

MILLIMAN RESEARCH REPORT

2017 Milliman Medical Index

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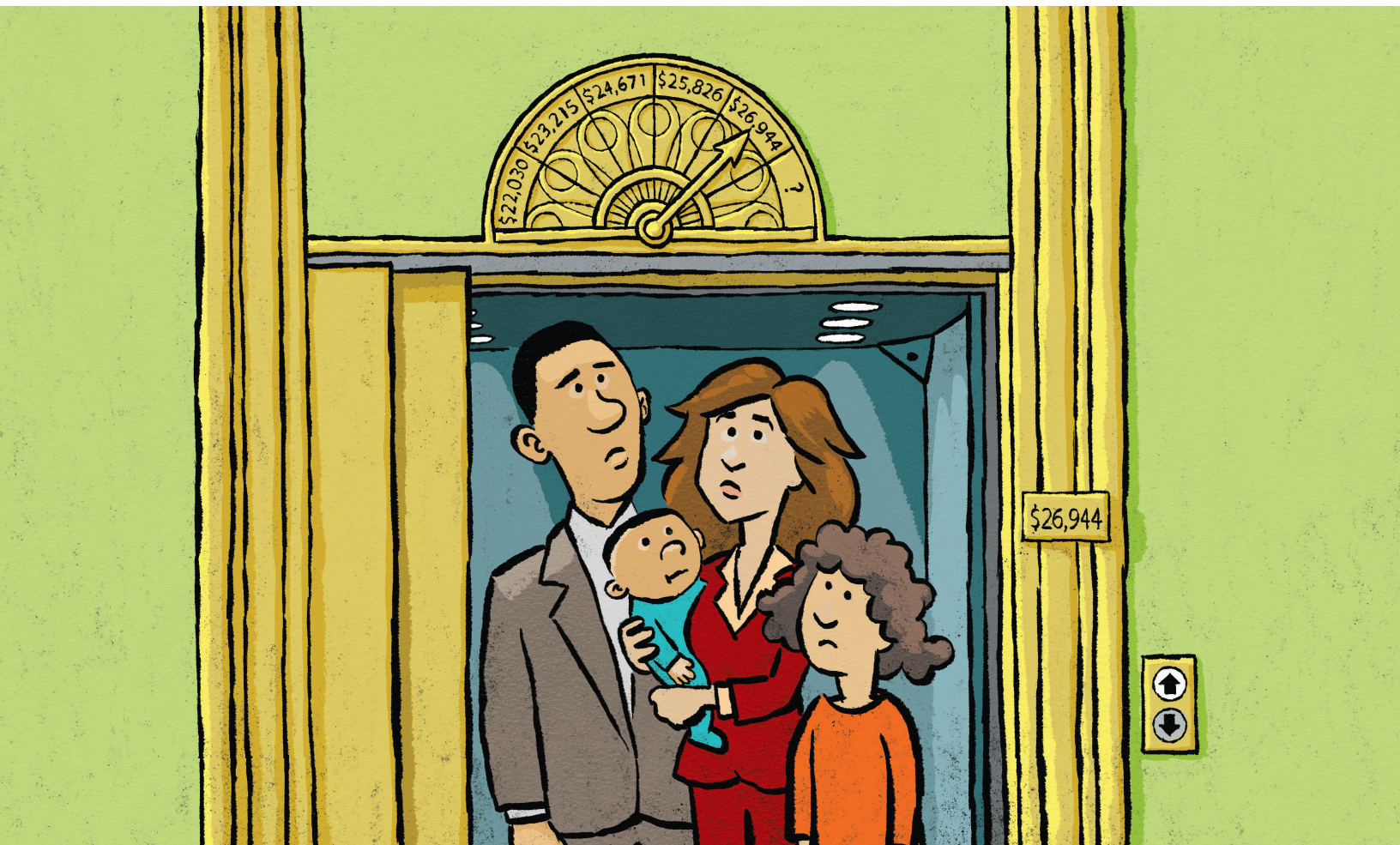


