\$110,540	\$78,957	\$18,992
2010	\$60,044	\$48,111	\$76,487	\$56,688	\$26,154	\$110,862	\$80,382	\$17,054
2011	\$74,611	\$52,425	\$86,458	\$54,627	\$27,016	\$120,573	\$91,578	\$17,507
Medical-only Claims								
1998	\$8,819	\$22,374	\$45,239	\$10,652	\$14,194	\$44,581	\$16,102	\$6,912
1999	\$8,813	\$21,443	\$41,583	\$10,215	\$42,511	\$45,574	\$14,743	\$5,800
2000	\$8,953	\$21,236	\$40,939	\$10,168	\$8,715	\$48,777	\$13,887	\$6,034
2001	\$8,603	\$22,073	\$40,497	\$11,691	\$8,149	\$51,950	\$13,774	\$6,460
2002	\$9,535	\$22,796	\$39,931	\$14,005	\$8,571	\$51,889	\$13,148	\$7,171
2003	\$9,433	\$19,402	\$37,454	\$13,186	\$6,752	\$46,346	\$11,761	\$4,257
2004	\$8,945	\$14,815	\$35,640	\$13,000	\$4,211	\$39,007	\$9,570	\$1,894
2005	\$9,445	\$15,656	\$37,517	\$14,166	\$4,051	\$37,079	\$12,105	\$2,026
2006	\$10,103	\$16,762	\$39,262	\$14,375	\$4,392	\$30,020	\$13,744	\$1,915
2007	\$11,681	\$16,251	\$43,399	\$15,247	\$4,397	\$28,432	\$12,787	\$1,484
2008	\$11,252	\$16,152	\$43,573	\$13,926	\$3,989	\$26,107	\$12,030	\$1,348
2009	\$9,998	\$16,078	\$43,490	\$13,480	\$3,698	\$26,261	\$11,133	\$1,064
2010	\$9,649	\$15,631	\$46,472	\$12,872	\$3,714	\$26,734	\$11,482	\$1,037
2011	\$10,919	\$18,685	\$55,317	\$13,745	\$4,286	\$32,720	\$13,557	\$1,164

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Average costs per claim shown in Table 3.5 are influenced by the number of claims receiving each type of service and the intensity of service utilization such as the number of visits per claim and the number of services per visit. For lost-time claims, average costs for IR Exam & Report and DMEPOS services increased the most from 1998 to 2011. Spinal surgery services increased the most during the same period. For medical-only claims, E/M and IR Exam & Report services increased the most while spinal surgery services decreased the most. Price changes per service are discussed later in this section.

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

Service Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
Lost-time Claims								
1998	\$523	\$576	\$583	\$278	\$590	\$2,153	\$1,103	\$3,315
1999	\$547	\$581	\$580	\$279	\$1,461	\$2,306	\$1,105	\$2,923
2000	\$591	\$627	\$611	\$286	\$449	\$2,581	\$1,107	\$3,058
2001	\$635	\$665	\$619	\$315	\$460	\$2,866	\$1,140	\$3,055
2002	\$676	\$718	\$615	\$401	\$511	\$3,001	\$1,178	\$3,534
2003	\$621	\$659	\$586	\$432	\$530	\$3,039	\$1,037	\$2,576
2004	\$555	\$555	\$548	\$495	\$515	\$2,825	\$888	\$1,563
2005	\$711	\$564	\$547	\$565	\$535	\$2,751	\$1,254	\$1,730
2006	\$712	\$524	\$497	\$549	\$494	\$2,289	\$1,235	\$1,721
2007	\$797	\$463	\$519	\$580	\$480	\$2,024	\$1,216	\$1,592
2008	\$820	\$501	\$550	\$576	\$509	\$2,008	\$1,388	\$1,795
2009	\$826	\$567	\$609	\$605	\$544	\$2,141	\$1,690	\$2,241
2010	\$849	\$541	\$625	\$587	\$541	\$2,166	\$1,739	\$2,285
2011	\$1,060	\$606	\$728	\$585	\$573	\$2,457	\$1,992	\$2,518
Medical-only Claims								
1998	\$146	\$168	\$186	\$70	\$137	\$805	\$328	\$2,351
1999	\$146	\$177	\$190	\$76	\$468	\$850	\$344	\$2,062
2000	\$156	\$185	\$196	\$82	\$107	\$949	\$349	\$2,222
2001	\$165	\$198	\$198	\$91	\$105	\$1,001	\$357	\$2,329
2002	\$179	\$202	\$194	\$105	\$106	\$990	\$338	\$2,504
2003	\$149	\$181	\$200	\$104	\$100	\$952	\$314	\$1,821
2004	\$126	\$153	\$211	\$109	\$102	\$874	\$294	\$1,071
2005	\$136	\$150	\$208	\$112	\$97	\$835	\$328	\$1,332
2006	\$125	\$149	\$208	\$108	\$95	\$691	\$345	\$1,285
2007	\$135	\$137	\$223	\$111	\$93	\$651	\$320	\$1,222
2008	\$140	\$142	\$232	\$105	\$88	\$662	\$316	\$1,396
2009	\$140	\$157	\$257	\$110	\$92	\$748	\$334	\$1,336
2010	\$135	\$151	\$271	\$103	\$93	\$774	\$338	\$1,403
2011	\$149	\$177	\$316	\$107	\$107	\$940	\$384	\$1,637

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

In terms of service utilization, the shares of claims receiving particular services increased for all services except Surgery – Spinal, Physical Medicine and Other Services service groups (see Table 3.6). There was a slight decrease in the number of claims receiving Physical Medicine services while the share for Surgery – Spinal services decreased substantially. An increasing share of claims received DMEPOS, Diag/Path/Lab, and IR Exam & Report services. It should be noted that a significant number (52 percent to 69 percent) of medical-only claims received IR Exam & Report services in a given year even though most medical-only claims did not result in an impairment rating. These services for medical-only claims were typically reports rather than IR exams, but it indicates that non-treatment, system-specific services increased even in non-severe medical-only claims. It is also worthwhile to note that the share of claims receiving Physical Medicine services did not change significantly for either lost-time or medical-only claims.

Table 3.6: Percent of Claims Receiving Certain Professional Services

Service Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
Lost-time Claims								
1998	38.1%	59.4%	90.4%	67.7%	46.9%	41.9%	29.4%	9.4%
1999	39.8%	57.6%	89.6%	65.5%	44.2%	41.9%	28.3%	9.5%
2000	39.8%	57.8%	90.6%	64.6%	43.6%	42.4%	28.4%	9.7%
2001	37.5%	57.8%	91.6%	65.1%	42.7%	42.5%	28.6%	10.1%
2002	39.9%	59.8%	92.3%	68.5%	45.1%	44.2%	31.1%	11.0%
2003	44.8%	60.4%	92.1%	69.5%	44.1%	44.8%	32.4%	11.1%
2004	48.3%	59.8%	90.0%	71.5%	38.4%	44.1%	31.9%	9.8%
2005	46.8%	59.9%	89.3%	72.3%	37.6%	42.7%	33.5%	9.3%
2006	49.3%	61.5%	89.9%	71.8%	37.9%	39.4%	34.3%	8.5%
2007	51.6%	63.1%	90.8%	71.5%	37.3%	38.7%	34.6%	7.4%
2008	51.2%	64.1%	91.1%	71.8%	36.9%	37.9%	34.6%	6.4%
2009	52.0%	65.6%	91.7%	72.5%	37.1%	38.6%	34.9%	6.3%
2010	53.3%	66.9%	92.3%	72.8%	36.4%	38.6%	34.8%	5.6%
2011	54.9%	67.4%	92.6%	72.8%	36.8%	38.3%	35.8%	5.4%
Medical-only Claims								
1998	21.0%	46.2%	84.6%	52.7%	36.1%	19.3%	17.1%	1.0%
1999	23.3%	46.7%	84.5%	52.2%	35.1%	20.7%	16.6%	1.1%
2000	23.9%	47.6%	86.9%	51.7%	33.7%	21.3%	16.5%	1.1%
2001	22.5%	48.0%	88.3%	55.4%	33.5%	22.4%	16.6%	1.2%
2002	23.2%	49.2%	89.7%	58.0%	35.1%	22.8%	16.9%	1.2%
2003	30.5%	51.7%	90.3%	60.7%	32.4%	23.4%	18.0%	1.1%
2004	38.0%	51.8%	90.3%	63.7%	22.0%	23.9%	17.4%	0.9%
2005	35.2%	52.8%	91.0%	63.5%	21.1%	22.4%	18.6%	0.8%
2006	39.1%	54.7%	91.5%	64.4%	22.4%	21.1%	19.3%	0.7%
2007	40.8%	56.0%	92.1%	64.6%	22.3%	20.6%	18.8%	0.6%
2008	39.5%	56.1%	92.4%	65.4%	22.3%	19.4%	18.7%	0.5%
2009	39.4%	56.5%	92.8%	67.3%	22.1%	19.3%	18.3%	0.4%
2010	39.0%	56.4%	93.3%	67.7%	21.7%	18.8%	18.5%	0.4%
2011	39.1%	56.3%	93.5%	68.5%	21.3%	18.6%	18.8%	0.4%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

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

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

Service Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
Lost-time Claims								
1998	7.0	6.8	10.9	4.0	6.6	73.3	4.0	5.4
1999	7.4	6.5	10.8	3.9	6.2	76.4	3.9	5.1
2000	7.7	6.9	11.4	4.2	6.1	82.4	3.8	5.1
2001	7.5	7.1	11.6	5.2	6.3	89.0	4.0	5.1
2002	7.5	7.9	12.8	5.9	6.3	104.2	4.5	5.9
2003	8.9	8.1	11.7	6.2	6.3	107.2	4.5	5.2
2004	10.9	7.4	9.3	5.9	5.0	96.1	4.1	4.7
2005	11.6	7.5	9.2	6.8	4.7	95.4	4.8	5.1
2006	9.8	7.1	7.9	6.1	4.2	69.7	4.7	5.4
2007	9.7	7.5	7.5	6.2	4.0	63.9	4.6	5.4
2008	9.3	7.8	7.4	6.2	3.9	62.3	4.4	5.2
2009	9.2	8.8	7.5	6.4	3.8	60.9	4.4	5.6
2010	8.6	9.4	7.4	6.3	3.7	60.0	4.4	5.7
2011	8.3	9.7	7.2	6.3	3.6	58.6	4.5	5.2
Medical-only Claims								
1998	3.3	2.6	3.6	2.0	3.3	31.8	1.9	4.2
1999	3.3	2.6	3.7	2.0	3.2	32.9	1.8	4.0
2000	3.3	2.6	3.8	2.2	3.2	35.6	1.9	3.9
2001	3.3	2.7	3.8	2.7	3.1	36.5	1.8	4.1
2002	3.4	2.7	3.8	2.8	3.2	38.1	1.9	4.3
2003	3.7	2.7	3.6	2.8	3.0	37.7	1.9	4.0
2004	4.3	2.6	3.1	2.8	2.4	33.3	1.8	3.6
2005	4.3	2.6	2.9	3.1	2.1	31.8	1.8	4.0
2006	4.0	2.6	2.9	2.9	2.1	26.9	1.9	4.0
2007	3.9	2.6	2.8	2.7	2.1	25.1	1.8	4.0
2008	3.7	2.6	2.8	2.7	2.0	24.2	1.8	4.1
2009	3.6	2.6	2.7	2.7	2.0	24.2	1.7	3.8
2010	3.3	2.6	2.7	2.7	1.9	24.2	1.7	4.2
2011	3.2	2.7	2.8	2.7	1.9	24.9	1.7	3.7

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Professional Service Costs 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. But most studies from the insurance industry or actuarial societies frequently present statistics by injury year, which often exclude old injuries. For injury year statistics, different lengths of time from the injury date are used to show different levels of maturity.

In this study, we report three different maturities of 6 months, 12 months and 24 months after the injury date for each injury year. Medical-only type claims often receive only a few treatments, and the services and costs are mostly accounted for by the six months 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 2011 injury year with six months maturity covers all new injuries that occurred in the 2011 calendar year and accounts for all services received within six months from injury. This means that service bills up to June 30, 2012, should be available. For 2009 injury year with 24 months maturity, data covers claims with injury date from January 1, 2009, to December 31, 2009, and services up to December 31, 2011. As the maturity increases, there will be more services provided and total costs increase accordingly.

One thing to note is that the average cost per claim in the longer maturity poses some problems since only some of the claims would be receiving services in the later years from injury. Therefore, the average cost is diluted as the number of claims for each injury year remains the same and the additional costs borne only by some claims are divided by the large number of claims that have already exited the system. In later part of this section, we present a slightly different configuration for maturity that separates all claims by mutually exclusive groups by service dates.

For lost-time claims, total costs in each injury year increase significantly as maturity increases while medical-only claims costs increase only slightly as we extend the maturity horizon (see Table 3.8). Over the years, total costs declined the most, by 23 percent, for lost-time claims at 24 months maturity. 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 substantially at around 25 percent to 35 percent.

