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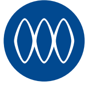

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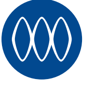
Milliman Medical Index 2007

MILLIMAN INC.

May 2007



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Executive Summary

The Milliman Medical Index 2007 (MMI), which marks the third annual release of this report, measures average medical spending for a typical American family of four covered by an employer-sponsored Preferred Provider Organization (PPO) program. It provides a consistent healthcare benefit cost benchmark by annually assessing the changes in those costs over a five year period. Unlike medical cost surveys that focus exclusively on employer cost increases, the MMI examines the total cost to deliver healthcare and how this cost is allocated between the employer and the employee. The MMI also looks at key components of actual medical spending and charts the changes in these components over time. In addition to national trends, the MMI includes results for seven major American metropolitan areas to illustrate how widely medical costs can vary by region.

Key MMI findings include:

- The total 2007 medical cost for a typical American family of four is $14,500.
- The average annual medical cost for a family of four increased by 8.4% from 2006 to 2007. This is lower than the average annualized rate of increase of 9.3% for the period from 2003 to 2007.
- The cost of healthcare varies significantly by metropolitan area, which may have implications for national healthcare reform proposals that utilize a standard nationwide tax deduction.
- For 2007, pharmacy trends decreased for the second consecutive year, although specialty drugs are likely to drive pharmacy costs higher in the coming years.
- This year's double-digit increase in employee contributions will affect all plan participants, not just those utilizing healthcare services.

THE MMI EXAMINES THE TOTAL COST TO DELIVER HEALTHCARE AND HOW THIS COST IS ALLOCATED BETWEEN THE EMPLOYER AND THE EMPLOYEE. THE MMI ALSO LOOKS AT KEY COMPONENTS OF ACTUAL MEDICAL SPENDING AND CHARTS THE CHANGES IN THESE COMPONENTS OVER TIME.

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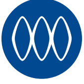

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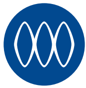

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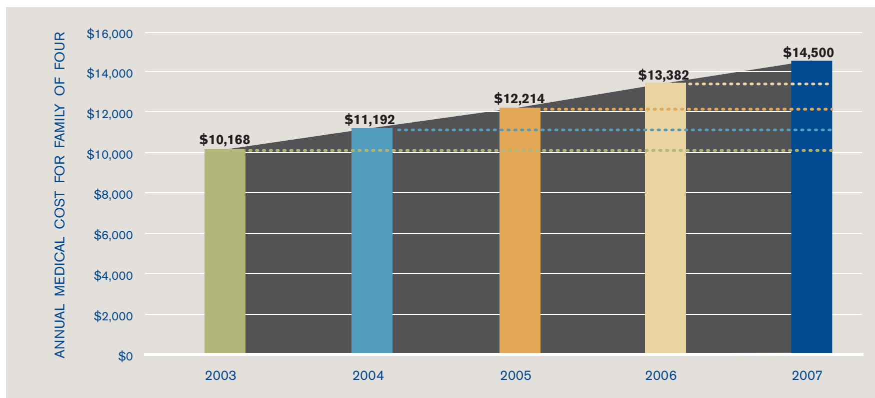
1. Medical Costs for 2007

THE MMI EXAMINES THE TOTAL COST TO DELIVER HEALTH CARE, AND HOW THIS COST IS ALLOCATED BETWEEN THE EMPLOYER AND THE EMPLOYEE.

The Milliman Medical Index 2007 (MMI) measures average medical spending for a typical American family of four covered by an employer-sponsored PPO program. Unlike many medical cost surveys that focus exclusively on employer cost increases, the MMI examines the total cost to deliver health care, and how this cost is allocated between the employer and the employee.[1] The MMI also examines key components of actual medical spending and changes in these components over time.

The MMI estimates the total annual medical costs for a typical American family of four at $14,500. This is an increase of 8.4% over the 2006 Milliman Medical Index. The 2007 increase is 1.2 points lower than the 2006 trend of 9.6%.

