

May 2008



# 2008 Milliman Medical Index



## EXECUTIVE SUMMARY

Milliman's fourth annual study of average medical spending for a typical American family of four looks at key components of actual medical spending and tracks the changes over time. In addition to analyzing changes in national average health costs, the Milliman Medical Index (MMI) this year presents health-cost data for 14 major U.S. metropolitan areas.

The 2008 MMI's key findings include:

- The total medical cost in 2008 for a typical American family of four is \$15,609 (compared with \$14,500 in 2007).
  - The average annual medical cost of the family increased by 7.6% from 2007 to 2008. While the \$1,109 increase is a big expense, the rate of increase was down for the second straight year and is the lowest rate of increase in the past five years.
  - There is a wide variation in costs across the country. Among the 14 metropolitan areas studied, health-care costs varied by more than 35% from lowest to highest.
  - While the overall rate of cost increase was down this year, the rate of prescription-drug cost increase was up for the first time since 2006.
  - For the employee's share of spending on healthcare services, 2008 marks the second consecutive year of double-digit increase.
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## MEDICAL COSTS FOR 2008

The 2008 Milliman Medical Index (MMI) measures average medical spending for a typical American family of four covered by an employer-sponsored preferred provider organization (PPO) program.<sup>1</sup> The MMI also examines key components of medical spending and the changes in these components over time.

The MMI estimates the total annual medical costs in 2008 for a typical American family of four at \$15,609, up from \$14,500 in 2007. This is an increase of 7.6% over the 2007 MMI. The 2007 rate of increase was 8.4%.

Overall cost trends have declined over the last five years, from around 10% to the current 7.6%. Some of the forces leading to the recent modest downturn in trend are the result of temporary slowdowns in cost increases that may be offset by higher increases in other cost areas, some of which are discussed in greater detail throughout this report.

Drivers of cost increases include:

- Increases in wages and cost of materials
- Improved technology and new drugs
- Economic incentives for healthcare providers
- Consumer demand
- Demographics
- Benefit mandates and regulations
- Cost shifting

FIGURE 1

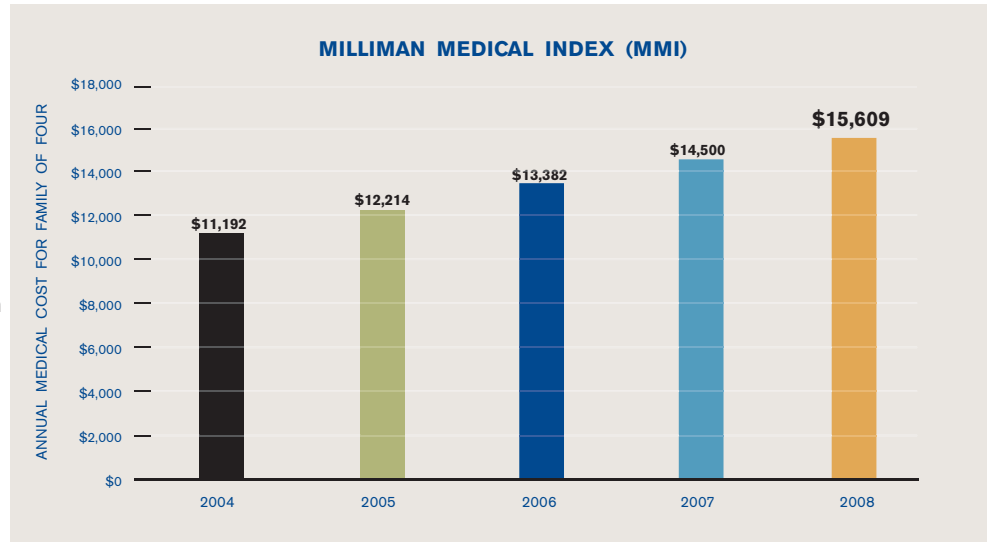
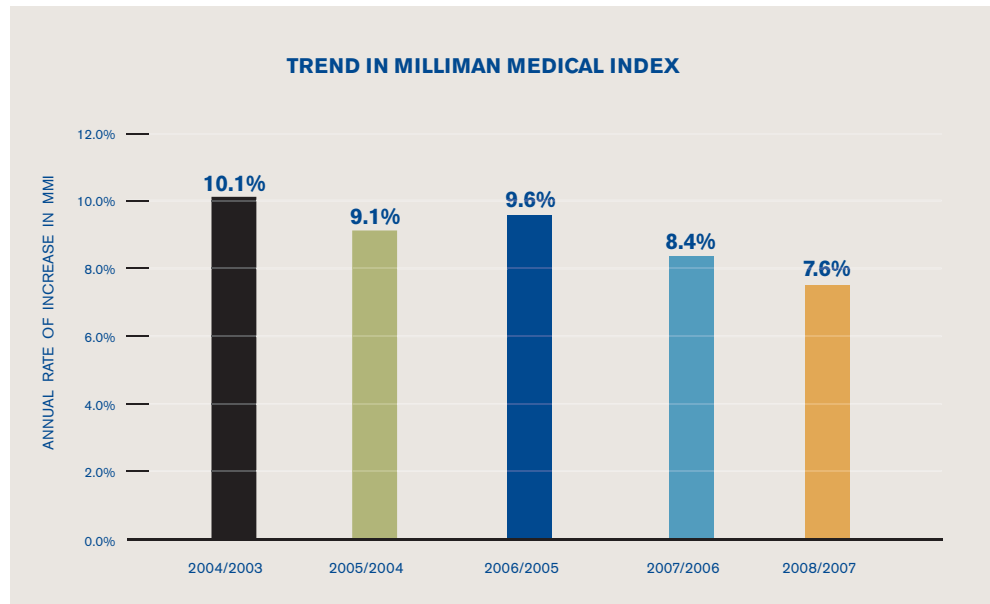


