Consumer-Centric Healthcare: 2017 Update

New Administration Set to Accelerate Healthcare Consumerism

In January 2005, we published the first of our continuing series of reports on the evolving role of the consumer in the U.S. healthcare market. The report, titled The Power of Choice: On the Brink of a Consumer Revolution in Health Care, provided our expectations for the most significant developments in the healthcare marketplace over the coming years.

More than a decade later, our thesis remains intact and continues to unfold rapidly. More specific, we continue to believe that consumers—in tandem with disruptive healthcare technology and services providers—are the key to solving many of healthcare’s woes, particularly the unsustainably high cost of care in the United States.

Our 2017 report also comes at an interesting time—as recent administration changes should serve as a further catalyst for healthcare consumerism in the United States. More specific, after years of “repeal and replace” rhetoric among Republicans, the party now has the political standing to enact significant change, and we believe recent appointments to key healthcare leadership positions point to a clear focus on pre-budgeted healthcare spending (e.g., block grants, tax credits, and premium support models) along with more emphasis on consumer-driven healthcare (e.g., high-deductible plan designs, defined contribution, and expanded use of health savings accounts).

Accordingly, we believe investors may look back at 2017 as a key tipping point for the U.S. healthcare market, especially as it relates to consumer-centricity and individual responsibility for healthcare. Equally important, the continued migration of financial and quality risk to providers should continue unabated, in our view. More specific, while certain government-sponsored risk-bearing models may erode under the new administration (e.g., mandatory bundled payments), the broader need to offset negative patient mix shifts, pending reimbursement cuts, and more price-conscious consumers will continue unabated. Thus, we expect providers to increasingly bear more pure financial risk and quality risk—in the form of launching provider-owned health plans—in the near future; in our view, this is the ultimate form of value-based care (100% risk for healthcare cost and outcomes versus sharing only a portion of risk under models such as accountable care organizations or payment bundles).

Given these dynamics, we strongly believe that consumer-centric healthcare providers (and those companies that provide the technology and services to enable more consumer empowerment) will experience strong growth over the coming years. Moreover, we believe that investors in both the public and private-equity markets will achieve superior long-term returns by identifying and investing in these companies. The purpose of this report—now the 13th in our annual series on the topic—is to assist in this process.
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Introduction

For each of the past 13 years, our premier research publication has described the “emerging trend” of consumerism in the healthcare marketplace, and how this trend held the potential to radically reshape the U.S. healthcare delivery system for the better.

While our conviction in this topic rarely waned, the rate of change was slower than we anticipated—as myriad financial, political, and structural headwinds upheld the status quo, despite a number of emerging market forces. More recently, however, a convergence of events has rapidly pushed our thesis forward, and we now believe a tipping point has arrived that is markedly changing the U.S. healthcare landscape.

We also believe the recent U.S. elections—and the concomitant changes afoot in Washington, D.C.—will further expedite this evolution. More specific, we believe the new administration has not only shown a clear desire to repeal many components of the Affordable Care Act but also appears ready to replace them with more consumer-centric options.

For example, in reviewing likely Health and Human Services (HHS) Secretary Tom Price’s past healthcare legislation, it becomes apparent that he is a major supporter of pre-budgeted healthcare spending and consumer-centric health plans. More specific, in his Empowering Patients First Act (H.R. 2300), Dr. Price spent more time discussing health savings accounts (HSAs) and high-deductible health plans than any other topic—promoting a significant number of changes that would help spur growth for these offerings, including:

- Incentives to expand the use of HSAs, including a one-time $1,000 tax credit to fund accounts;
- Allowing HSAs to be rolled over to not only surviving spouses, but also children, parents, or grandparents;
- Increasing the allowable HSA contribution to be equal to the maximum IRA contribution level;
- Allowing for the transfer of the minimum distribution requirement from retirement plans directly into HSAs (with no tax implications);
- Allowing spouses to double their catch-up contributions to HSAs for their eligible spouses;
- Allowing many Medicare-eligible seniors to contribute their own money to Medicare Medical Savings accounts; and
- Expanding the use of high-deductible plans by allowing veterans, members of the Indian Health Service, and those eligible for Tricare coverage all to contribute to HSAs.

There also are a number of related items in his plan that we believe could spur demand for these products—ranging from tax credits to buy insurance coverage on the individual market (where consumers already have gravitated toward high-deductible plans in mass), allowing individuals to opt out of Medicare, Medicaid, Tricare, and VA benefits in order to receive tax credits to buy insurance (again, a potential driver toward more consumer-centric plans), to limiting the tax-free amount of employer-provided healthcare coverage to $20,000 per family (or $8,000 per individual), which also would promote growth in less expensive high-deductible plans, in our view.

Second, investors need to look no further than the home state of Vice President-elect Mike Pence to see how consumer-centric healthcare has been implemented across Indiana over the past several years. And the key architect behind the plan was none other than Seema
Verma—a healthcare consultant who helped design and implement Indiana’s consumer-driven Healthy Indiana Plan (HIP 2.0)—who has been selected by President-elect Trump to serve as the future head of the Centers of Medicare & Medicaid Services (CMS).

Again, we believe it is educational for investors to better understand the plan and its success, as it likely will have implications for how the upcoming administration views the Medicaid landscape in the United States (a critical market accounting for nearly $550 billion in annual healthcare spending). More specific, while the focus on pre-budgeted Medicaid spending—via block grants to states—has garnered more attention in the popular press, Price’s and Verma’s success with consumer-centric plans also should play a key role in their future decisions, in our view.

To this extent, we note the following:

• In 2015, the state of Indiana launched an updated version of its Healthy Indiana Plan, dubbed HIP 2.0, which was approved via a waiver sought by Governor Mike Pence.

• The plan includes a high-deductible health plan ($2,500 deductible) paired with a $2,500 POWER account (an HSA), where plan members contribute 2% of their income into the POWER account each month. Importantly, any healthcare expenditures are paid direct from the POWER account until the deductible is reached (after which future claims are paid in full by the insurance plan).

• Of note, these payments are not dissimilar to the premium payments individuals would normally make to purchase health insurance, but the payments are owned by the individuals (i.e., rolling over each year or following the individuals if they change coverage).

• Moreover, preventive services are provided outside the deductible (and require no payment or use of HSA funds from individuals), and rollover amounts are actually increased for members who complete requisite preventive care services during the year.

Equally important, independent evaluations of the plan—including a 112-page overview from the Lewin Group, which was published in July 2016—provide strong support for its expansion. More specific, member satisfaction rates within HIP 2.0 were quite high after 10 months in the plan—with 80% of plan members satisfied with the plan and 93% indicating that they would choose to reenroll again if they gained, and then subsequently lost, other forms of insurance coverage.

Even more telling, those members who had been in the plan longer (under HIP 1.0, which began five years earlier) were 93% satisfied, and a remarkable 98% indicated that they would return if they gained and then lost coverage in the future and became eligible again. In our view, this likely indicates growing comfort with the plan functions and features as time progresses.

**These members also showed clear signs of consumer engagement after joining the plans.** For example, 42% of all members checked the balances in their HIP Plus accounts every month and 27% of members indicated that they now ask providers about the cost of care. Moreover, only 2% of HIP Basic members and 1% of HIP Plus members indicated that they had missed an appointment in the past six months because of cost. And roughly 74% of plan members received qualifying preventive care services within 12 months of enrolling in the program. Lastly, the state reported that the varying co-payment feature for emergency department use (via a $35 co-payment for inappropriate use of the ED) has consistently resulted in fewer inappropriate ED visits by HIP members compared with the traditional Medicaid benefit.
Accordingly, we believe the success of this program—combined with the fact that two of its key architects will soon serve in leadership positions in the Trump administration—bears consideration from investors, especially since we believe the potential to grant states more waivers to consider similar programs is a much easier (and less politically charged) option than fundamentally altering all of Medicaid via federal block grants.

Equally important, we believe that even outside of potential regulatory changes, a number of market-driven factors also will push healthcare consumerism forward at a rapid rate over the coming years. For example, as we discuss later in this report, a significant driver of this momentum is the emergence of account-based health plans (defined as high-deductible plans paired with a health savings or reimbursement account), which have risen from zero market penetration roughly a decade ago to approximately 30% of the employee-sponsored insurance market today.

In fact, 2016 showed the largest year-over-year expansion in the use of such plans in the last seven years, and these plans have been the only type of commercial insurance product to experience growth over the past decade, with the percentage of covered employees in these plans expanding from 4% in 2006 to 29% in 2016 (while PPOs declined from 60% to 48% and HMOs from 20% down to 15%).

Accordingly, this has caused a material shift in the healthcare marketplace—as gone are the days of aggregating large provider networks and selling healthcare directly to employers. Today, the fastest-growing purchaser of healthcare is the individual consumer, and we believe the changes discussed above will only accelerate this trend over the next few years.

Lastly, we believe that investors’ recent concerns about a slowdown in the movement toward value-based care are largely amiss. More specific, we often hear concerns that the new administration is against innovations such as accountable care organizations (ACOs) or mandatory bundled payments, and that this could stunt the movement toward value-based care in the United States. However, the market reality is that these changes are already well underway, and a variety of market pressure will only serve to further stress the status quo business models that most acute-care providers operate under today.

More specific: 1) the ongoing Medicare reimbursement cuts established under the Affordable Care Act and MACRA are significant (exhibit below) and unlikely to go away, even if many of the provisions that were favorable to hospitals are eliminated; 2) demographic trends will not change—and hospitals will inevitably experience a mix shift toward more lower-paying Medicare and Medicaid patients over time; and 3) exposure to high-deductible plans across more patients will only increase the need to manage costs, lower prices, and be competitive with alternative care models, eliminating the ability to offset the abovementioned pressures with better commercial pricing.
Perhaps these negative trends could be absorbed if hospital margins were already excessive, but this clearly is not the case. For example, a 2016 report from the Congressional Budget Office (Projecting Hospitals’ Profit Margins Under Several Illustrative Scenarios) analyzed roughly 3,000 hospitals (excluding rural providers) and determined that nearly one-quarter operate with negative profit margins in any given year. Moreover, the analysis indicated that—based on the abovementioned pressures—the share of hospitals with negative profit margins would likely rise to 60% by 2025, unless they can improve productivity levels in line with the broader U.S. economy, at which point 41% would experience negative margins.

In our view, this has most hospital executives not only concerned about their business model, but also realizing that a movement toward bearing more financial and quality risk is a near prerequisite for future success. In turn, we see the market momentum toward more risk-bearing as accelerating on a go-forward basis (perhaps following a brief initial pause as executives digest the surprise Trump victory and its implications on healthcare going forward).

In its purest form, this would mean more providers directly launching their own health plans—bearing 100% financial and quality risk (and thus becoming “payviders”)—in the form of self-insured plans and population health initiatives for their own workforce, launching managed Medicaid and Medicare Advantage (MA) plans, or even offering narrow networks sold direct to employers or provided on private exchanges (of note, a 2016 PwC report, Medical Cost Trend, Behind the Numbers 2017, indicated that only 9% of employers are in performance-based networks today, but 43% are currently considering implementation of such a network to control healthcare costs).

Under these plans, providers would bear the ultimate upside and downside risk for a capitated payment amount (i.e., pre-budgeted healthcare dollars), which would provide significantly more incentives for care coordination and patient empowerment than the potential gain share afforded via an ACO or limited bundled payment programs.

Still, many investors appear to associate these two latter programs (along with the CMMI) with the movement to value-based care, so fears seem to abound that their elimination would crater this industry trend altogether. However, this will be more than offset by providers’ movement toward payvider models, which in our view are much purer forms of total quality- and financial-risk bearing.
Lastly, growth in MA plans could expand markedly under a Republican administration (with or without premium support models), managed Medicaid will likely blossom under federal block grants, and tax limits on employer-sponsored coverage could drive more narrow-networks and direct-to-provider coverage models. In turn, we believe leading providers will look to these growth areas as keys to their survival over the longer term, not as areas that will experience a slowdown due to pending administration changes.

As a result, we also see the movement toward more value-based care delivery as a natural offspring of the consumerization (or “retailization”) of the healthcare market. Put simply, as providers bear more financial and quality risk, they also have direct incentives to push preventive care, lower the cost of healthcare delivery, and empower consumers to take part in their own health management (a major change from fee-for-service healthcare, where provider incentives are more aligned with driving volume versus increasing value).

The need to better understand consumer wants and needs, measure performance, improve the patient experience and satisfaction, and develop brands also has never been so important in healthcare, and we believe many providers are rapidly investing in these capabilities today. Of note, many of these investments were initially necessitated by government regulations (e.g., patient experience reporting, as part of Medicare’s value-based purchasing (VBP) program); however, savvy providers are now using this data (and investing well beyond mandated levels) since they view this as a strategic imperative to drive market perception, retain customers, increase the patient experience, and expand their operations.

Providers also are well aware that with this change comes a significant amount of market disruption, as healthcare consumers are presented with more pricing transparency (as discussed in detail in the second section of this report) and more options for efficient care delivery (telehealth, mobile health solutions, urgent care clinics, and retail care providers, to name a few).