FIGURE 1: MILLIMAN MEDICAL INDEX (MMI)



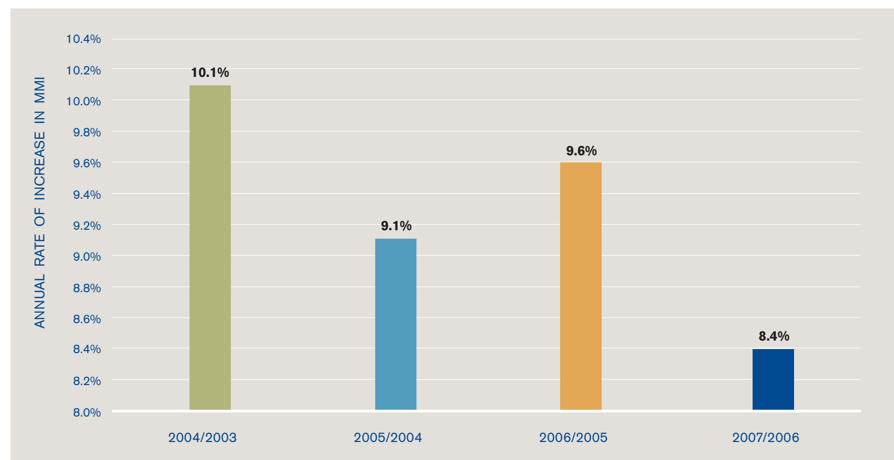
The total 2007 medical cost for a typical American family of four is $14,500.

1 THE MILLIMAN MEDICAL INDEX IS BASED ON ANALYSIS OF CLAIMS COSTS FOR MILLIONS OF MEMBERS IN A WIDE VARIETY OF AREAS OF THE COUNTRY. IT TAKES INTO ACCOUNT ESTIMATED U.S. AVERAGE PROVIDER PAYMENT RATES AND MILLIMAN'S ANALYSIS OF HISTORICAL CLAIM DATA AND UNDERSTANDING OF TRENDS IN PROVIDER CONTRACTING. UTILIZATION OF MEDICAL SERVICES FOR A PARTICULAR FAMILY VARIES SIGNIFICANTLY BASED ON THE FAMILY'S AGES, GEOGRAPHIC AREA, HEALTH STATUS AND RANDOM FLUCTUATIONS DUE TO UNPREDICTABLE EVENTS.

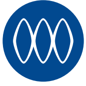
Overall trends have declined somewhat over the last five years, from around 10% to 8.4%. We do not anticipate further trend reductions in the near future. In fact, some of the forces leading to the recent modest downturn in trends are the result of one-time decreases that may be offset by other emerging trends. A number of these forces are discussed in greater detail throughout this report.

SOME OF THE FORCES LEADING TO THE RECENT MODEST DOWNTURN IN TRENDS ARE THE RESULT OF ONE-TIME DECREASES THAT MAY BE OFFSET BY OTHER EMERGING TRENDS.

FIGURE 2: TREND IN MILLIMAN MEDICAL INDEX



The average annual medical cost for a family of four increased by 8.4% from 2006 to 2007. The average annualized rate of increase from 2003 to 2007 was 9.3%.



