2016 Milliman Medical Index

Healthcare costs for the typical American family will exceed $25,000 in 2016. Who cooked up this expensive recipe?

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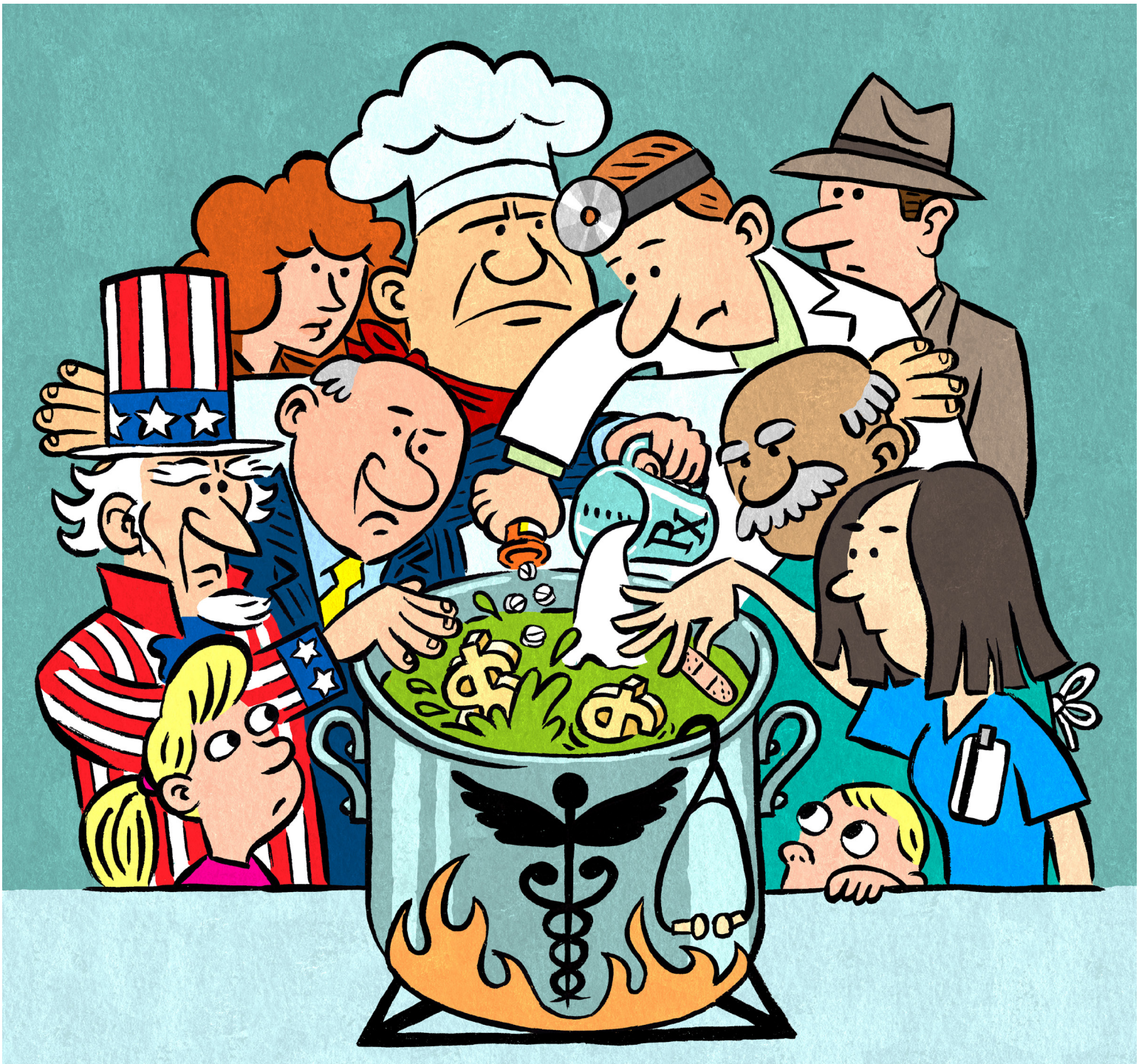

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EXECUTIVE SUMMARY

In 2016, the cost of healthcare for a typical American family of four covered by an average employer-sponsored preferred provider organization (PPO) plan is $25,826 (see Figure 1), according to the Milliman Medical Index (MMI).[1]

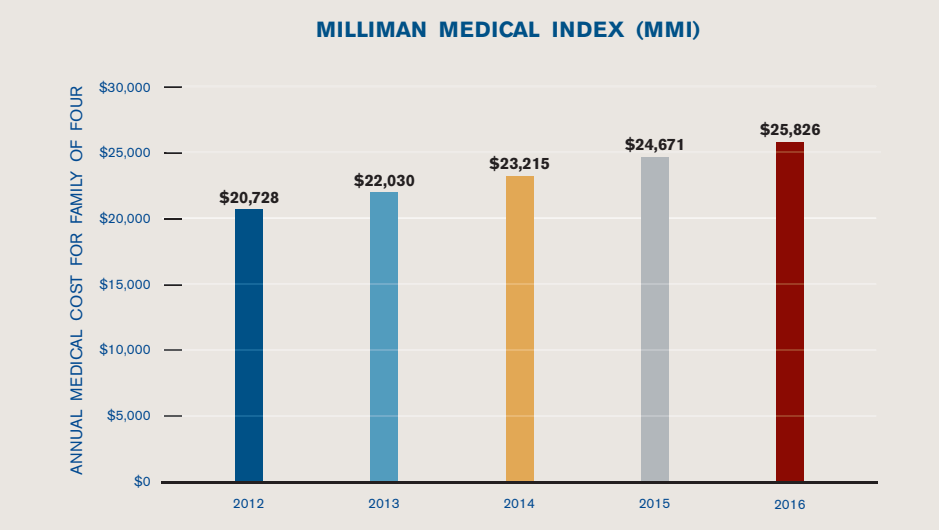
Key findings of the 2016 MMI include:

1. **Our lowest annual increase in 15 years still pushes the MMI over $25,000.** The cost of care for the typical American family of four has more than tripled since its value of $8,414 in 2001. And the current level of $25,826 is just an average. Healthcare spending for any given family can range from $0 into the millions of dollars.
2. **The percentage increase in the MMI is at its lowest rate ever.** However, even at 4.7%, which is the lowest annual increase since we first measured the MMI in 2001, the rate of increase is still well above growth in the consumer price index (CPI) for medical services,[2] and far surpasses the average 2% annual increase in median household income between 2004 and 2014.[3] More than ever before, health insurance is a critical component of a family's financial security, and yet it continues to become less and less affordable.
3. **Employee expenses increase at rates higher than total healthcare spending.** At $11,033, the employee's total cost increased by 5.3% from 2015, while the employer's cost increased 4.2%. In fact, only once in the past 10 years have employee costs increased at a lower rate than employer costs. Back in 2001, the first year we measured the MMI, employers paid 61% of costs while employees paid 39%. In 2016, the same split is 57% and 43%. Employees are shouldering more of the healthcare cost burden than they were 15 years ago.
4. **Prescription drugs, the most rapidly growing MMI component, are nearly 17% of total healthcare spend**. In 2016, the MMI family's prescription drug costs will reach $4,270. That's almost four times as much as the $1,111 in prescription drug expenditures the family had in 2001. Prescription drug expenses grew at 9.1% from 2015 to 2016, a lower rate than last year's 13.6% increase.

Specialty drugs now constitute approximately 35% of total prescription drug costs, and nearly 6% of total healthcare spend.[4] Fifteen years ago, specialty drug costs were a small sliver of the healthcare cost pie. Although increases in total drug costs may spike or moderate in the short-term as new drugs are introduced or as patents expire, long-term expectations are that these very expensive drugs will continue to be a growing proportion of total healthcare costs.

The good news is that, over the past 15 years, annual rates of cost increase have declined dramatically, from 10% per year to less than 5% (see Figure 2). We seem to be making progress in wrestling the curve down to sustainable levels. In this report, we explore how healthcare costs have reached their high levels, and what efforts hold hope for continuing the downward trend in growth rates.

FIGURE 1



1 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 profit loads.

2 Over the 10-year period ending March 2016, CPI-medical has increased by approximately 3.2% per year, while the MMI has increased by 6.8% per year.

3 U.S. Census Bureau. Income Data: Historical Tables by Household. Retrieved May 12, 2016, from http://www.census.gov/hhes/www/income/data/historical/household/.

4 These specialty drug costs are before any savings generated by manufacturer rebates. After a prescription is filled, the drug manufacturer may give a significant rebate to the pharmacy benefit manager or health plan. Patients, unfortunately, do not benefit from these rebates at point of sale, although depending on the contractual arrangements in place, rebates may reduce healthcare premiums indirectly, if they make their way all the way back to the insurance company (or self-funded employer) and are deployed to reduce premiums.

MORE THAN $25,000?! HOW DID WE GET HERE?

Healthcare cost trends have exceeded medical CPI[5] in every year since Milliman published its first MMI in 2001, and healthcare has represented an increasing share of the national GDP. With an average of 7.8% in annual increases, the MMI has more than tripled in 15 years.

The ongoing increases are driven by a myriad of factors, including the disconnect between healthcare consumption and financing, which we will explore in more detail. In addition, healthcare costs are continually driven upward by the fee-for-service payment mechanisms, by inefficiencies in the delivery systems, and by our efforts to improve longevity and quality of life through new technologies.

Sheltered from the full cost of care

Many people wonder how the costs can be so high, especially if they only visit the doctor for preventive visits and occasional routine care. The disconnect may be partly due to the "Pareto principle"[6] at work in healthcare costs; there is a rule of thumb, that's borne out by cost analyses, that approximately 80% of healthcare costs will come from 20% of the population. For those individuals that fall in the lucky 80% of the population that isn't driving the totals, it may be difficult to comprehend the average costs across a larger group. In addition, consumers are largely insulated from the full cost of their care, due to employer premium subsidies and limitations on employee out-of-pocket costs at the time of service (see the sidebar, "Employees' Share of Healthcare Costs"). In an illustrative company having just four employees, each with family coverage, the cost distribution may look like the one in Figure 3.