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Executive Summary

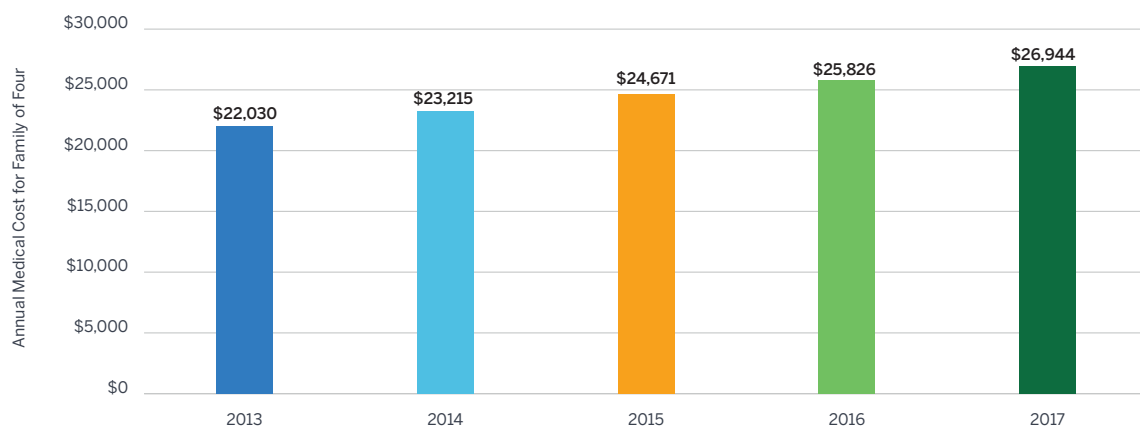
In 2017, the cost of healthcare for a typical American family of four covered by an average employer-sponsored preferred provider organization (PPO) plan is \$26,944 (see Figure 1), according to the Milliman Medical Index (MMI).¹

KEY FINDINGS OF THE 2017 MMI INCLUDE:

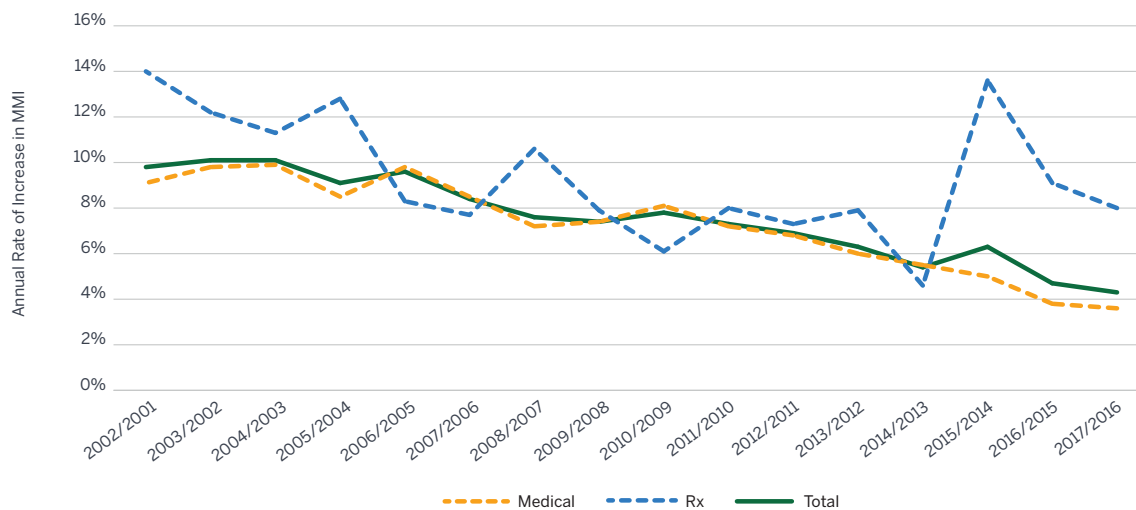
1. **The MMI's annual rate of increase is 4.3%.** This is the lowest rate since we began tracking the MMI in 2001. Yet the total dollar amount is still bracingly high. Of the \$26,944 spent by the MMI's family of four, \$11,685 is paid by the employee, through a combination of \$7,151 in payroll deductions for premium, and \$4,534 in out-of-pocket costs incurred at time of care.
2. **Prescription drug trends are lower, but still high.** For the first time since 2013 and 2014, the family of four's prescription drug trends have decreased in two consecutive years. Still, the 2017 prescription drug cost increase of 8% is more than double the medical increase of 3.6%.²
3. **Employees pay a bigger piece of the healthcare cost pie.** Through their payroll deductions and through out-of-pocket expenses incurred when care is received, employees now pay for about 43% of expenses and employers pay the other 57%. The difference between these two shares has gradually narrowed since 2001, when employees contributed 39% and employers contributed 61%. High growth in per-employee healthcare expenditures have pushed employers to limit their contribution increases to amounts below the rate of healthcare inflation.

Some stakeholders have held out hope that federal healthcare reform efforts would help control healthcare cost growth. So far, those efforts have had relatively little direct impact on the MMI, because the MMI represents healthcare costs in an employer-sponsored health plan, while the primary focus of healthcare reform has been on the individual insurance marketplace and Medicaid. The employer market tends to be one of the most stable markets for health insurance companies, and one of the most financially important for healthcare providers such as hospitals and physicians. As discussed in a later section of this report, providers receive higher payment for patients in employer-sponsored plans, for the exact same basket of services, than they do for other insured patients. Employers and employees have been subsidizing other markets for many years.