In the face of this proliferation of disruptive competition, providers often appear to be partnering with operators rather than competing with them head on; as an example, telehealth providers are working with myriad retail clinics and health systems as a care extension vehicle versus a purely alternative network of care. Similarly, leading health systems are actively investing in customer relationship management tools, and vehicles that make it easier for consumers to directly interact with the healthcare system (e.g., online search and booking tools for healthcare—not dissimilar to the way most individuals purchase airline tickets and hotels today). To be clear, we are not suggesting that any industry participants will go the way of the travel agency, but for those that do not invest in the appropriate consumer-centric initiatives today, the analogy may be more apropos than it first appears.

Still, for many healthcare providers, this is an enormous challenge and one that will require years of investment, guidance, and trial and error to solve successfully; therefore, we expect a variety of fits and starts along the way. Fortunately, we believe there are ample organizations that stand ready to provide this guidance, offer complementary services, and provide the technology and management expertise needed to make this transformation a reality. And we believe these organizations—many of which we profile in this report, and many more that will emerge over the next several years—will present investors with a tremendous investment opportunity over the coming decade.

So what does all of this mean for healthcare providers and the public- and private-market investors who help fund their growth? As the healthcare marketplace becomes more consumer-centric, we believe the disruptive forces of competition will create a system that promotes growth of highly efficient, low-cost, and high-quality providers and technologies. In turn, we expect that more consumer-centric healthcare services and information technology providers (such as those
profiled in this report) will experience strong top- and bottom-line growth over the coming years. Moreover, we believe that investors will achieve superior long-term returns by identifying and investing in these companies.

To assist investors in this process, we present an updated overview of the emerging consumer-centric healthcare marketplace. In particular, we focus on recent developments surrounding the five key elements that we believe will drive greater growth of consumer-centric healthcare over the coming years:

1. a dire need for healthcare cost control in the United States, which remains pressing despite the recent slowdown in healthcare expenditure growth rates;
2. increased quality and pricing transparency for healthcare products and services;
3. greater use of healthcare information technology solutions among providers and consumers;
4. growing responsibility for healthcare utilization and quality at both the consumer and provider levels; and
5. increasing employer, insurer, and consumer support for more consumer-centric healthcare solutions.

After this analysis, we provide investors with an overview of key investment merits and risks to monitor over the coming years; we then conclude our report with our updated list of some of the leading consumer-centric healthcare operators in both the public and private markets, which we believe are well positioned for growth over the coming years.

**Factor One: The High Cost of Healthcare in the United States**

Before discussing consumer-centric healthcare drivers in more detail, we begin with a brief update on what we continue to view as the most important trend in healthcare today—its significant cost. In our view, this discussion is crucial because exorbitant healthcare costs and the structural inefficiencies that drive them continue to serve as the most important impetuses for broader change in the U.S. healthcare marketplace today. This discussion also is timely, in our view, since a number of recent factors are causing government officials, employers, and individual consumers to refocus on cost trends in the market.

First, healthcare spending has resumed its upward trend, and after years of holding steady as a percentage of gross domestic product (GDP), it is now consuming more of the U.S. economy than ever before. More specific, while U.S. healthcare spending abated to less than 4% annual growth from 2008 through 2013, recent projections (published in December 2016) from the Centers for Medicare & Medicaid Services (CMS) Office of the Actuary indicate that spending accelerated to 5.8% in 2015, to a record $9,990 on a per-person basis (exhibit 2).
More important, growth in healthcare spending had been relatively consistent with U.S. GDP growth over the past several years—with an average delta of only five basis points between 2010 and 2013. Accordingly, the percentage of GDP dedicated to healthcare remained largely unchanged, at 17.3% to 17.4%, between 2009 and 2014.

However, this trend also began to abate in 2015, with the share of GDP devoted to healthcare spending reaching a record 17.8% during the year. Furthermore, the delta between healthcare spending and GDP growth reached a six-year high in 2015 (exhibit 3), with healthcare spending growing 212 basis points more than GDP growth (versus an average of only 20 basis points of excess healthcare spending growth from 2009 to 2014). Moreover, since this trend is expected to continue (with healthcare spending exceeding GDP growth by roughly 130 basis points per year going forward), it is estimated that healthcare will consume a remarkable 20.1% of the total economy by 2025.

<table>
<thead>
<tr>
<th>Year</th>
<th>National health expenditures</th>
<th>Growth</th>
<th>Gross domestic product</th>
<th>Growth</th>
<th>NHE as % of GDP</th>
<th>NHE growth - GDP growth</th>
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<tbody>
<tr>
<td>2008</td>
<td>$2,403</td>
<td>3.9%</td>
<td>$14,719</td>
<td>-2.0%</td>
<td>16.3%</td>
<td>5.94%</td>
</tr>
<tr>
<td>2009</td>
<td>$2,496</td>
<td>4.0%</td>
<td>$14,419</td>
<td>3.8%</td>
<td>17.3%</td>
<td>0.19%</td>
</tr>
<tr>
<td>2010</td>
<td>$2,596</td>
<td>3.9%</td>
<td>$14,964</td>
<td>3.7%</td>
<td>17.3%</td>
<td>0.19%</td>
</tr>
<tr>
<td>2011</td>
<td>$2,697</td>
<td>3.8%</td>
<td>$15,518</td>
<td>4.1%</td>
<td>17.4%</td>
<td>-0.31%</td>
</tr>
<tr>
<td>2012</td>
<td>$2,799</td>
<td>2.9%</td>
<td>$16,155</td>
<td>3.1%</td>
<td>17.3%</td>
<td>-0.25%</td>
</tr>
<tr>
<td>2013</td>
<td>$2,880</td>
<td>5.3%</td>
<td>$16,663</td>
<td>4.1%</td>
<td>17.4%</td>
<td>1.15%</td>
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<tr>
<td>2014</td>
<td>$3,029</td>
<td>5.8%</td>
<td>$17,393</td>
<td>3.7%</td>
<td>17.8%</td>
<td>2.12%</td>
</tr>
<tr>
<td>2015</td>
<td>$3,206</td>
<td>5.8%</td>
<td>$18,037</td>
<td>3.7%</td>
<td>17.8%</td>
<td>2.12%</td>
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</table>

Sources: Centers for Medicare & Medicaid Services Office of Actuary and William Blair estimates
A similar delta in growth rates also was reported between the per-unit cost of healthcare and broader inflation trends during 2015. Based on data from the U.S. Bureau of Labor Statistics, the cost of medical care experienced roughly 2.6% price inflation during 2015, while the U.S. Consumer Price Index (CPI) rose by only 10 basis points. This drove a delta of 250 basis points between the medical index growth and CPI, which was the largest absolute difference between the two rates since 2009; this also was well above the five-year average delta of only 100 basis points—indicating a reacceleration in healthcare costs despite stagnant overall price growth in other areas of the economy (exhibit 4).

Also of note, in 2015 federal spending for the major healthcare programs exceeded Social Security outlays for the first time in the history of the country—with total federal healthcare expenditures of roughly $936 billion—an increase of $105 billion (or about 13%) from the prior year, according The Budget and Economic Outlook: 2012 to 2026 report from the Congressional Budget Office (CBO).

Moreover, the report indicates that federal healthcare spending is expected to grow by more than $100 billion again in 2016 (an increase of roughly 11%), taking federal healthcare spending north of $1 trillion for the first time. In turn, this will drive gross federal outlays for major healthcare programs to a record 40% of gross mandatory spending during the fiscal year.

Equally important, the CBO’s baseline estimates project that federal healthcare spending, all else equal, will grow at a rate of nearly 6% over the next decade, driving a doubling in total healthcare expenses, to $2.0 trillion (or nearly 7.4% of GDP) by the end of 2026. This point has become particularly troubling for many in Washington, D.C., since it indicates that the Medicare trust fund for hospital insurance (which had a $195 billion surplus at the end of 2015) will start to produce annual deficits in 2018 and beyond, with the fund being exhausted by 2025.

Of note, about 89% of the fund’s income is provided from the Medicare payroll tax, with 8% derived from income taxes on Social Security benefits and the reminder from a variety of other sources (premium payments, interest, recoveries of fraudulent spending, etc.). Unfortunately, demographics will create a significant long-term headwind here, as the combination of a large wave of Medicare enrollment will pressure the number of workers (paying taxes into the trust fund) per Medicare
beneficiary (pulling money out of the fund) over the next two decades. More specific, the CBO estimates that the ratio will drop from 3.1 workers per Medicare beneficiary today to only 2.4 by 2030 (exhibit 5).

Thus, to support the trust fund, either taxes must increase or GDP growth must begin to surpass the level of healthcare spending growth going forward. For example, in a recent *Health Affairs* article (*Health Spending Growth: Still Facing a Triangle of Painful Choices*), Charles Roehrig, the founding director of Altarum’s Center for Sustainable Health Spending, presented the following options to fund federal healthcare spending (and this analysis assumes that healthcare spending grows *exactly in line* with GDP growth):

- Raise taxes by 4% and cut spending on defense and other non-health expenses by 35%;
- Raise taxes by 9% and cut defense and other non-health spending by 24%;
- Raise taxes by 15% and cut defense and other non-health spending by 12%; or
- Raise taxes by 20% and keep defense and other non-health spending at current (historically low) levels.

Given this precarious outlook, the federal government is likely to be more determined than ever, in our view, to control healthcare spending, especially since the new administration is focused on dedicating *more* resources to other areas (e.g., infrastructure spending, defense, education). We also do not believe the current administration will consider tax increases to fund this spending—rather, the opposite is likely to be the case, as President-elect Trump has proposed massive tax reductions.

Accordingly, we continue to believe the administration will look to innovation vehicles (e.g., population health management) and pre-budgeted healthcare (e.g., Medicare Advantage, Medicaid block grants, defined contribution models) to slow the growth of healthcare spending.
We also believe 2017 will be an interesting year for healthcare consumers (both individuals and employers) since the pending repeal of much of the ACA, along with significant premium increases for plans sold on health insurance exchanges (along with the mass exodus of many payers from a number of markets), has driven healthcare spending back into the limelight once again. Moreover, we believe there is a growing appreciation that the cost of healthcare has become unbearable for many citizens, which is increasing pressure from employers and consumers alike to better control healthcare costs.

For example, a recent report from Brookings (Where Does All the Money Go: Shifts in Household Spending Over the Past 30 Years) garnered significant attention among policy makers since it demonstrated how healthcare spending has become a significant issue for low- and middle-income consumers, in particular, over the past decade. More specific, Brookings used data from the Bureau of Labor Statistics to show how healthcare has consistently consumed a higher percentage of spending for basic needs—a particularly problematic issue for low-income households, which already spend a higher percentage of budgets on such items. The analysis showed that while spending on most basic needs has declined materially over the past decade or so, spending on healthcare has experienced a material increase because of its excessive cost growth (exhibit 6).

Another study was recently released by TransUnion (based on a survey of 1,500 consumers with health insurance) showing that nearly 6 in 10 individuals felt that the rising cost of health insurance has added financial strain to their family. Moreover, nearly 64.4% were concerned about the total costs of healthcare services and procedures looking ahead to 2017, and 64.8% indicated an increased concern related to future out-of-pocket costs and copayments.

Similarly, a 2016 study by The Kaiser Family Foundation (The Burden of Medical Debt: Results from the Kaiser Family Foundation/New York Times Medical Bills Survey) showed that a number of individuals are having difficulty with medical bills—regardless of whether they have health insurance or not. For example, 34% of respondents with insurance indicated that they had trouble paying for
basic necessities like food, heat, or housing as a result of medical bills, while 39% of those without insurance faced the same issue. Moreover, 62% of both uninsured and insured respondents indicated difficulty paying other bills (besides basic needs) as a result of their medical bills.

The only major delta between the insured and uninsured groups tended to be how much medical debt they had accumulated—with 44% of insured individuals indicating that medical debt accounted for more than half their total debt levels, while 74% of uninsured respondents indicated that medical bills were more than half their total debt (with 34% indicating that healthcare costs accounted for “all or almost all” of their debt). Stated differently, even though many families have insurance, healthcare spending remains a major issue for them.

As a result, many employers are now offering workers special policies to help cover healthcare costs above and beyond what their medical insurance covers. For example, hospital-indemnity policies help augment coverage for hospital stays, while critical-care policies provide individuals with lump sums of cash upon diagnosis of costly illnesses such as cancer, stroke, or heart disease. And, based on a recent study by Benefitfocus, 36% of all companies using their software offered at least one type of healthcare gap insurance in 2016, while the penetration reached nearly 50% during the 2017 open enrollment period. Similarly, a Limra survey of nearly 1,500 employers indicated that the share of U.S. employers offering accident insurance has risen from 19% in 2002 to 29% in 2014 (most recent data), while the percentage offering critical-care coverage more than doubled from 12% in 2002 to 23% by 2014.

In our view, this again highlights the root problem in the U.S. healthcare market: its exorbitant costs—even for those with health insurance. As we have stated in the past, we never really expected the ACA would solve this issue and, thus, do not expect its eventual repeal to materially affect cost trends either. For example, in our report nearly five years ago, we wrote the following:

“As another year has passed, our conviction regarding the urgent need for true healthcare reform has only increased. We emphasize the word ‘true’ as we continue to believe the recent healthcare reform legislation—while having myriad positive attributes—does little to fundamentally alter the broken, siloed care-delivery system in the United States. Similarly, we believe the law does too little to control healthcare expenditures. Rather, the legislation focuses on expanding health insurance coverage—a noble goal, but one that falls short of solving the underlying quality and cost issues that drove such a high level of uninsured individuals to begin with.”