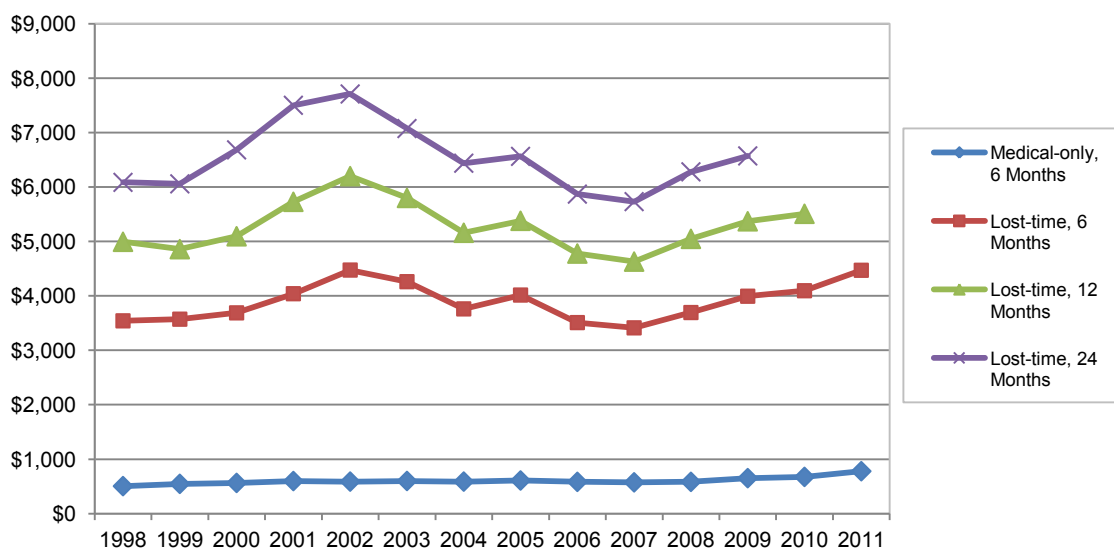
Table 3.8: Total Cost, by Injury Year, by Maturity and Claim Type, Professional Services

Injury Year	6 Months			12 Months			24 Months		
	Total Cost (Thousand Dollars)	Number of Claims	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Claims	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Claims	Average Cost per Claim
Lost-time Claims									
1998	\$265,168	74,866	\$3,542	\$382,453	76,571	\$4,995	\$472,030	77,555	\$6,086
1999	\$251,848	70,498	\$3,572	\$352,822	72,606	\$4,859	\$448,027	73,947	\$6,059
2000	\$259,520	70,359	\$3,689	\$371,369	72,871	\$5,096	\$499,014	74,668	\$6,683
2001	\$283,894	70,270	\$4,040	\$416,256	72,656	\$5,729	\$555,145	74,000	\$7,502
2002	\$310,056	69,287	\$4,475	\$437,568	70,571	\$6,200	\$549,332	71,248	\$7,710
2003	\$265,771	62,369	\$4,261	\$366,755	63,227	\$5,801	\$457,402	64,651	\$7,075
2004	\$223,579	59,444	\$3,761	\$317,294	61,490	\$5,160	\$399,626	62,075	\$6,438
2005	\$229,789	57,226	\$4,015	\$312,791	58,136	\$5,380	\$384,715	58,612	\$6,564
2006	\$199,177	56,755	\$3,509	\$274,345	57,410	\$4,779	\$338,678	57,694	\$5,870
2007	\$196,829	57,671	\$3,413	\$269,650	58,235	\$4,630	\$335,547	58,542	\$5,732
2008	\$217,740	58,941	\$3,694	\$300,638	59,553	\$5,048	\$375,628	59,816	\$6,280
2009	\$218,584	54,728	\$3,994	\$296,450	55,189	\$5,372	\$363,808	55,357	\$6,572
2010	\$233,876	57,115	\$4,095	\$316,765	57,497	\$5,509			
2011	\$248,112	55,493	\$4,471						
Medical-only Claims									
1998	\$120,680	238,859	\$505	\$140,805	242,638	\$580	\$154,041	244,916	\$629
1999	\$115,659	211,592	\$547	\$133,767	214,636	\$623	\$149,207	216,798	\$688
2000	\$112,043	198,757	\$564	\$130,347	201,800	\$646	\$147,315	204,293	\$721
2001	\$114,054	190,661	\$598	\$132,583	193,613	\$685	\$148,183	195,512	\$758
2002	\$109,897	186,725	\$589	\$125,049	188,627	\$663	\$136,649	189,702	\$720
2003	\$103,303	172,266	\$600	\$115,805	173,637	\$667	\$124,784	174,750	\$714
2004	\$93,534	158,961	\$588	\$104,232	160,816	\$648	\$111,611	161,857	\$690
2005	\$103,646	170,351	\$608	\$113,799	171,561	\$663	\$121,123	172,290	\$703
2006	\$104,534	179,109	\$584	\$114,867	180,207	\$637	\$121,441	180,816	\$672
2007	\$106,475	185,315	\$575	\$115,907	186,351	\$622	\$122,543	186,960	\$655
2008	\$104,107	178,448	\$583	\$112,090	179,419	\$625	\$117,496	179,993	\$653
2009	\$103,439	158,792	\$651	\$110,491	159,590	\$692	\$115,331	160,093	\$720
2010	\$109,868	162,862	\$675	\$118,330	163,650	\$723			
2011	\$129,406	166,128	\$779						

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Average costs per claim differed substantially between MO and lost-time claims (see Figure 3.5). For medical-only claims, figures are shown only for six months maturity since most of them received 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 cost trends are dominated by lost-time claims.

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



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

A slightly different configuration is presented in Tables 3.9 and 3.10. Total costs are shown for each service year but all services are grouped into one of four maturity groups. The 'In the first year' group is for new injuries and sums the payments for all services that are provided within one year from the date of injury. The 'In the second year' maturity group is for old injuries 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 months maturity' that includes all services from 0 day to 730 days from the injury date.

The majority of the claims are in the first year maturity group since this includes 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 are expended for treating new claims in the first year maturity group. Again we note that this measure is different from the injury year data in Table 3.8, since figures for the 12 months maturity in Table 3.8 are inclusive of the 6 months maturity data while the four groups in Table 3.9 each sums up a group of services that are mutually exclusive. Table 3.10 shows the average cost for each maturity group in Table 3.9.

Since there are more claims in the first year maturity group, their cost is the largest, reaching 71 percent of the total in 2011. Services for claims with four or more years of maturity accounted for 14 percent of the total cost in 2011. Cost shares of the second and third year maturity groups are decreasing while those of one year or less and four or longer maturity groups are increasing since the early 2000s. Average cost is the highest in the second year (see Table 3.10). This is most likely because surgeries and other major treatments are provided in the second year. Note

that these average costs are accumulative. For example, the average cost in the first two years for service year 2011 is the sum of \$1,826 for the first year and \$2,771 for the second year.

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

Service Year	In the First Year	In the Second Year	In the Third Year	4th Year and Older	Total
1998	\$484,758	\$101,356	\$44,517	\$85,078	\$715,710
1999	\$504,585	\$112,382	\$41,518	\$146,612	\$805,097
2000	\$495,573	\$105,790	\$40,685	\$76,806	\$718,854
2001	\$528,685	\$127,838	\$49,062	\$80,419	\$786,003
2002	\$572,115	\$158,485	\$68,048	\$108,229	\$906,876
2003	\$516,306	\$137,785	\$62,646	\$106,344	\$823,080
2004	\$422,585	\$105,847	\$46,561	\$90,524	\$665,517
2005	\$451,429	\$95,955	\$42,359	\$94,429	\$684,172
2006	\$392,223	\$83,139	\$33,729	\$88,122	\$597,213
2007	\$389,582	\$73,759	\$29,815	\$78,649	\$571,804
2008	\$400,398	\$70,670	\$26,866	\$73,913	\$571,849
2009	\$416,160	\$78,287	\$28,065	\$78,922	\$601,434
2010	\$420,455	\$74,946	\$29,984	\$77,967	\$603,352
2011	\$476,506	\$75,018	\$29,598	\$94,058	\$675,179

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

Service Year	In the First Year	In the Second Year	In the Third Year	4th Year and Older
1998	\$1,295	\$1,845	\$1,521	\$1,775
1999	\$1,464	\$2,076	\$1,513	\$2,953
2000	\$1,524	\$2,032	\$1,521	\$1,585
2001	\$1,661	\$2,252	\$1,699	\$1,555
2002	\$1,805	\$2,641	\$2,084	\$1,835
2003	\$1,783	\$2,621	\$2,053	\$1,820
2004	\$1,615	\$2,466	\$1,893	\$1,685
2005	\$1,650	\$2,505	\$2,035	\$1,798
2006	\$1,402	\$2,393	\$1,893	\$1,837
2007	\$1,359	\$2,304	\$1,905	\$1,790
2008	\$1,428	\$2,293	\$1,888	\$1,842
2009	\$1,627	\$2,550	\$1,990	\$2,016
2010	\$1,628	\$2,590	\$2,140	\$2,064
2011	\$1,826	\$2,771	\$2,347	\$2,594

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Professional Cost and Utilization by Injury Year by Service Type

Using the maturity-defined dataset of injury year, costs and utilization data in Tables 3.11, 3.12, and 3.13 correspond to service year statistics presented in Tables 3.5, 3.6 and 3.7. Percentages in these injury year tables are much higher than in the service year tables since service year statistics include, in the denominator, old claims that are not included in the injury year data. As we increase maturity, these statistics tend to increase somewhat proportionately.

In terms of utilization trends in Table 3.11, a greater percentage of claims received DMEPOS and IR Exam & Report services in recent years, while the percentage of claims receiving Physical Medicine services has not changed significantly. These results are similar to those of the service year data.

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

Injury Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
1998	47.8%	80.0%	94.1%	78.3%	62.4%	58.5%	41.0%	9.8%
1999	49.6%	78.6%	93.6%	76.1%	60.4%	59.6%	40.3%	9.6%
2000	48.2%	78.4%	94.3%	76.8%	58.8%	60.3%	40.1%	10.0%
2001	48.2%	79.8%	94.9%	80.8%	60.4%	62.2%	43.0%	11.1%
2002	53.7%	83.9%	96.4%	84.4%	64.3%	64.3%	46.1%	11.2%
2003	63.5%	85.7%	96.8%	86.5%	62.8%	65.5%	48.7%	10.7%
2004	69.2%	86.0%	99.3%	90.0%	55.7%	66.5%	49.1%	9.8%
2005	65.1%	85.8%	97.0%	88.0%	54.4%	63.2%	51.2%	8.8%
2006	69.9%	86.4%	97.3%	87.6%	54.6%	60.4%	52.3%	7.7%
2007	71.7%	87.2%	97.6%	86.9%	53.8%	59.3%	52.1%	6.4%
2008	70.9%	87.5%	98.0%	88.0%	53.6%	58.6%	52.4%	5.6%
2009	71.9%	88.2%	98.4%	89.4%	53.1%	59.8%	51.8%	5.1%
2010	71.6%	88.5%	99.2%	89.6%	52.5%	59.2%	51.6%	4.8%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Average cost per claim increased the most for IR Exam & Report services, by 115 percent since 1998 (see Table 3.12). This increase was parallel to the 63 percent increase in the utilization of these services—from 5.1 services per claim in 1998 to 8.3 services in 2010 (see Table 3.13). Surgery – Other and DMEPOS services also show large increases in the average cost per claim and in utilization. The average cost per claim for Physical Medicine services decreased significantly since its peak in 2002 with a corresponding decrease in the number of services per claim. For Physical Medicine services, the main factor in cost reduction appears to be the decrease in service intensity shown in Table 3.13. The number of services per claim has decreased by 54 percent since its highest level in 2002. On the other hand, for Surgery – Spinal

services, the decrease in the percent of claims receiving the service (frequency of utilization) was more prominent than the decrease in the number of services (intensity of utilization).