FIGURE 1: MILLIMAN MEDICAL INDEX (MMI)



- 1 The Milliman Medical Index is an actuarial analysis of the projected total cost of healthcare for a hypothetical family of four covered by an employer-sponsored preferred provider organization (PPO) plan. Unlike many other healthcare cost reports, the MMI measures the total cost of healthcare benefits, not just the employer's share of the costs, and not just premiums. The MMI only includes healthcare costs. It does not include health plan administrative expenses or insurance company profit loads.
- 2 In the MMI, prescription drug expenses are measured before any savings generated by manufacturer rebates. For some medications, the drug manufacturer may give a significant rebate to the pharmacy benefit manager (PBM) or health plan after the prescription is filled. Patients typically do not benefit from these rebates at the point of sale, although rebates generally reduce healthcare premiums. Rebates are discussed more in a later section of this report.

FIGURE 2: ANNUAL CHANGES IN THE MILLIMAN MEDICAL INDEX

Defining “cost of care”

The MMI tracks the cost of care for a family of four. While the word “cost” does not seem to need definition, it is worth digging deeper to understand its drivers, and by extension, to better understand how the MMI’s total cost has grown so much over time.

There are two major components to the cost of care: the amount paid for each type of service, and the frequency with which each type of service is used. We address these components in the following paragraphs.

PROVIDER REIMBURSEMENT

Healthcare “costs” paid by the family of four or the employer are simply the amounts paid to healthcare professionals and facilities providing services. However, these amounts may not necessarily relate directly to what it actually costs providers to deliver the services.

The amounts paid for a hospital or medical service can vary significantly depending on the insurance coverage a patient has, even for the same service, the same provider, and the same patient. Public programs such as Medicaid and Medicare negotiate or legislate fee arrangements, sometimes at amounts which providers say are below their costs to deliver the care.³ In an employer plan, the insurer or an employer’s third party administrator (TPA) will negotiate fees paid to contracted providers, but the payment rates are typically above what providers receive for Medicare and Medicaid patients.⁴ As a result of the lower public payments, private insurers typically pay more than the cost of the service because the providers need to recover the shortfall from public programs and uncompensated care.⁵

Some employers and some health plans have introduced narrow network coverage into their plans to help lower these negotiated rates in exchange for steerage to the network providers. The lower costs come with a trade-off, with the choice of providers being much more limited compared to the

3 American Hospital Association (2016). Chart 4.6: Aggregate Hospital Payment-to-Cost Ratios for Private Payers, Medicare and Medicaid, 1994-2014. Trendwatch Chartbook 2016. Retrieved May 4, 2017, from <http://www.aha.org/research/reports/tw/chartbook/2016/chart4-6.pdf>.

4 Health Affairs (December 2015). DATAWATCH: The Growing Difference Between Public And Private Payment Rates For Inpatient Hospital Care. Retrieved May 4, 2017, via <http://content.healthaffairs.org/content/34/12/2147.full.pdf> (requires subscription). <http://money.cnn.com/2014/04/21/news/economy/medicare-doctors>
<http://kff.org/medicaid/state-indicator/medicaid-to-medicare-fee-index/?currentTimeframe=0&sortModel=%7B%22old%22:%22Location%22,%22sort%22:%22asc%22%7D>

5 <http://us.milliman.com/insight/research/health/pdfs/Hospital-and-physician-cost-shift/>

MMI's PPO benefit plan, which allows members to see a broad range of healthcare providers that participate in their network, and go out of network if they choose. Out-of-network services are often covered at much higher fee levels than the same services from an in-network provider.

UTILIZATION

The other element of the cost of care is utilization, or the number and types of services used by the family. The amount of utilization varies with the level of benefits and healthcare management initiatives undertaken by the health plan and providers.

Our MMI family has fairly generous benefits through its employer. On average, the plan pays for about 83% of covered services (this is slightly more generous than a “gold” plan in the individual exchange market). While the family's out-of-pocket costs are subject to deductibles and other cost sharing, which may keep the family from going to the doctor for unnecessary services, the family's cost sharing is not so high that they avoid necessary care. If this family instead had higher cost sharing levels, such as is common for a “silver” exchange plan, where on average, 70% of their benefits are paid for by the health plan, then the family would need to pay 30% of the plan's negotiated cost for the services they receive, rather than the 17% they pay on average under the MMI plan. Having a silver plan would nearly double the family's out-of-pocket share of the cost. That higher cost sharing will influence which services and prescriptions the family purchases.⁶

Proactive medical management can also lower costs by ensuring that the right amount of care is provided in the least intensive, lowest cost, and yet medically appropriate, treatment settings. For example, providers may deliver more of their care on an outpatient basis, and order fewer diagnostic tests and prescriptions. Narrow network plans may favor such providers who use care management techniques to better coordinate care and minimize unnecessary utilization of services.