Rather, we believe that only a movement toward more consumer engagement and direct provider accountability for the total cost and quality of care can positively affect the market on a sustainable basis. Accordingly, we again restate our doubt that the momentum toward value-based care delivery will be derailed under the new administration. Rather, we expect it to intensify as providers, patients, and employers all push for more sustainable change and greater value in the market.

Moreover, we believe the ability to better coordinate patient care, provide more preventive care delivery, more rapidly distribute clinical best practices, and more actively engage patients in the healthcare system will reach a tipping point soon. Put simply, we believe the future of consumer-centric healthcare—which we define as lower-cost, more-convenient, and higher-quality care for individuals—looks bright.

Equally important, we believe this change could be a sustainable solution to our healthcare system’s woes, as a more engaged healthcare consumer would likely seek both less medical care and medical care for less. We believe these engaged consumers would likely seek more-efficient care delivery and ultimately realize that their own behavior is often what drives their need for healthcare. In turn, the consumer might be a key driver of both less healthcare consumption and lower unit costs (via shifting the point of care), which would unquestionably benefit the entire delivery system.
The Bottom Line
Healthcare costs remain the root cause of many of ills facing the U.S. healthcare market today, and we believe that only through increased consumer-centricity and more focus on value-based care delivery (and plan designs) can a sustainable bending of the healthcare cost curve occur.

Factor Two: Increased Availability of Healthcare Price and Quality Information

To control escalating costs with more consumer-centric healthcare, we believe that increased access to healthcare pricing and quality information also is needed. Without this, patients are generally unable to take a more proactive role in assessing treatment options, determining the quality of physicians, and choosing appropriate healthcare service providers and points of care (key factors in a more consumer-centric market, in our opinion).

We believe pricing transparency can increasingly help healthcare providers as well—an important aspect of care delivery under a value-based reimbursement design. For example, myriad studies indicate that providing physicians with even basic cost and quality data can change referral patterns, prescription trends, and demand for diagnostic tests, generally lowering healthcare costs without any detrimental effects on the quality of care.

We also expect demand for price and quality transparency will move hand-in-hand with the growth in high-deductible health plans; consumers will begin shopping for basic healthcare services in mass, and these engaged customers—and their employers—will increasingly demand this data or take their business elsewhere.

Lastly, we believe the incoming administration also will promote growth in price and quality transparency. Of the seven items discussed on President-elect Trump’s healthcare reform policy reform website, increasing transparency holds a prominent spot—with the President-elect stating the following goal:

“Require price transparency from all healthcare providers, especially doctors and healthcare organizations like clinics and hospitals. Individuals should be able to shop to find the best prices for procedures, exams or any other medical-related procedure.”

As we discuss later in this section of our report, there are still significant hurdles to overcome to make this a reality, and the goal of true transparency is still a long way off. However, we believe market and regulatory demands are likely to bring this trend to fruition over the coming years, as key stakeholders now appear aligned to move it forward.

Below, we discuss several novel developments that lead us to believe this will be the case.

Numerous Studies Continue to Demonstrate the Need for, and Value of, Increased Transparency

Myriad analyses continue to show wide variations in the cost of healthcare services, above and beyond the deviations that would be explainable by geography, patient acuity, or the relative market share of providers and health plans.

For example, we used data from Guroo.com to estimate the median price, in addition to the 25th and 75th percentiles, for a preventive colonoscopy—a high volume, non-emergency screening procedure—by state. Guroo was developed by the Health Care Cost Institute (HCCI), an independent,
not-for-profit organization focused on providing nonbiased information regarding commercial health spending and utilization as a means to offer consumers access to information regarding the typical cost of selected healthcare procedures.

HCCI’s data encompasses years of information contributed by some of the country’s largest commercial insurers, including Aetna, Humana, Kaiser Permanente, and UnitedHealthcare; the data set’s roughly 6 billion claims cover about 50 million individuals, representing more than $1 trillion of healthcare spending, more than 5,000 hospitals, and 1 million different medical service providers.

In 2016, the median national reimbursement amount (including what was paid out-of-pocket and by the insurance company) for a preventive colonoscopy screen was $2,429; however, the difference between the 25th percentile price ($1,329) and the 75th percentile price ($3,663) was roughly 176%.

The trend of seemingly large price variations continues down to the state level as well. Of the 42 states on which Guroo has information, the median price for the states with the 10-least-expensive median amounts was only $1,865—47% less than the median price of the states with the 20-most-expensive median amounts ($3,513). In fact, the 75th percentile price in the least expensive states ($2,804) was still about 20% cheaper than the median price in the most expensive states (exhibit below). Again, because this is a non-emergent procedure that can be performed at a variety of sites (e.g., acute-care facility or ambulatory surgical center), it presents a good example of the type of data that is becoming increasingly available to help consumers shop for medical care.

Source: William Blair analysis of Health Care Cost Institute (HCCI) data, as presented on Guroo.com
*Price variations persist down to the local level as well.* *Consumer Reports* had teams of “secret shoppers” call hundreds of pharmacies across the country to receive quotes for the cost to fill various prescriptions. Shockingly, pharmacies that were only miles away from each other would sometimes quote prices that varied by as much as 10 times. For example, in Raleigh, North Carolina, the price for a one-month supply of generic Cymbalta (duloxetine) varied from only $43 at Costco, to $118 at Walmart, to $220 at a local Walgreens.

To be fair, it is common practice for retail pharmacies to set list prices artificially high, since commercial insurance companies may demand the lesser of the list price or the contractually negotiated rate. Moreover, many of these retail pharmacies often will negotiate a lower price for patients paying cash (out-of-pocket) for prescriptions (although we believe this is not widely known by consumers, and pharmacies are more than happy to retain the higher list price). These grains of salt aside, we still believe this is a surprising level of price variation for products that are literally identical and sold only miles away from each other.

In exhibit 8, we highlight the results from the secret shoppers at *Consumer Reports*. Of note, the figures below represent the average prices that were quoted for a one-month supply of each pharmaceutical.

**Exhibit 8**

*Consumer-Centric Healthcare*

*Pharmacies Quote Wildly Different Prices for the Same Drugs*

(List price quoted from pharmacy, for patient paying out of pocket)

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**Sizing Up the Benefit of Price Transparency Initiatives**

Given the increasing financial exposure of patients to variability in prices for healthcare costs, another question arises as to whether enough procedures are actually “shoppable.” Stated differently, the ability to compare prices and quality outcomes in advance does nothing for someone suffering
from a stroke, but would be useful for non-emergent procedures scheduled in advance. Moreover, a potentially more significant question is whether greater price transparency would result in a more efficient market price for services in the future (i.e., would unjustifiably expensive providers be forced to lower prices or lose volumes, and would future price increases of all providers become more visible to public scrutiny?).

In this vein, we thought a March 2016 report from the HCCI (Spending on Shoppable Services in Health Care) was helpful to review. The report estimates that $524.2 billion was spent on healthcare for the national employer-sponsored insurance (ESI) population in 2011 (most recent data); for comparison, national health expenditures in the same year totaled about $2.7 trillion. The HCCI team defined shoppable services using diagnosis-related group (DRG) codes, current procedural terminology (CPT) codes, and healthcare common procedure coding system (HCPCS) codes; moreover, because factors like local market share of providers were considered, HCCI states that its estimates may represent the upper end of the possible range of shoppable services.

All told, HCCI estimates that—at most—43% of spending on the ESI population in 2011 could be considered shoppable, which translates to roughly $225.4 billion in expenditures. As would be expected, a slightly larger proportion of outpatient spending could be considered shoppable, while the larger proportion of spending on inpatient care tended to be non-shoppable, as seen in exhibit 9.

While $225 billion is not an insignificant number, it is important to remember that this is the upper end of the possible range of shoppable ESI spending, and that essentially all consumers would have to price shop, and achieve a material reduction in procedure cost relative to not using a transparency tool, to achieve meaningful cost savings.

![Exhibit 9](Image)
For example, if all ESI patients price shopped and achieved a 10% reduction on the cost of procedures, on average, this would total $22.5 billion in annual savings—or roughly a 4.3% reduction in total ESI spending.

We also found a study completed by the West Health Policy Center interesting, as it analyzes the impact of three separate transparency-related initiatives on healthcare spending: 1) requiring all private insurers to offer price transparency tools to patients; 2) requiring EHRs to provide price data to physicians when ordering laboratory and imaging services; and 3) gathering and reporting hospital-specific prices in state all-payer claims databases (APCDs).

This study indicated a fairly modest impact from patient-targeted price tools: an annual spending reduction of roughly $2 billion and a cumulative reduction of $18.4 billion over 10 years. The estimated spending reduction from a physician-targeted transparency tool was slightly larger, ramping up from a $1 billion reduction in 2016 to a $5 billion annual reduction in 2023, with a cumulative 10-year spending reduction estimated at $26.9 billion. Using APCDs to report and measure hospital prices is estimated by the authors to drive the largest portion of cost savings—reaching a $20 billion annual reduction to spending by 2023, and a cumulative impact over a decade of $60.7 billion.

Combined, these three initiatives would drive about $106 billion in savings over the 10-year time frame, according to West Health Policy Center’s estimates (exhibits 10 and 11).

Exhibit 10
Consumer-Centric Healthcare
Estimated Annual Reduction in Spending From Selected Price Transparency Initiatives
(billions of dollars)

Source: West Health Policy Center, Healthcare Price Transparency: Policy Approaches and Estimated Impacts on Spending
Exhibit 11
Consumer-Centric Healthcare
Cumulative 10-Year (2014-2023) Reduction in Spending From Selected Price Transparency Initiatives
(billions of dollars)

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Reduction ($B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient-targeted price tools</td>
<td>-$18.4</td>
</tr>
<tr>
<td>Price displays in EHRs</td>
<td>-$26.9</td>
</tr>
<tr>
<td>Using APCDs to report hospital prices</td>
<td>-$60.7</td>
</tr>
</tbody>
</table>

-$106 billion reduction in spending

Source: West Health Policy Center, Healthcare Price Transparency: Policy Approaches and Estimated Impacts on Spending

In conclusion, we believe the above studies indicate that a sizable portion of spending is, in fact, shop-pable, and that price transparency tools targeted at consumers could have clear benefits—although price transparency tools are by, themselves, no panacea for the enormous cost of healthcare in the United States. However, when combined with tools like EHR-embedded price data and state APCDs, we believe transparency could help make the price-setting mechanism for the overall healthcare marketplace more efficient, and result in slower future spending growth as well.

**Regulatory Developments Also Will Promote More Transparency**
An overwhelming majority of states now have at least some legislation mandating various forms of transparency (exhibit 12), ranging from all payer claims databases with payment data that is publicly accessible online to requiring providers to publicly disclose charges for their procedures. We review several of the more recent legislative developments around transparency in the section below.

Exhibit 12
Consumer-Centric Healthcare
Most States Have Enacted Transparency Legislation
(States that require any of the following: All Payer Claims Database, Public Charge Information, Public Rate Information)

Source: The Advisory Board Company
Ohio Price Transparency Law. In 2015, Ohio passed legislation that beginning in 2017 requires providers to provide “good faith” cost estimates for most services to patients before treatment. The provider must disclose an estimate of the total amount to be charged, an estimate of the amount the insurer will ultimately pay, and (most importantly, in our view) the amount that will be charged to the patient. In our opinion, this is a relatively simple step in the right direction since it will necessitate that patients are given the one piece of information that we believe they will value the most: their out-of-pocket responsibility.

One example of innovation in part prompted by this law is the online tool developed by Toledo-based ProMedica (a nonprofit health system serving northwest Ohio and southeast Michigan) in partnership with The Advisory Board Company. The tool estimates out-of-pocket spending based on the contracted rates between ProMedica and the patients’ specific health plan, as opposed to many online tools that base estimates on the average price charged to (or average amount received from) commercial plans.

For example, using actual insurance information, ProMedica’s online cost tool estimates that it would cost a member of the author of this report’s team $1,072.25 out-of-pocket to have his left knee replaced (though this team member hopes that he is many decades away from needing such a procedure).
While this approach seems to solve the problem of using the correct contracted rate (versus an average rate), it also points to the challenges faced by any health system trying to implement a price transparency initiative. More specific, while the current version of the transparency tool estimates the total facility fee due from the patient, it does not account for any professional fees that would be due to physician groups. In many cases these physicians are not actually employed by the hospital and, in fact, use a separate billing system; therefore, this data is not readily available to many health systems that seek to offer this tool. This issue is not insurmountable, however, and ProMedica plans to eventually integrate this capability into the tool.

**Florida Price Transparency Law.** In 2016, Florida also passed a law that requires the Florida Agency for Health Care Administration to contract with a private vendor to establish a system to provide consumers with an online healthcare price and quality transparency platform. The price data will be based on reimbursements actually received by hospitals and ambulatory surgery centers (ASCs), and will be grouped into searchable “bundles” to help consumers.