FIGURE 2

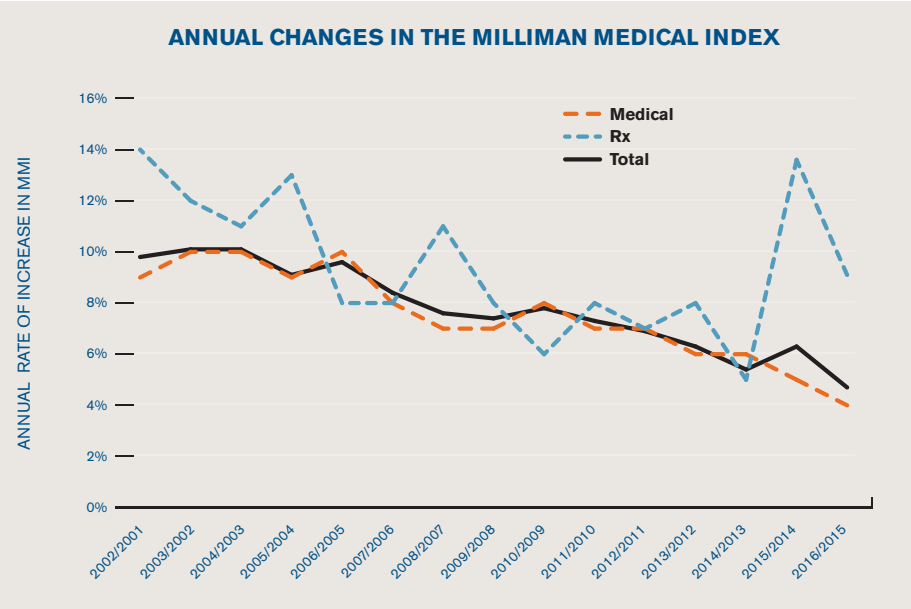


FIGURE 3

ILLUSTRATIVE COST DISTRIBUTION BY FAMILY

	CONTRIBUTION RATES			HEALTHCARE EXPENDITURES		
FAMILY	EMPLOYER SUBSIDY	EMPLOYEE PAYROLL DEDUCTION	TOTAL	PAID BY THE HEALTH PLAN	EMPLOYEE OUT OF POCKET COST AT TIME OF SERVICE	TOTAL
FAMILY 1	$14,793	$6,717	$21,510	$700	$300	$1,000
FAMILY 2	$14,793	$6,717	$21,510	$5,036	$964	$6,000
FAMILY 3	$14,793	$6,717	$21,510	$17,000	$5,000	$22,000
FAMILY 4	$14,793	$6,717	$21,510	$63,304	$11,000	$74,304
AVERAGE	**$14,793**	**$6,717**	**$21,510**	**$21,510**	**$4,316**	**$25,826**

In the example in Figure 3, our employer pays the same amount for each family, regardless of the family's healthcare costs. Each employee also pays the same for his or her family in the form of payroll deduction. The averages paid by the employer and employee for all families are consistent with the components of the MMI shown in Figure 4; however, each family has very different healthcare expenditures.

- Family 1 uses limited health services–some preventive visits for which they pay nothing out-of-pocket and copays for prescription drugs and office visits.
- The second family is fairly healthy as well, with similar services, but their oldest child had a single visit to the emergency room (ER) and follow-up visits that cost $6,000, of which the family paid $964 out-of-pocket.
- Family 3 welcomed a new baby. Maternity care, a hospital stay, and newborn visits cost $22,000, of which the family's out-of-pocket cost was $5,000.
- Last is Family 4: The father has a chronic condition that put him in the hospital once, along with multiple visits to the ER and physicians, and multiple prescriptions. The mother also has health issues and the resultant ongoing costs, including specialty drugs. The children have only routine healthcare services. The family's costs were capped by an out-of-pocket limit of $11,000, but total expenditures were nearly $75,000.

5 Comparing the MMI to CPI-medical is interesting, and many of our readers like to make that comparison. However, they are different measures. CPI measures price changes for a fixed basket of medical services, whereas the MMI measures both price changes and cost increases that result from changes in the numbers and types of services provided.

6 The "Pareto principle" says in general that 80% of output comes from 20% of the inputs. It was first observed with respect to the distribution of wealth, but the relationship has been said to be applicable in many situations, such as in management, sales, and nature.

On average, the total cost of care for all four of the example families is $25,826, which equals the 2016 MMI. And yet the variation among family costs is striking, with the most costly being 74 times the least costly. The range of amounts paid by the family through contributions to care and out-of-pocket costs is significantly tighter, with Family 1 paying about $7,000 and Family 4 paying about 2½ times that, at nearly $18,000. This lower difference in total costs among the four families is driven by the employee's payroll deduction being based on the average cost of care for a family of four, along with plan design features that limit the family's out-of-pocket payments.

While the above is only an illustration, it demonstrates the range of healthcare costs that different families may experience, and how those costs may be spread across the employer's population. It also shows that employee financial incentives to consume healthcare efficiently are limited, which contributes to the rising costs. First, the majority of the healthcare cost is often paid by the employer rather than the employee. Second, first-dollar coverage and fixed-dollar copays insulate patients from the true cost of their care. For example, although patients might pay $150 to visit the ER, which could seem like a lot of money, they are often unaware that the ER's total charges could be several thousand dollars. And last, those with more extensive health issues may hit their out-of-pocket maximums and have limited incentives to avoid additional costs.

The family of four – sheltered but not immune

While the employer pays the majority of costs, and spreading the costs across high and low utilizers helps to limit the maximum paid by a family, the average family cost is still a significant amount. Between the payroll deduction and the amount paid out-of-pocket, just over $11,000 of a family's income is spent on healthcare. This compares to the estimated median family income for a 4-person household in 2016 of about $87,000.

Even for a family of four earning $100,000, which is more than 400% of the federal poverty level in 2016, the average amount they pay for healthcare services through payroll deduction and out-of-pocket spending at point of care is over 11% of their household gross income under the MMI. The situation has only gotten worse over the years, as wage growth has stagnated. Ongoing initiatives to slow the increases are critical.