FIGURE 2



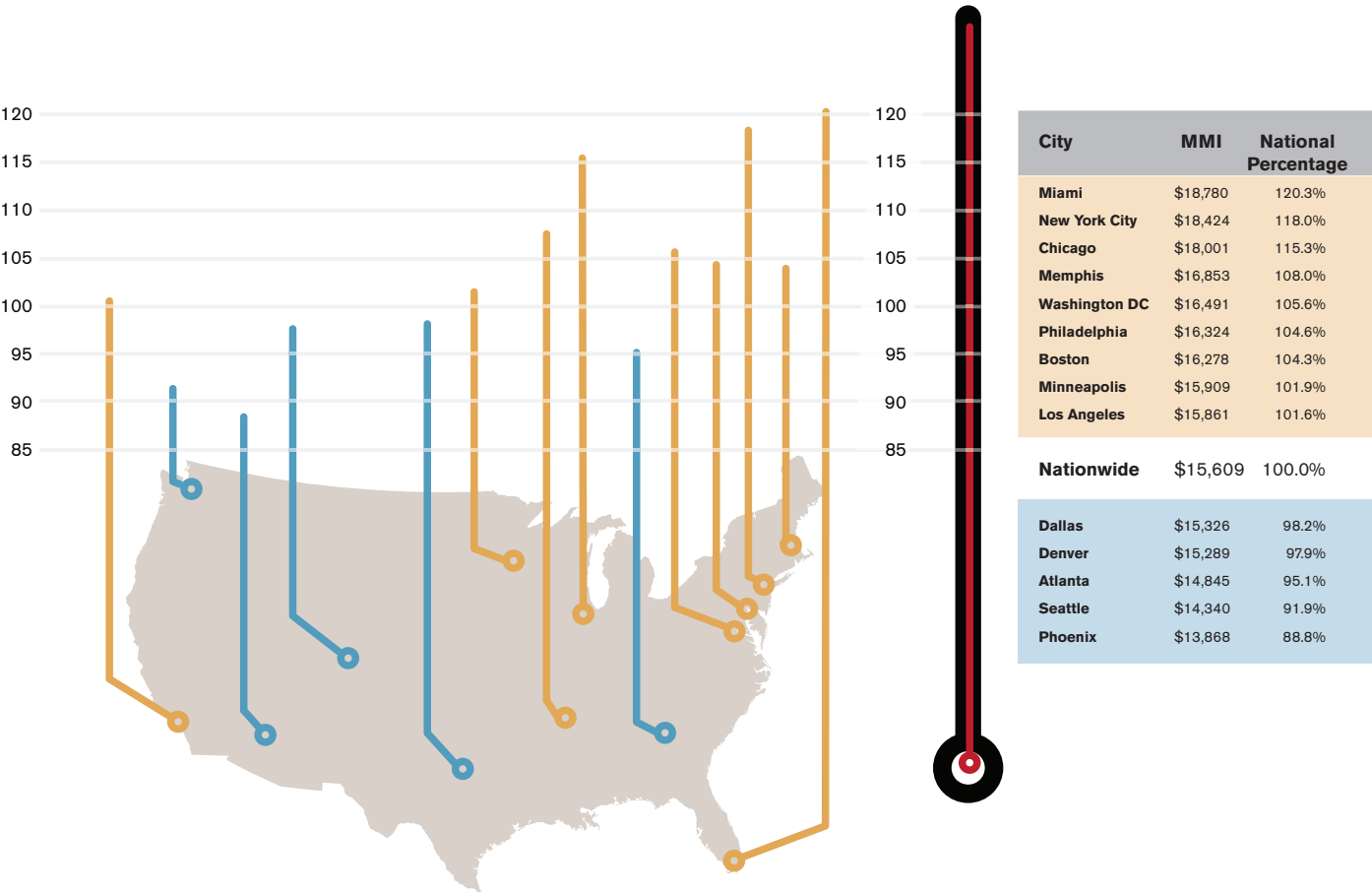
<sup>1</sup> The Milliman Medical Index is based on analysis of claims for millions of members in a wide variety of areas of the country. It takes into account estimated U.S. average provider payment rates and Milliman's analysis of historical claim data and understanding of trends in provider contracting. 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.