The data must be submitted to the agency by private insurers, and potentially circumvents a recent U.S. Supreme Court ruling (Gobeille v. Liberty Mutual Insurance Co.) that self-insured employers cannot be compelled to turn claims data over to APCDs. Instead, Florida will now require any commercial insurer or third-party administrator (TPA) that wishes to do business with Florida’s Medicaid to submit claims to the state, in effect bypassing self-insured employers by going directly to the TPAs.

There are also new transparency requirements for payers and providers, which will allow consumers to go to either providers to determine the total cost for a treatment or their insurer to determine an out-of-pocket responsibility. More specific:

- Hospitals and ASCs will have to make the price information for the abovementioned service bundles available on their websites, along with possible ranges for payments, differences by facility and geography, and a comparison to national prices.

- Hospitals are required to disclose facility fees to a patient in advance.

- Hospitals and ASCs are required to notify patients that some providers delivering services within a facility could bill separately, and might not be in-network with a patient’s health plan.

- Hospitals, ASCs, and physicians will be required to honor estimates of charges for non-emergency services within seven days; consumers also may request a more specific itemized bill, but only from hospitals and ASCs.

- Health plans will be required to offer online tools that allow members to estimate out-of-pocket amounts, for both in- and out-of-network services.
## CMS Provides Dashboard Comparing Drug Prices

In 2015, CMS also created an online pricing dashboard, which provided price information on select prescription drugs. More specific, the dashboard contains drug spending data for Medicare Parts B and D, with a focus on drugs with the highest spending per user and for the overall program, as well as those that have seen the largest increases in cost (exhibit 14).

### Exhibit 14

**Consumer-Centric Healthcare**

**CMS Drug Spending Dashboard**

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
<th>Coverage Type</th>
<th>Total Spending</th>
<th>Beneficiary Count</th>
<th>Total Annual Spending Per User</th>
<th>Average Annual Beneficiary Cost Share</th>
<th>Annual Change in Average Cost Per Unit*</th>
</tr>
</thead>
<tbody>
<tr>
<td>U - Glumetza</td>
<td>Metformin HCL</td>
<td>Part D</td>
<td>$152,976,714</td>
<td>10,994</td>
<td>$13,915</td>
<td>$496</td>
<td>38%</td>
</tr>
<tr>
<td>U - Lovasimod</td>
<td>Lovastatin</td>
<td>Part D</td>
<td>$126,750,726</td>
<td>177,325</td>
<td>$744</td>
<td>59</td>
<td>31%</td>
</tr>
<tr>
<td>U - Lexapro</td>
<td>Escitalopram</td>
<td>Part D</td>
<td>$343,673,577</td>
<td>12,104</td>
<td>$2,706</td>
<td>$100</td>
<td>29%</td>
</tr>
<tr>
<td>U - Ensiva</td>
<td>Enalapril</td>
<td>Part D</td>
<td>$118,287,825</td>
<td>289,022</td>
<td>$419</td>
<td>28</td>
<td>27%</td>
</tr>
<tr>
<td>U - Mirta</td>
<td>Mirtazapine</td>
<td>Part B</td>
<td>$15,764,247</td>
<td>20,903</td>
<td>$746</td>
<td>$155</td>
<td>16%</td>
</tr>
<tr>
<td>U - Propranolol HCL</td>
<td>Propranolol HCL</td>
<td>Part D</td>
<td>$48,026,711</td>
<td>419,329</td>
<td>$116</td>
<td>$77</td>
<td>15%</td>
</tr>
<tr>
<td>U - Cholest道路</td>
<td>CholestYl</td>
<td>Part D</td>
<td>$839,702,537</td>
<td>990,291</td>
<td>$390</td>
<td>$44</td>
<td>15%</td>
</tr>
<tr>
<td>U - Carbimazole</td>
<td>Carbidopa</td>
<td>Part D</td>
<td>$89,713,056</td>
<td>170,350</td>
<td>$500</td>
<td>$56</td>
<td>14%</td>
</tr>
<tr>
<td>U - Chloramphenicol</td>
<td>Chloramphenicol HCL</td>
<td>Part D</td>
<td>$112,390,177</td>
<td>31,416</td>
<td>$2,136</td>
<td>$105</td>
<td>13%</td>
</tr>
<tr>
<td>U - Wellbutrin XL</td>
<td>Bupropion HCL</td>
<td>Part D</td>
<td>$55,167,292</td>
<td>52,316</td>
<td>$10,399</td>
<td>$678</td>
<td>1%</td>
</tr>
<tr>
<td>U - Enalapril Maleate</td>
<td>Enalapril Maleate</td>
<td>Part D</td>
<td>$124,193,062</td>
<td>79,412</td>
<td>$156</td>
<td>$49</td>
<td>16%</td>
</tr>
<tr>
<td>U - Ciprofloxacin</td>
<td>Ciprofloxacin (Vitamin B-12)</td>
<td>Part B</td>
<td>$5,925,115</td>
<td>547,137</td>
<td>$12</td>
<td>$3</td>
<td>37%</td>
</tr>
<tr>
<td>B - Fortec</td>
<td>Trazodone</td>
<td>Part B</td>
<td>$43,210,944</td>
<td>35,902</td>
<td>$11,981</td>
<td>$1,156</td>
<td>29%</td>
</tr>
<tr>
<td>S - Ciloxan</td>
<td>Albuterol Sulfate/Metolazone</td>
<td>Part B</td>
<td>$68,299,182</td>
<td>21,379</td>
<td>$313</td>
<td>$4,309</td>
<td>26%</td>
</tr>
<tr>
<td>U - Aquatec</td>
<td>Atenolol Sulfate</td>
<td>Part B</td>
<td>$20,893,230</td>
<td>341,860</td>
<td>$80</td>
<td>$10</td>
<td>26%</td>
</tr>
<tr>
<td>U - Euxan</td>
<td>Gliclazide</td>
<td>Part B</td>
<td>$10,355,882</td>
<td>51,191</td>
<td>$205</td>
<td>$42</td>
<td>24%</td>
</tr>
<tr>
<td>U - Oxytum</td>
<td>Immunoglobulin G (Hydrophilic) 10% (I.M.)</td>
<td>Part B</td>
<td>$165,859,150</td>
<td>8,147</td>
<td>$20,304</td>
<td>$4,108</td>
<td>22%</td>
</tr>
<tr>
<td>S - Hemi- Diazepam PM</td>
<td>Alclozole</td>
<td>Part D</td>
<td>$166,939,827</td>
<td>58,777</td>
<td>$29,278</td>
<td>$1,538</td>
<td>22%</td>
</tr>
<tr>
<td>U - Perforamid</td>
<td>Perforamid Fumarate</td>
<td>Part B</td>
<td>$79,697,565</td>
<td>27,481</td>
<td>$2,899</td>
<td>$112</td>
<td>21%</td>
</tr>
<tr>
<td>B - Glopeer</td>
<td>Imatinib Mylade</td>
<td>Part D</td>
<td>$1,232,859,891</td>
<td>19,193</td>
<td>$61,152</td>
<td>$4,419</td>
<td>19%</td>
</tr>
<tr>
<td>U - Depo-Medrol</td>
<td>Methylprednisolone Acetate (40 mg)</td>
<td>Part B</td>
<td>$9,771,022</td>
<td>1,233,507</td>
<td>$8</td>
<td>$2</td>
<td>19%</td>
</tr>
<tr>
<td>S - Qelan</td>
<td>Fentanyl</td>
<td>Part D</td>
<td>$1,381,243,835</td>
<td>31,081</td>
<td>$27,117</td>
<td>$1,380</td>
<td>19%</td>
</tr>
</tbody>
</table>

*The Average Annual Beneficiary Cost Share is the average amount that beneficiaries using the drug paid out of pocket during the year (for Part D drugs, the amount shaded here is based only on Part D Beneficiaries without a Medicare Unitary Surcharge).*

*No. Part D drugs: the measure accounts for wholesale drug prices for different strengths and dosage forms of a drug and presents a weighted average of those percent changes.

Source: Centers for Medicare & Medicaid Services

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The dashboard focuses on 40 drugs provided through Medicare Part D and 40 provided by physicians under Part B. In our view, the benefit of this tool is likely twofold. First, it provides beneficiaries and physicians with potential cost information on 80 widely prescribed medications. Second, the threat of being “named and shamed” on the dashboard (because of a large increase in the cost per unit) could give manufacturers pause about raising list prices in the first place, in our view.

### Hospitals Building in Notifications Regarding Expensive Drugs

Over the past two years, certain companies have come under intense public scrutiny for eye-popping price increases—sometimes in the triple- to quadruple-digit-percentage range. Beyond the impact on the budgets of millions of consumers, these price increases also have wrought havoc on the pharmacy budgets at health systems, leading to creative maneuvering by hospital administrators.

For example, the University Hospitals of Cleveland now displays several dollar signs in the online e-prescribing system to encourage clinicians to use a cheaper alternative, if possible. As discussed earlier in this report, we believe such solutions are becoming more abundant in the marketplace today (with numerous technology vendors offering the ability to integrate price and quality information directly into electronic health records); moreover, under more shared-savings reimbursement models, we believe healthcare providers will be increasingly incented to offer such transparency tools to their providers. In turn, we see this as a major area of investment for health systems and larger physician groups over the coming years.
Large Employers Also Align in Battle Against Healthcare Cost

Several large companies—collectively covering about 4 million individuals and spending more than $14 billion annually on healthcare—recently formed an alliance (the Health Transformation Alliance [HTA]) to share information on employees’ health spending and outcomes. The goal of the alliance is to “fundamentally transform the corporate health care benefit marketplace” to reduce costs and improve health outcomes. Thus far, the HTA has outlined four broad areas of focus, which we believe are important areas to monitor over the coming year:

- Use their pooled expertise to procure healthcare more efficiently and effectively (presumably less expensively);
- Leverage collective data on prices and outcomes to identify the most cost-effective treatments;
- Use combined experience of member organizations to determine the most effective ways to educate employees on their healthcare choices; and
- Ensure that patients obtain the most effective prescription drugs for their condition, by arming providers and patients with a full range of data on costs and outcomes for pharmaceuticals.

Of note, the HTA spent 2016 focused on building the organization. However, pilot projects related to the affordability of prescription medications are slated to launch in 2017, with other major initiatives starting in 2018, making this group a key one to follow on a go-forward basis, in our view.

More specific, employers are still the largest purchasers of healthcare in this country, and given that existing HTA members collectively represent more than 2% of the total employer-sponsored population in the United States, we suspect that any meaningful changes undertaken by this group have the potential to send shockwaves through the entire marketplace.

Online Reviews Also May Become a Source for Outcomes Data

A recent study published in Health Affairs (Yelp Reviews of Hospital Care Can Supplement and Inform Traditional Surveys of the Patient Experience of Care) examined the growing popularity of platforms like Yelp as destinations for quality information on healthcare providers.

The study’s authors examined the actual content of the Yelp reviews to ascertain whether they contained similar information as that collected by the government-mandated consumer HCAHPS surveys (the Hospital Consumer Assessment of Healthcare Providers and Systems).

In many cases, the authors determined that Yelp reviews covered several other criteria that are not included in the HCAHPS but are actually quite valuable for consumers. In fact, 9 of the 15 most prevalent criteria in the Yelp reviews were not included in the HCAHPS survey. For example, Yelp reviews often mentioned insurance and billing, scheduling, compassion of the staff, quality of staff, and the cost of a visit—none of which are included in the traditional HCAHPS surveys.

Clearly there are shortcomings to relying too heavily on online consumer review platforms—one of the largest being that self-selection bias inevitably results in a prevalence of views that skew very positive or very negative. However, a number of past studies also have shown a correlation between higher scores on Yelp and better outcomes.

For example, a study conducted by Dr. Naomi Bardach of the UCSF Benioff Children’s Hospital San Francisco determined that roughly 25% of the 3,800 hospitals with HCAHPS survey data also had Yelp reviews. And based on a review of data, Dr. Bardach and her associates determined that there is a strong correlation between a high rating on Yelp and lower mortality for myocardial infarctions, lower mortality for pneumonia, and fewer readmissions for heart failure. Accordingly, we believe that
even online consumer ratings sites such as Yelp can assist in moving the healthcare transparency movement forward—and, in our view, as more consumers rely on these vehicles for transparency data, it will become more important for providers to monitor (and improve upon) these reviews.

**Transparency Scorecards Still Show Massive Room For Improvement.**

The Catalyst for Payment Reform (CPR) recently released its annual transparency scorecard, rating existing state laws and regulations regarding price and quality transparency. While the latest iteration highlights progress at the state level this year, it is also a reminder that significant room for improvement remains.

More specific, higher grades were awarded for states with legislation requiring the release of charge and payment data for common outpatient and inpatient services to the general public in an easy to access and understand format. Still, in 2016, there were only three states that received an "A" rating, one received a "B" rating, two received "C" ratings, one received a "D" rating, while 43 received an "F" (exhibit 15). While objectively these are still abysmal results, these results still display a noticeable ratings improvement from the previous year, when only one state received an "A" rating, two received "B" ratings, two received "C" ratings, and the remainder received an "F."