WHAT CAN BE DONE TO SLOW HEALTHCARE INFLATION?

Many initiatives have been put forth to limit the rise of healthcare costs. Here we discuss some of those initiatives while using key figures from the 2016 MMI as a backdrop to help better understand how each one fits into the complicated puzzle of managing healthcare costs while delivering high-quality care for the MMI's family of four.

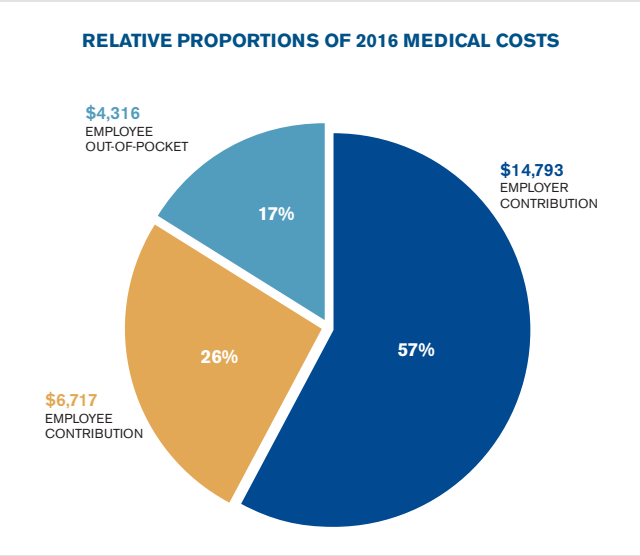
Employee's share of healthcare costs

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

- 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.
- 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 deductions.
- 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 copays. While these payments are capped by out-of-pocket maximums as legislated by the Patient Protection and Affordable Care Act (ACA),[7] these costs are still material to the employee.

As shown in Figure 4, of the typical family of four's $25,826 in total spending, the majority of costs are borne by the employer. In 2016, the employer pays 57% of costs, or $14,793, while the employee pays the other 43%: $6,717 in employee contributions through payroll deduction and $4,316 in the form of out-of-pocket expenses incurred at time of service.

FIGURE 4



7 Out-of-pocket maximums for 2016 must not exceed $6,850 per person and $13,700 per family.

Consumerism

With the family of four spending over $11,000 between its payroll deduction for health insurance and average out-of-pocket expenses at the point of care, it is easy to see why consumers are hungry for actionable information to inform healthcare purchasing decisions. However, it is not as simple as supplying a price list of medical services, given the variations in payment and treatment patterns. In addition, as pointed out earlier, the people who consume most healthcare dollars reach their out-of-pocket maximums and thus have little financial incentive to be savvy consumers. As a result, some other concepts are gaining traction to address these issues.

Value-based insurance (VBI)

What is it? This is a term that means different things to different people. In health insurance, it usually refers to benefit plan designs that encourage behavior which keeps patients healthy. VBI includes things like reducing deductibles or copays for patients who follow a defined plan of care or have a certain disease. Sometimes VBI simply revolves around granting lower employee contribution rates for those who join an employer's wellness plan.

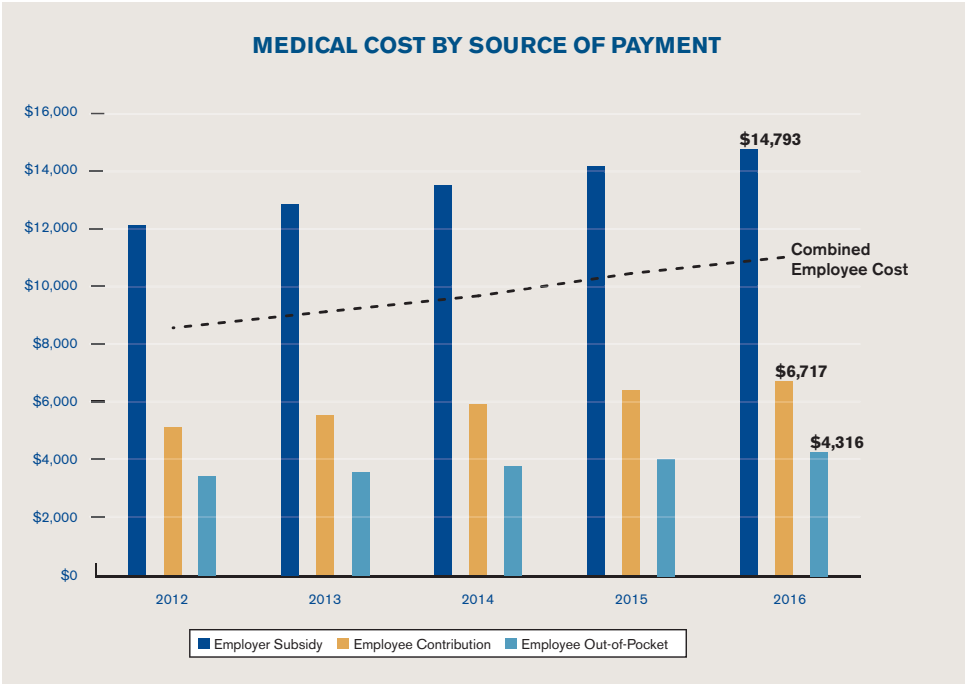
Opportunities and challenges. Some VBI initiatives are focused on that small portion of the population driving the majority of the cost. Incentives are often put in place to encourage changes in consumer behavior, such as $0 copays for prescriptions that treat a chronic condition. In turn, the expectation is that an investment like this will result in better management of conditions, fewer inpatient admissions or ER visits, lower costs, and better health outcomes. However, these programs must be carefully designed to avoid simply increasing costs. The hope is that proactively taking these actions will curb long-term trends by improving treatment and limiting the onset of preventable conditions.