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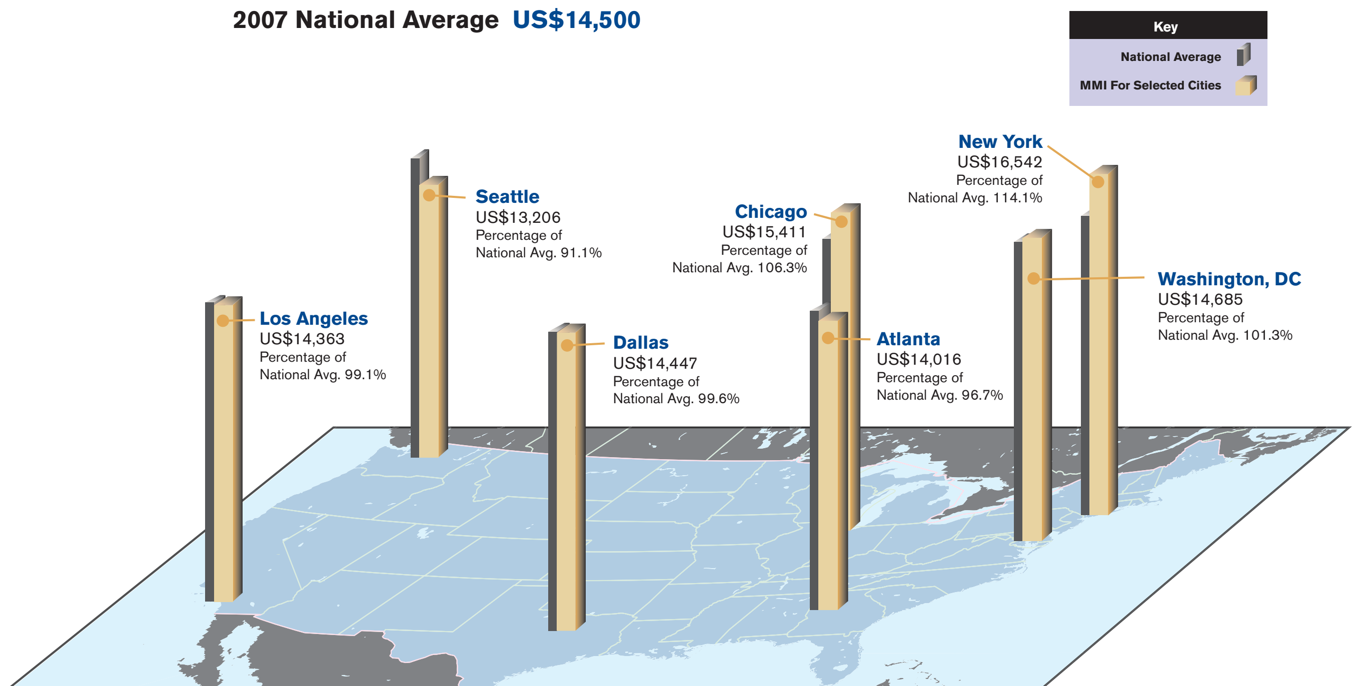
2. Geographic Variation of Health Costs

THESE VARIATIONS ILLUSTRATE HOW MEDICAL SERVICE TREATMENT PATTERNS, UTILIZATION OF HEALTHCARE SERVICES, AND COSTS PER SERVICE CAN VARY GEOGRAPHICALLY.

Figure 3 shows consistently developed 2007 Milliman Medical Indices for seven major metropolitan areas, and also the national average MMI. Within these seven metropolitan areas, the costs vary from low to high by more than 25%. These variations illustrate how medical service treatment patterns, utilization of healthcare services, and costs per service can vary geographically.

FIGURE 3: 2007 COSTS BY GEOGRAPHIC AREA



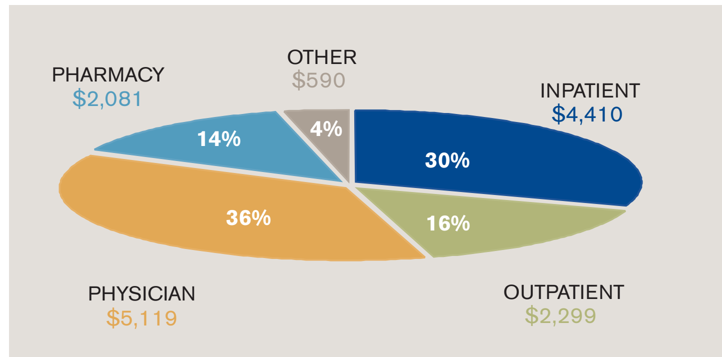
There is significant regional variation in costs. This means that fixed tax deductions such as the $15,000 standard deduction in the Bush administration's current health reform proposal would have varying effects on employees.