Components of cost

To further explore how the MMI costs have grown, we examine the cost of healthcare in five separate categories of services:

1. Inpatient facility care
2. Outpatient facility care
3. Professional services
4. Pharmacy
5. Other services

As shown in Figure 3, for the MMI family of four, approximately one-half of healthcare expenditures are for hospital services, including both inpatient and outpatient. The total increase in hospital expenses from 2016 to 2017 was only 3.9%, its lowest rate of increase since the MMI was first measured in 2001. Inpatient hospital costs grew by 3.7% and outpatient costs grew by 4.2%. Historically, outpatient costs have grown at higher rates than inpatient costs, although that gap has narrowed materially in the last few years. Health plan contracts with hospitals increasingly employ outpatient case rates or payment rates grounded in Medicare allowable fee levels, which helps control the rate of growth in outpatient facility expenditures.

The second-largest category of medical expenditures is physician services, which represent 30% of the family of four's healthcare spending in 2017. These expenditures are for all professional fees, including those from physicians and other healthcare professionals that are incurred when a patient uses a hospital, clinic, surgical center, stand-alone lab or imaging center, or a physician office.

⁶ Expenditure changes resulting purely from the behavioral impacts of cost sharing differences is called induced utilization, or induced demand. The effects are quantified, for example, in the risk adjustment system used by insurance exchanges. The formula in that system for most states uses adjustment factors that assume that when a person moves from a platinum plan to a gold plan, their gross healthcare expenditures (before application cost sharing features like deductibles and copays) will drop by 6%, which is due solely to induced utilization changes. Similarly, going from platinum to silver or bronze is expected to reduce expenditures by 10% and 13%, respectively.

Expenditure growth rates for professional services have moderated over the past 10 years, landing at 3.2% in 2017. Annual growth is mostly due to increases in the average payment rate per service, and a small amount is due to increases in the average number of services provided per capita.

Prescription drugs continue to be an increasingly important driver of the MMI expenditures. Because prescription drug expenses have grown more quickly than other healthcare expenditures, drugs have increased from approximately 13.2% of the total MMI in 2001 to 17.1% in 2017. More than one-sixth of the family of four’s healthcare expenditures are now for prescription drugs. Further, the prescription drug category doesn’t include medications delivered to patients in hospitals, outpatient infusion centers, and physician offices.

The distribution of costs by type of service has shifted materially since we began tracking the MMI in 2001. As shown in Figures 3 and 4, for 2001 and 2017, respectively, physician costs have grown at a much slower pace than other services, dropping from 40% of the pie in 2001 to 30% in 2017. A big chunk of the physician slice has effectively been reallocated to pharmacy, outpatient facility services, and the “other” category which includes ambulance services, durable medical equipment and supplies, prosthetics, and home health care.

FIGURE 3: 2001 MMI COMPONENTS OF SPENDING

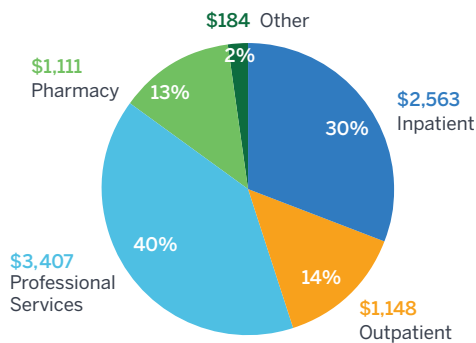
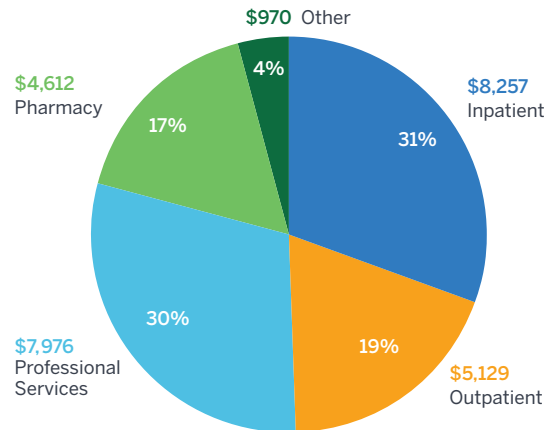
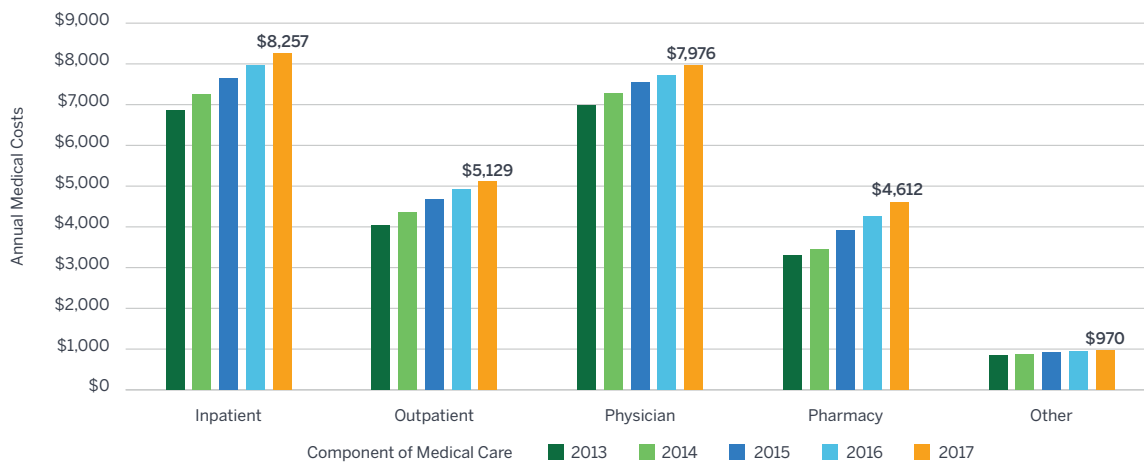