## GEOGRAPHIC VARIATION IN HEALTH COSTS

Figure 3 shows healthcare costs for 14 major U.S. metropolitan areas. The costs vary by more than 35% from high to low. Cities in western, southern, and mountain states generally have lower costs than those in central and eastern states. The variations from city to city result from a complex array of regional factors, including medical-service treatment patterns, utilization of healthcare services, and costs per service. The geographic indices were developed on a consistent basis using standard actuarial principles.

FIGURE 3

### Percentage of National Average



## MEDICAL COST CATEGORIES

The MMI categorizes medical costs into the following major groupings:

- Inpatient hospital services
- Outpatient facility services
- Physician services
- Prescription drugs
- Other services including ambulance, durable medical equipment, private-duty nursing, and home health

Figure 4 shows the distribution of the \$15,609 total medical costs paid for by and on behalf of the typical American family of four. It includes both the portion of the costs paid by an employer's benefit plan and the portion paid by the family in the form of out-of-pocket cost sharing. Inpatient hospital and outpatient facility services combined represent 46% of the total annual medical costs, physician services represent 35%, prescription drugs 15%, and other miscellaneous services represent 4%. This distribution of costs reflects a modest shift in 2008 toward more pharmacy spending and less relative physician spending.

For the first time in three years, pharmacy cost trends exceeded other categories of service (see discussion on page 8). Physician costs once again increased at the lowest rate.

At 7.1%, the estimated inpatient hospital trend decreased relative to the overall national trend, while the outpatient facility trend dropped from 9.8% to 9.4%. The physician trend declined from 6.8% to 6.2% and is still the lowest cost increase of the major components. After two years of decreases, pharmacy trend increased by double digits at 10.6%. The increase in other services was similar to the overall increase.