3. Medical Cost Categories and Trends

Medical costs are categorized into the following major groupings: inpatient hospital services, outpatient hospital services, physician services, prescription drugs and other services including ambulance, durable medical equipment, private duty nursing, and home health.

Figure 4 shows the distribution of total medical costs paid for and on behalf of the typical American family of four. It includes both the portion of the costs borne by an employer's benefit plan and the portion paid by the family in the form of out-of-pocket cost sharing. Inpatient and outpatient hospital services combined represent 46% of the total annual medical costs, physician services represent 36%, prescription drugs 14%, and other miscellaneous services represent 4%. This distribution of costs is similar to last year's findings.

FIGURE 4: 2007 MMI COMPONENTS OF SPENDING

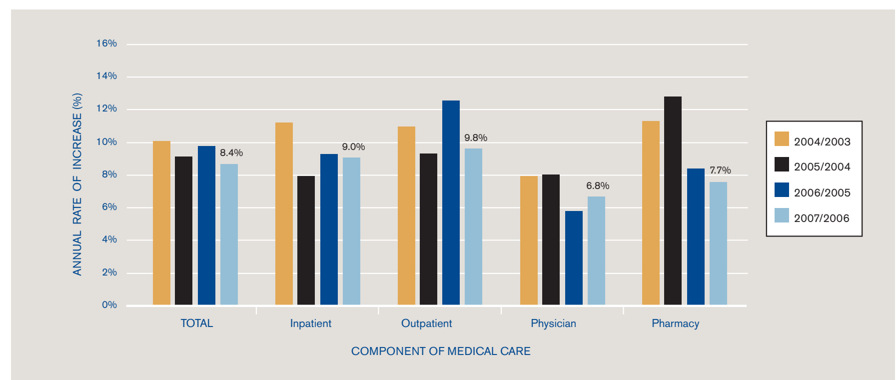


The 2007 distribution of costs by category is stable as compared to 2006.

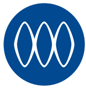
INPATIENT AND OUTPATIENT HOSPITAL SERVICES COMBINED REPRESENT 46% OF THE TOTAL ANNUAL MEDICAL COSTS, PHYSICIAN SERVICES REPRESENT 36%, PRESCRIPTION DRUGS 14%, AND OTHER MISCELLANEOUS SERVICES REPRESENT 4%. THIS DISTRIBUTION OF COSTS IS SIMILAR TO LAST YEAR'S FINDINGS.

Outpatient hospital and miscellaneous expenses once again increased at the highest rate of any of the major components, while physician costs again increased at the lowest rate. From 2006 to 2007, however, the rate of increase did not vary significantly by major component. Because of this, the overall increase in the MMI is not being driven by any single major expense category. Inpatient facility, outpatient facility, physician, and prescription drug components are all increasing fairly consistently with the overall MMI.

FIGURE 5: MMI ANNUAL RATE OF INCREASE IN COST BY COMPONENT OF MEDICAL CARE



The components of medical costs increase at different rates from year to year.

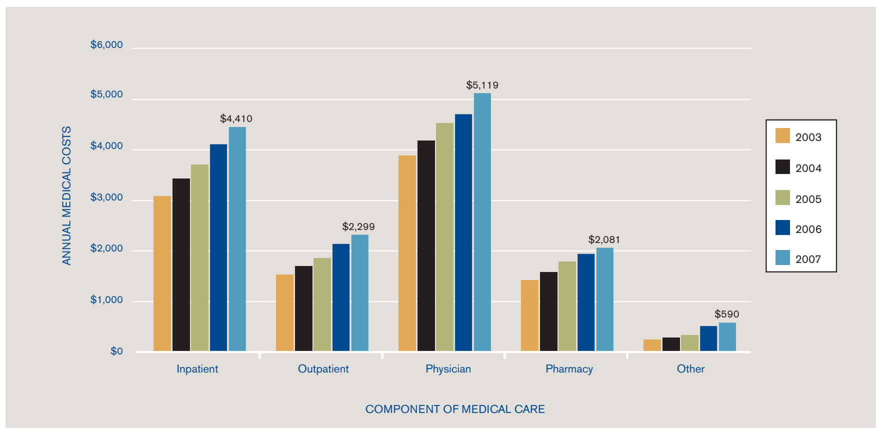


Physician trend rate is up somewhat from 5.9% to 6.8% but, as noted above, is still the lowest of the major components.