FIGURE 4: 2017 MMI COMPONENTS OF SPENDING



Percentages do not add to 100% due to rounding.

FIGURE 5: MMI ANNUAL SPENDING GROWTH BY COMPONENT OF CARE



PRESCRIPTION DRUG TRENDS: GOOD NEWS AND BAD NEWS

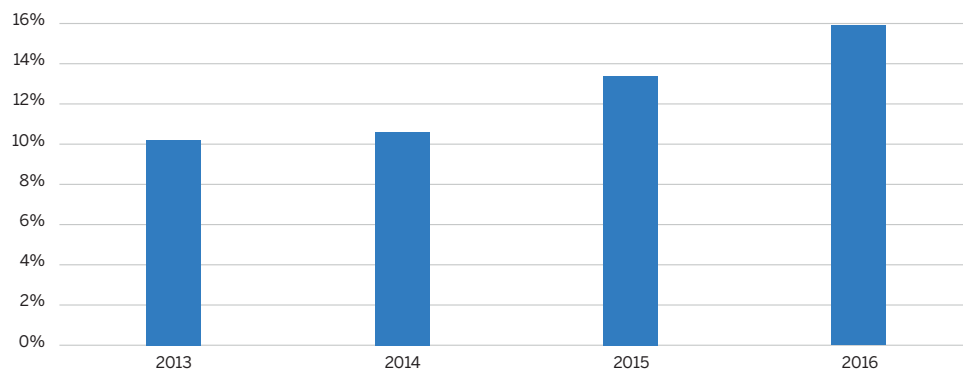
For the first time since 2013 and 2014, prescription drug trends for the MMI's family of four have decreased for two consecutive years. Still, a 2017 prescription drug cost increase of 8% is more than double the medical increase of 3.6%.

Here we discuss some of the forces impacting prescription drug costs.

1. **Manufacturer rebates are growing.** Rebates represent an increasing proportion of drug spending (see sidebar on page 8). This is important because rebates and retail prices tend to increase together, but not necessarily at the same rates. The MMI reports costs before the impact of manufacturer rebates. Quantifying the impact of rebates is challenging, because of confidentiality agreements between manufacturers and pharmacy benefit managers (PBMs). However, it is common industry knowledge that the impact of rebates is growing, which increases the gap between gross pharmacy trends (i.e., before rebates, as reported in the MMI) and net realized pharmacy trends (i.e., after rebates).

Figure 6 illustrates rebates as a percentage of gross prescription drug spend for commercial health plans. While the increase in rebates helps reduce post-rebate prescription drug cost trends to levels approaching medical trends, some stakeholders point out that these rebates trade hands *after* the point of sale and often do not make their way back into the pocket of the patients whose expenditures produced the rebates. Rebates paid after the point of sale effectively operate like reverse insurance, requiring some of the highest-cost patients to pay more out-of-pocket and then spreading the savings among all health plan members in the form of lower premium rates. Given these complicated issues, PBMs are responding by coming out with programs that embed manufacturer rebates in point-of-sale pricing at the pharmacy to directly benefit consumers who spend the most on prescription drugs.⁷

FIGURE 6: REBATES RECEIVED AS % PRESCRIPTION DRUG CLAIMS



Source: Statutory financial statement "Supplemental Health Care Exhibit" data reported by insurers for their large and small group business.