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

Injury Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
1998	\$452	\$721	\$864	\$331	\$943	\$2,860	\$1,304	\$2,881
1999	\$493	\$752	\$891	\$337	\$454	\$3,037	\$1,325	\$2,716
2000	\$522	\$805	\$902	\$345	\$431	\$3,306	\$1,319	\$2,695
2001	\$577	\$909	\$940	\$442	\$466	\$3,580	\$1,395	\$2,765
2002	\$582	\$957	\$937	\$510	\$490	\$3,738	\$1,429	\$2,763
2003	\$563	\$833	\$873	\$606	\$481	\$3,470	\$1,160	\$1,699
2004	\$546	\$701	\$789	\$632	\$480	\$2,984	\$1,220	\$1,542
2005	\$659	\$720	\$800	\$701	\$514	\$2,762	\$1,498	\$1,724
2006	\$636	\$649	\$736	\$704	\$488	\$2,124	\$1,473	\$1,591
2007	\$696	\$573	\$748	\$737	\$484	\$1,888	\$1,489	\$1,617
2008	\$694	\$635	\$824	\$728	\$533	\$2,030	\$1,865	\$1,800
2009	\$683	\$652	\$877	\$740	\$540	\$2,158	\$2,139	\$1,965
2010	\$696	\$643	\$935	\$713	\$551	\$2,288	\$2,262	\$2,019

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

Injury Year	DMEPOS	Diag/Path/Lab	E/M	IR Exam & Report	Other Services	Physical Medicine	Surgery - Other	Surgery - Spinal
1998	6.5	7.9	16.4	5.1	6.9	100.6	3.9	5.0
1999	7.2	8.0	16.8	5.2	6.6	105.3	4.0	5.0
2000	6.9	8.3	17.3	5.9	6.5	110.6	3.9	4.9
2001	7.4	9.1	18.8	7.6	7.0	125.3	4.3	5.1
2002	7.9	9.8	20.2	8.4	6.9	145.8	4.6	5.3
2003	11.4	10.1	16.8	8.8	6.1	139.0	4.5	4.8
2004	13.1	8.6	13.1	8.2	4.5	117.5	4.5	4.3
2005	13.6	9.0	12.6	9.1	4.4	106.1	5.1	5.0
2006	11.4	8.6	10.8	8.4	4.2	79.5	5.0	4.8
2007	10.8	8.6	10.1	8.2	3.9	71.4	5.0	4.6
2008	10.3	9.0	10.3	8.5	3.9	71.4	4.9	4.4
2009	9.9	8.8	10.2	8.5	3.7	69.1	4.9	4.5
2010	8.8	8.7	10.0	8.3	3.6	67.5	5.0	4.1

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Cost per Service by Injury Year for Selected Professional Services

For payment purposes, providers and billers use more than 10,000 different service codes (CPT or HCPCS) 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 service codes accounted for 40 percent of the total payments from 2005 to 2011 (\$4.3 billion) while 51 percent and 74 percent of the total cost were associated with the top 20 and the top 100 service codes, respectively. The top 20 service codes in terms of total payments are shown in Table 3.14. They are mainly E/M, Physical Medicine, IR Exam & Report, and Diag/Path/Lab services.

Figures 3.6 through 3.14 present average costs per service for selected services. Since some of the top 20 service codes are in the same service group, we have selected only some representative services 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.

Table 3.14: Top 20 Service Codes by Total Payments in 2005 – 2011

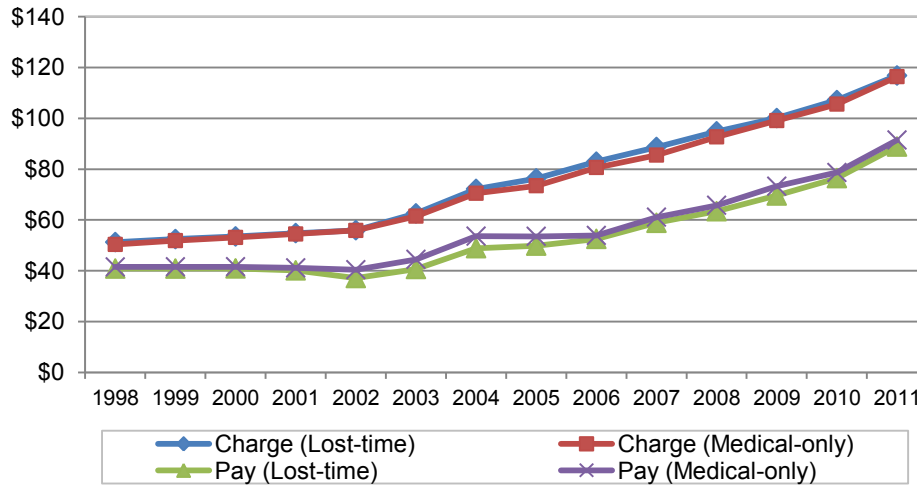
Rank	CPT/ HCPCS	Total pay (thousand dollars)	Description
1	97110	\$395,687	Therapeutic procedure, one or more areas, each 15 minutes
2	99456	\$284,559	Work related or medical disability exam by other than treating physician
3	99213	\$277,231	Office or other outpatient visit for evaluation and management of established patient
4	97799	\$239,589	Unlisted physical medicine/rehabilitation service or procedure
5	99214	\$149,154	Office or other outpatient visit for evaluation and management of established patient
6	99204	\$90,930	Office or other outpatient visit for evaluation and management of new patient
7	99203	\$80,248	Office or other outpatient visit for evaluation and management of new patient
8	97140	\$77,403	Manual therapy techniques, one or more regions, each 15 minutes
9	97750	\$76,919	Physical performance test or measurement, with written report, each 15 minutes
10	97546	\$69,615	Work hardening/conditioning; each additional hour
11	97530	\$65,445	Therapeutic activities, direct patient contact by the provider
12	99080	\$55,991	Special reports such as insurance forms, more than the information conveyed in the usual medical communications or standard reporting form
13	97112	\$55,693	Therapeutic procedure, one or more areas, each 15 minutes; neuromuscular reeducation
14	99455	\$49,762	Work related or medical disability exam by treating physician
15	73721	\$49,241	Magnetic resonance imaging, any joint of lower extremity; without contrast material
16	73221	\$43,137	Magnetic resonance imaging, any joint of upper extremity; without contrast material
17	72148	\$42,922	Magnetic resonance imaging, spinal canal and contents, lumbar; without contrast material
18	99212	\$40,321	Office or other outpatient visit for evaluation and management of established patient
19	97001	\$34,572	Physical therapy evaluation
20	97545	\$32,463	Work hardening/conditioning; initial 2 hours

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Office Visit – 99213

This service is the most common and costly service in the E/M service group. Cost per service increased since 2002 mainly due to changes in the professional services fee guideline. Charges by service providers are also shown to indicate a common rate of discount by bill reviewers.

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

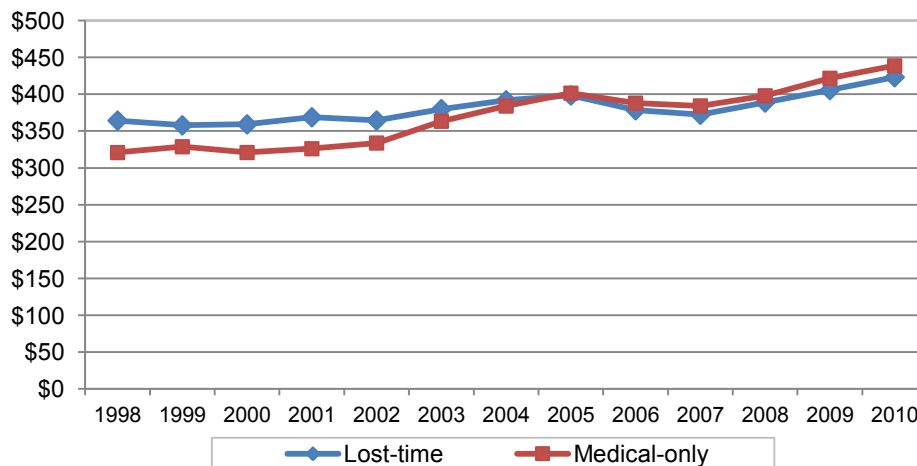


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Disability Examination – 99456

This service is billed by an examining physician who is not the treating physician. Total cost is almost 6 times larger than the service by treating physicians (CPT/HCPCS 99455). But the average and cost trend are similar for both codes.

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

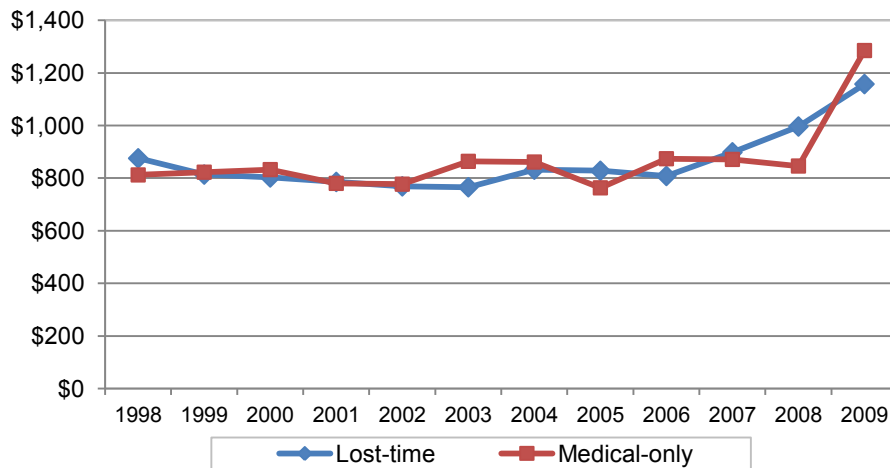


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Lumbar Spine Fusion – 22612

Surgery services in general require longer maturity due to their nature of service. There was a steep increase in price per service provided to medical-only patients for 2009 injuries. The increase in the prices coincides with changes in the new professional services fee guideline that became effective in 2008.

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

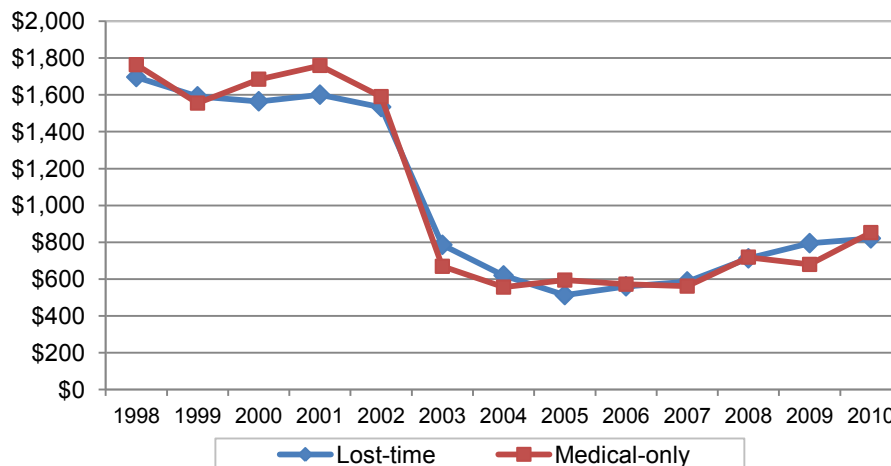


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Low Back Disc Surgery – 63030

Unlike the above spinal fusion, the average cost of low back disc surgery services decreased because of the changes in the 2003 ambulatory surgical center fee guideline. Data for the 24 months maturity is very similar, indicating that these services are provided in the first year.

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



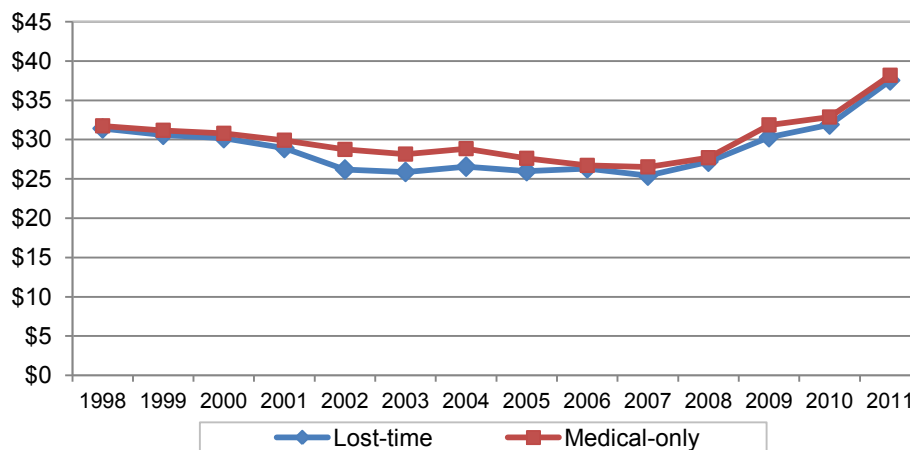
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Therapeutic Exercises – 97110

This physical medicine service is the most common and costly service as a whole in the workers' compensation system. Submitted bills may include any number of 15-minute sessions.

Therefore, we used a statistical procedure to analyze the number of sessions in each bill and calculated an average cost per session. This average cost fluctuated around \$30 per session, with a minor decrease around 2007. It indicates that the substantial decrease in total costs for physical medicine was mostly due to changes in utilization rather than changes in the unit price.

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

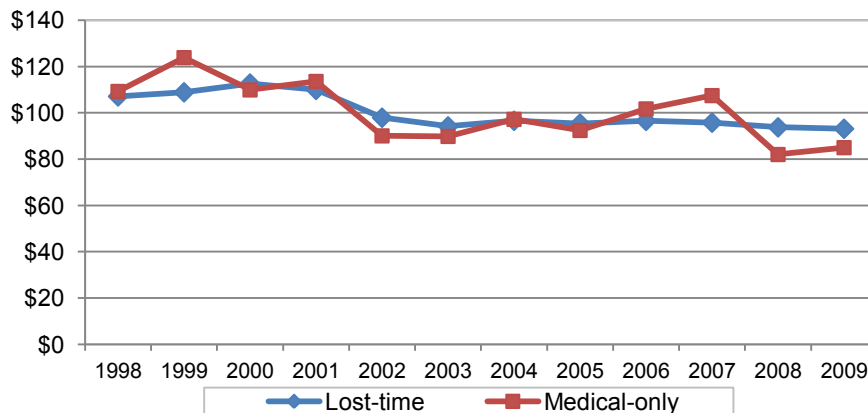


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Chronic Pain Management/Rehabilitation Service – 97799

The code 97799 is used to bill for 'unlisted physical medicine service,' including diverse services with different prices. Figure 3.11 shows only those for chronic pain management distinguished by the CP modifier in the bill.