FIGURE 4

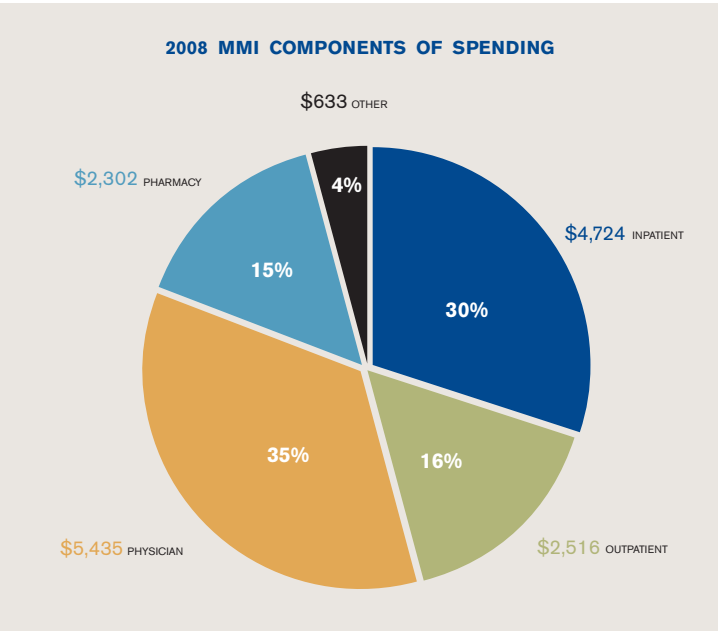
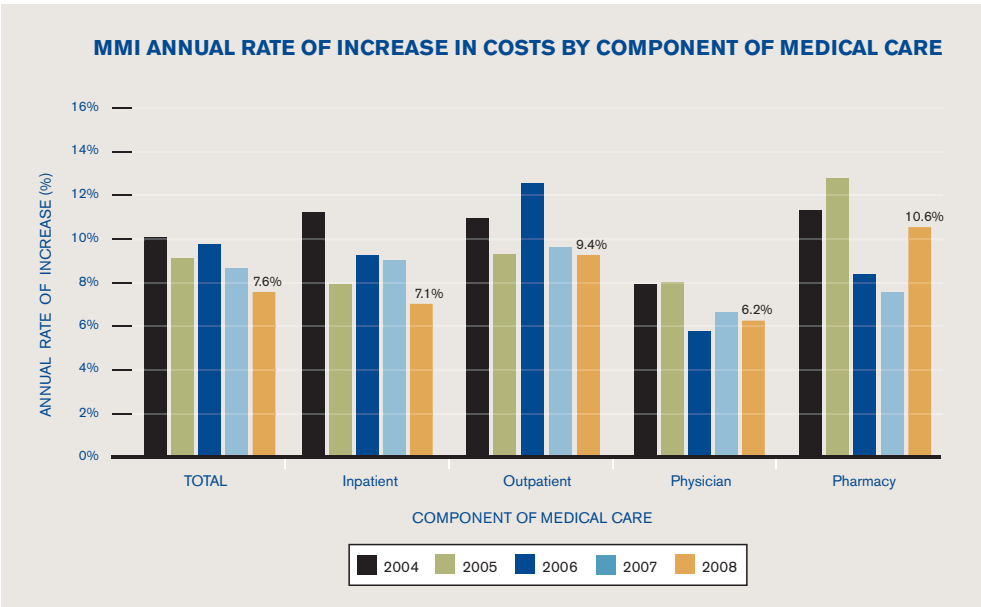
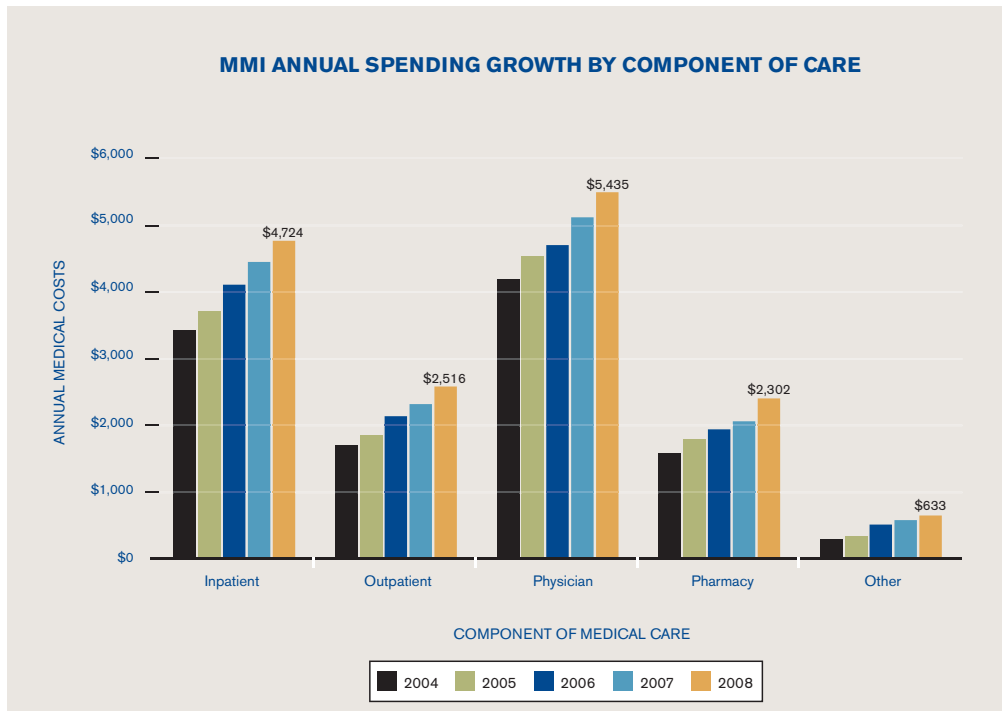


FIGURE 5



Hospital services and physician services contributed \$530 and \$315, respectively, to the \$1,109 total increase in total annual medical costs between 2007 and 2008. Pharmacy's contribution was \$221. Notably, the dollar increase for hospital and physician care is lower than the prior year's increase.