FIGURE 5

ANNUAL INCREASE IN SPENDING SPLIT BY EMPLOYER AND EMPLOYEE PORTIONS

	2012/11	2013/12	2014/13	2015/14	2016/15
EMPLOYER SUBSIDY	6.7%	6.1%	4.9%	5.0%	4.2%
EMPLOYEE PORTION					
EMPLOYEE CONTRIBUTION	8.2%	8.4%	6.6%	8.5%	4.8%
EMPLOYEE OUT-OF-POCKET	5.8%	3.7%	5.2%	7.3%	6.2%
EMPLOYEE TOTAL	7.2%	6.5%	6.0%	8.0%	5.3%
TOTAL FOR EMPLOYER + EMPLOYEE	6.9%	6.3%	5.4%	6.3%	4.7%

FIGURE 6



Defined contribution

What is it? Employers typically subsidize the cost of coverage. As Figure 4 on page 3 showed, employers are subsidizing approximately 57% of the MMI for the family of four. While the MMI focuses on typical PPO coverage, many employers offer other plans such as high-deductible health plans (HDHPs) or sometimes HMOs. Offering multiple benefit plan choices creates financial risks for employers, varying with how much they subsidize each plan and the number of employees that enroll in each plan. To mitigate this risk, many employers are defining their subsidies via a defined contribution to the plan. Then employees simply pay the difference between the premium of their chosen plans and the employer's defined contribution.

Why increases in the MMI and ACA market premium rates differ

In recent years, large premium rate increases in the ACA exchange market—especially those in double digits—have occupied media and popular attention. Increases in the MMI have not reached double digits in recent years. Which raises the question: How do the reported increases in premium rates differ from the trend in the MMI?

There are a number of things to consider when comparing ACA rate increases to the annual MMI change:

- The MMI is based on estimated costs in the employer market, whereas the ACA rate changes most commonly reported in the news are based on exchanges serving the individual health insurance market. The employer market is more stable and people are insured more continuously than in the individual market. The ability to move in and out of the individual market, the fairly limited penalty for lack of coverage compared with premium rates, and long grace periods contribute to adverse selection and less stability in the individual market.
- Many ACA plans were initially priced aggressively, and carriers are playing catch-up, which means their premium rate increases will be higher than they would be in an established market. While some carriers may have been comfortable pricing aggressively initially, the lack of meaningful risk corridor protection and emerging losses in the market have driven more conservatism.[8]
- The MMI does not measure premiums.[9] Some of the increase in ACA premiums is due to changes in taxes and fees (or the expiration of provisions such as the federal reinsurance program) that would not be reflected in the MMI.

Defined contribution defined

Defined contribution is a funding method often used by employers that sponsor multiple health insurance options for their employees. To illustrate, assume an employer currently only offers the MMI's PPO coverage but also wants to introduce two less expensive options. The three options have varying premiums though the employer wants to subsidize the same amount of money for each family regardless of the plan chosen. To do so, the employer sets a defined contribution amount equal to the current subsidy for the MMI PPO plan as shown in Figure 7.

This funding approach can help protect the employer from material adverse selection because employees must pay for the full difference in cost of coverage. It also allows the employer to increase the defined contribution each year by whatever amount fits within its budget rather than being at the mercy of healthcare trends, which they cannot control as easily. The downside for employees is that any cost increases that the employer's contribution does not cover are then passed on to them via payroll deductions. Of course, if employees find their current plan option to be too expensive, then they can choose different plan options offered by the employer.

FIGURE 7

DEFINED CONTRIBUTION OPTIONS

	MMI PPO	Option #2	Option #3
PREMIUM*	$21,510	$18,503	$15,496
EMPLOYER "DEFINED CONTRIBUTION"	$14,793	$14,793	$14,793
EMPLOYEE CONTRIBUTION	$6,717	$3,710	$703

**The dollar amounts shown here are only the healthcare cost components of premium and do not include employee out-of-pocket costs at time of service or administrative expenses/health plan profit.*

Opportunities and challenges. Offering multiple health plan options can encourage employees to enroll in plans which incentivize appropriate consumption of healthcare services. However, these plan options can be less attractive to many employees. In addition, employers know all too well that offering more choices brings with it more costs from administrative complexities and adverse selection as employees choose the plans that minimize their own costs (while increasing the employer's costs). These challenges are getting more attention in the market as employers begin to question the value proposition of private exchanges,[10] which often use defined contribution approaches. Until such challenges are addressed, it is difficult to say whether the movement to defined contribution will meaningfully reduce costs or simply continue cost shifting to employees. Although Figure 5 only shows five years of changes, 2016 actually marks the sixth consecutive year of such cost shifting whereby employees' share of the MMI has increased.

8 For a deeper discussion of components that may drive 2017 rate increases, see http://us.milliman.com/insight/2015/Ten-potential-drivers-of-ACA-premium-rates-in-2017/.

9 The MMI measures healthcare expenditures. Premiums include those same healthcare expenditures, minus out-of-pocket expenses incurred at point of care, plus retention amounts to cover a health plan's administrative expenses, and profit if the health plan is insured rather than self-funded.