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

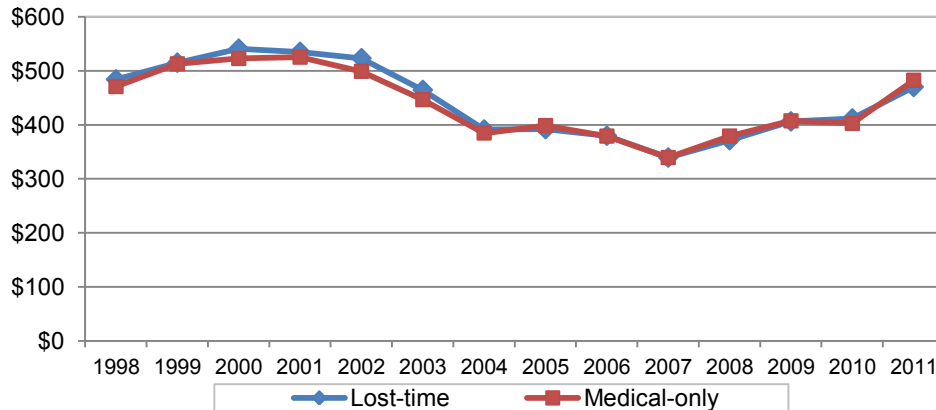


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

MRI – 73721

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

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

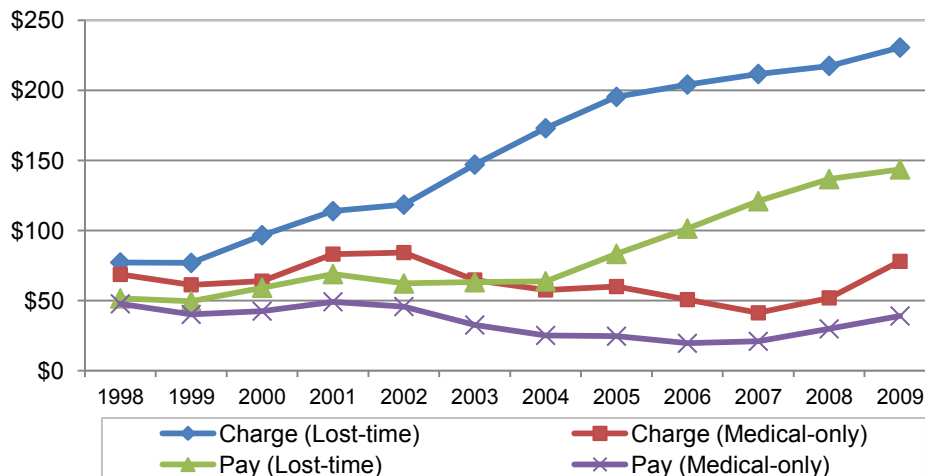


Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Durable Medical Equipment, Miscellaneous – E1399

Ranked 24th among all service codes, E1399 is the most costly DME code. It is used for miscellaneous charges for supplies (\$25.5 million total for 2005-2011). Since 2002, supplies costs for lost-time claims increased more rapidly than those for medical-only claims. Because this code is a catch-all category, apparent price increases may be due to a changing mix of supplies toward higher-cost supplies.

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



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

4. Cost and Utilization for Hospital/Institutional Services

Hospital/institutional service bills include hospital inpatient and outpatient services, 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 surgical centers (ASC) are included in the professional service dataset.

Total Cost and Utilization for Hospital/Institutional Services

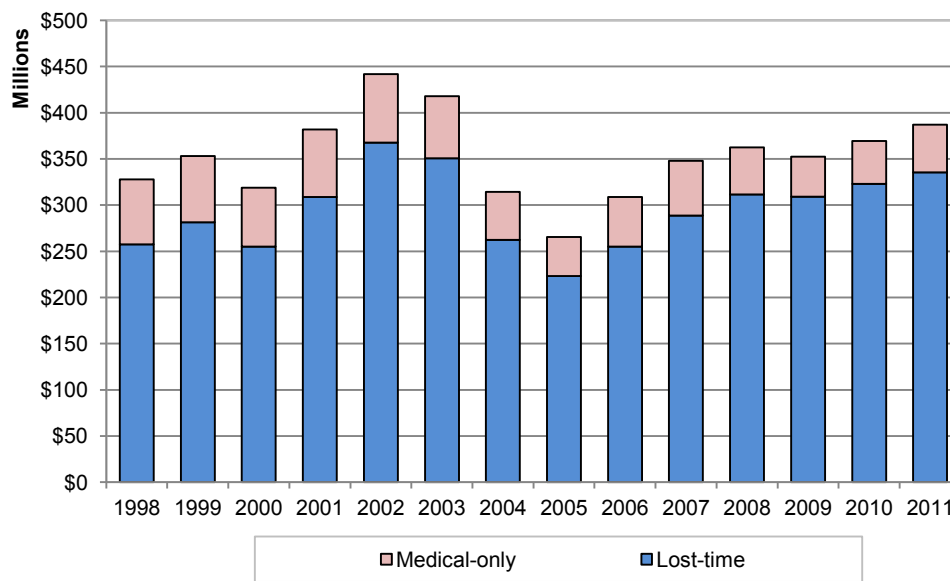
About a third of all claims that received health care benefits had one or more hospital/institutional service bills (see Table 4.1). This share was highest in 2003 at 33 percent and decreased since then to 30.5 percent in 2011.

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
1998	483,876	153,906	31.8%	70,867	83,112
1999	454,939	146,349	32.2%	68,463	77,947
2000	430,133	132,031	30.7%	62,308	69,772
2001	429,373	135,397	31.5%	65,744	69,696
2002	434,629	142,662	32.8%	73,938	68,757
2003	398,411	131,909	33.1%	69,356	62,572
2004	357,624	111,197	31.1%	57,538	53,674
2005	382,274	98,553	25.8%	47,245	51,329
2006	380,507	108,554	28.5%	49,791	58,784
2007	381,227	112,426	29.5%	50,485	61,966
2008	370,945	108,927	29.4%	50,744	58,203
2009	340,109	98,649	29.0%	48,208	50,452
2010	335,491	100,132	29.8%	48,471	51,668
2011	332,408	101,251	30.5%	47,609	53,652

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012

Figure 4.1 presents a graph of hospital cost totals by service year cumulatively summing both lost-time and medical-only claims costs. In terms of claim type, lost-time claims accounted for between 45 percent and 50 percent in the number of claims, but they accounted for over 85 percent of the total cost in each service year. Medical-only claims, even when utilizing hospital or institutional services, used relatively low-cost services. After the 2002 peak, the total cost decreased substantially until 2005 and increased to about \$350 million in 2007 without much change since then. Since the cost share of lost-time claims were so dominant, some tables and figures below 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, 2012.

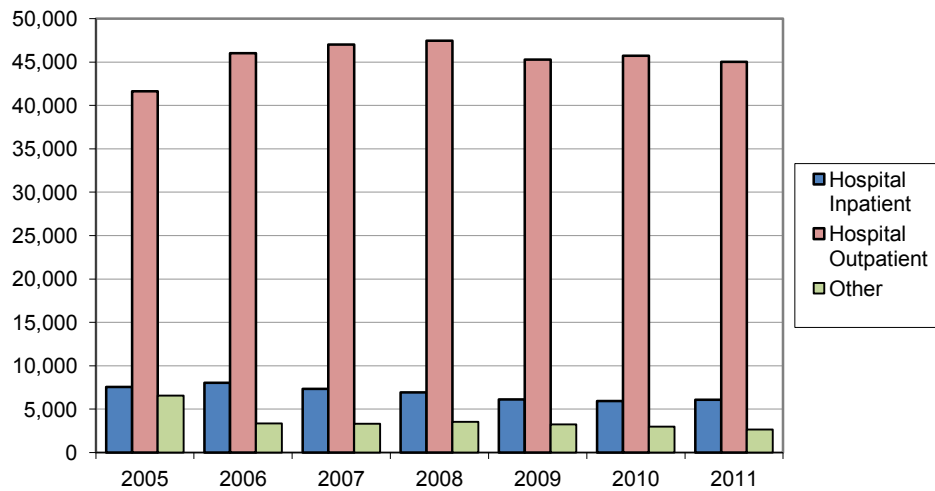
Hospital/Institutional Costs by Facility Type

Facility codes in the hospital billing data separate bills by the type of institution (hospital or skilled nursing facility) and by the nature of service location (inpatient or outpatient). This analysis focuses on the 2005–2011 period due to the availability of more reliable facility codes in the EDI 837 data.

Among lost-time claims, most claims receive hospital outpatient services (see Figure 4.2). The data may be duplicative since one claim can receive several types of services and counted multiple times. But out of about 50,000 unique medical-only claims, less than 10,000 claims used services other than hospital outpatient services. Hospital outpatient claims represented 88 percent of all claims in 2005, which increased to 95 percent in 2011. The share of hospital inpatient claims decreased from 16 percent to 13 percent in the same period.

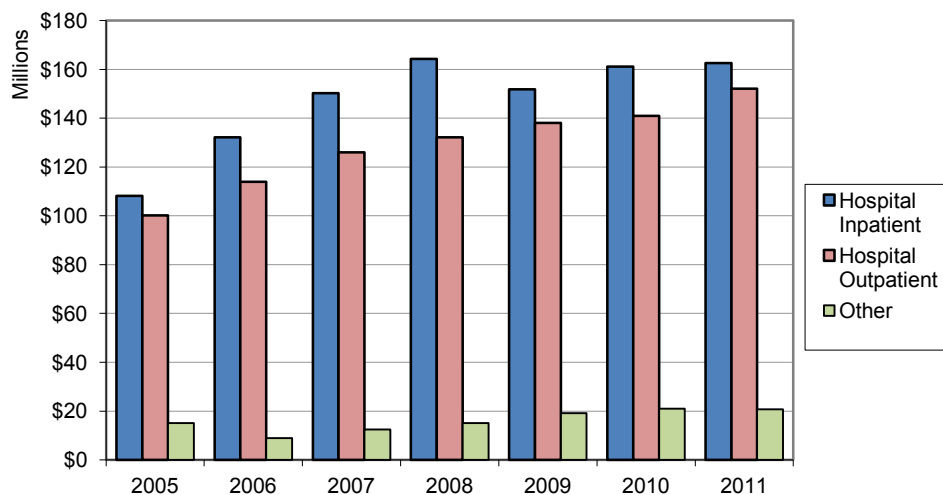
Despite the fact that hospital outpatient services are the most commonly used services, however, the largest part of the total costs are for payments for hospital inpatient services (see Figure 4.3). Total cost for hospital inpatient services is slightly greater than that for hospital outpatient services, 48 percent vs. 45 percent of the total, respectively, in 2011.

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



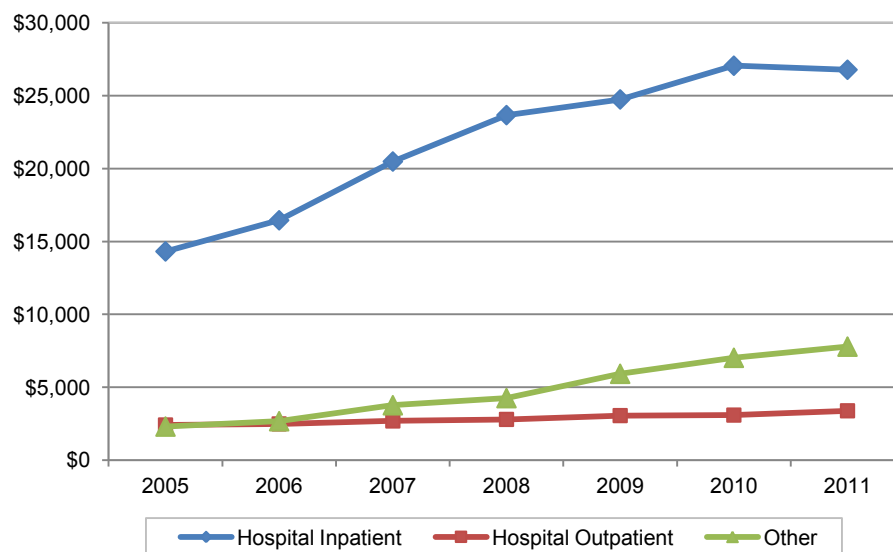
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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, 2012.

Consequently, the average cost per claim was much higher for hospital inpatient services (see Figure 4.4 for comparison among the three facility types). The average cost for hospital inpatient services was not only higher but has been increasing much faster than outpatient or other facility services from 2005 to 2008, but its growth rate decreased in 2009 when a new hospital fee guideline went into effect. The most recent service year data indicates that this cost growth may be tapering off, pending future data updates.

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, 2012.