FIGURE 6



## VARIATION IN COSTS

Although the cost for a typical family of four is \$15,609, any particular family could have significantly different costs. Variables that have a significant impact on average costs include:

- **Age and gender.** There is wide variation in costs by age, with older people generally having higher costs per person than younger people. For example, a male aged 60-64 has healthcare expenditures approximately five to six times as high as a male aged 25-29.<sup>2</sup> Variation also exists by gender. For example, partly due to maternity costs, a female aged 25-29 typically has healthcare costs approximately two and a half times as high as a male aged 25-29.
- **Individual health status.** Beyond cost variation due to age and gender differences, tremendous variation also results from health status differences. People with chronic conditions such as diabetes, asthma, and heart disease are likely to have much higher average healthcare costs than people without these conditions. In a typical population of people covered by an employer-group medical plan, approximately 7% will have no healthcare insurance claims during a given year, while approximately 22% of people will have claims that are at least ten times the cost of the average person.
- **Geographic area.** Significant variation exists in healthcare costs by geographic area, due to differences in healthcare provider practice patterns and average costs for the same services. Practice pattern differences result in patients with the same (or very similar) conditions being treated differently by different providers.
- **Provider variation.** The cost of healthcare depends on the providers used. In a recent study Milliman prepared for the Pacific Business Group on Health (PBGH), we found that California hospital costs varied widely because of differences in both billed charge levels and discounts that payers had negotiated.<sup>3</sup>
- **Insurance coverage.** The presence of insurance coverage and the “richness” of that coverage also affect healthcare spending. The cost- and utilization-reducing implications of leaner coverage are documented in Milliman’s *Consumer-driven Impact Study*,<sup>4</sup> published earlier this year. The results of this study show that, after adjusting for different risk factors and the reduced utilization that is inherent in consumer-driven health plans (CDHPs), these plans produce savings of 4.8%. When people are responsible for more of the cost, they tend to engage the healthcare system less often, which minimizes unnecessary utilization.

<sup>2</sup> Milliman 2008 *Health Cost Guidelines*™ Commercial Rating Structures

<sup>3</sup> Full report is available at: [http://www.pbgh.org/documents/Milliman\\_OSHPD\\_Report\\_FINAL\\_20071017.pdf](http://www.pbgh.org/documents/Milliman_OSHPD_Report_FINAL_20071017.pdf)

<sup>4</sup> Milliman *Consumer-driven Impact Study*, April 2007, by Jack Burke and Rob Pipich. Full report is available at <http://www.milliman.com/expertise/healthcare/publications/rr/consumer-driven-impact-study-RR04-01-08.php>



## PHARMACY TRENDS

Although last year's MMI showed a drop in pharmacy cost trend for the second year in a row, the 2008 study identified an increasing cost trend that is expected to continue for the next few years. The declining trend of 2006 and 2007 was the result of increased adoption of generic drugs; that adoption rate has now slowed. Very few high-volume drugs will see their patents expire this year or for the next several years. Lipitor® is the next high-volume drug scheduled to clear patent, in 2010. Even though a drug's patent is scheduled to expire on a certain date, the generic version is not necessarily imminent. The recent delay in bringing to market a generic version of Nexium® (pushed back to 2014) provides a recent example.