The 2006 to 2007 estimated hospital inpatient trend rate decreased just slightly this year from 9.3% to 9.0%, while the hospital outpatient trend rate dropped substantially from 12.6% to 9.8%. The physician trend rate is up somewhat from 5.9% to 6.8% but, as noted above, is still the lowest of the major components. For the second year in a row, pharmacy trend rates dropped—to 7.7%. At 14.3%, "other" services increased at the highest trend rate, but this is also the smallest component of the MMI and trends in this category can vary more than the other categories.

Certain smaller subcategories have been increasing at a fairly quick pace. For example, outpatient radiology costs associated with imaging procedures (MRIs, CAT scans, PET scans) have increased significantly in recent years. We also observed that an increasing number of hospital inpatient admissions are including an imaging procedure performed during the hospital stay.

FIGURE 6: MMI Annual Spending Growth by Component of Care



Increases in dollars spent show each component's contribution to total trend rates.

On a dollar basis, hospital services and physician services contributed $569 and $326 respectively to the increase in total annual medical costs between 2006 and 2007, while pharmacy's contribution was $148. Notably, the dollar increase for hospital care is lower than the prior year's increase.

4. Pharmacy Trends

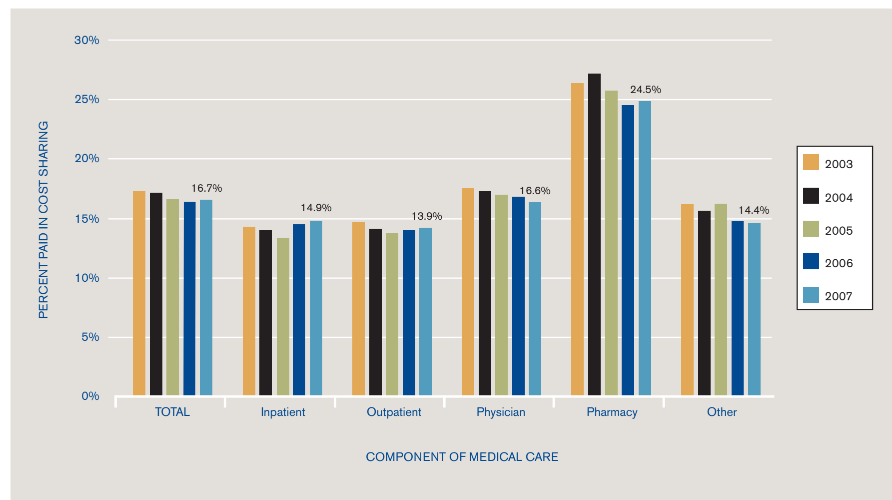
The pharmacy trend dropped into single digits last year and has continued to decline. The primary driver of the lower trend is a continued shift to generic drugs. As more brand name drugs have gone off patent, consumers have been using more generic alternatives. Employee benefit plans have continued to provide incentives for generic utilization by increasing the member's brand drug copay relative to copays for generic drugs. Trend has also moderated as plans have adjusted their formularies (or lists of preferred drugs) to include lower-cost drugs that are therapeutically similar to higher-cost alternatives.

The primary driver of the lower trend is a continued shift to generic drugs.

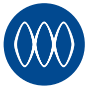
On the horizon, we see the potential for higher pharmacy trends as the use of specialty drugs increases. Specialty drugs, which include many biologics and injectable therapies, currently represent approximately 5% to 6% of the cost of the pharmacy component of the MMI. A single course of treatment using these specialty drugs can cost many thousands of dollars. While currently only a small portion of the total, cost trends for these therapies are significantly higher than for other pharmaceuticals. As a result, these therapies are expected to drive higher future increases in pharmacy costs. A portion of the projected increase in pharmacy costs due to specialty drugs may be offset by decreases in other medical categories.