2. **Reduction in hepatitis C curative drug use, but specialty pipeline is still robust.** A few years ago prescription drug trends increased dramatically as a wave of brand drug patent expirations abated and the specialty drug pipeline exploded.⁸ Of particular note were blockbuster curative medications for the treatment of hepatitis C. By now, many patients who were most in need of this treatment have received it, are cured, and no longer require this course of treatment. The hepatitis C curative medications, with list prices approaching \$100,000 over the course of treatment, both drove the large increases in gross pharmacy trends several years ago and are mitigating the trends now as their usage declines.⁹ However, there are still plenty of other

⁷ <https://cvshealth.com/about/our-offerings/cvs-caremark/reining-in-prescription-drug-prices-the-experts-weigh-in>

⁸ Milliman (May 2015). 2015 Milliman Medical Index. Retrieved May 2, 2017, from <http://www.milliman.com/uploadedFiles/insight/Periodicals/mmi/2015-MMI.pdf>.

⁹ Morris, S.Y. (February 22, 2016). Hepatitis C treatment costs: What you should know. Healthline. Retrieved May 2, 2017, from <http://www.healthline.com/health/hepatitis-c-treatment-cost>.

specialty drugs in the pipeline. Specifically, significant cost increases are expected for therapy classes like inflammatory conditions, diabetes, oncology, and HIV.¹⁰

3. **Heightened public scrutiny.** The spotlight on prescription drug costs is no secret. From policy makers to President Trump himself, there is a push to decrease the cost of drugs or at least slow the growth rate. And the drug industry has taken notice. Numerous drug manufacturer CEOs have taken the “price hike pledge” to hold price increases below 10%.¹¹ Note, though, that 10% is a far cry from the recent levels of medical inflation, which have been much lower. In addition, the pledge does not necessarily address 2017 rebate changes which could offset some or all of the impact the pledge has on manufacturer revenue. Still, reducing retail price increases is another way to help limit the consumer’s out-of-pocket spend at the pharmacy.
4. **Reduced profit margins.** Another factor driving trends lower are retailer strategies to shift margins to other profit centers. For example, some pharmacies are reducing the prices of certain drugs so they can participate in preferred pharmacy networks, in hopes of driving in-store sales of non-pharmacy products. This is another dynamic that may help moderate the increase in drug costs for the consumer at the point of sale.¹²

Pharmacy rebates: Another ingredient in drug costs

When we discuss prescription drug “costs,” we are talking about costs incurred at the point of sale. However, pharmacy costs (in particular, for brand medications) are often reduced by manufacturer rebates. After a prescription is filled, the drug manufacturer may give a significant rebate to the PBM or health plan. The rebate amount typically varies by drug and by purchasing volume. To encourage use of specific drugs, manufacturers may give very high rebates, as much as 60% for a given drug.¹³ Patients, unfortunately, do not usually benefit from these rebates at the point of sale. For example, a person may pay \$250 for a prescription while the net cost of the drug is only \$100, once \$150 in rebates are received. While the employer may receive some of the \$150 rebate, the person purchasing the drug only benefits indirectly. Rebates can reduce healthcare premiums, if they make their way back to the insurance company (or self-funded employer), and are deployed to reduce premiums.

Employees’ share of healthcare costs

The total cost of healthcare for the MMI family of four is shared by employers and employees. To clearly define each payment source, we use three main categories:

1. **Employer subsidy.** Employers that sponsor health plans subsidize the cost of healthcare for their employees by allocating compensation dollars to pay a large share of the cost. The portion paid by the employer typically varies according to the benefit plan option the employee selects.
2. **Employee contribution.** Employees who choose to participate in the employer’s health benefit plan typically also pay a substantial portion of costs, usually through payroll deduction.

10 Express Scripts (2016). Drug Trend Report 2016. Retrieved May 2, 2017, from <http://lab.express-scripts.com/lab/drug-trend-report>.

11 Mukherjee, S. (February 27, 2017). Johnson & Johnson is dialing down crazy drug price hikes. Fortune. Retrieved May 2, 2017, from <http://fortune.com/2017/02/27/pharma-drug-price-hikes/>.

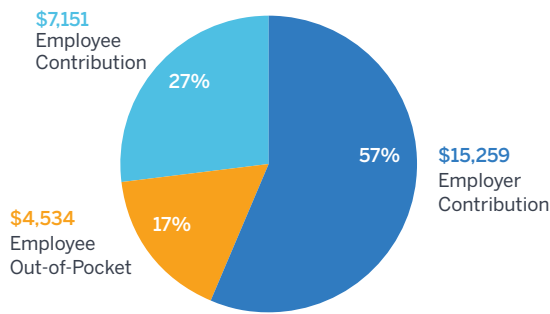
12 Lekraj, V. (April 19, 2017). Aggressive pricing pinches Walgreens margins. Morningstar. Retrieved May 2, 2017, from <http://news.morningstar.com/articlenet/article.aspx?id=803296>.