10 Gaal, M. (March 18, 2016). The Elusive Nature of Private Exchanges. Bloomberg BNA. Retrieved May 12, 2016, from http://us.milliman.com/insight/2016/The-elusive-nature-of-private-exchanges/.

Integrating the delivery of healthcare

Figure 8 illustrates how healthcare spend is split among providers and pharmacies for the typical family of four. A challenge today is that each piece of this healthcare pie is often disjointed, with suboptimal provider coordination among the slices to reduce waste and cost.

Several initiatives could lead to better integration of healthcare delivery:

Narrow networks

What is it? There has been a recent push toward "narrow" provider networks, which typically include a limited number of hospitals and doctors in-network. In exchange for less choice among providers, premiums are often lower, due to the potential to deliver care more efficiently among a more tightly knit group of providers. In addition, price concessions are often made by participating providers who hope to gain more patient volume.

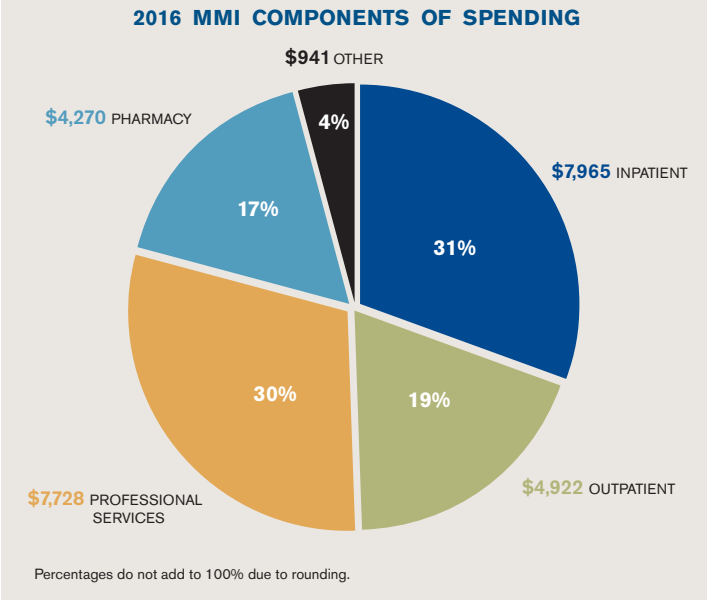
Opportunities and challenges. There is an opportunity for narrow networks to expand their footprint with consumers who are willing to trade a greater choice of medical providers for a lower cost of care. These plans may be most attractive to healthier people who do not have established physician relationships or near-term expectations of needing care. Individual insurance exchange issuers have enrolled many members in narrow network plans, largely due to their price positions. A challenge for these plans is whether they can deliver high-quality care to those patients who require care from a wide swath of specialists, some of whom may not be in a given narrow network. It also remains to be seen whether providers in these networks are willing to continue accepting lower payments over the long haul once patient volume gains slow down, as well as whether they will achieve lower costs by reducing unnecessary care.

Provider payment reform

What is it? Most healthcare providers receive a majority of their revenue on a fee-for-service basis, which means that each additional lab test, office visit, or surgery results in more costs to consumers and employers, and often more income to the providers. The question many stakeholders ask is whether all of these services are necessary. Numerous initiatives put forth by the federal government and the health insurance industry are testing new ways to deliver care and pay for value rather than volume.[11]

Opportunities and challenges. The opportunity of payment reform is extensive and takes on a variety of forms, many of which are being tested by Medicare, ranging from delivery models like accountable care organizations (ACOs) and patient-centered medical homes (PCMHs) to strict payment changes like bundled payments for episodes of care, or global and partial provider capitation. And therein lies a critical challenge. With so many experiments happening in the market today, it may be a while before conclusions are drawn, efforts are refocused on optimal approaches, and healthcare savings become widespread. In addition, many of these programs are very focused on altering financial incentives to influence the delivery of care. This is no easy task and one that operationally requires scale across a good portion of a healthcare system's patient base before it begins to bear fruit. However, if such changes are pushed through on a grand scale via the Medicare program, then history has shown that the changes will likely migrate to the commercial market where the typical family of four can benefit as well.

FIGURE 8



The role of technology

Critics are quick to point out that many changes taking place in the market today are similar to managed care concepts that gained popularity (and then lost it, in many instances) a few decades ago. However, technology has advanced dramatically since that time and some believe it holds the key to improving those old concepts. Here we explore some of the changes taking shape as a result of technological advances which may contribute to a continued decline in the MMI's annual increase.

Telemedicine

What is it? Telemedicine is a mode of healthcare delivery that allows patients to remotely connect with a clinician for diagnosis and treatment.[12] Insurance coverage of telemedicine varies and may be restricted to minor urgent care services, such as sinus infections, urinary tract infections, and diarrhea. It is also used to expand access to certain specialty services not readily available in some geographic areas, such as pediatric psychiatry. And telemedicine is used to provide post-discharge follow-up care and ongoing care management for individuals with asthma, diabetes, and other chronic conditions. Whether via phone, computer, or mobile device, this new form of healthcare delivery is beginning to take hold.

11 Commonwealth Fund (May 7, 2015). The Affordable Care Act's Payment and Delivery System Reforms: A Progress Report at Five Years. Retrieved May 12, 2016, from http://www.commonwealthfund.org/publications/issue-briefs/2015/may/aca-payment-and-delivery-system-reforms-at-5-years.