We are hopeful that the move up in top-ranked states, along with the implementation of new legislation in larger states such as Florida and Ohio, will spur an acceleration in this transparency trend (particularly since effective price transparency often requires integrating data from both payers and providers).
In the absence on new legislation, however, we believe market dynamics will continue to push transparency forward as employers and consumers with more financial responsibility begin to demand such offerings. We also believe that leading technology vendors will begin to aggregate more of this data in the near future to offer consumer-centric healthcare comparison solutions to both consumers and healthcare providers.

**The Bottom Line**

Although the current state of transparency in the U.S. healthcare marketplace leaves significant room for improvement, a number of macro trends are pushing the market forward at a rapid rate, in our opinion. Most important, we believe consumers and large employers are starting to vote with their volumes—we believe narrower provider networks, a movement of care to alternative delivery sites, and increased price shopping among a larger percentage of consumers (and employers) are effectively forcing providers to increase transparency.

Moreover, studies indicate that transparency can markedly increase consumer satisfaction with the healthcare experience, alleviating a recurring complaint regarding the overall uncertainty in healthcare costs. Accordingly, we believe innovative providers will increasingly use price transparency to their advantage—gaining market share, capturing new business, and eventually forcing laggards to follow their lead over the coming years.

**Factor Three: Greater Use of HCIT Will Enable the CDHC Revolution**

In recent years, government mandates and incentives pushed providers to adopt EHRs at a dizzying pace. However, we believe the rapidly approaching endpoints for the incentive portion of EHR adoption, as well as the abovementioned impact of the new administration in Washington D.C., will likely force healthcare organizations and the broader healthcare IT vendor community to assess next steps needed to improve patient access, care delivery, provider satisfaction, and—of course—their impact on their future business models.

Meanwhile, consumers (i.e., U.S. taxpayers) are left wondering if they got what they paid for with the EHR incentive programs and whether the next generation of healthcare technology will improve healthcare choice, cost, and quality.

As we look back—not just on this past year, but on a multitude of data to compare the early days of the EHR stimulus to the current landscape—we believe that EHRs have been widely installed and that the overall HCIT adoption has progressed from basic to fairly advanced. Moreover, while expectations were high for the potential impact from EHR stimulus payments, it now appears more realistic to look at these funds as providing the basic digital infrastructure upon which future innovation can grow. In that light, we see the wind down of the EHR stimulus payments as a starting place for a smarter and more automated healthcare delivery system through digitization, rather than a precursor to diminishing HCIT spending.

More specific, myriad data points we observed on provider-provider electronic patient information exchange and patient-provider digital interactions show that significant progress has been made over the last five years; however, a large greenfield opportunity remains. More specific, areas like telehealth, remote patient monitoring, quality reporting tools, clinical documentation, provider communication tools, patient engagement, care management tools, and business intelligence, among others, appear to be ripe for greater adoption and empowering patients to be greater consumers of healthcare.
EHR Stimulus Is Winding Down but HCIT Adoption Is Far From Over

The HITECH Act was successful in driving significant adoption of EHRs. Before the enactment of the HITECH Act in February 2009, EHR adoption, while occurring at a decent pace, was hindered by two factors: 1) the perception that the cost of adoption was high, especially considering an initial negative productivity impact on physicians, and 2) the reality that there are asymmetries between the stakeholders who bear the cost of adoption (providers) and those who reap many of the benefits (payers and patients).

Fortunately, the HITECH Act helped jump-start clinical HCIT adoption through two distinct initiatives: 1) tens of billions of dollars in adoption incentives for providers that purchase and use, in a meaningful way, certified EHRs, and 2) eventual penalties for those providers that do not adopt and use robust systems. Below we discuss the results of the stimulus payment for EHR adoption and increased digitization of healthcare and then discuss the role that penalties are likely to play.

First, the stimulus payment stage is rapidly winding down, as the early adopters have already received maximum payments and the laggards will receive a final payment for the 2016 program year in early 2017. CMS recently reported that roughly $35.4 billion in Medicare and Medicaid incentive funds had already been paid out by the end of September 2016 (up 13% from the $31.2 billion reported at the end of October 2015).

So what does $35 billion pay for? Putting aside—for a moment—the question of how EHR adoption has benefited the consumers who helped fund the billions in incentive payments, the data is clear that the funds were quite effective in getting provider groups to install EHRs, in our view.

For example, the cumulative percentage of U.S. physicians attesting to the first stage of meaningful use of an EHR has risen from 6% at the end of 2011 to 42% at the end of 2015. And the story is even better in the inpatient setting, where the cumulative percentage of U.S. hospitals attesting to the first stage of meaningful use has risen from only 17% at the end of 2011 to 84% at the end of 2015.
In our view, this is critically important since we believe that EHRs are the basic infrastructure that will eventually allow sizable returns from increased data analytics, clinician behavior change, and stronger patient engagement. However, the transition from installing an EHR to realizing the abovementioned returns will not be a linear path without challenges.

**EHR use has increased in sophistication in recent years.** The first year of stage 2 of the meaningful-use program was 2014; this stage requires stricter compliance with clinician behavior change and patient engagement goals—two keys to a more consumer-centric marketplace. Graduation to the stage 2 requirements is only required after two years at stage 1, so by 2015, providers that had started at stage 1 in 2011, 2012, or 2013 faced the heightened requirements, driving a 94% increase in the number of physicians and a 56% increase in the number of hospitals eligible for stage 2 in 2015 versus 2014.

The ability of providers to meet the heightened stage 2 requirements also appears brighter now than in our 2016 CDHC report. More specific, with the 2015 reporting period closed, 63% of the physicians and 88% of the hospitals required to attest to stage 2 have met the heightened burden, up from 44% of physicians and 70% of hospitals in the 2014 program year (note that with full-year reporting requirements, data on the 2016 program year will not be available until spring of 2017).

Beyond the government-reported meaningful-use attestation data, American Hospital Association (AHA) survey data also supports our thesis that the sophistication of EHR use has increased significantly since the start of the meaningful-use program. For example, AHA survey data shows that adoption of any EHR has increased from 35% in 2011 to 88% in 2015, while adoption of a comprehensive EHR by nonfederal hospitals has increased from only 9% in 2011 to 40% in 2015 (exhibit 18).
Of note, a comprehensive EHR adds advanced functionality, such as computerized physician order entry for lab reports, radiology tests, consultation requests, and nursing orders; the ability to digitally view radiology images, diagnostic test images, and consultant reports; and decision support tools like clinical guidelines, clinical reminders, possible drug-drug interactions, and drug dosing support. In other words, a comprehensive EHR includes much of the technology that makes an EHR more than just a drag on clinician productivity.

Similarly, HIMSS Analytics’ seven-stage EHR adoption model shows increasing sophistication of EHR use, but also demonstrates that there is still plenty of room to grow. As of the third quarter of 2016, for example, it reported that only 4.6% of hospitals have reached its top stage, up from 1.2% as of the first quarter of 2012. HIMSS Analytics describes stage seven for hospitals as a complete EHR with data warehousing, business intelligence tools, and clinical information readily shared via standardized electronic transactions. On the physician side, as of the third quarter of 2016, it reported that 10.0% of physicians have reached its top stage, up from zero as of the first quarter of 2012. For physician practices, HIMSS Analytics describes stage seven as an EHR with health information exchange capabilities, business and clinical intelligence, as well as the requirements of lower stages including advanced clinical decision support, CPOE, and patient portal capabilities. In our view, the data from CMS, AHA, and HIMSS Analytics support the same narrative that the meaningful-use stimulus payments successfully incentivized the installation of EHRs that will be the building blocks for further digitization with healthcare.

**Penalties for non-adoption are still a factor.** Regarding the penalties put in place by the HITECH Act that follow the stimulus funds, hospitals that did not adopt EHRs by fiscal 2015 are subject to a payment reduction based on their Medicare basket update in 2017. For physicians, the penalty stage of the meaningful-use program will now be part of the physician reimbursement formula—roughly 25% of the mix—outlined by the MACRA legislation passed overwhelmingly by a bipartisan vote in Congress late in 2015 (with specific rules announced during 2016). For both hospitals and providers, the Medicare administration has taken some of the teeth out of the penalties—either by lowering the magnitude financially or by making the requirements for compliance easier—but, given the bipartisan nature of the MACRA legislation, we expect adoption and use of EHRs to remain a component of Medicare reimbursement and, in turn, to positively influence further adoption of HCIT.
Provider-Provider and Patient-Provider Digital Interactions Are on the Rise

Widespread installation of EHRs did not result in seamless flows of digital health information between providers, but trends are still moving in a positive direction. Many critics of the meaningful-use program are upset that the stimulus payments and EHR installations have not resulted in ubiquitous transmission of patients’ health information and corresponding improvements in patient care. However, while the magnitude of digital health information flow may be regarded as light relative to the dollars spent, there has been clear progress made in the flow of digital health information.

For example, AHA data shows that more hospitals are exchanging patient information electronically with outside providers than ever before. More specific, the percentage of hospitals exchanging electronic patient information such as lab results, radiological reports, clinical care summaries, and medication lists has improved from 41% in 2008 to 82% as of 2015. Not surprisingly, the practice of exchanging outside information trails the adoption of EHRs slightly.

Exhibit 19
Consumer-Centric Healthcare
Percentage of Hospitals That Exchanged Information With Outside Providers
(includes lab results, radiological reports, clinical care summaries, and medication lists)

<table>
<thead>
<tr>
<th>Year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>41%</td>
<td>45%</td>
<td>44%</td>
<td>50%</td>
<td>58%</td>
<td>62%</td>
<td>76%</td>
<td>82%</td>
</tr>
</tbody>
</table>

Source: American Hospital Association Annual Survey Information Technology Supplement

In addition, there is still room to improve the frequency with which organizations are sharing outside patient information. According to the AHA, in 2015, only 18% of hospitals were exchanging outside electronic patient information “often.”
Many encounters may not require outside patient information, but we still see room for growth of the frequency of outside electronic patient information exchange. More specific, organizations responding to an AHA survey cited the inability to view outside information in an EHR and the difficulty in integrating outside information into the EHR they use as the top reasons for not using outside electronic patient information (see exhibit 21).

Fortunately, the recently passed 21st Century Cures Act provides further support for widespread electronic exchange of health information by making vendors pledge to not engage in information blocking (e.g., erecting barriers to the flow of information from outside systems) as part of the EHR certification process; it also authorizes the HHS Office of the Inspector General to investigate any claims of information blocking and levy fines of up to $1 million per violation.
Patient-to-provider digital interactions are also trending in a positive direction, although still short of ubiquitous. While EHR adoption is at various stages depending on provider size and specialty, numerous healthcare stakeholders have started to enable consumer-oriented benefits by digitizing the healthcare process.

For example, on an individual basis, both payers (including CMS) and providers are increasing patient access to their own medical records. We believe there also will be a greater push not only for patient access to digital health information, but also to make the data portable for patients (i.e., not simply siloed with an individual provider) and exchangeable across the care continuum.

Many patients are now able to complete a variety of healthcare-related tasks online, and the strongest penetration rates are for tasks highly correlated with meaningful-use requirements. For example, 92% of hospitals in 2015 provided tools to view medical records online (i.e., a patient portal), up from 43% as of 2013, according to AHA survey data. Patient portals are explicitly required for EHRs certified to participate in the meaningful-use program, so it is not surprising that this one metric exceeds rates we have observed for hospital EHR adoption. Penetration rates appear to decline as online health tasks increase in complexity, but the trends are all moving in the right direction. More specific, the percentage of hospitals allowing patients to request a change to their medical record online has increased from 35% in 2013 to 78% in 2015, and the percentage of hospitals allowing a patient to send a referral summary to a third party has increased from 13% in 2013 to 70% in 2015.

We also believe age demographics play a role in online patient-provider interactions, but maybe not as severely as we had previously thought. For example, athenahealth examined data from its network in 2015 and found that 20- to 30-year-old patients had the highest propensity to view results online—53% of patients in this group who had a portal account within 30 days of their appointment viewed their lab results—and this metric trended downward with advancing age. However, the metric plateaued at about 44% for age groups between 60 and 90 years old. This
represents a more modest drop-off than we would have anticipated and, of course, plays favorably going forward as the millennial generation will be more accustomed to online health interactions as they age (exhibit 23).

Beyond meeting meaningful-use requirements or otherwise fostering online management of health information for patients, hospitals also are providing more tools to drive online patient-provider communications. For example, in 2015, 63% of hospitals provided patients with secure messaging tools to directly communicate with providers digitally (up from 55% in 2014), and 37% provided the ability for patients to submit patient-generated data (e.g., weight or blood pressure readings) digitally, up from just 14% in 2013 (exhibit 24).
There is also still room to grow the trend of hospitals moving more administrative functions online. In our view, it is somewhat surprising that absolute adoption levels are not higher for these functions, given that they do not create the potential provider workflow issues that transmitting electronic patient information and online clinical conversations do. Nonetheless, the trends are moving positively toward creating further convenience for patients while creating financial benefits for hospitals. For example, the percentage of hospitals allowing patients to pay bills online—and thus improve hospital cash flows and consumer convenience—increased from 56% in 2013 to 74% in 2015. The percentage of hospitals allowing patients to schedule appointments online—and thus filling capacity and improving volumes (while again driving a more consumer-centric experience)—increased from 31% in 2013 to 45% in 2015 (as seen in exhibit 25).