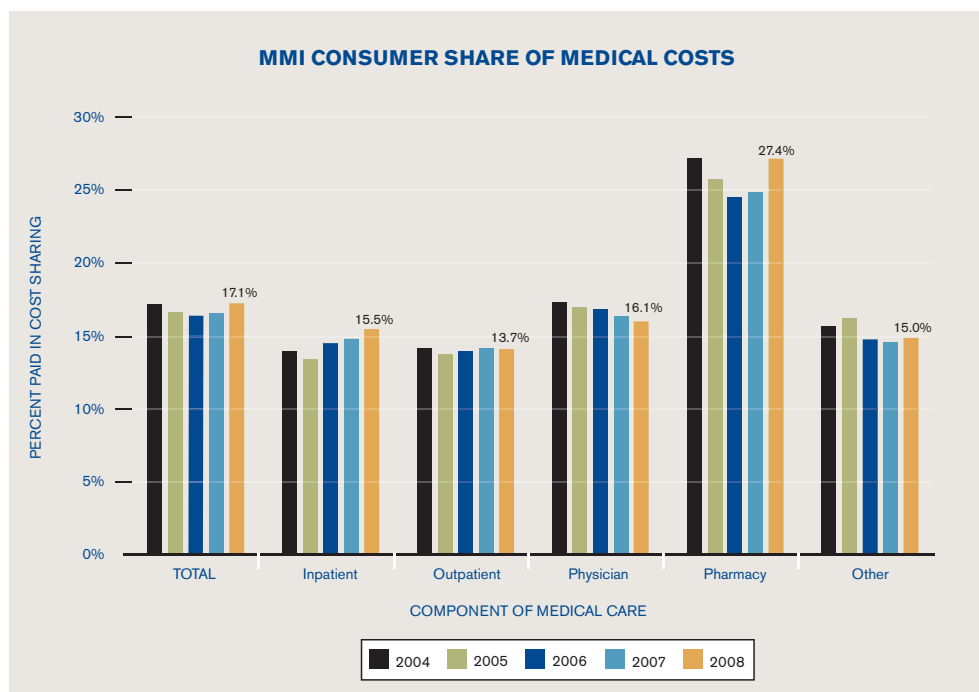
While the cost trend is unlikely to decline in the next several years because of the dwindling introduction of generic drugs, individual employee benefit plans that provide incentives to shift from brand-name to generics can still favorably influence the nonspecialty drug trend. The nonspecialty drug trend may also be affected if some manufacturers increase certain drug prices in anticipation of expiring patent protections.

The increased use of coinsurance may help reduce pharmaceutical cost trend while value-based insurance design (VBID) strategies may increase pharmaceutical cost trend.

Specialty drug trend is projected at 17.6%<sup>5</sup> for 2008, continuing to increase its contribution to the total drug trend. Factors affecting the increase in specialty drug trend include:

- An increase in the number of specialty drugs coming to market, as well as new indications for existing drugs, particularly for rheumatoid arthritis, multiple sclerosis, and cancer.

FIGURE 7



- An increase in utilization and unit cost for many specialty products (e.g., increased utilization of anticoagulants and drugs indicated for rheumatoid arthritis, and increased unit cost for multiple sclerosis and cancer drugs).
- A shift of specialty pharmacy products from the medical-benefit category to the prescription-drug-benefit component.
- The shift in specialty pharmacy from the medical benefit to the prescription-drug benefit should result in a corresponding reduction in medical costs.

As in past years, consumers are bearing a larger share of the total cost of pharmacy services, especially proportionate to other components of care. However, consumers can often reduce their copays by requesting generic or formulary drugs. As many insurers move to coinsurance, patients may start to ask more questions about drug costs, and by so doing, the pharmaceutical dynamic could change.

<sup>5</sup> Express Scripts 2007 Drug Trend Report, <http://www.express-scripts.com/industryresearch/industryreports/drugtrendreport/2007/>

## COST SHARING

As was the case last year, healthcare costs have continued to shift from employers to employees. Previously, when trends were high, employers would absorb the majority of the cost increases to mitigate the effect on employees. But as trends have moderated in recent years, our data shows employers allowing the full trend increase, plus some of the past shortfall, to be passed on to employees.

While the dollar amounts paid by families for cost sharing have increased from 2003 to 2006, the rate of growth in out-of-pocket cost sharing has been slightly lower than overall trends during that time. In 2007 we saw a reversal to this movement, and in similar fashion our data for 2008 indicates average out-of-pocket cost sharing increasing at a higher pace than overall costs (10.5% vs. 7.6%).

Figure 9 shows that of the \$15,609 total medical cost for a family of four under a PPO, the employer pays about \$9,442 (60%), and the employee pays about \$6,167 (40%). Just over half of the employee's share, or \$3,492, is paid through payroll deductions, while \$2,675 is paid in cost sharing at time of service.

In addition to increased cost sharing, employees are bearing a greater portion of the monthly premiums paid through payroll deductions compared with 2007. Unlike time-of-service 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 4,000 employee benefit plans, as well as data from the Kaiser Family Foundation, we estimate employees' portion of the premiums increased 10.1% in 2008 over 2007. Although the employee contribution only represents, on average, about one-quarter (27.0%) of the total premium, the increase consumes a significant portion of wages for some employees.