12 Philip, et al. (May 3, 2016). Telemedicine and the Long-Tail Problem in Healthcare. Milliman White Paper. Retrieved May 12, 2016, from http://www.milliman.com/insight/2016/Telemedicine-and-the-long-tail-problem-in-healthcare/.

Opportunities and challenges. Proponents of telemedicine point to the increased access to care it provides to patients not able to travel to a doctor's office, along with more efficient use of a doctor's and patient's time. Telemedicine can also improve care management for patients with chronic disease, decrease absenteeism, and reduce use of expensive ER or urgent care visits, all while improving patient satisfaction and compliance. Critics point out that this mode of care delivery can increase costs as patients simply point and click their way to a physician's office, and therefore programs should be designed carefully with respect to mode of payment for services provided and perhaps certain limits and protocols. Now that a large portion of the population has access to the required technology to leverage this new mode of care, it is reasonable to expect continued adoption of telemedicine. Whether it can bend the healthcare cost curve depends on how well integrated such services become with the rest of the healthcare system, and at what price.

Electronic health records (EHRs)

What is it? EHRs are a real-time digital version of a patient's paper chart, which can be shared among providers so that each has a current and holistic view of the patient's clinical history.

Opportunities and challenges. The opportunity to improve care delivery with EHRs is seemingly endless. Much is being done to incentivize healthcare providers to install such systems today[13] so it is not inconceivable that EHRs could become a broad force in improving care delivery. Challenges are still many, though, including interoperability and data exchange among providers, physician adoption, and lack of configurability to suit physician workflow.[14] And in today's HIPAA-regulated (and wired) world, privacy is always a concern. While much progress continues, true EHRs that provide the complete spectrum of a patient's medical history across all providers are still in the distant future for many patients. Whether that future state has a meaningful impact on trend remains to be seen.

Big data

What is it? "Big data" is a relatively new and quickly evolving area of study. In healthcare it often refers to the rapid collection of complex, large data sets from a variety of sources, which are synthesized to do such things as identify a patient's current health status or possibly predict future health-related events. Big data includes information gathered from wearable devices, social networks, consumer data, monitoring devices such as electronic scales, GPS information, EHRs, and a myriad of other sources. At its core, big data is about using data analytics to pinpoint therapies that might work best–and for whom.

Opportunities and challenges. The potential to harness the unthinkable amount of information available in today's world to improve the healthcare system is compelling. Use of big data could reduce treatment mistakes or change behavior, such as better diet and exercise. Researchers could also benefit from linking this vast amount of information to clinical data from EHRs, along with administrative and cost data from payers. New information can help them assess cost drivers, quality, and efficiency in a way some might have never imagined–maybe even determine the ways to cure diseases or, better yet, prevent them altogether. Enthusiasts of tomorrow's "personalized medicine" say this data can point to the bio-cure for Britney's cancer or the pill that will prevent Jared's diabetes. Both the "do it better" and the "new cures" schools share a passion for big data and its menagerie of techniques like machine learning, decision forests, genetic algorithms, and regression analysis. The new talent in public health and research labs are "data scientists;" they work in big data and they do not wear lab coats. However, this is not something most in the healthcare world have top of mind right now. So again, the impact on the MMI is probably a ways off.

COMPONENTS OF COST

Every year we also examine the cost of healthcare under five separate categories of services:

- Inpatient facility care
- Outpatient facility care
- Professional services
- Pharmacy
- Other services

As was shown in Figure 8, for the MMI family of four, total facility care comprised 50% of total spending, with 31% being inpatient and 19% being outpatient. Another 30% of spending is for professional services, which includes services provided by doctors, physician assistants, nurse practitioners, chiropractors, hearing and speech therapists, physical therapists, and other clinicians. Pharmacy constitutes 17% of the healthcare spending pie, and the remaining 4%, is for "Other" services, which includes miscellaneous other items and services such as durable medical equipment, prosthetics, medical supplies, ambulance, and home health. Figure 9 shows how the dollar amounts of these components have been changing over time.

At $7,965 in 2016, inpatient facility costs grew by 4.2% (see Figure 10), the lowest annual increase in the past 15 years. Inpatient facility utilization changes continue to be very close to zero. Utilization is typically measured in terms of the number of inpatient days per year. That number of days results from a number of admissions, and the number of days each patient stays in the hospital. In recent years, admissions have declined, which sometimes increases average length of stay because it is the less intensive cases that tend to be avoided. The net result is that total inpatient days have changed very little. The admission reductions and length of stay increases may have resulted partly from hospitals' renewed emphasis on avoiding unnecessary readmissions, and partly by discharging patients at an optimal point in their care when they are healthy enough and logistics are in place such that they can recover and thrive without being in the hospital.

13 CMS (January 12, 2016). Medicare and Medicaid EHR Incentive Program Basics. Retrieved May 12, 2016, from https://www.cms.gov/regulations-and-guidance/legislation/ehrincentiveprograms/basics.html.

14 AMA Wire (September 16, 2014). 8 top challenges and solutions for making EHRs usable. Retrieved May 12, 2016, from http://www.ama-assn.org/ama/ama-wire/post/8-top-challenges-solutions-making-ehrs-usable.

Outpatient facility spending also grew at a historically low rate, increasing by 5.5% to $4,922 in 2016. Part of the low growth rate may be attributable to pent-up demand and "crowd out," as people newly insured by the ACA–especially in states that expanded Medicaid–consume limited hospital resources and produce treatment delays for other populations. Elective surgeries are one type of service subject to such delays resulting from capacity constraints.

