

## Hospital primer, 9th edition – what you need to know about this \$1.2T industry

Industry Overview

Bank of America  
Merrill Lynch

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### Understanding the hospital industry

Our 9th annual hospital primer provides a detailed analysis of the \$1.2 trillion hospital industry's growth drivers. We believe that to understand any health care facility sector, investors should start with reimbursement – from Medicare and Medicaid to commercial. Meanwhile, given the fixed cost structure, volume growth is another key driver and we analyze the structural and cyclical drivers of volumes. Finally, we analyze in great detail the impact that Health Care Reform had for hospitals, the potential impact of repeal and "Medicare For All" scenarios.

### Historical and future hospital growth drivers

We analyze each of the historical drivers such as pricing, volumes, bad debt, cost control, and acquisitions. Reform benefits, improving fundamentals, and large acquisitions at some companies drove EPS growth above historical levels in 2014-2015. However, overzealous acquisitions by some companies coupled with slowing volumes, Medicare reimbursement pressure and from increasing uninsured and government shifts towards using managed care led to deterioration in hospital fundamentals in 2016-2018. As a result, companies spent the last few years divesting hospitals and pruning their portfolios in order to reduce leverage. That said, we expect growth rates to continue at long-term averages; 2-5% EBITDA growth on 0-1% volume growth and +3% pricing with downside risk from slower volume growth, worsening payor mix and labor pressure.

### Reform was a boost; risk to coverage even without repeal

Our Reform thesis was that Reform would be more front-end-loaded than many expected, as sick people have the most incentives to buy insurance, while rate cuts to fund Reform were back-end loaded. Given this dynamic, hospitals saw a boost in earnings in 2014-2016, which only translated to a modest long-term benefit as the margin benefits were offset over time by the rate cuts implemented to fund Reform. Although Republicans were not able to repeal the ACA, a number of initiatives (defunding exchange marketing, repeal of the Individual Mandate, work requirements, etc.) have had the effect of lowering enrollment from the peak. As a result, despite the growth in the economy, the uninsured is rising, which increases bad debt and pressures earnings for hospitals. With no major state looking to expand Medicaid coverage, there is downside risk to the number of insured people.

### We address some commonly asked questions

We address a number of FAQs including: Why are commercial rates so much higher than government rates? What could cause commercial rates to come down? How can payor mix shift impact hospitals? What should volume growth be long-term? What is the difference between urban and rural hospitals? How are Medicare rates set? How are hospitals positioned under the new payment models? What's the right way to value hospitals? What is the impact of Medicare for All?

### Reimbursement overview, mix shift impact

We examine the dynamics of Medicare, Managed Care and Medicaid. Our view is that "Medicare rules the day" because it is the single largest payer for services. We also analyze the implications of LT demographics on payer mix and margins.

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Table 1: Hospital companies

Ticker	Name	Market Cap (\$bn)
<b>Urban Hospitals</b>		
HCA	HCA Healthcare	\$44.0
THC	Tenet Healthcare	\$2.2
UHS	Universal Health Services	\$11.2
<b>Rural Hospitals</b>		
CYH	Community Health Systems	\$0.4

Source: Bloomberg, BofA Merrill Lynch Global Research

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## Hospital primer

Our 9th annual hospital primer provides an overview of the \$1.2 trillion hospital market. In this report, we provide an overview of the industry and detailed analysis of the industry's growth drivers. We believe that to understand the hospital industry (or any health care facility sector), investors should start with Medicare reimbursement and go from there. However, a number of other drivers can steer performance and more recently, Health Care Reform, and its positive effects in 2014-2016 and potential negative effects in 2017-2020, has been another driving theme. With Reform benefits reflected in the core numbers, the growth profile of the group should be trending toward the long-term average, unless there are further legislative changes.

### What's new in this report

This primer builds on our previous primers over the last nine years. In the report, we focus on the publicly traded company business model, outlining historical drivers to earnings such as pricing, volumes, bad debt, and M&A. We discuss in detail the various forces at work on hospital volumes over the last several years. We also discuss the importance of looking at the cost of treating the uninsured, which is even more important given the limited disclosure of bad debt metrics post the accounting rule changes effective in 2018.

We updated our analysis of the impact of Health Care Reform on hospital companies, including the impact the companies saw in 2014-2016. We added a discussion on the potential impact of the Reform repeal, and what the industry would be faced with even if there's no repeal. In addition, we added a section on the impact of Medicare for All, as well as price transparency in commercial.

We also discuss how evolving payments model can impact the hospital industry and how each publicly traded hospital company is positioned to participate in these new models. Finally, this report also includes a historical valuation perspective and an analysis of historical valuation troughs and peaks.

### Key hospital industry themes

Before we get into the details of the report, below we have included a few truisms that we have picked up over the last two decades of covering the sector.