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 costs for new injuries at 6 months, 12 months, and 24 month maturities all decreased since 1998 for medical-only claims but increased for lost-time claims (see Table 4.2)

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

Injury Year	Lost-time Claims			Medical-only Claims		
	6 Months	12 Months	24 Months	6 Months	12 Months	24 Months
1998	\$135,373	\$174,662	\$214,562	\$49,103	\$56,303	\$62,519
1999	\$138,010	\$178,727	\$221,098	\$50,212	\$57,183	\$63,775
2000	\$120,722	\$165,716	\$226,444	\$43,544	\$50,622	\$58,581
2001	\$145,589	\$200,775	\$262,642	\$50,212	\$57,572	\$64,283
2002	\$158,354	\$212,576	\$262,687	\$44,731	\$51,017	\$55,815
2003	\$154,364	\$197,094	\$227,627	\$45,537	\$49,785	\$52,739
2004	\$113,226	\$137,139	\$164,931	\$37,172	\$39,866	\$42,111
2005	\$117,544	\$143,192	\$172,372	\$36,027	\$38,711	\$40,837
2006	\$144,618	\$173,407	\$202,790	\$43,822	\$46,412	\$48,779
2007	\$174,019	\$206,028	\$240,153	\$49,052	\$51,597	\$54,312
2008	\$180,719	\$217,959	\$257,955	\$40,847	\$42,540	\$44,295
2009	\$160,320	\$193,537	\$228,069	\$35,062	\$36,808	\$38,434
2010	\$175,301	\$209,359		\$38,435	\$40,298	
2011	\$183,249			\$42,668		

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

The number of claims decreased for both lost-time and medical-only claims, but the decrease was slightly larger for medical-only claims (see Table 4.3). Average cost per claim increased greatly for lost-time claims: from 85 percent increase for the 6-month maturity group to 64 percent increase for the 24-month maturity group (see Table 4.4). The decrease in the number of claims increases the average cost in addition to the upward influence from increases in utilization and price per service. The increase in the average cost was greater for the 6-month maturity group, implying that the cost increase is 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, 24 Months Post-Injury

Injury Year	Lost-time Claims			Medical-only Claims		
	6 Months	12 Months	24 Months	6 Months	12 Months	24 Months
1998	40,321	43,927	45,811	74,997	76,648	77,658
1999	37,347	40,951	42,941	69,833	71,261	72,202
2000	34,005	38,140	41,146	62,695	64,164	65,244
2001	36,160	40,809	43,536	62,499	63,907	64,737
2002	38,527	42,463	44,263	61,216	62,220	62,801
2003	35,401	38,334	39,600	56,330	57,153	57,563
2004	30,222	32,351	33,696	49,166	49,750	50,105
2005	27,449	29,595	30,892	48,367	48,976	49,324
2006	30,289	32,214	33,166	55,482	56,073	56,360
2007	32,103	33,948	34,951	58,491	58,984	59,265
2008	32,884	34,794	35,740	55,087	55,520	55,764
2009	29,820	31,451	32,258	47,567	47,909	48,153
2010	31,358	33,029		49,126	49,515	
2011	30,889			50,921		

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

Injury Year	Lost-time Claims			Medical-only Type		
	6 Months	12 Months	24 Months	6 Months	12 Months	24 Months
1998	\$3,357	\$3,976	\$4,684	\$655	\$735	\$805
1999	\$3,695	\$4,364	\$5,149	\$719	\$802	\$883
2000	\$3,550	\$4,345	\$5,503	\$695	\$789	\$898
2001	\$4,026	\$4,920	\$6,033	\$803	\$901	\$993
2002	\$4,110	\$5,006	\$5,935	\$731	\$820	\$889
2003	\$4,360	\$5,141	\$5,748	\$808	\$871	\$916
2004	\$3,746	\$4,239	\$4,895	\$756	\$801	\$840
2005	\$4,282	\$4,838	\$5,580	\$745	\$790	\$828
2006	\$4,775	\$5,383	\$6,114	\$790	\$828	\$865
2007	\$5,421	\$6,069	\$6,871	\$839	\$875	\$916
2008	\$5,496	\$6,264	\$7,218	\$742	\$766	\$794
2009	\$5,376	\$6,154	\$7,070	\$737	\$768	\$798
2010	\$5,590	\$6,339		\$782	\$814	
2011	\$5,932			\$838		

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Professional and Hospital/Institutional Costs Combined

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

For example, *CompScope Medical Benchmarks* from Workers Compensation Research Institute (WCRI) showed 2009 Texas average costs of \$9,002 for greater than seven days of lost time claims, and \$887 for seven days or less lost time claims, respectively, combining professional and hospital costs. These compare closely with \$8,847 and \$896 in Table 4.5. Differences may be due to different treatments for extreme values, outliers and cases with missing data. Also, unlike other research organizations, REG's results are based on all bills in the workers' compensation system instead of samples. In terms of the number of claims, the share of 'greater than seven days of lost time' claims in the WCRI report was 24 percent of all claims while it is 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 Post-Injury

Injury Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Cost (Thousand Dollars)	Average Cost per Claim	Number of Claims	Total Cost (Thousand Dollars)	Average Cost per Claim
1998	77,539	\$557,139	\$7,185	256,737	\$197,136	\$768
1999	73,719	\$531,568	\$7,211	228,680	\$190,953	\$835
2000	73,973	\$537,086	\$7,261	214,109	\$180,970	\$845
2001	73,541	\$617,033	\$8,390	206,365	\$190,154	\$921
2002	71,414	\$650,153	\$9,104	198,433	\$176,069	\$887
2003	63,619	\$563,895	\$8,864	181,179	\$165,594	\$914
2004	61,828	\$454,439	\$7,350	168,003	\$144,101	\$858
2005	58,512	\$455,988	\$7,793	177,137	\$152,509	\$861
2006	57,712	\$447,754	\$7,758	186,899	\$161,298	\$863
2007	58,529	\$475,680	\$8,127	193,033	\$167,509	\$868
2008	59,815	\$518,597	\$8,670	185,624	\$154,633	\$833
2009	55,386	\$489,987	\$8,847	164,352	\$147,311	\$896
2010	57,709	\$526,125	\$9,117	168,340	\$158,628	\$942

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

5. Cost and Utilization for Dental Services

Payments for dental services in the Texas workers' compensation system accounted for about 0.3 percent of the total health care cost in 2011. 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 dominant costs.

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

Service Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Cost	Cost per Claim	Number of Claims	Total Cost	Cost per Claim
2005	199	\$297,834	\$1,497	423	\$477,323	\$1,128
2006	279	\$614,556	\$2,203	603	\$889,777	\$1,476
2007	389	\$1,024,779	\$2,634	842	\$1,501,219	\$1,783
2008	412	\$1,216,938	\$2,954	940	\$2,054,556	\$2,186
2009	359	\$1,431,341	\$3,987	911	\$1,930,973	\$2,120
2010	416	\$1,777,829	\$4,274	974	\$2,163,524	\$2,221
2011	396	\$1,709,923	\$4,318	996	\$2,418,286	\$2,428

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, 2012.

The top 10 most billed dental procedures are shown in Table 5.2. They accounted for 51 percent of the total dental cost during the seven year period. Most common services were for implants and crowns.

Total dental payments are broken down by hospital referral region (HRR) in Table 5.3. 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 metro areas. For this analysis, patients' HRRs are assigned based on the injured employees' home ZIP codes since facility ZIP codes are incomplete in the data. The largest 5 metro areas (Houston, Dallas, Fort Worth, San Antonio and Austin) accounted for 70 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 other types of medical services.

Table 5.2: Top 10 Dental Services, by Total Cost (2005-2011 Cumulative Totals)

Rank	HCPCS	Number of Claims	Total Cost	Procedure Description
1	D6010	636	\$2,549,594	Surgical placement of implant body: endosteal implant
2	D2750	983	\$1,563,219	Crown-porcelain fused to high noble metal
3	D3310	1,509	\$1,526,689	Endodontic therapy, anterior tooth (excluding final restoration)
4	D2740	821	\$1,214,147	Crown-porcelain/ceramic substrate
5	D6750	464	\$924,096	Crown-porcelain fused to high noble metal
6	D6240	520	\$752,676	Pontic-porcelain fused to high noble metal
7	D9999	970	\$599,676	Unspecified adjunctive procedure, by report
8	D2751	361	\$572,192	Crown-porcelain fused to predominantly base metal
9	D6059	222	\$483,588	Abutment supported porcelain fused to metal crown (high noble metal)
10	D7210	966	\$435,995	Surgical removal of erupted tooth requiring elevation of mucoperiosteal flap and removal of bone and/or section of tooth

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Table 5.3: Number of Claims and Cost per Claim (2005-2011 Cumulative Totals), by HRR, Dental Services

HRR	Number of Claims	Total Cost	Cost per Claim
Abilene	125	\$336,925	\$2,695
Amarillo	216	\$373,518	\$1,729
Austin	412	\$1,043,457	\$2,533
Beaumont	134	\$360,627	\$2,691
Bryan	70	\$276,907	\$3,956
Corpus Christi	184	\$373,154	\$2,028
Dallas	1,272	\$3,857,599	\$3,033
El Paso	175	\$351,525	\$2,009
Fort Worth	783	\$2,585,938	\$3,303
Harlingen	103	\$228,573	\$2,219
Houston	1,633	\$5,548,967	\$3,398
Longview	66	\$251,245	\$3,807
Lubbock	186	\$510,972	\$2,747
McAllen	97	\$254,275	\$2,621
Odessa	155	\$625,623	\$4,036
San Angelo	51	\$122,627	\$2,404
San Antonio	718	\$1,995,591	\$2,779
Temple	114	\$256,514	\$2,250
Tyler	183	\$505,148	\$2,760
Victoria	60	\$210,340	\$3,506
Waco	114	\$230,287	\$2,020
Wichita Falls	69	\$173,345	\$2,512

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

6. Cost and Utilization for Pharmacy Services

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

This section reports the total and average cost for pharmacy benefits from 2005 to 2011. 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. 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 clinically necessary pharmacy benefits for the first seven days after injury regardless of the claim's liability or compensability status since the insurance carriers may be reimbursed for these payments from the subsequent injury fund (SIF).

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 June 2012, there are 150 chemical entities in the "N" list. Legacy claims—claims occurred prior to September 1, 2011—will become subject to the closed formulary beginning in September 1, 2013. The full effects of the closed formulary will not be evident until the 2012 service year.

Utilization of Pharmacy Services by Claim Type

Just under 50 percent of all claims received pharmacy services. Claims were about equally represented by lost-time and medical-only types (see Table 6.1). Lost-time claims decreased by 13 percent since 2005 while medical-only claims decreased by 11 percent in the same period.

The decrease in the number of lost-time claims was less than in professional services, an indication of the longer term use of pharmacy services.

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

Service Year	All Medical, Number of Claims	Pharmacy Lost-time Claims		Pharmacy Medical-only Claims	
		Number of Claims	Share in All Medical	Number of Claims	Share in All Medical
2005	382,274	96,328	25.2%	80,131	21.0%
2006	380,507	93,110	24.5%	84,666	22.3%
2007	381,227	93,231	24.5%	91,559	24.0%
2008	370,945	92,751	25.0%	88,460	23.8%
2009	340,109	87,665	25.8%	76,435	22.5%
2010	335,491	87,178	26.0%	73,298	21.8%
2011	332,408	83,518	25.1%	71,507	21.5%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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 \$121 million in 2011, accounting for 89 percent of the total pharmacy cost (see Table 6.2). Accordingly, the average pharmacy cost per claim was about seven times greater for lost-time claims.