The professional services slice of the healthcare spending pie has shrunk slightly, to 30% of the total in 2016. Professional services costs increased from 2015 to 2016, but at a lower rate than other services. The slow growth is primarily due to relatively low increases in physician payment rates for a given basket of services. When a physician treats patients having employer group insurance, like the MMI family of four, the physician usually gets paid according to a fee schedule that has been negotiated between the health plan and the physician. Today, those fee schedules are often based on the fee schedule Medicare uses. Over the past 10 years or more, that Medicare fee schedule has increased only at very low rates, at or near 0% in many years. Consequently, physicians often receive little or no payment rate increases for their Medicare patients, and also for their patients who have employer group insurance.

Prescription drugs costs are still the fastest growing slice of the healthcare cost pie, increasing to $4,270, or 17% of the total, in 2016. Drug spending increased by 9.1% from 2015 to 2016, down from the previous year's increase of 13.6%. Although the lower rate of increase was encouraging, it is still much higher than the 3.8% growth rate for all other healthcare costs. Much of the prescription drug cost growth is driven by specialty drugs. While there is no universally accepted definition of specialty drugs, they are generally very high-cost drugs. Medicare defines specialty drugs as those costing more than $600 per script in 2016.[15] For the MMI family of four, specialty drugs now constitute nearly 6% of all healthcare spending, which is approximately $1,550 for the family in 2016.

FIGURE 9

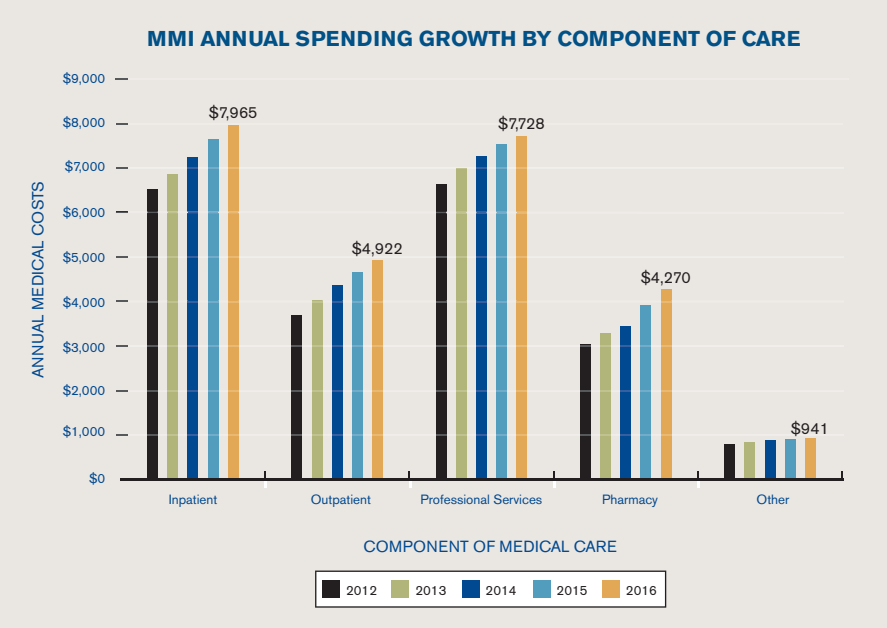
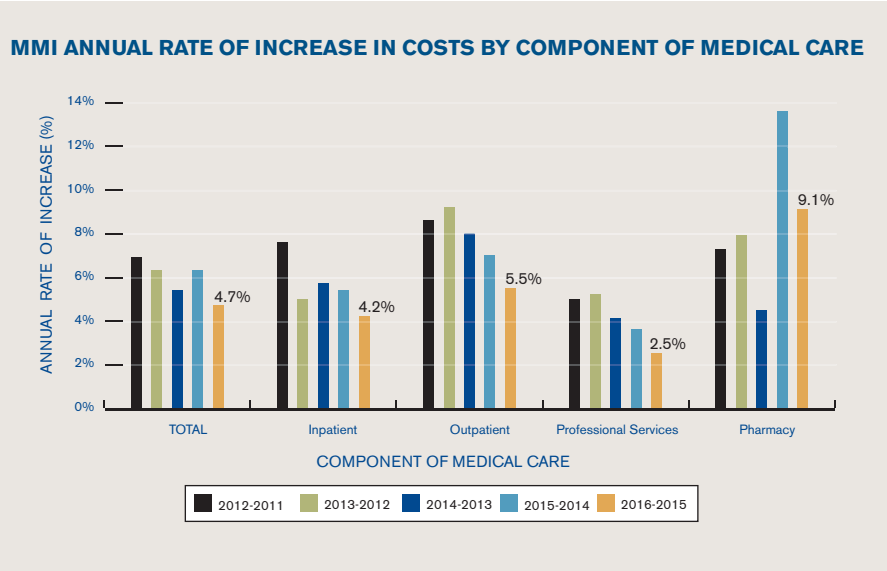


FIGURE 10



15 Medicare's definition is increasing from $600 to $670 in 2017.

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 programs[16]
- 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 83.3% in 2016.

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, 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.

16 For example, for 2016, average benefits are assumed to have an in-network deductible of $868, various copays (e.g., $145 for emergency room visits, $32 for physician office visits, $11/18%/29% for generic/formulary brand/non-formulary brand drugs), and coinsurance of 18% for non-copy services.

Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in healthcare, property & casualty insurance, life insurance and financial services, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

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