FIGURE 8

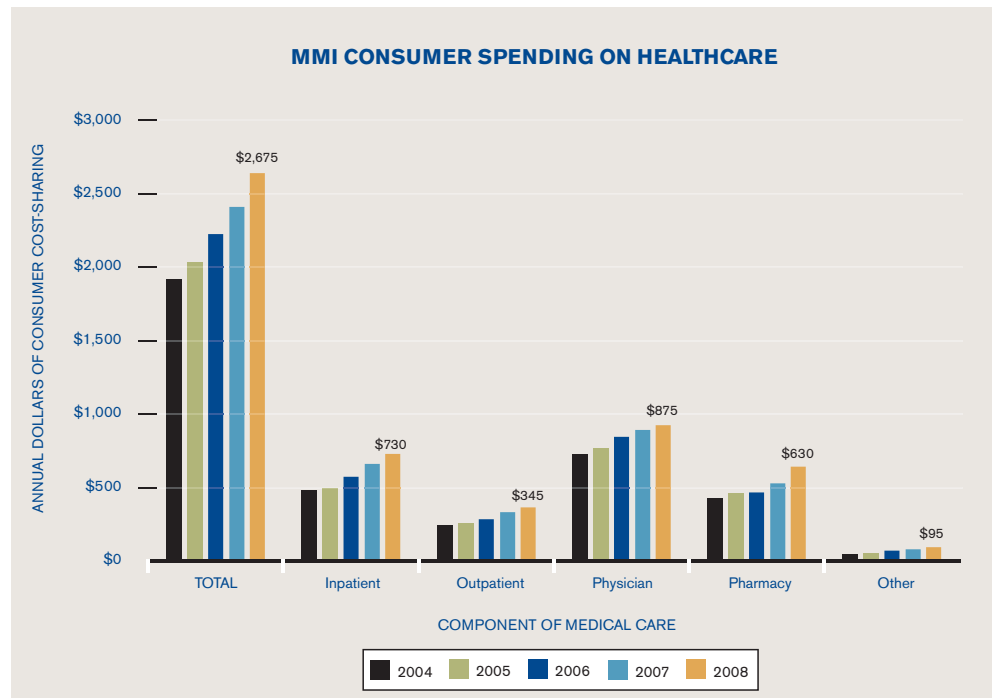
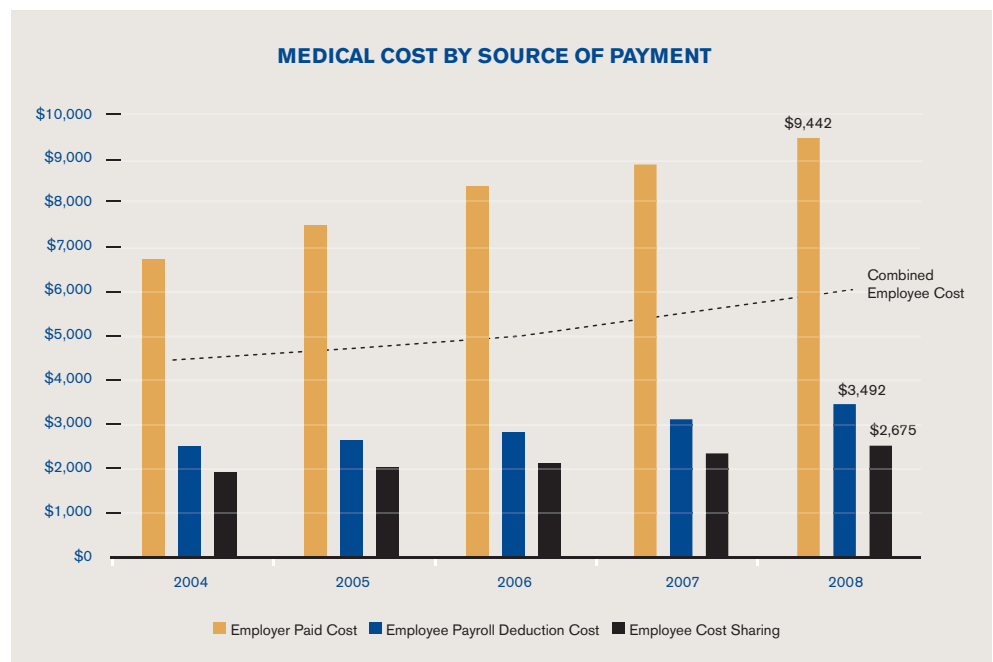


FIGURE 9



Cost trends in employee contributions lag behind the broader medical cost trend by 12 to 18 months. Thus, much of the 2008 increase for employee contributions is related to the higher past increases. The delay 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. Medical costs may sometimes increase at a higher rate than employers had initially forecast—and to more than overall compensation increase targets. In light of this, 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 2004, the employer's share of costs increased at an average rate of 8.8% while the average rate of employee's total costs increased 8.5%.