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

Service Year	Lost-time Claims			Medical-only Claims		
	Number of Claims	Total Cost (Thousand Dollars)	Cost per Claim	Number of Claims	Total Cost (Thousand Dollars)	Cost per Claim
2005	96,328	\$114,802	\$1,192	80,131	\$21,759	\$272
2006	93,110	\$117,815	\$1,265	84,666	\$22,871	\$270
2007	93,231	\$122,750	\$1,317	91,559	\$23,450	\$256
2008	92,751	\$124,331	\$1,340	88,460	\$19,471	\$220
2009	87,665	\$123,708	\$1,411	76,435	\$21,133	\$276
2010	87,178	\$125,022	\$1,434	73,298	\$16,309	\$222
2011	83,518	\$120,819	\$1,447	71,507	\$14,748	\$206

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Pharmacy Cost and Utilization by Maturity Group

Not surprisingly, lost-time claims received pharmacy benefits for a longer period than the medical-only claims. In each service year, we can separate all services into distinct maturity groups depending on how long each claim had been in the system. Table 6.3 shows that, in 2011,

62 percent of the total cost was for claims that were in their 4th or later year (37 months or more) after their injury dates. These claims account for 16 percent of all claims while most claims are 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	\$26,862	\$13,251	\$11,246	\$85,202
2006	\$27,187	\$13,660	\$10,207	\$89,632
2007	\$31,245	\$13,401	\$10,268	\$91,286
2008	\$31,294	\$13,558	\$9,861	\$89,089
2009	\$32,093	\$15,075	\$10,427	\$87,248
2010	\$30,478	\$14,618	\$10,062	\$86,171
2011	\$28,396	\$13,094	\$9,627	\$84,448

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

Service Year	First Year Maturity	Second Year Maturity	Third Year Maturity	4+ Years Maturity
2005	121,348	20,880	13,066	37,289
2006	125,525	19,970	11,763	35,849
2007	135,938	18,369	10,352	34,373
2008	133,292	18,624	10,127	32,748
2009	118,456	18,458	10,112	30,835
2010	119,003	16,275	9,206	28,527
2011	117,686	14,653	7,887	26,525

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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	\$221	\$635	\$861	\$2,285
2006	\$217	\$684	\$868	\$2,500
2007	\$230	\$730	\$992	\$2,656
2008	\$235	\$728	\$974	\$2,720
2009	\$271	\$817	\$1,031	\$2,829
2010	\$256	\$898	\$1,093	\$3,021
2011	\$241	\$894	\$1,221	\$3,184

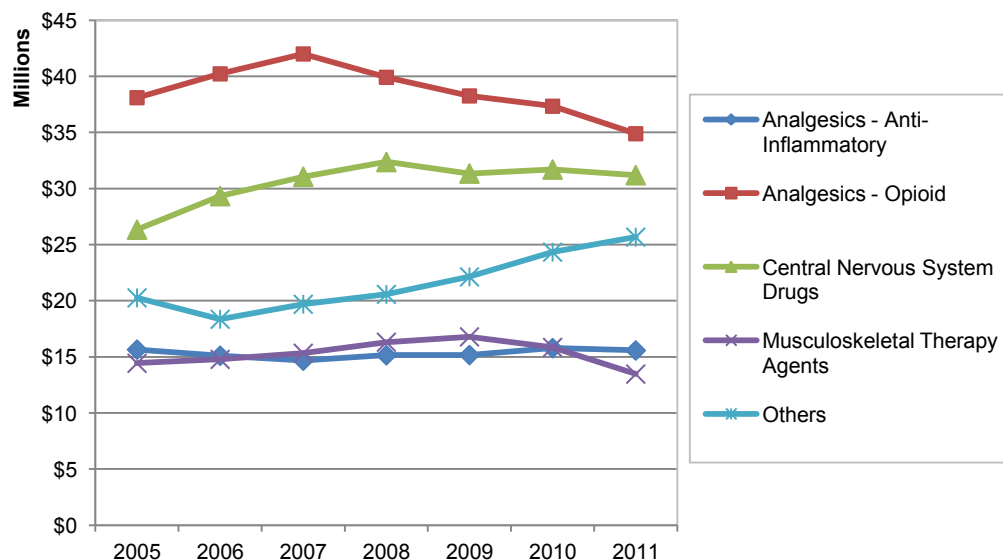
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Pharmacy Cost and Utilization by Drug Group

Drugs are classified into five major groups: Analgesics – Anti-Inflammatory consisting of the so-called NSAIDs, Analgesics – Opioid, Central Nervous System (CNS) Drugs, Musculoskeletal Therapy Agents, and all others in ‘Others’ group. The CNS drug group comprises anti-anxiety agents, anti-depressants, hypnotics, and anticonvulsants. Although we grouped anticonvulsants with the CNS drugs, they are clinically classified with musculoskeletal therapy agents. Anticonvulsants—mainly Gabapentin, Lyrica, Topamax and Neurontin—account for about 48 percent of the total cost within the CNS drug group. In the ‘Others’ group are all remaining drugs including dermatologicals, pharmaceutical chemicals and adjuvants, ulcer drugs, and corticosteroids.

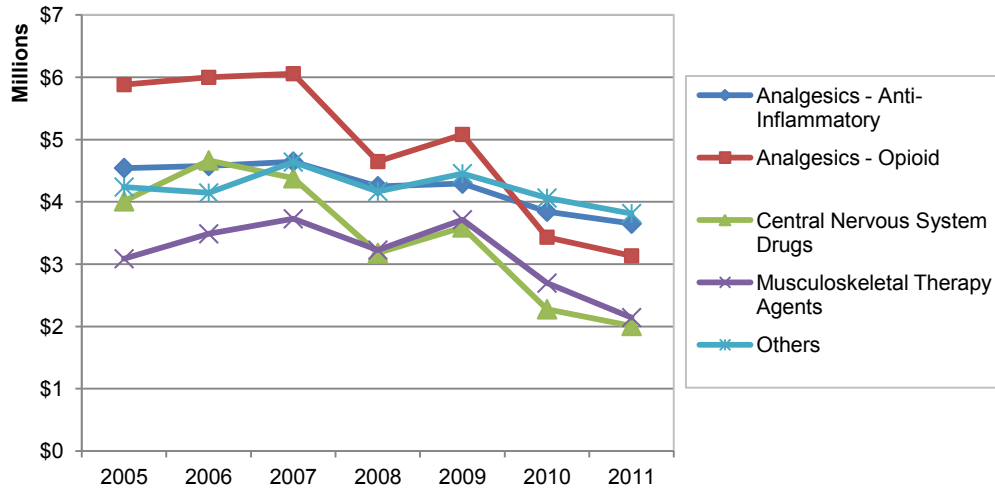
The four named drug groups accounted for 58 percent of the total pharmacy costs for lost-time claims, and 74 percent of medical-only claims costs in 2011 (see Figures 6.1 and 6.2). Among lost-time claims, the total cost of Analgesics – Opioid decreased since 2007 while CNS drugs and Others category drugs showed a significant increase among lost-time claims. Although relatively small, the total costs for medical-only claims increased rapidly in all groups until 2007, and then decreased significantly since then. New injuries are dominant in medical-only claims and the decrease since 2008 may have been related to medical fee and treatment guidelines and/or new pharmacy benefit definitions in the works. But the real causes for the decline require further investigation.

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, 2012.

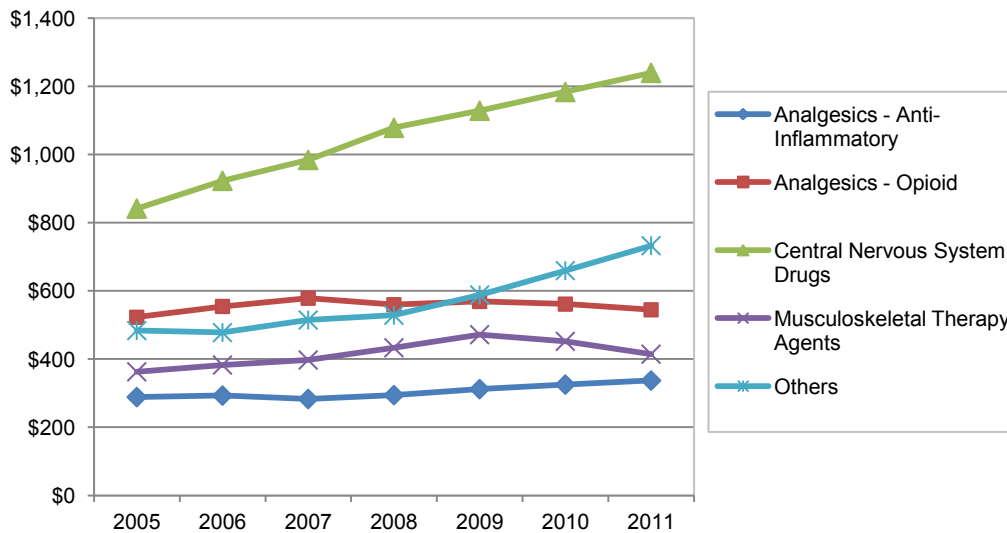
Figure 6.2: Total Pharmacy Cost, by Service Year by Drug Group, Medical-only Claims



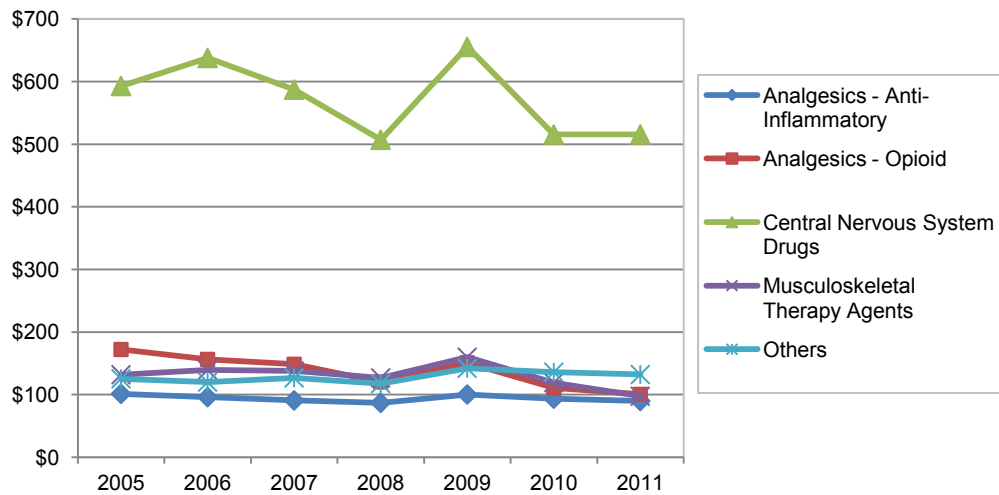
Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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, and it increased at a consistently high rate since 2005 although the average costs for medical-only claims declined since 2010. Except for CNS drugs, average costs per claim for other named drug groups remained relatively stable. The relative number of claims receiving CNS drugs was the lowest 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, 2012.

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, 2012.

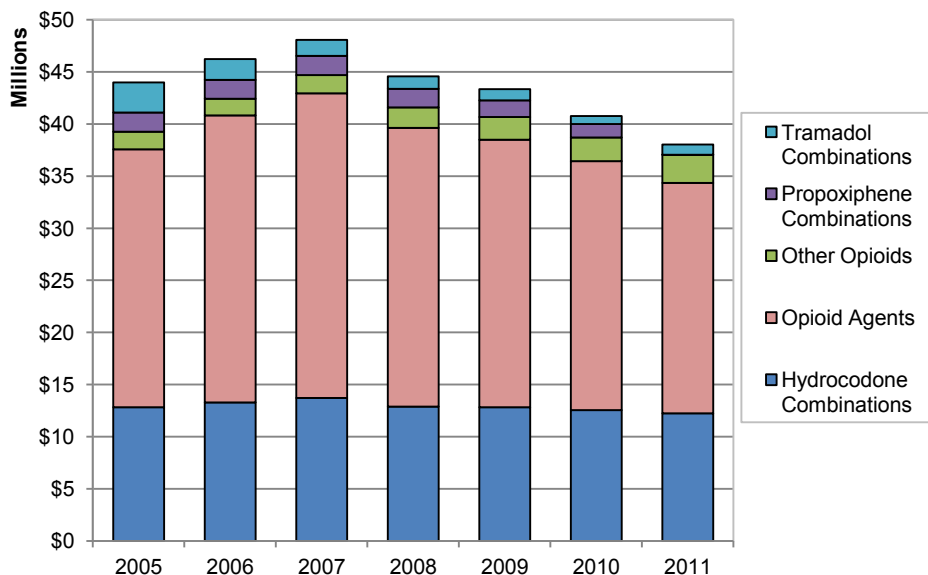
Table 6.6: Percent of Claims Receiving Certain Drug Groups, by Service Year

Drug Group	2005	2006	2007	2008	2009	2010	2011
Lost-time Claims							
Analgesics - Anti- Inflammatory	56.28%	55.38%	55.58%	55.47%	55.48%	55.65%	55.32%
Analgesics - Opioid	75.67%	77.91%	77.88%	76.91%	76.69%	76.31%	76.71%
Central Nervous System Drugs	32.50%	34.14%	33.85%	32.37%	31.69%	30.73%	30.14%
Musculoskeletal Therapy Agents	41.30%	41.49%	41.37%	40.57%	40.60%	40.21%	38.92%
Others	43.49%	41.27%	41.04%	41.95%	42.92%	42.33%	41.96%
Medical-only Claims							
Analgesics - Anti- Inflammatory	55.94%	56.29%	55.90%	55.27%	56.04%	56.00%	56.82%
Analgesics - Opioid	42.64%	45.32%	44.56%	43.68%	44.09%	42.16%	43.61%
Central Nervous System Drugs	8.44%	8.64%	8.15%	7.09%	7.17%	6.02%	5.45%
Musculoskeletal Therapy Agents	29.21%	29.55%	29.55%	28.77%	30.41%	30.85%	30.78%
Others	42.17%	40.79%	39.96%	40.02%	41.04%	40.78%	40.36%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

While CNS drugs had the highest average cost per claim, Analgesics – Opioid group drugs were the most costly in terms of total cost. CNS drugs were a close second and they may surpass the use of opioid drugs in total cost given the rapidly increasing per-claim cost. The Analgesics – Opioid drug group can be further classified into five subclasses to analyze trends in utilization and costs within the opioid group. Among these subclasses, the ‘opioid agents’ subclass accounted for about 60 percent of total opioid drug costs, 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, 2012.