As in past years, consumers are bearing a larger share of the total cost of pharmacy services than of other components of care. However, consumers can often reduce their copays by requesting generic or formulary drugs.

FIGURE 7: MMI Consumer Share of Medical Costs



The consumer share of pharmacy costs is 24.5%, compared to an overall average cost sharing of 16.7%.



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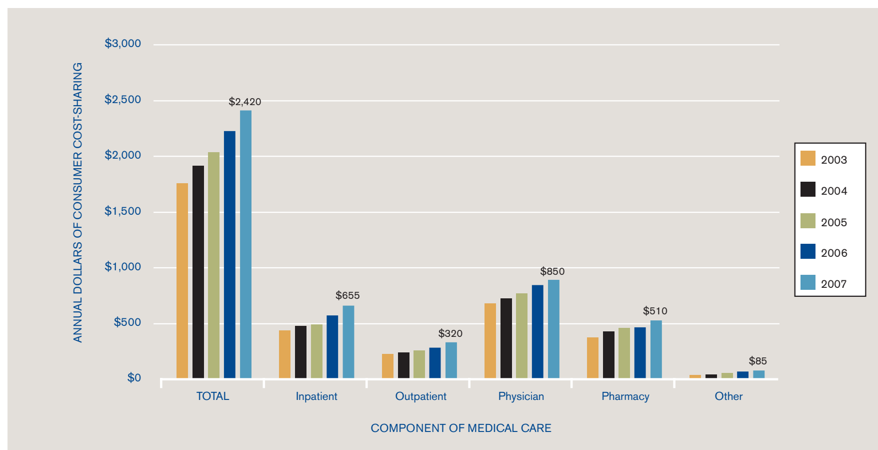
5. Cost Sharing

In recent years, employers have absorbed the brunt of cost increases while trends were high, thus shielding employees from a portion of the true cost increases. As trends moderated this year, that cycle is reversing somewhat and our data indicates that employers are again asking employees to contribute a greater share.

FIGURE 8: MMI CONSUMER SPENDING ON HEALTHCARE



As medical costs have increased, employees have paid a correspondingly higher amount through out-of-pocket cost sharing.

Employees pay their share of healthcare costs in two ways: through out-of-pocket cost sharing at time of service and also through monthly payroll deductions.

When members utilize healthcare services, they pay cost-sharing amounts at the point of service. There are several common structures for cost sharing, including fixed dollar copays for specific services, deductibles that require the employee to pay the first dollars of cost, and coinsurance that requires the member to pay a percentage of costs. Based on current average PPO plan designs, Milliman estimates that of the $14,500 total medical costs for 2007, the family will pay $2,420 out-of-pocket through member cost sharing at time of service. This is an increase of $210 over 2006. Physician cost sharing comprises the largest dollar amount of the overall cost sharing at $850, followed by inpatient hospital costs at $655, then pharmacy costs ($510) and outpatient hospital care ($320).

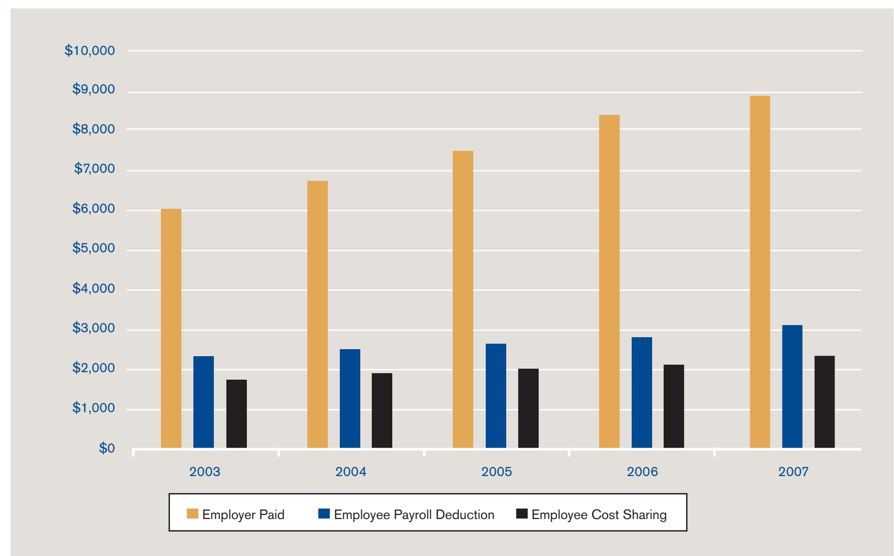
MILLIMAN ESTIMATES THAT OF THE $14,500 TOTAL MEDICAL COSTS FOR 2007, THE FAMILY WILL PAY $2,420 OUT-OF-POCKET THROUGH MEMBER COST SHARING AT TIME OF SERVICE. THIS IS AN INCREASE OF $210 OVER 2006.