We also believe even the most basic use of technology can positively affect provider volumes. For example, athenahealth published an analysis of no-show rates for patients within their network and found a roughly 6% lower no-show rate for patients receiving a text notification for their appointment than the group that received no message. The text cohort outperformed the phone message cohort by 5% as well—again demonstrating how better consumer engagement can drive stronger performance for the provider as well (exhibit 26).
HCIT adoption will also increase as providers believe it improves care. Government mandates and consumer demand for modern technology conveniences have been helpful to drive the adoption of HCIT, but what will be key going forward is that the hospital and physician organizations that are financing these investments see a benefit of better patient care. To that end, we believe a recent survey from the American Medical Foundation is quite revealing: it found that 85% of physicians believe that digital tools provide an advantage in delivering patient care (exhibit 27).

Further, physicians’ top reasons for using digital tools were improved work efficiency, increased patient safety, and improved diagnostic ability, while bottom-tier reasons included seeing more patients, creating new revenue streams, and patient demands. We admit that “improved efficiency” may include better throughput and related revenue as outcomes, but most of the other favored rationales are decidedly patient-centric (e.g., improved patient convenience, adherence, and relationships with physician).
Physicians also are enthusiastic about a number of technologies beyond the basic EHR that are currently at low levels of adoption, including telehealth, remote monitoring, and clinical decision support—all of which we view as highly consumer-centric means of care delivery.
The Bottom Line

We believe the government’s EHR stimulus program increased the basic adoption of HCIT and that a further inflection point in the usefulness of these now digitized workflows is on the horizon.

This transformation will be instrumental for CDHC initiatives to take hold broadly. More comprehensive EHR use should facilitate adoption of additional technology tools and greater sharing of clinical and cost data, thus allowing patients to make more-informed choices and enabling the implementation of the population health management initiatives needed to reduce waste and lower costs in the system.

Factor Four: More Financial and Quality Responsibility Borne by Healthcare Consumers

Our fourth tenet of consumer-centric healthcare is that most consumers will make better healthcare decisions and healthier lifestyle choices when their own money is on the line. As discussed earlier, a key driver of this change is the large increase in high-deductible health plans across the United States.

According to the Centers for Disease Control and Prevention (CDC), the number of nonelderly (under the age of 65) Americans with a high-deductible health plan (HDHP) or a consumer-driven health plan (a high-deductible plan with a health savings account) has risen steadily over recent years. In 2010, about 25.3 million persons were covered under some form of HDHP; this number rose by 53.3% through the beginning of 2016, to a record 38.8 million (exhibit 30).

As discussed earlier, we believe this places significantly more financial responsibility for healthcare consumption on consumers themselves, which is a key element pushing consumer-centric healthcare into the mainstream.
Consumers Are Bearing a Larger Share of Medical Cost

Each year, the Kaiser Family Foundation and the Health Research and Educational Trust (HRET) publish an extensive survey of the employer-sponsored insurance market. The 2016 edition also confirmed that the trend of increasing employee responsibility for healthcare costs, which we have highlighted since publishing the first edition of Consumer-Centric Healthcare in 2005, continues apace.

The percentage of covered workers who enroll in HDHPs has increased markedly over recent years, while plan structures like HMOs and PPOs have seen their market share shrink. In 2016, for example, roughly 29% of employer-sponsored beneficiaries were enrolled in HDHPs, significantly above the 4% mix when they first appeared in 2006 (exhibit 31). As discussed earlier in this report, this represented the single largest uptick witnessed in these plans in seven years—demonstrating their significant momentum in the market, in our view.

Exhibit 31
Consumer-Centric Healthcare
Distribution of Health Plan Enrollment for Covered Workers, by Plan Type

<table>
<thead>
<tr>
<th>Year</th>
<th>Conventional</th>
<th>HMO</th>
<th>PPO</th>
<th>POS</th>
<th>HDHP/SO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>73%</td>
<td>16%</td>
<td>11%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>21%</td>
<td>31%</td>
<td>28%</td>
<td>26%</td>
<td>7%</td>
</tr>
<tr>
<td>2000</td>
<td>27%</td>
<td>28%</td>
<td>29%</td>
<td>28%</td>
<td>14%</td>
</tr>
<tr>
<td>2001</td>
<td>10%</td>
<td>29%</td>
<td>46%</td>
<td>24%</td>
<td>21%</td>
</tr>
<tr>
<td>2002</td>
<td>8%</td>
<td>27%</td>
<td>52%</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>5%</td>
<td>24%</td>
<td>54%</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>5%</td>
<td>25%</td>
<td>55%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>3%</td>
<td>21%</td>
<td>61%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>3%</td>
<td>20%</td>
<td>60%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>3%</td>
<td>21%</td>
<td>57%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>2%</td>
<td>20%</td>
<td>58%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>1%</td>
<td>20%</td>
<td>60%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>1%</td>
<td>19%</td>
<td>58%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>1%</td>
<td>17%</td>
<td>55%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>1%</td>
<td>16%</td>
<td>56%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1%</td>
<td>14%</td>
<td>57%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>1%</td>
<td>13%</td>
<td>58%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>1%</td>
<td>14%</td>
<td>52%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>1%</td>
<td>15%</td>
<td>48%</td>
<td>9%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Kaiser Family Foundation/Health Research & Educational Trust, Employer Health Benefits Survey (2016)

One of the drivers of the shift toward HDHPs (which typically have lower premiums) has been an increase in the portion of the monthly premium borne by employees. For example, the mix of workers who make no contribution to their premium for single coverage has decreased from 24% in 2002 to an all-time low of 12% in 2016 (representing the largest sequential decline since we began tracking the data in 2002), while the proportion of workers who pay between 25% and 50% of their premium has increased from 13% in 2002 to 24% in 2016.
A similar trend can be observed for family coverage as well (exhibit 33): in 2002, 9% of workers made no contribution to the premium, which fell to only 3% in 2016—another all-time low (and tied for the largest year-over-year decline since we started tracking the data) as workers continue to bear more healthcare costs.
Deductibles Are Increasing Markedly
Given these increases in high-deductible plans, it should come as no surprise that individuals’ overall cash payments toward deductibles also have increased markedly over the past several years—a point that was confirmed by a 2016 study completed by the Kaiser Family Foundation (KFF).

KFF analyzed a variety of large employer data sets from Truven Health Analytics and the Bureau of Labor Statistics and determined that cumulative payments toward deductibles increased 256% over the past decade, while wages increased only 32% and copayments actually declined by 26%. In our view, this is important since deductibles typically drive more price sensitivity than copayments (which are generally flat dollar amounts)—thus indicating a significant uptick in overall consumer responsibility for healthcare spending (exhibit 34).

A similar trend also can be seen in analyzing the average annual deductible amount for single coverage in the United States, which has increased nearly threefold since 2006 alone, with the average deductible for a covered worker increasing from $584 in 2006 to an average of $1,478 in 2016 (exhibit 35).
Moreover, Kaiser estimates that **more than 50% of all U.S. employees now face deductibles in excess of $1,000**, compared with only 10% as recently as 2006 (exhibit 36). Moreover, nearly 65% of small employers now place their employees in plans with more than a $1,000 deductible, with 41% of small firms placing employees in plans with more than a $2,000 deductible.

As discussed earlier in this report, this likely is leading to significantly more comparison shopping and overall discretion in healthcare purchases, in our view, as more than half of all consumers with insurance now face material out-of-pocket costs for medical procedures (including areas that previously fell above historical deductible levels, such as imaging procedures and minor surgeries).
Overall Employee Contributions to Healthcare Premiums Also Are Rising

Despite incurring markedly higher deductibles for healthcare utilization, employees also are facing higher overall costs related to annual insurance premium contributions. Employee contributions for family healthcare coverage increased to $5,277 in 2016—a record level and an increase of 78% over the last decade (exhibit 37). This contrasts with employer contributions of $12,865, up only 58% over the same period—indicating that the typical employee now contributes roughly 30% of total premium spending, despite facing markedly higher deductible payments as well.
ACA Exchanges May Disappear, but Consumer Purchasing Activity Is Still Educational

While the exit of many large insurers from ACA insurance exchanges—along with the pending repeal of many provisions of the ACA itself—may signal the end of the ACA health insurance marketplace, consumers’ purchasing activities in this market are still instructive, in our view, as they relate to future trends in the individual health insurance market.

More specific, we expect ACA-related health insurance purchasing mandates and the related exchanges to be replaced by some form of tax credit to purchase individual insurance in the future. Moreover, we believe more employers are moving toward defined-contribution plans—where they provide a pre-budgeted spending level per employee (or family) for health insurance, while affording employees the opportunity to then select health plans from a broader array of insurance products via a private insurance exchange. Importantly, in each of these situations, the individual likely will have greater choice regarding what type of coverage to purchase and what level of deductible to incur, based on their individual financial status and the level of tax credits or employer funding they receive.

Thus, we look to ACA exchanges (where consumers also have the opportunity to select a variety of plans and premium levels in a similar manner) for insights on how consumers might operate in the future. If there is one clear point that becomes obvious from this analysis, it is that members generally select higher-deductible plans with lower monthly premiums. For example, based on data from the U.S. Department of Health and Human Services, 89% of all marketplace enrollees selected either bronze (21%) or silver (68%) plans during 2015—with only 7% choosing gold plans, and 3% in platinum offerings.

In our view, this is important since the bronze and silver plans qualify as high-deductible health plan offerings—with the average bronze deductible at $5,187 and the average silver deductible at $2,951 (exhibit 38).

<table>
<thead>
<tr>
<th>Exhibit 38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer-Centric Healthcare</td>
</tr>
<tr>
<td>Average Deductible for Marketplace Plans</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plan Type</th>
<th>Deductible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catastrophic</td>
<td>$6,577</td>
</tr>
<tr>
<td>Bronze</td>
<td>$5,187</td>
</tr>
<tr>
<td>Silver</td>
<td>$2,951</td>
</tr>
<tr>
<td>Gold</td>
<td>$1,197</td>
</tr>
<tr>
<td>Platinum</td>
<td>$574</td>
</tr>
</tbody>
</table>

In turn, we anticipate that any replacement options for ACA insurance exchanges likely would experience a relatively similar distribution of plan types in the future—again indicating more exposure to high-deductible plans and more consumerism in healthcare purchases.
Consumers Are Becoming More Engaged in Managing Their Health

We believe employers also are pushing greater responsibility for health maintenance and engagement onto their employees via wellness programs, surcharges for negative health behaviors, and rewards for participating in health promotion initiatives. According to a 2016 study from the Society for Human Resource Management (SHRM), for example, roughly 45% of employers increased their wellness offerings in 2016 and 82% of survey respondents indicated that existing wellness programs were somewhat or very effective in improving employee health, while 77% indicated the programs also were somewhat or very effective in controlling healthcare costs.

The same report by SHRM also indicated that one in five employers are now charging employees a surcharge for tobacco use. Similarly, a Kaiser survey indicated that 59% of all large employees (defined as those with more than 200 workers) currently offer an opportunity for employees to complete health risk assessment, which are then used to develop employee-specific wellness plans. Moreover, more than 74% of employers now offer smoking-cessation programs, 68% offer weight-loss programs, and 73% offer lifestyle or behavior coaching to help drive health improvement.

As part of these programs, nearly half of all large employers (and roughly one-third of all employers) now offer rewards for individuals who pursue healthier behaviors. Among larger employers offering such rewards, nearly 74% are for greater than $150 a year, with nearly 40% providing rewards in excess of $500, and 16% providing rewards of greater than $1,000 (exhibit 39). Accordingly, it appears that employers are not only pushing more costs onto employees, but also providing increased incentives to drive healthy behaviors (or eliminate risky ones). In our view, this is beneficial for employers since they not only may benefit from having lower long-term healthcare costs, but also could see productivity improvements among their workforce.

Exhibit 39

Consumer-Centric Healthcare
Employee Incentives for Healthy Activities Are Also Increasing

<table>
<thead>
<tr>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>$150 or less</td>
<td>26%</td>
</tr>
<tr>
<td>$151 to $500</td>
<td>35%</td>
</tr>
<tr>
<td>$501 to $1,000</td>
<td>23%</td>
</tr>
<tr>
<td>$1,001 to $2,000</td>
<td>9%</td>
</tr>
<tr>
<td>Greater than $2,000</td>
<td>7%</td>
</tr>
</tbody>
</table>

Source: Kaiser Family Foundation and Health Research & Educational Trust

Benefit Options Also Are Expanding Into More Consumer-Centric Areas

Lastly, we believe that employers are actively engaged in providing their workforce with opportunities to use more consumer-centric care delivery vehicles than ever before. In 2016, for example, KFF reports that the majority of employers offer coverage for retail clinics (73% of larger employers and 60% of smaller firms), while emerging areas such as telehealth (39% of larger employers and
20% of smaller employers) and high-performance networks (14% of larger employers and 11% of smaller employers) also are gaining significant traction, and we expect penetration of these latter two areas to increase markedly over the next two years.

At present, we believe utilization of many of these alternative care areas remains fairly low; however, increased access to such alternatives, along with lower pricing relative to traditional delivery channels and increased consumer financial responsibility for healthcare spending, should serve as a power growth catalyst going forward. Accordingly, we continue to view areas like telehealth and high-performance networks as prime beneficiaries of the market trends discussed in this section of our report.