13 Herper, M. (May 10, 2012). Inside the secret world of drug company rebates. Forbes. Retrieved May 2, 2017, from <https://www.forbes.com/sites/matthewherper/2012/05/10/why-astrazeneca-gives-insurers-60-discounts-on-nexiums-list-price/2/#7cfb24693f3a>.

3. **Employee out-of-pocket cost at time of service.** When employees receive care they also often pay for a portion of these services via health plan deductibles and/or point-of-service copays. While these payments are capped by out-of-pocket maximums, as legislated by the ACA,¹⁴ the costs can still be substantial.

Figure 7 shows the relative proportions of the three categories we track annually. Employers continue to subsidize their employees’ healthcare costs by paying an average of 57% of the total cost in 2017. Of the \$26,944 total cost for a typical family of four, the employer pays about \$15,259 while the employee pays the remaining \$11,685, which is a combination of \$7,151 in employee payroll deductions and \$4,534 in out-of-pocket costs paid when utilizing healthcare services.

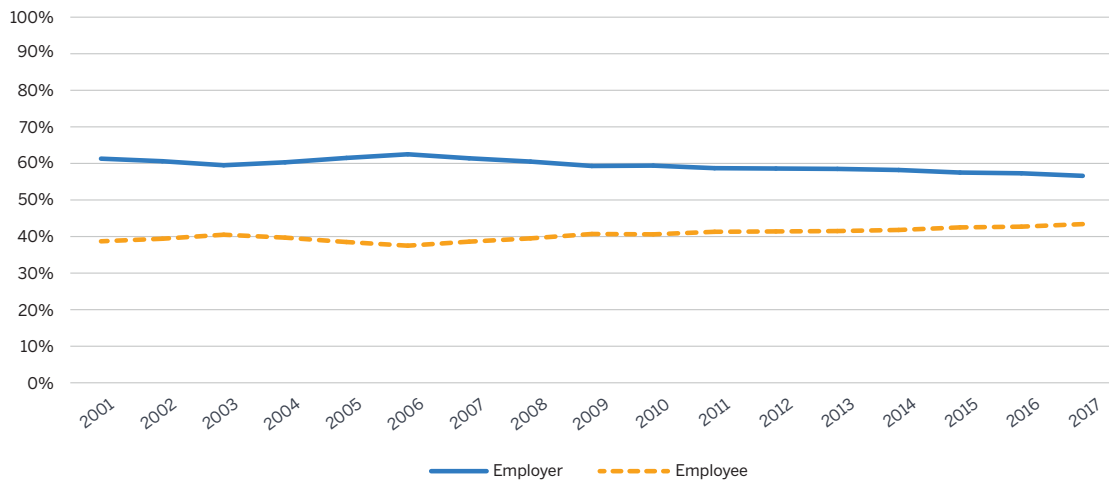
FIGURE 7: RELATIVE PROPORTIONS OF 2017 MEDICAL COSTS



Percentages do not add to 100% due to rounding.

The employee’s share of costs has grown gradually over time. In 2001, the first year the MMI was measured, employers were picking up just over 61% of the tab. Now, in 2017, employers are paying about 57% and employees are paying the other 43%. As shown in Figure 8, the gap between employer and employee shares is slowly narrowing. Healthcare expenses have grown at rates that make it increasingly difficult for employers to continue funding the benefits. Employer responses, such as movements to defined contribution funding approaches, have transferred more of the expenditure growth risk to employees.

FIGURE 8: EMPLOYER VS EMPLOYEE SHARE OF COSTS



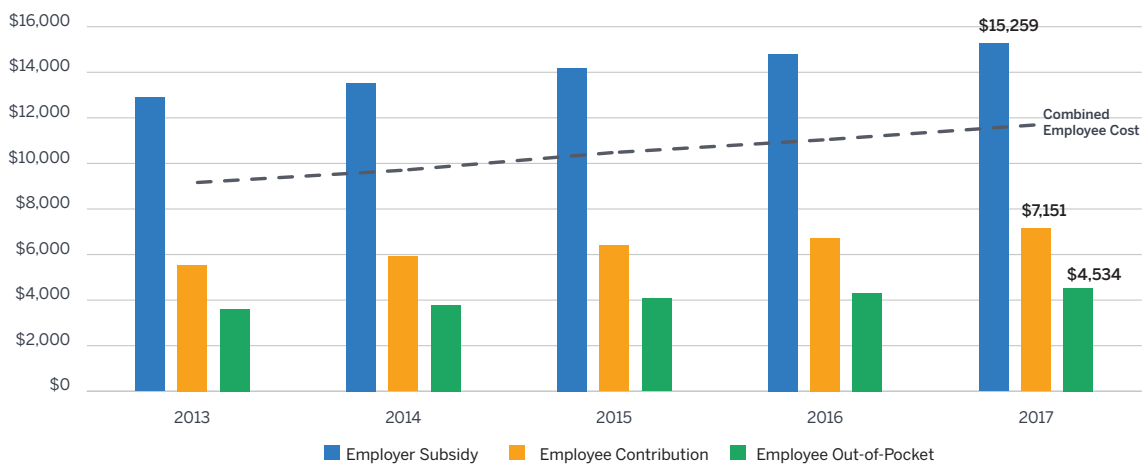
14 Out-of-pocket maximums for 2017 must not exceed \$7,150 per person and \$14,300 per family.