While the dollar amounts paid by families for cost sharing have increased over the last five years, the trend in out-of-pocket cost sharing has been slightly lower than overall trends during that time. For 2007, however, that gap closed slightly with average out-of-pocket cost sharing increasing at a slightly higher pace than overall costs.

Figure 9 shows that of the $14,500 total medical cost for a family of four under a PPO, the employer pays about $8,909 (62%), and the employee pays about $5,591 (38%)—$3,171 of the employee share is in payroll deductions and $2,420 in cost sharing.

In addition to the increased cost sharing, employees are also bearing a greater portion of the monthly premiums paid through payroll deductions compared to 2006. More importantly, unlike cost sharing, employee contributions have a broad impact: they affect all participants, not just those who visit a healthcare provider. Based on Milliman's national survey of more than 3,500 employee benefit plans as well as data from the Kaiser Family Foundation, we estimate the portion of premium paid through employee contributions increased 12.2% in 2007 compared to 2006. Although the employee contribution only represents about one-quarter (26.25%) of the total premium, the increase will consume a significant portion of wage gains for some employees.

FIGURE 9: MEDICAL COST BY SOURCE OF PAYMENT



In combination, payroll deductions and out-of-pocket cost-sharing payments total $5,591 paid by the family.

We observe that the trend in employee contributions lags behind the broader medical cost trend by 12 to 18 months, so much of the 2007 increase to the employee contributions is related to the higher medical cost increases we noted in 2005 and 2006. The lag in the employee contributions can be traced and attributed to a typical benefit planning cycle. Employers set employee contributions only once each year, often months before the start of the plan year, while medical costs continue to increase, sometimes at a higher rate than initially forecast. In light of this reality, employers sometimes struggle to distribute the increase between the employer's portion, employee cost-sharing (copays, deductibles, etc.), and employee contributions (payroll deductions) while maintaining competitive plans to attract and retain employees.

Since 2003, the employer's share of costs increased at an average rate of 10.1% while trends in the employee's total costs are somewhat lower at 8.0%.

FIGURE 10: MILLIMAN MEDICAL INDEX ANNUAL INCREASE IN MEDICAL SPENDING

	2004/2003	2005/2004	2006/2005	2007/2006
TOTAL MEDICAL COST	10.1%	9.1%	9.6%	8.4%
COST SHARING	9.1%	6.0%	8.6%	9.5%
MEDICAL COST INCLUDING COST SHARING				
EMPLOYEE SHARE	8.0%	5.8%	6.8%	11.4%
EMPLOYER SHARE	11.5%	11.3%	11.3%	6.5%

Employee cost sharing shows signs of catching up with overall increases in costs.

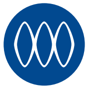
6. Other Healthcare Trends

We continue to see variation in plan designs and funding as employers and carriers seek to meet participants' needs for low-cost, high-value plans. Most notably, consumer-driven health plans (CDHPs) continue to grow in popularity among employers, although not as fast as originally projected. Growth of CDHPs varies by region and by size of employer. A key component of these plans is providing employees access to quality and cost information that can empower them to become engaged in their healthcare decisions.