In terms of maturity, pharmacy services have the highest number of long-term claims in the system among all health care service types. To explore differences due to maturity, we compare 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’. Tables 6.7–6.9 present total cost, average cost per prescription and average cost per claim by drug group broken down by maturity. These tables are totals of MI and medical-only claims, but there are more medical-only claims in the ‘0 to 3 Years’ maturity group. For legacy claims, the Analgesics – Opioid group was the most costly drug group in terms of total cost, closely followed by CNS drugs (see Table 6.7). Opioids were also the most costly drugs for claims with up to three years maturity until 2009. Analgesics – Anti-inflammatory drugs became the most costly since 2010.

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

Maturity	Drug Group	2005	2006	2007	2008	2009	2010	2011
0 to 3 Years	Analgesics - Anti-Inflammatory	\$11,444	\$11,033	\$11,360	\$11,691	\$12,076	\$12,342	\$11,863
	Analgesics - Opioid	\$12,812	\$12,757	\$13,803	\$13,128	\$13,058	\$11,694	\$10,776
	Central Nervous System Drugs	\$8,160	\$9,095	\$9,913	\$9,838	\$9,825	\$9,400	\$9,118
	Musculoskeletal Therapy Agents	\$8,236	\$8,465	\$9,263	\$9,856	\$11,052	\$9,793	\$7,891
	Others	\$10,707	\$9,704	\$10,575	\$10,200	\$11,583	\$11,931	\$11,470
More than 3 Years	Analgesics - Anti-Inflammatory	\$8,751	\$8,650	\$7,954	\$7,709	\$7,390	\$7,286	\$7,366
	Analgesics - Opioid	\$31,173	\$33,469	\$34,257	\$31,439	\$30,286	\$29,082	\$27,249
	Central Nervous System Drugs	\$22,195	\$24,908	\$25,523	\$25,717	\$25,111	\$24,577	\$24,090
	Musculoskeletal Therapy Agents	\$9,288	\$9,804	\$9,794	\$9,682	\$9,453	\$8,758	\$7,724
	Others	\$13,796	\$12,801	\$13,758	\$14,542	\$15,006	\$16,469	\$18,019

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

For the legacy group 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 6.8). Among the ‘0 to 3 Years’ maturity group, the CNS drugs were the most costly per prescription in all seven years.

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

Maturity	Drug Group	2005	2006	2007	2008	2009	2010	2011
0 to 3 Years	Analgesics - Anti-Inflammatory	\$64	\$59	\$58	\$62	\$70	\$72	\$70
	Analgesics - Opioid	\$43	\$42	\$45	\$44	\$46	\$43	\$41
	Central Nervous System Drugs	\$83	\$88	\$99	\$104	\$108	\$108	\$112
	Musculoskeletal Therapy Agents	\$64	\$65	\$69	\$77	\$89	\$83	\$71
	Others	\$57	\$45	\$46	\$56	\$77	\$84	\$82
More than 3 Years	Analgesics - Anti-Inflammatory	\$101	\$97	\$99	\$102	\$109	\$114	\$121
	Analgesics - Opioid	\$122	\$130	\$140	\$138	\$137	\$137	\$136
	Central Nervous System Drugs	\$109	\$114	\$121	\$130	\$136	\$139	\$145
	Musculoskeletal Therapy Agents	\$86	\$88	\$94	\$101	\$106	\$105	\$101
	Others	\$93	\$75	\$90	\$107	\$138	\$151	\$161

Source: Texas Department of Insurance, Workers’ Compensation Research and Evaluation Group, 2012.

The average cost per claim is calculated by dividing the total cost by the number of unique claims that received at least one prescription in each drug group. In all claims, CNS drugs were the costliest drug group. Cost increases were greater for legacy claims than newer claims. Per-claim cost for CNS drugs grew by 45 percent since 2005, second only to ‘Others’ drug group whose average cost per claim increased by 91 percent.

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

Maturity	Drug Group	2005	2006	2007	2008	2009	2010	2011
0 to 3 Years	Analgesics - Anti-Inflammatory	\$139	\$132	\$128	\$134	\$152	\$157	\$155
	Analgesics - Opioid	\$158	\$150	\$156	\$152	\$166	\$152	\$141
	Central Nervous System Drugs	\$393	\$424	\$465	\$491	\$536	\$550	\$570
	Musculoskeletal Therapy Agents	\$174	\$175	\$183	\$199	\$239	\$213	\$179
	Others	\$177	\$164	\$172	\$166	\$204	\$215	\$214
More than 3 Years	Analgesics - Anti-Inflammatory	\$482	\$527	\$516	\$547	\$569	\$622	\$684
	Analgesics - Opioid	\$1,093	\$1,190	\$1,268	\$1,238	\$1,267	\$1,310	\$1,322
	Central Nervous System Drugs	\$1,181	\$1,312	\$1,348	\$1,479	\$1,571	\$1,630	\$1,716
	Musculoskeletal Therapy Agents	\$541	\$599	\$614	\$665	\$699	\$704	\$685
	Others	\$866	\$878	\$986	\$1,090	\$1,159	\$1,407	\$1,657

Source: Texas Department of Insurance, Workers’ Compensation Research and Evaluation Group, 2012.

Pharmacy Cost and Utilization by Brand/Generic Status

The pharmaceutical service guideline in 2002 required doctors to prescribe generic drugs when available and clinically appropriate. Table 6.10 shows that lost-time claims accounted for about 90 percent of total cost and that, for lost-time claims, brand drugs accounted for slightly more than half of the total cost. The cost share of medical-only claims ranged around 10 percent of the total in most service years, and generic drugs were used slightly more than brand name drugs in terms of total cost. However, generic drug prescriptions were far more numerous, and their unit price per prescription was typically about a quarter that of a brand drug. In terms of average cost per claim, brand-name drugs were two to three times costlier than generic drugs. Since each claim may have received both generic and brand drugs, the total cost per claim (shown earlier in Table 6.2) would be some combination of the two averages.

Cost statistics for claims receiving at least one brand or generic drug prescription show that total costs did not change significantly in six years, but the number of claims receiving brand name drugs decreased substantially in both new and legacy groups (see Table 6.11). Claims receiving generic drugs fluctuated moderately in the 0 to 3 year maturity claim group while its cost increased. Increasing cost per prescription for brand drugs and decreasing number of claims for generic drugs are primary factors for in the increasing average cost per claim.

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

Service Year	Brand					Generic				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim
Lost-time Claims										
2005	\$56,335	374,325	56,737	\$150	\$993	\$52,210	872,507	87,419	\$60	\$597
2006	\$59,483	371,437	52,339	\$160	\$1,136	\$55,861	955,352	87,526	\$58	\$638
2007	\$61,109	345,777	49,275	\$177	\$1,240	\$58,922	954,058	88,267	\$62	\$668
2008	\$67,139	345,655	48,402	\$194	\$1,387	\$55,144	928,332	87,617	\$59	\$629
2009	\$67,283	318,010	44,369	\$212	\$1,516	\$54,097	860,944	82,704	\$63	\$654
2010	\$65,476	287,478	40,070	\$228	\$1,634	\$56,689	875,078	82,903	\$65	\$684
2011	\$59,486	237,456	33,698	\$251	\$1,765	\$57,584	873,439	80,077	\$66	\$719
Medical-only Claims										
2005	\$11,157	96,950	32,582	\$115	\$342	\$9,952	238,921	68,622	\$42	\$145
2006	\$11,543	93,816	31,022	\$123	\$372	\$11,111	272,587	76,039	\$41	\$146
2007	\$11,165	82,894	30,322	\$135	\$368	\$11,950	281,401	82,942	\$42	\$144
2008	\$9,498	67,717	28,448	\$140	\$334	\$9,694	236,918	80,014	\$41	\$121
2009	\$10,509	62,960	23,287	\$167	\$451	\$10,379	220,325	69,737	\$47	\$149
2010	\$7,154	42,120	17,731	\$170	\$403	\$8,817	195,603	67,853	\$45	\$130
2011	\$5,584	30,314	12,717	\$184	\$439	\$8,766	198,874	67,525	\$44	\$130

Note: Rx = prescription.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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

Service Year	Brand					Generic				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim
0 to 3 Years										
2005	\$22,751	209,191	65,395	\$109	\$348	\$25,184	615,735	125,600	\$41	\$201
2006	\$23,374	199,721	60,705	\$117	\$385	\$26,209	685,419	133,163	\$38	\$197
2007	\$24,614	188,636	58,542	\$130	\$420	\$28,856	720,729	141,703	\$40	\$204
2008	\$26,472	185,953	57,458	\$142	\$461	\$27,495	683,319	139,623	\$40	\$197
2009	\$27,360	170,343	49,918	\$161	\$548	\$29,000	634,836	126,117	\$46	\$230
2010	\$24,090	142,002	41,855	\$170	\$576	\$30,022	630,431	126,292	\$48	\$238
2011	\$19,298	107,101	32,293	\$180	\$598	\$30,942	640,734	124,850	\$48	\$248
More than 3 Years										
2005	\$44,740	262,084	25,891	\$171	\$1,728	\$36,979	495,693	33,366	\$75	\$1,108
2006	\$47,651	265,532	24,226	\$179	\$1,967	\$40,763	542,520	33,121	\$75	\$1,231
2007	\$47,660	240,035	22,448	\$199	\$2,123	\$42,015	514,730	31,922	\$82	\$1,316
2008	\$50,165	227,417	20,697	\$221	\$2,424	\$37,343	481,927	30,192	\$77	\$1,237
2009	\$50,432	210,627	18,951	\$239	\$2,661	\$35,477	446,433	28,435	\$79	\$1,248
2010	\$48,539	187,596	17,021	\$259	\$2,852	\$35,485	440,250	26,479	\$81	\$1,340
2011	\$45,771	160,666	15,072	\$285	\$3,037	\$35,407	431,528	24,715	\$82	\$1,433

Note: Rx = prescription.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

In terms of prescription utilization for legacy claims, the average number of prescriptions for brand drugs increased slightly while the average number of generic prescriptions per claim increased more rapidly (see Table 6.12). For brand name drugs, cost per prescription increased by 67 percent while the number of claims decreased. For generic drugs dispensed to legacy claims, the average number of prescriptions increased while prices remained stable. Its average cost per claim increased mainly via an increase in drug utilization.

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

Maturity	Drug Type	2005	2006	2007	2008	2009	2010	2011
0 to 3 Years	Brand	3.2	3.3	3.2	3.2	3.4	3.4	3.3
	Generic	4.9	5.1	5.1	4.9	5.0	5.0	5.1
More than 3 Years	Brand	10.1	11.0	10.7	11.0	11.1	11.0	10.7
	Generic	14.9	16.4	16.1	16.0	15.7	16.6	17.5

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Overall, the use of generic drugs in lieu of brand name drugs is indicated by the increasing share of generics in the total cost and utilization. Table 6.13 shows that the share of generic drugs increased in terms of the number of prescription for both new and legacy claims. However, in

terms of total cost, the share of generic drugs decreased slightly in 2008 for both new and legacy claims. This corresponds to an increasing trend in per-prescription costs for brand name drugs. Also, note that we could not determine the brand/generic status of about 5 percent of the prescriptions. These were excluded from Table 6.13.

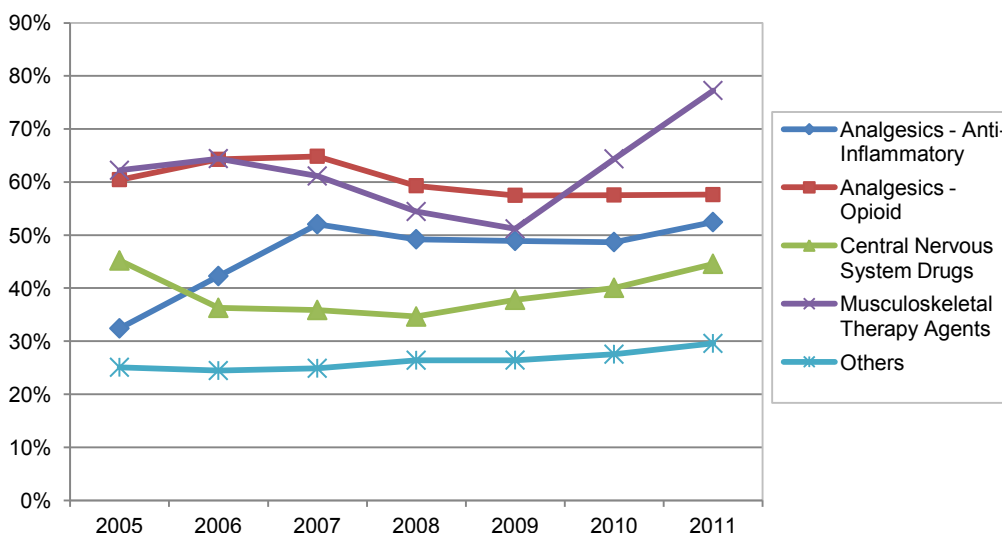
Table 6.13: Shares of Generic Drugs, by Service Year by Maturity

Maturity	2005	2006	2007	2008	2009	2010	2011
By Number of Prescription							
0 to 3 Years	74.6%	77.4%	79.3%	78.6%	78.8%	81.6%	85.7%
More than 3 Years	65.4%	67.1%	68.2%	67.9%	67.9%	70.1%	72.9%
By Total Cost							
0 to 3 Years	52.5%	52.9%	54.0%	50.9%	51.5%	55.5%	61.6%
More than 3 Years	45.3%	46.1%	46.9%	42.7%	41.3%	42.2%	43.6%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

In terms of drug group, the Musculoskeletal Therapy Agents drug group had the highest rate of generic substitution in 2011 at 77.2 percent, after increasing rapidly since 2010 (see Figure 6.6). Analgesics – Opioid drug group maintained about a 60 percent generic substitution rate since 2005. Other drug groups generally have a generic substitution rate of less than 52 percent, but there is a slight increasing trend in this rate since 2008.