**The Bottom Line**
In our view, the rise of plan structures that require beneficiaries to shoulder a larger proportion of healthcare costs—although not always greeted positively by consumers—will ultimately make patients larger stakeholders in healthcare purchasing decisions, thereby creating incentives to seek out quality care at a lower cost.

**Factor Five: Health Insurers, Employers, and Consumers Are Embracing Consumerism**

Lastly, throughout 2016, we continued to see evidence that insurers, employers, and payers were embracing consumerism, largely through the abovementioned use of account-based health plans such as health savings accounts (HSAs) and health reimbursement accounts (HRAs). Equally important, data that validates the overall cost efficacy and improved outcomes associated with such initiatives continues to be published—including the data discussed in our introduction about HIP 2.0—the first major analysis of these plans in the Medicaid marketplace. In turn, we expect this trend will continue to gain momentum over the coming years.

In addition to these account-based plans, there also continues to be traction in defined-contribution plans, where employers provide their workforce with a fixed dollar amount for healthcare coverage and ask the employees to choose from a wide variety of coverage options, generally made available through private insurance exchanges.

A 2016 study from Kaiser indicates that 18% of employers with at least 50 workers and 28% of employers with at least 5,000 workers that do not yet offer such exchanges are considering a move to them as a means to control healthcare costs.

Similarly, a March 2016 study from the Employee Benefit Research Institute (EBRI) indicated that workers are generally in favor of this change; 60% of survey respondents indicate that they prefer their employers either give them money to buy insurance or simply give them the money spent on insurance and allow them to decide whether to purchase insurance and how much to spend.

These respondents also felt very confident in their ability to compare and choose the best plan if their employers stopped dictating plan offerings to them—with only 16% of respondents either “not too confident” or “not at all confident” in their ability to do so. Moreover, 93% of respondents indicated that they would be comfortable using an objective rating system to choose health insurance.

Lastly, an overwhelming majority of respondents were interested in having more health-plan choices available to them than are currently offered by their employer or union, with 80% of respondents extremely interested (13%), very interested (30%), or somewhat interested (37%) in expanded choice.
As discussed in the section directly above, we believe this has the potential to dramatically affect the healthcare landscape, as consumers will begin to shop for coverage (and thus see a wide variety of cost differences between various health plans) based on their individual (or family’s) healthcare needs and the amount of pre-budgeted healthcare funding they receive from their employers.

In our view, this annual engagement with consumers should serve to further push providers into a more consumer-centric mindset, as they will need to work to lower costs and compete on price to remain in increasingly narrow health plan networks (or perhaps to launch their own provider-owned health plans sold to employees via an exchange).

While we acknowledge that these plans are only a small part of the market today, we believe their growth potential is quite large—particularly if the new administration places limits on the tax deductibility of healthcare (one of the many outstanding proposals of likely HHS Secretary Tom Price)—which in turn could push more employers to provide their workers with pre-budgeted dollar amounts to purchase the insurance plans of their choice.

Either way, we expect more consumerism in the market; we provide the following data from 2016 of how consumers appear to be embracing this change.

**Consumer-Directed Plan Members Are Much More Active Users of Data and Transparency Tools**

According to data analyzed by Alegeus Healthcare (The 2016 Alegeus Healthcare “Moments of Truth” Research Report), members of consumer-centric health plans are significantly more likely to engage in informed decision-making related to their healthcare.

For example, the report determined that consumer-directed plan members were: 50% more likely to research and compare the costs of healthcare purchases, 33% more likely to engage with their benefit service providers, 35% more fluent in healthcare billing terminology, and three times more interested in healthcare transparency tools.

Similarly, an analysis by Deloitte (2016 Survey of U.S. Health Care Consumers) showed that 67% of exchange consumers (mostly high-deductible plan members) used online resources to access information to help them select a health plan, while only 30% of individuals with employee coverage did so—indicating much less engagement in this group. Moreover, 66% of exchange consumers indicated that the website they used most often had tools to compare out-of-pocket costs, versus only 58% of people with employer coverage.

**However, Most Consumers Appear to Have Interest in Increased Transparency**

Similar data also was reported in a recent Robert Wood Johnson Foundation study, which was based on surveys and follow-up interviews with more than 2,000 insured adults across the United States. The study determined that 56% of Americans have tried to find out how much they would have to pay out-of-pocket, or how much their insurer would cover, before receiving medical care.

However, individuals with higher deductibles were more likely to have sought out this information—with 67% of those with deductibles between $500 and $3,000 seeking out the information, and 74% of those with deductibles greater than $3,000 looking for such data (exhibit below)—a clear indication that consumers become more engaged as their cost-sharing increases, in our view.
Moreover, even among those individuals who had not tried to find healthcare prices before, nearly 60% said that they would like to know prices of medical services in advance of receiving care, and 43% of them indicated that they would choose less expensive doctors if they knew these prices. Similarly, nearly 70% of respondents said that they believed insurance companies should be required to make public how much they pay doctors for medical services.

Also of note, individuals who compared prices across multiple providers were more likely to be regular users of medical treatment—with 42% of people who compared prices before receiving regular medical care, compared with 33% of those who have never sought such information before obtaining care. The study also indicated that consumers felt empowered by the process of seeking out and obtaining information—with 62% of price seekers indicating that they believed they saved money and 82% indicating that they will compare prices across multiple providers again in the future, if needs arise.

Lastly, we found it interesting that the majority of respondents were in favor of a variety of means to increase pricing transparency, regardless of their past actions or health plan types. More than 60% of respondents indicated that they would use (or want to have access to) a variety of transparency solutions to help them better manage their healthcare costs (exhibit 41). Again, we view this as a clear indication that consumers have a desire for more information related to healthcare costs, and we believe that providers that can offer it to them have the potential to gain market share.
Engaged Consumers Also Report Lower Utilization of Higher-Cost Services

A 2016 study from the Health Cost Institute also indicates that members of consumer-centric healthcare plans reported higher utilization of low-cost solutions (such as outpatient visits and generic drugs), while experiencing lower utilization of more expensive services (branded drugs, acute-care visits, etc.).

For example, based on similar population cohorts, the analysis determined that (between 2010 and 2014) non-consumer-driven plan members reported a 1% increase in outpatient visits, a 3% increase in prescriptions (measured by the number of filled days), a 23% increase in generics, and a 48% decrease in branded drug utilization. Conversely, the consumer-driven plan members experienced higher outpatient visits (up 2%), stronger overall drug adherence (a 4% uptick in filled days), greater use of generics (up 25%), and lower branded-drug use (down 53%) and overall inpatient utilization (-9% versus -8% in the non-CDHC group).

Moreover, the analysis determined that despite having higher out-of-pocket costs for healthcare (at $1,030 versus only $687 for non-CDHC plan members), consumer-driven plan members reported lower overall healthcare spending, with total spending of only $4,247 versus $4,767 among non-CDHC plan members (a more than 12.2% delta in average annual healthcare spending between 2010 and 2014).

The Bottom Line

In our view, myriad data points we have gathered over the past decade demonstrate an increasing desire among consumers to help better control costs and engage in their healthcare decisions via access to more information (including real-time pricing data). Moreover, given the growing prevalence of high-deductible plans and the likely movement to more defined-contribution benefits in the near future, we believe those providers that offer this information stand to gain market share. We also continue to believe that access to this information will drive consumers to more cost-effective care delivery vehicles (narrow networks, telehealth resources, urgent care clinics) and also empower them to become more active in their own care management activities.
To this end, we conclude this section by reviewing a recent study by The Advisory Board Company, which demonstrates the potential impact of this “shopping and shifting” of volumes to the average U.S. health system.

As seen in exhibit 42, for the average four-hospital health system with roughly $1.6 billion in net patient revenue (NPR), roughly one-third of revenue is considered “shoppable”—indicating a non-emergency procedure that is done in high volume and at multiple locations (i.e., alternative options abound). The analysis further assume that roughly 28% of customers are becoming active shoppers—these are individuals with high-deductible plans or uninsured patients—placing this portion of NPR at risk (although we expect this metric is actually much higher heading into 2017, based on the growth in high-deductible plans since the study was published).

Still, if only 10% to 30% of these shoppable volumes are lost to alternative providers or lower-priced sites of care, it could have a nearly $2 million impact on system sales. Moreover, given the high-fixed-cost structure of acute-care hospitals, along with the fact that these are typically higher-than-average-margin procedures, this would have an even great impact on profits.

Lastly, as the percent of consumers considered “shoppers” is trending up at historically high levels, The Advisory Board Company believes *this risk will double within five years*. Again, we believe this is further proof of the disruptive power of more consumer-centricity in healthcare, as well as a call for hospitals to further advance their business models toward value-based care in the future.
Summary and Investment Conclusions

Overall, we believe that the consumer-driven healthcare revolution is approaching rapidly, and we view the previously discussed developments as evidence that more consumer-centric healthcare is taking hold in the U.S. market.

From a payer perspective, we expect that high-deductible plans will remain the fastest-growing insurance offerings over the next decade. We also believe the movement to defined-contribution health insurance plans and private exchanges will radically reshape the marketplace over the coming years—engaging consumers in healthcare funding decisions up front and markedly increasing demand for price and quality transparency from both payers and consumers.

From an individual perspective, we believe these consumers will become empowered with the necessary information and financial responsibility to make more value-oriented healthcare purchasing decisions. Over the longer term, we are also hopeful that this drives the behavior change (combined with the right support systems) that can lead to sustainable healthcare gains (e.g., less obesity and smoking, more active lifestyles, better adherence to therapies, and preventive care protocols).

From a provider perspective, we believe there will be a growing focus on maximizing healthcare IT investments, such as harnessing "big data" to improve patient outcomes, reducing unwarranted care deviations, improving system interoperability, and providing more consumer-centric care delivery options (e.g., patient portals, access to electronic medical records, more convenient care locations, and telehealth). We also believe that providers that offer more consumer-centric healthcare will thrive over the coming years by attracting more patients.

In turn, these providers should experience superior top- and bottom-line growth, in our opinion. We also believe most leading providers are moving toward shared-savings models, where they will bear more responsibility for the total cost and quality of care delivered to their attributed patients. In this environment, we expect further investments in consumer-centric solutions, which were unprofitable under fee-for-service models.

Lastly, from a healthcare investor perspective, we believe that superior relative returns can be earned by identifying leaders in the emerging field of consumer-centric healthcare, such as those identified at the end of this report.

To further assist investors in this process, we conclude our report with a review of our key investment themes and risks associated with a more consumer-centric healthcare marketplace.

Emerging Investment Themes

Patient-centric healthcare. A primary theme of consumer-centric healthcare is that patients—not third parties, such as the government, insurance companies, or employers—are gaining more control over their healthcare decisions. A significant implication of this shift, in our view, is that healthcare providers must change to accommodate these newly empowered consumers. We believe that these changes are appearing in the form of benefits, such as more convenience for patients, more information regarding providers and services, and increased pricing and quality transparency. Providers also must include patient satisfaction as a key performance metric, in our view, as both reimbursement levels and market share gains will be predicated on the patient experience. In our opinion, companies that understand the need to offer these types of benefits to patients (along with the infrastructure to track outcomes and patient satisfaction) will win in this healthcare revolution.
Cost-effective healthcare. Along with patient-centricity, we believe consumer-centric healthcare leads to a more cost-effective healthcare system, in which *payers* (both third parties and increasingly patients themselves) choose to conduct business with the most-efficient, lowest-cost healthcare providers.

As discussed in our previous reports, as healthcare costs grow at above-inflation rates once again, these payers are becoming more sensitive to cost differences among healthcare providers, and we believe the lower-cost companies (with equal quality) will win.

Significant growth potential. In our opinion, the combination of patient-focused and cost-effective healthcare will provide a much-needed solution to perhaps the single-most pervasive challenge of today’s healthcare system: *its cost*.

Until recently, employers typically absorbed these rising healthcare costs for their employees by paying high health insurance premiums. As absolute healthcare costs have reached record highs, however, employers and other payers are increasingly searching for ways to reduce costs. Again, *we believe that consumer-centric companies will be the primary beneficiaries of this development, as they provide low-cost (and often higher-quality) healthcare services*.

Moreover, we believe consumer-centric healthcare is just now emerging, as companies are increasingly coming to the marketplace with more patient-centric business models. As investors become more comfortable with the concept (and its significant growth potential), we believe that successful consumer-driven healthcare companies—such as the ones described in this report—could earn a premium valuation.

Lastly, the U.S. healthcare market is huge, approaching 20% of the GDP in the United States. Based on our belief that many of the present inefficiencies will be solved by the move toward a more market-driven industry, we believe the opportunity for consumer-centric companies will be immense.

Emerging Investment Risks

The healthcare services industry has become more cyclical. In the past, healthcare utilization generally has trended upward over time, regardless of minor fluctuations in the U.S. economy. We believe this trend has changed, however, as consumers have been given more decision-making and spending responsibility. In turn, we believe patients are making healthcare purchases on a more discretionary basis, especially for elective procedures. This could result in a more cyclical trend in healthcare utilization over the coming years.