CONSUMER-DRIVEN HEALTH PLANS CONTINUE TO GROW IN POPULARITY AMONG EMPLOYERS, ALTHOUGH NOT AS FAST AS ORIGINALLY PROJECTED.

Other employers have adopted different approaches such as introducing limited benefit plans to cover employees that might not otherwise have access to healthcare benefits.

Other plan design trends we see from our survey of benefit plans include adding a higher copay for office visits to specialist physicians (approximately 25% of all plans), a deductible and coinsurance structure instead of copays for prescription drugs (approximately 20% of all plans), and additional wellness benefits such as blood pressure testing, smoking cessation classes, and cholesterol screening (approximately 17% of all plans for each).



Technical Appendix - Milliman Medical Index

The Milliman Medical Index is a byproduct of Milliman's ongoing research in healthcare costs. The MMI is derived from Milliman's flagship health cost research tool, the *Health Cost Guidelines*™, as well as a variety of other Milliman and industry data sources, including Milliman's *Group Health Insurance Survey.*

The MMI represents the projected total cost of medical care for a hypothetical American family of four (two adults and two children) covered under an employer-sponsored PPO health benefit program, and reflects the following:

- Nationwide average provider fee levels negotiated by insurance companies and preferred provider networks.
- Average PPO benefit levels offered under employer-sponsored health benefit programs.[2]
- Utilization levels representative of the average for the commercially insured (non-Medicare, non-Medicaid) U.S. population.

The MMI includes the cost of services paid under an employer health benefit program as well as costs borne by employees in the form of deductibles, coinsurance, and co-payments. The MMI represents the total cost of payments to healthcare providers, the most significant component of health insurance program costs, and excludes the non-medical administrative component of health plan premiums. The MMI includes detail by provider type (e.g., hospitals, physicians, and pharmacies), for utilization, negotiated charges, and per capita costs, as well as how much of these costs are absorbed by employees in the form of cost sharing.

The 2007 report marks the third year of the MMI. For historical context, we have used the MMI methodology and prior research data to calculate MMI values for 2003-2004.

The MMI incorporates proprietary Milliman studies to determine representative provider reimbursement levels by years, as well as other reliable sources, including the *Kaiser Family Foundation/Health Research and Educational Trust 2006, Annual Employer Health Benefit Survey* (Kaiser/HRET) to assess changes in health plan benefit level by year.

2 E.G. FOR 2007, AVERAGE BENEFITS ARE ASSUMED TO HAVE AN IN-NETWORK DEDUCTIBLE OF $343, VARIOUS COPAYS (E.G., $60 FOR EMERGENCY ROOM VISITS, $19 FOR PHYSICIAN OFFICE VISITS, $11/25/38 FOR GENERIC/FORMULARY BRAND/NON-FORMULARY BRAND DRUGS), COINSURANCE OF 16% FOR NON-COPAY SERVICES, ETC.

Launched more than 40 years ago, the Milliman *Health Cost Guidelines* is an industry standard, now used by more than 90 leading insurers to estimate expected health insurance claim costs. The seven-volume publication includes utilization rates for specific services and variations in costs in different parts of the country-critical data used by traditional health carriers and managed care organizations for product pricing. In addition, the *Guidelines* provide utilization benchmarks for managed care arrangements. The *Guidelines* are updated annually from core data sources, which contain the complete annual health services of more than 15 million lives as well as various specialized proprietary databases. Milliman invests more than $2 million annually in updating the *Guidelines*.

Milliman's *Group Health Insurance Survey* (formerly *HMO Intercompany Rate Survey*), launched in 1992, provides the industry's only annual survey measuring rate levels and experience for a uniform population and benefit design for HMOs, PPOs, and consumer-driven health plans from across the nation. Survey results are provided by metropolitan statistical area, state, region, and nationwide. The survey is used by managed care organizations nationwide to compare their rate levels and experience with those of their competitors, and includes utilization rates, costs of care for physician and hospital services, and trends in rate levels.

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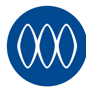

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