## OTHER HEALTHCARE TRENDS

Employers continue to tweak plan designs and funding options to address the desire of participants for low-cost, high-value plans. In particular, CDHPs continue to grow in popularity, although the prevalence varies by region and size of employer. Generally, the largest employers and small employers have been the early adopters. (See Milliman's *Consumer-driven Impact Study* for a comprehensive analysis of CDHPs.)

The adoption of population health-management approaches, particularly wellness and health promotion programs, has become mainstream, yet medical cost savings outcomes have been inconclusive. Employers report positive outcomes for other metrics such as worker productivity, absenteeism, morale, and retention. The purchase of disease management services by employers recently leveled off with the continued lack of convincing evidence of medical cost savings.

Value-based insurance design (VBID) for pharmaceuticals is a relatively new trend that is intended to increase prescription-drug compliance for the chronically ill by reducing or eliminating copays for maintenance drugs. Medical cost savings is inconclusive at this early stage. In the short term, employer spending will increase as copays are reduced for those already compliant and drug utilization increases for those not compliant.

## TECHNICAL APPENDIX - MILLIMAN MEDICAL INDEX

The *Milliman Medical Index (MMI)* 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 the *Group Health Insurance Survey™*, the *Milliman Mid-Market Survey*, and the *Consumer-driven Impact Study*.

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 PPOs.
- Average PPO benefit levels offered under employer-sponsored health benefit programs. For 2008, average benefits are assumed to have an in-network deductible of \$366, various copays (e.g., \$65 for emergency room visits, \$19 for physician office visits, \$11/25%/30% for generic/formulary brand/non-formulary brand drugs), and coinsurance of 16% for non-copay services.
- Utilization levels representative of the average for the commercially insured (non-Medicare, non-Medicaid) U.S. population.

### About the *Milliman Medical Index (MMI)*

The MMI includes the cost of services paid under an employer health-benefit program, as well as costs paid by employees in the form of deductibles, coinsurance, and copays. The MMI represents the total cost of payments to healthcare providers, the most significant component of health insurance program costs; it excludes the nonmedical 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 2008 report marks the fourth year of the MMI, although we report on data from the last five years. For historical context, we have used the MMI methodology and prior research data to calculate MMI values for 2004.

The MMI incorporates proprietary Milliman studies to determine representative provider-reimbursement levels over time, as well as other reliable sources, including the Kaiser Family Foundation/Health Research and Educational Trust 2007 *Annual Employer Health Benefit Survey* (Kaiser/HRET), to assess changes in health-plan benefit level by year.

### About the *Health Cost Guidelines™*

Launched more than 50 years ago, the *Health Cost Guidelines™* are 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.

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### About the *Group Health Insurance Survey*™

The *Group Health Insurance Survey*™ (formerly, *HMO Intercompany Rate Survey*™), launched in 1992, provides the industry's only survey measuring rate levels, trends, and experience for a uniform population, and benefit design for HMO and PPO 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 premiums, trends, and experience with those of their competitors. Published results include premiums, rate trends, anticipated future-year premium-rate change, inpatient utilization levels, physician reimbursement levels, medical expense ratios, and information on other current industry topics.

### About the *Consumer-driven Impact Study*

The *Consumer-driven Impact (CDI) Study*, released by Milliman earlier this year, provides the first independent risk-adjusted analysis of CDHP savings. Developed in partnership with the National Business Group on Health, the *CDI Study* shows that CDHPs are creating savings of 4.8% for employers. After adjusting for induced utilization typically found in high-deductible plans, the savings amount to 1.5%. The more significant savings should not be dismissed, however, because induced utilization is a key component of the savings strategy inherent to CDHPs. These results reinforce the need for better consumer information. Actual savings are likely to increase when people have the consumer research resources they need to truly compare and shop for healthcare based on quality and cost.



Milliman, whose corporate offices are in Seattle, serves the full spectrum of business, financial, government, and union organizations. Founded in 1947 as Milliman & Robertson, the company has 48 offices in principal cities in the United States and worldwide. Milliman employs more than 2,100 people, including a professional staff of more than 1,000 qualified consultants and actuaries. The firm has consulting practices in employee benefits, healthcare, life insurance/financial services, and property and casualty insurance. For further information visit [www.milliman.com](http://www.milliman.com).