Accordingly, we prefer those companies with recurring-revenue models (such as HCIT vendors with significant subscription or maintenance revenue streams or SaaS-based models) or a less discretionary procedure base, both of which help limit short-term volatility in operating results.

Government reimbursement exposure. We expect that consumer-centric companies will experience rapid growth over the coming years. In isolation, this is a positive investment attribute; however, if the companies also have significant exposure to government reimbursement, this can prove to be an investment risk.

We believe that the government is more likely to scrutinize reimbursement rates for fast-growing providers to ensure that Medicare is not artificially promoting growth through excessive reimbursements. In our view, this risk is augmented by the fact that the government is keenly focused on reducing the federal deficit, with Medicare/Medicaid spending reductions a key avenue to achieve savings.
Accordingly, we prefer companies with limited government reimbursement exposure. Again, HCIT companies or outsourced services providers fit the bill nicely, since they have in effect no direct exposure to third-party payers.

**Pricing risk.** Even though consumer-centric operators generally provide lower-cost alternatives to traditional healthcare services providers, they are still subject to pricing pressure from payers (which are further consolidating and gaining scale).

In addition, as commercial payers face increased pressure to rein in premium increases, we expect that pricing pressure (or regulatory measures to control provider pricing) will become more intense over the coming years. Accordingly, we prefer companies that have strong *market positions*, since this typically affords them stronger negotiating leverage with commercial payers. This strong local presence should also better position operators to offer integrated care delivery and, eventually, to participate more actively in shared-savings models, in our view.

On the HCIT front, we also prefer vendors with solutions that have clear value propositions (e.g., lower readmission rates, workflow and workforce productivity improvement, improved HCAHP scores) and a clear return on investment, as the abovementioned pressure on providers, along with increased pressure on overall utilization, will increase scrutiny of capital investments.

**Company Profiles**
In exhibit 43, we present a list of subsectors and some of the top consumer-centric operators that we see in the marketplace today.
Exhibit 43
Consumer-Centric Healthcare Operators

<table>
<thead>
<tr>
<th>Subsector</th>
<th>Description</th>
<th>Representative Companies</th>
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<tbody>
<tr>
<td>Clinical HCIT Vendors</td>
<td>Clinical HCIT vendors automate and digitize the flow of clinical health information, which helps create more efficient, high-quality, better coordinated, and more accessible care for patients.</td>
<td>Accurian Healthcare Solutions, Inc.</td>
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<td>AmazingChart.com, Inc.</td>
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<td>Atria Medical Software, Inc.</td>
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<td>athenahealth, Inc.</td>
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<td>CareCloud Corporation</td>
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<td>CareSight Corporation</td>
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<td>Computer Programs &amp; Systems, Inc. (Evident)</td>
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<td>Credible Behavior Health</td>
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<td>CueMD Healthcare</td>
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<td>eClinicalWorks</td>
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<td>e-MDs, Inc.</td>
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<td>Epic Systems</td>
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<td>Consumer-driven healthcare insurers and enablers</td>
<td>Consumer-driven healthcare insurers and enablers help promulgate the consumer revolution by providing the financial products, high-deductible policies, provider networks, and information tools necessary to make CDHC a reality.</td>
<td>AccessBlue</td>
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<td>Aideus Interactive</td>
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<td>Alexcare Inc.</td>
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<td>Aledade</td>
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<td>Alignment Healthcare</td>
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<td>Ayva</td>
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<td>Beedocs.com</td>
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<td>InVital International, Inc.</td>
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<td>CardioCom, LLC</td>
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<td>Casterline Health</td>
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<td>Change Healthcare</td>
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<td>Compass Professional Health Services</td>
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<td>Connexions 360</td>
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<td>Connecticare Inc.</td>
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<td>Connections, Inc.</td>
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<td>CrossGler Health</td>
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<td>Definity Health (Division of UnitedHealth Group)</td>
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<td>Destiny Health</td>
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<td>dElluminate Health</td>
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<td>Enmed (Wewers Klausen)</td>
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<td>Empyrean</td>
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<td>EngagementPoint, Inc.</td>
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<td>Elici Health Intelligence</td>
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<td>ePharmaFinder</td>
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<td>Eurevo Health</td>
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<td>Evident Health</td>
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<td>ExperienceLab</td>
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<td>Faircare</td>
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<td>Filetilla SecureCare</td>
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<td>ForCareCare, Inc.</td>
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<td>Get Insured</td>
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<td>GoHealth</td>
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<td>GuidingPath Management</td>
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<td>HealthEngine</td>
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<td>Health Dialog Services Corporation</td>
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<td>Health Integrations, Inc.</td>
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<td>Health Management Corporation</td>
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<td>HealthGrades, Inc.</td>
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<td>HealthMedia, Inc.</td>
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<td>HealthSource</td>
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<td>Healthways, Inc.</td>
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<td>HealthZone</td>
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<td>Ideal Life, Inc.</td>
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<td>Imagen Health</td>
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<td>Care transition</td>
<td>Providers that offer services or technology to assist with transitions in care or help reduce readmissions.</td>
<td>Axxo</td>
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<td>A Place for Mom</td>
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<td>Avail Exchange</td>
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<td>Care Health</td>
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<td>CareVoyant</td>
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<td>Carenriage</td>
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<td>ConnectHealth Group, Inc.</td>
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<td>Focused factories</td>
<td>Focused factories are operators that focus on providing comprehensive care for consumers suffering from a specific disease. For example, we view dialysis providers as focused factories for patients suffering from end-stage renal disease, as these operators provide dialysis treatments as well as the specialized care of nurses, nephrologists, social workers, and nutritionists. In our view, the “focus” not only improves the quality of care, but by creating economies of scale and reducing errors, also reduces costs.</td>
<td>Accuchekcare</td>
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<td>American Addiction Centers</td>
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<td></td>
<td>American Laser Centers (Laser)</td>
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<td>Cancer Treatment Centers of America (Oncology)</td>
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<td>Centene Healthcare</td>
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<td>Convivio Health Care</td>
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<td>Eclipse, Inc. (Dailypay)</td>
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<td>Home healthcare and hospice</td>
<td>Home healthcare and hospice providers meet consumer demand by providing healthcare in their homes. Moreover, in eliminating the fixed-cost infrastructure of treating these patients in facilities, overall costs are generally reduced.</td>
<td>ActiveDay Corporation</td>
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<td>Aditus Healthcare, Inc.</td>
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<td>Amedisys, Inc.</td>
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<td>American HomePatient, Inc.</td>
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<td>Aprila Healthcare Group, Inc.</td>
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<td>Beacon Hospice, Inc.</td>
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<td>Bionight, Inc.</td>
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<td>Continuum Healthcare, LLC</td>
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</table>

Source: William Blair
### Exhibit 43 (continued)  
**Consumer-Centric Healthcare Operators**

<table>
<thead>
<tr>
<th>Subsector</th>
<th>Description</th>
<th>Representative Companies</th>
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</table>
| **Interoperability Solution Providers and Workflow Management Solutions** | Interoperability solutions enable the seamless healthcare information exchange between disparate healthcare providers and disparate clinical systems that is needed to provide coordinated care for patients across multiple care settings. | ALERT Life Sciences Computing  
Asensor Corp  
Conexall  
CompPoint Health  
dMotion (Allscripts)  
DrFirst  
Imprivata  
Elonga | MedVintive, Inc. (McKesson)  
Orchard Health  
Redox  
Vangent  
Vivara Communications, Inc.  
VistaNe  
WallCentric (Philips)  
Wolters Kluwer |
| **Payor Focused Software and Services** | These vendors lower consumer costs by automating administrative functions, reducing abusive billing practices, or enhancing consumer choices. | BenefitFocus  
Change Healthcare Corporation  
Covisit  
CoverMyMeds  
HMS Holdings Corp.  
MEdecision  
SCIO Health Analytics  
Trizetto |
| **Personal Emergency Response Systems (PERS)** | In our view, these providers offer opportunities for individuals to live independently and receive important monitoring protection of their health. | Connect America  
Critical Signal Technologies  
Life Alert Emergency Response, Inc.  
LifeLine Systems (division of Phillips)  
LogicMark, LLC  
American Medical Alert Corp (Turnstall Healthcare Group)  
Valued Relationships Inc. |
| **Physician/Consultation Services and Technologies** | These vendors lower consumer costs by aggregating demand from different locations for their services and providing care remotely. | AmericanWell  
Carenity  
ChironHealth  
Cicolors  
Doctor on Demand  
Envision Telepharmacy  
Guardian 24/7  
InTouch  
MOLive  
Medweb  
Specialists On Call, Inc.  
Teledo  
TeleMedExperts, LLC  
Well Corp. |
| **RCM Software/Services** | RCM software and services vendors improve the consumer experience by automating the front-end (registration, pre-authorization) process, improving accuracy of bills and payer reimbursement, and providing quality-cost analytics. | Alocine Health, Inc.  
Avaryst Health  
Azalea Health  
Bolder Healthcare Solutions  
Conifer Health Solutions  
Change Healthcare  
Cynetics  
Etransmedia Technology, Inc.  
Experian  
Mckalkus  
MedAnalytics  
nThrive  
Navicure, Inc.  
PayExten, Inc.  
Recondo Technology  
RelayHealth (a McKesson company)  
SeamlessMedical Systems  
SimplePay  
Vyne  
Zimed Inc. |
| **Short-stay surgical facility (SSF) operators** | In our opinion, these operators offer consumers a higher-quality, lower-cost alternative to acute-care hospitals for low-risk (typically outpatient) surgical procedures. | ASCOA  
Blue Chip Surgical Center Partners LLC  
Foundation Surgery Affiliates  
HCA Holdings, Inc.  
National Surgical Care  
National Surgical Hospitals, Inc.  
Physicians Endoscopy  
Surgery Partners, Inc.  
Surgical Care Affiliates  
Syntel, Inc.  
Tenet Healthcare Corporation |
| **Other industry leaders in emerging CDHC fields** | There are a wide variety of emerging subsectors with only one or two major providers that we believe represent attractive growth areas that may benefit from increasing consumer involvement in healthcare. | Acacora Health  
Advisory Board Company  
American Telecare, Inc. (Telehealth)  
Brighter  
Cakethera  
CareSpot Immediate Care (Urgent Care Centers)  
Cogent HMC, Inc.  
Concentra (Healthcare Centers)  
Conscia A Doctor (Physician Consultations)  
ConvenientMD (Urgent Care Centers)  
Eagle Hospital Physicians (Hospitalists)  
Eliza Corp.  
Envision Healthcare (Physician Staffing, Ambulance Services)  
EvanStat  
Evolution1 (WEX)  
hC1.com  
Health Catalyst  
Health in Reach  
HealthFair  
HealthGlobe  
HealthStream, Inc.  
HealthTap  
Healthtree, Inc. (Preventive Health)  
Hello Health  
Intralign Health Solutions  
LifeLine Screening (Preventive Care)  
MD2 International (Concierge Medicine)  
MDVIP Inc. (Concierge Medicine)  
MedExpos (Healthcare Clinics, part of Optum)  
MedVant, Inc.  
National Healing Corporation  
NextCare, Inc. (Urgent Care Centers)  
Physicians Immediate Care  
Pinnacle Care (Personal Health Management)  
Premier, Inc.  
Satori World Medical (Medical Tourism)  
Sharescare  
Simplex  
Sound Physicians  
Team Health Holdings, Inc.  
Telemedicine Solutions (WoundRounds) (Telemedicine)  
The Little Clinic, LLC  
U.S. HealthWorks Medical Group (Healthcare Centers)  
U.S. Preventive Medicine (Preventive)  
Vgo Communications  
Vivara  
Zoe, Inc.  
ZoocDoc, Inc. |

Source: William Blair
Important Disclosures

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DJIA: 19,762.60
S&P 500: 2,238.83
NASDAQ: 5,383.12

The prices of the common stock of other public companies mentioned in this report follow:

Aetna Inc. $124.01
Athenahealth, Inc. (Market Perform) $105.17
The Advisory Board Company (Outperform) $33.25
Costco Wholesale Corporation $160.11
Humana Inc. $204.03
UnitedHealth Group Incorporated $160.04
Walgreens Boots Alliance Inc. $82.76
Wal-Mart Stores, Inc. $69.12
Yelp Inc. (Market Perform) $38.13

Additional information is available upon request.

Current Ratings Distribution (as of 12/31/16)

<table>
<thead>
<tr>
<th>Coverage Universe</th>
<th>Percent</th>
<th>Inv. Banking Relationships*</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outperform (Buy)</td>
<td>62%</td>
<td>Outperform (Buy)</td>
<td>10%</td>
</tr>
<tr>
<td>Market Perform (Hold)</td>
<td>36%</td>
<td>Market Perform (Hold)</td>
<td>3%</td>
</tr>
<tr>
<td>Underperform (Sell)</td>
<td>1%</td>
<td>Underperform (Sell)</td>
<td>0%</td>
</tr>
</tbody>
</table>

* Percentage of companies in each rating category that are investment banking clients, defined as companies for which William Blair has received compensation for investment banking services within the past 12 months.

The compensation of the research analyst is based on a variety of factors, including the quality and accuracy of research, client feedback, contributions to other firm departments, competitive factors, and firm profitability.

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