Figures 9 and 10 provide additional information on how cost sharing has evolved over time. Employers adjust benefits each year in line with their healthcare budget constraints. In 2017, employers assumed \$466 of the total increase in the cost of care for the family of four. The total employer subsidy increased by 3.2% from 2016 to 2017. Employees saw a greater increase, at 5.9%, or \$652 (\$434 from increased payroll deductions and \$218 from higher out-of-pocket expenses). In other words, while both employer and employee costs increased, the employee had a larger percentage increase.

FIGURE 9: ANNUAL INCREASE IN SPENDING SPLIT BY EMPLOYER AND EMPLOYEE PORTIONS

	2013/12	2014/13	2015/14	2016/15	2017/16
EMPLOYER SUBSIDY	6.1%	4.9%	5.0%	4.2%	3.2%
EMPLOYEE PORTION					
EMPLOYEE CONTRIBUTION	8.4%	6.6%	8.5%	4.8%	6.5%
EMPLOYEE OUT-OF-POCKET	3.7%	5.2%	7.3%	6.2%	5.1%
EMPLOYEE TOTAL	6.5%	6.0%	8.0%	5.3%	5.9%
TOTAL FOR EMPLOYER + EMPLOYEE	6.3%	5.4%	6.3%	4.7%	4.3%

FIGURE 10: MEDICAL COST BY SOURCE OF PAYMENT



Technical appendix

The Milliman Medical Index (MMI) is made possible through Milliman’s ongoing research on 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 MidMarket 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. The MMI 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 programs¹⁵
- Utilization levels representative of the average for people covered by large employer group health benefit plans in the United States

The ACA introduced the concept of “metallic tiers” for benefit plans starting in 2014. Individual and small group policies must have a metallic tier level of “bronze” or higher (silver, gold, and platinum). Bronze implies that, on average, the plan will pay 60% of the costs for the essential health benefits (EHBs) that must be provided by the benefit plan. To help avoid penalties, larger employers must provide plans that, on average, pay at least 60% of the cost of covered services, a threshold deemed “minimum value.” The MMI plan has an actuarial value of approximately 83.2% in 2017.

VARIATION IN COSTS

While the MMI measures costs for a typical family of four, any particular family or individual could have significantly different costs. Variables that affect costs include:

- **Age and gender.** There is wide variation in costs by age, with older people generally having higher average costs than younger people. Variation also exists by gender. Our MMI-illustrated family of four consists of a male age 47, a female age 37, a child age 4, and a child under age 1. This mix allows for demonstration of the range of services typically utilized by adult men, adult women, and children. Average utilization and costs of specific services will be different for other demographic groups.
- **Individual health status.** Tremendous variation also results from health status differences. People with severe or chronic conditions are likely to have much higher average healthcare costs than people without these conditions.
- **Geographic area.** Significant variation exists among healthcare costs by geographic area because of differences in healthcare provider practice patterns and average costs for the same services. For example, the relative cost of living affects healthcare costs, as labor costs (e.g., nurses and technicians) tend to be higher in areas where the cost of living is higher. Access to advanced technology also affects the utilization of services by geographic area.
- **Provider variation.** The cost of healthcare depends on the specific providers used. Even in the same city, costs for the same service can vary dramatically from one provider to another. The cost variation results from differences in billed charge levels, discounted payment rates that payers have negotiated, and implementation of payment methodologies that may influence utilization rates, such as capitation or case rates.
- **Insurance coverage.** The presence of insurance coverage and the amount of required out-of-pocket cost sharing also affects healthcare spending. With all other variables being equal, richer benefit plans usually have higher utilization rates and costs than leaner plans.

15 For example, for 2017, average benefits are assumed to have an in-network deductible of \$918, various copays (e.g., \$152 for emergency room visits, \$34 for physician office visits), and coinsurance of 19% for other medical services. Prescription drugs are assumed to have an \$11 copay for generics, and coinsurance of 25%/40%/30% on preferred brand, non-preferred brand, and specialty drugs, respectively.



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