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



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

Pharmacy Cost and Utilization by N-drug Status

The pharmacy closed formulary that went into effect on September 1, 2011, and updated monthly, currently contains 150 entities with ‘N’ drug status which requires preauthorization. Eighty five of these have generic equivalents and 28 of them are opioids and related entities. Claims with injury date on or after September 1, 2011, are subject to the closed formulary, and under a transitional rule, all claims in the Texas workers’ compensation system will be subject to the closed formulary regardless of the injury date beginning September 1, 2013. Since the pharmacy closed formulary affected only new injuries in the last four months of 2011, N-drug data in this report is not sufficient to evaluate the effect of the closed formulary. For such an evaluation, refer to REG’s preliminary study on the formulary’s effect accessible from REG’s website.

About a third of those who received pharmacy services received at least one N-drug (see Table 6.14). Conversely, about 65 percent of the claims did not receive any N-drug. There was a small number of claims (about 2,000) that received solely N-drugs. N-drug usage was higher for lost-time claims at about 29 percent of the total pharmacy cost for lost-time claims in 2011. N-drug usage was significantly lower in medical-only claims. For the medical-only claims, N-drugs accounted for 20 percent of the total cost in 2011.

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

Service Year	N-drug					Other				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim
Lost-time Claims										
2005	\$32,724	246,895	33,742	\$133	\$970	\$82,078	1,092,896	94,851	\$75	\$865
2006	\$36,435	257,028	33,486	\$142	\$1,088	\$81,380	1,153,624	91,606	\$71	\$888
2007	\$37,558	246,531	32,892	\$152	\$1,142	\$85,192	1,132,245	91,800	\$75	\$928
2008	\$37,415	233,591	32,732	\$160	\$1,143	\$86,916	1,077,266	91,177	\$81	\$953
2009	\$37,496	220,015	31,499	\$170	\$1,190	\$86,212	986,684	86,018	\$87	\$1,002
2010	\$38,392	215,227	30,918	\$178	\$1,242	\$86,629	974,713	85,382	\$89	\$1,015
2011	\$34,634	187,389	26,854	\$185	\$1,290	\$86,186	954,527	81,926	\$90	\$1,052
Medical-only Claims										
2005	\$4,831	44,981	10,438	\$107	\$463	\$16,927	304,481	78,757	\$56	\$215
2006	\$5,126	48,040	11,643	\$107	\$440	\$17,744	327,995	82,882	\$54	\$214
2007	\$4,880	42,374	11,565	\$115	\$422	\$18,570	335,377	89,569	\$55	\$207
2008	\$4,158	33,616	12,248	\$124	\$339	\$15,313	278,701	86,032	\$55	\$178
2009	\$5,200	36,139	12,447	\$144	\$418	\$15,934	253,043	74,246	\$63	\$215
2010	\$3,782	26,997	10,788	\$140	\$351	\$12,527	216,025	71,095	\$58	\$176
2011	\$2,956	21,604	8,783	\$137	\$337	\$11,792	212,863	69,744	\$55	\$169

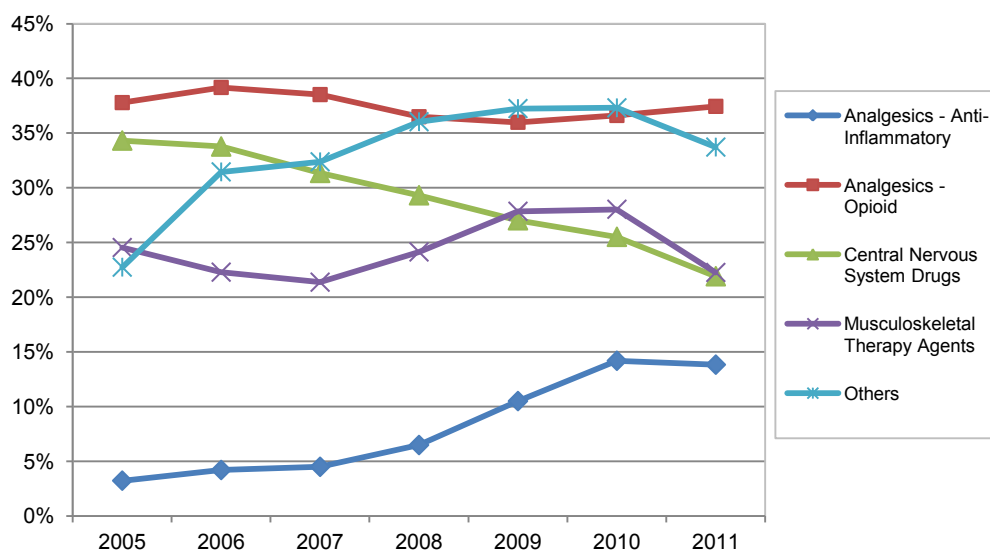
Note: Rx = prescription.

Source: Texas Department of Insurance, Workers’ Compensation Research and Evaluation Group, 2012.

The average cost per claim was considerably higher for lost-time claims due to their longer service duration and resultant higher utilization. The average cost of N-drugs per claim was 22 percent higher than that of non-N drugs, a relatively low price differential. But the per-prescription cost was much higher for N-drugs—more than double that of generic drugs. This indicates a higher utilization in generic drugs.

In terms of N-drug use by drug group, the share of N-drugs in the total cost was highest for the Analgesics – Opioid drug group (see Figure 6.7). This share was rapidly growing for Analgesics – Anti-Inflammatory drugs while it was decreasing for the Central Nervous System drugs. For CNS drugs, the share of N-drugs was decreasing while the average cost per claim was increasing.

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



Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

In terms of N-drug use by maturity, we compare pharmacy services given within three years from injury (0 to 36 months of maturity) with services for more mature claims (more than 36 months of maturity) (see Table 6.15). Cost shares by N-drug status did not change substantially since 2005: there was a slight decrease in N-drug cost in legacy claims but an increase in new claims. The number of claims receiving N-drugs decreased rapidly among the old injury claims. There was not much difference in the average cost per claim between N-drugs and non-N drugs even though N-drugs are two times more expensive than other drugs per prescription.

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

Service Year	N-drug					Other				
	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim	Total Cost (Thousand Dollars)	Number of Rx	Number of Claims	Average Cost per Rx	Average Cost per Claim
0 to 3 Years										
2005	\$8,665	103,106	27,087	\$84	\$320	\$42,694	783,591	140,571	\$54	\$304
2006	\$9,287	107,922	28,314	\$86	\$328	\$41,767	829,980	142,428	\$50	\$293
2007	\$9,434	102,336	27,951	\$92	\$338	\$45,480	862,565	150,367	\$53	\$302
2008	\$10,428	99,566	29,869	\$105	\$349	\$44,284	790,980	147,653	\$56	\$300
2009	\$12,291	101,305	30,004	\$121	\$410	\$45,304	722,202	132,466	\$63	\$342
2010	\$12,520	96,466	28,649	\$130	\$437	\$42,639	690,535	130,815	\$62	\$326
2011	\$10,087	79,966	23,817	\$126	\$424	\$41,031	680,982	127,879	\$60	\$321
More than 3 Years										
2005	\$28,890	188,770	18,485	\$153	\$1,563	\$56,312	613,786	36,417	\$92	\$1,546
2006	\$32,274	197,146	18,013	\$164	\$1,792	\$57,358	651,639	35,002	\$88	\$1,639
2007	\$33,004	186,569	17,577	\$177	\$1,878	\$58,282	605,057	33,597	\$96	\$1,735
2008	\$31,144	167,641	16,038	\$186	\$1,942	\$57,945	564,981	31,948	\$103	\$1,814
2009	\$30,406	154,849	14,860	\$196	\$2,046	\$56,842	517,525	30,081	\$110	\$1,890
2010	\$29,654	145,758	13,881	\$203	\$2,136	\$56,517	500,203	27,804	\$113	\$2,033
2011	\$27,502	129,026	12,547	\$213	\$2,192	\$56,945	486,355	25,852	\$117	\$2,203

Note: Rx = prescription.

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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7. Summary: Trends in Changing Cost Components

Medical costs, combining professional and hospital costs, in the Texas workers' compensation system decreased by nine percent between 1998 and 2005 and increased by 12 percent between 2005 and 2011, resulting in an 1.8 percent overall increase since 1998. If we add pharmacy and dental costs (available since 2005), all health care costs increased by 11 percent between 2005 and 2011 service years.

Analyzing by provider bill type, the total cost of professional services decreased by 5.7 percent since 1998 while the total cost of hospital services increased by 18 percent. Pharmacy cost decreased by less than one percent from 2005 to 2011. However, the average costs per claim increased at a greater rate: professional costs increased by 39 percent, hospital costs by 79 percent and pharmacy costs by 13 percent during the respective periods.

Changes in total health care cost or expenditure over time in the workers' compensation system are combinations of changes in its 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. Prices per service are adjusted periodically through changes in the medical professional services fee guideline, but current prices are also subject to increases in the medical care 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 in addition to price changes that occur only periodically. It is also plausible that the changes in prices and utilization are negatively related so that when price decreases, the level of utilization increases to result in the same level of total cost, or vice versa.

Data presented in this report indicate that the main factor behind the increase in the average cost per claim is the significant decrease in the number of claims treated that occurred while the price per service and the level of utilization increased. The number of claims decreased by 33 percent and 37 percent for professional and hospital services, respectively, from 1998 to 2011. To evaluate the relative significance of other cost factors or components in the overall change, we present a summary table of cost factors. We focus on the professional service costs because professional bills are the only data set that contains sufficient information about all cost components. In addition to the number of claims, the utilization metric is further divided into the frequency and the intensity components. Prices can also be divided into changes due to inflation and changes in real prices.

Table 7.1 summarizes the rate of change in these components since 1998 in three distinct time periods. From 1998 to 2002, system costs generally increased rapidly. From 2002 to 2007, system costs declined equally rapidly due to various reforms implemented during the period including new fee guidelines, preauthorization rules, and the reorganization of the regulatory

agency itself from Texas Workers' Compensation Commission to Division of Workers' Compensation in the Texas Department of Insurance. The period from 2007 to 2011 represents a mature stage of these and continuing reforms. This period showed continuing decreases in some costs and a stable or slightly increasing trend in others.

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)	1998 Price (4b)	Current Price (5a)	1998 Price (5b)	Current Price (6a)	1998 Price (6b)
Lost-time Claims									
1998-2002	7.8%	18.0%	15.3%	-7.7%	-19.2%	35.3%	18.4%	25.5%	9.8%
2002-2007	-26.1%	-22.6%	-14.7%	21.5%	3.2%	-40.8%	-49.7%	-19.8%	-31.9%
2007-2011	-9.5%	-0.5%	-2.0%	35.6%	24.9%	19.8%	10.3%	32.4%	21.9%
1998-2011	-28.0%	-9.1%	-3.6%	52.1%	4.1%	-4.0%	-34.3%	33.2%	-8.8%
Medical-only Claims									
1998-2002	-20.1%	15.8%	9.6%	-2.5%	-14.7%	-1.1%	-13.4%	23.8%	8.3%
2002-2007	-7.8%	-13.4%	-11.1%	12.8%	-4.2%	-20.0%	-32.0%	-13.2%	-26.3%
2007-2011	-11.5%	-3.6%	-1.7%	34.2%	23.6%	12.5%	3.6%	27.1%	17.1%
1998-2011	-34.8%	-3.4%	-4.3%	47.7%	1.1%	-10.9%	-39.0%	36.6%	-6.5%

Source: Texas Department of Insurance, Workers' Compensation Research and Evaluation Group, 2012.

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).

For lost-time claims, average cost per claim increased by 33.2 percent from 1998 to 2011 (see column 6a). Adjusted for inflation, the average cost per claim decreased by 8.8 percent (column 6b) since inflationary prices increased by 46 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 four percent (column 5a). If we adjust for inflation, the total cost decreased by 34.3 percent (column 5b). The main factor in the overall decrease in costs is the large decline in the number of claims and the increase in service prices. Because the number of claims decreased more steeply than the level of utilization, the overall cost decreased in spite of the increase in the cost per service. Medical-only claims show similar trends with a higher rate of decrease in the number of claims and a lower rate of decrease in utilization.



Texas Department of Insurance
Workers' Compensation Research and Evaluation Group

For more information, contact via email:

WCResearch@tdi.texas.gov

Texas Department of Insurance Website:

www.tdi.texas.gov/wc/regulation/roc

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

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