- **Medicare (government reimbursement) rules the day.** Positive changes in Medicare reimbursement are usually more positive than they seem, and negative moves are usually more negative. This can truism can be expanded to include other national government programs/initiatives such as Health Care Reform.
- **Focus on bad debt is overblown – focus on cost of treating the uninsured.** In the past, the accounting for bad debt wildly overstated the true economic headwind created by uninsured patients. However, sometimes perception is reality, so changes in bad debt can cause a significant stock reaction in the short term. Meanwhile, given the limited bad debt metrics disclosures under the new accounting rule, we believe that looking at the cost of treating the uninsured is even more relevant.
- **Strong free cash flow generation supports high leverage and M&A/LBO activity.** Hospitals tend to go through cycles where they lever up to do deals, then spend the next few years using their free cash flow to delever and create balance sheet capacity for the next round of acquisition growth.
- **High fixed costs result in significant leverage to incremental top line growth.** This helps explain why changes in Medicare reimbursement can be so meaningful. It also is the reason that we favor companies with the best volume growth prospects.

- **Nonprofit hospitals provide a buffer.** Within the health care industry, the government is highly unlikely to cut rates so much that it puts an industry in bankruptcy (at least not on purpose), but conversely it would not let an industry have excess profits for a long time. Because of this dynamic, it is fortunate that 80% of hospitals are non-profit. Although one-third of non-profits are extremely well run and might rival the results of the publicly traded companies, 20% are doing marginally well and 40% are struggling. It is this bottom 40% that stops the government from implementing significant cuts and means that a well-run hospital should always be able to operate with good margins. By extension, this is one of the reasons that we put such a low probability on a true Medicare for All single payer system. There would need to be significant increases in Medicare payments for hospitals to continue to operate under such a system, turning what is already an expensive initiative into an even greater undertaking.
- **Real estate matters/portfolio management:** The greatest variable for company performance is facility location. Location affects Medicaid reimbursement, bad debt, malpractice, labor costs, volume growth and the competitive landscape. Successful companies prune their portfolio each year and focus management time and capital on markets with the most potential.
- **Payment reform is happening, but slowly.** CMS and managed care increasingly are looking for ways to change the incentives in the health care system away from fee for service toward fee for value. The shift is real and will have significant impacts over time, but given that health care tends to be evolutionary rather than revolutionary, the change will take some time.

## Questions answered

Below we highlight a number of questions that we frequently are asked about the hospital space – click on the link to jump to the section in the report that addresses it.

- Why are commercial rates so much higher than government? See *Why commercial rates are so much higher than government*
- What could cause commercial rates to fall? See *What could cause rates to fall?*
- What were the structural reasons for volume weakness pre-Reform? See *The structural reasons for volume weakness*
- What should volume growth be long-term? See *Volumes grow 1-2% plus demographics*
- How did Reform help 2014-2016 results? See *Reform a boon to hospitals*
- What impacts payor mix and what those changes mean for the hospital industry? See *Economy impacts payer mix*
- How to analyze bad debt given the new accounting rules? See *Our metric: cost of treating uninsured*
- What is the difference between urban and non-urban hospitals? See *Urban vs rural hospitals*
- How are Medicare rates set? See *Medicare inpatient reimbursement*
- What do the balance sheet metrics look like by company? See *Balance sheet metrics by company*
- How did some of the prior major health care overhauls impact hospitals? See *Major policy reforms*

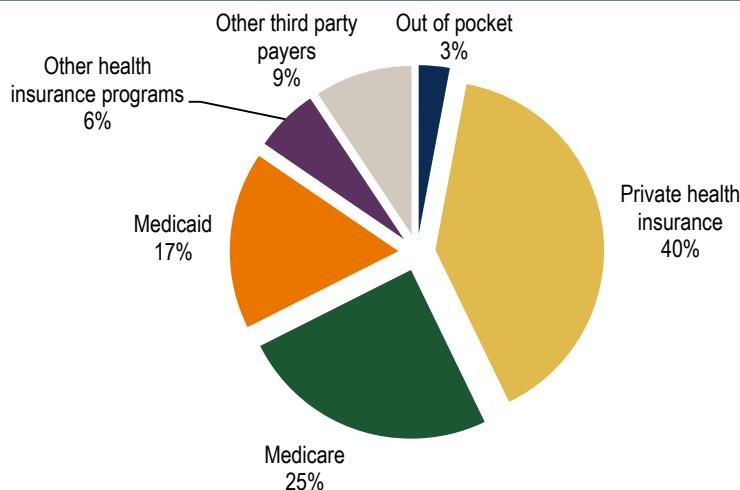
- How are hospitals positioned under evolving models? See *Company exposure to new models*
- How are hospitals valued? See *Metrics: EV/EBITDA vs P/E*
- Are hospital companies just rollups? See *When rollups work and when they do not*
- KF - What is the impact of Medicare for All? See *Medicare for All Scenarios*

## Hospital industry overview

Hospital services is the largest single category in health care at 33% of total health care spending in 2018, or approximately \$1,193 billion, according to the Centers for Medicare and Medicaid Services (CMS) projections. CMS projects hospital services to grow by an average of 5.5% per year through 2027 due to the aging of the US population and consumer demand for expanded medical services along with the impacts of improved economic conditions.

An acute care hospital is a typical general hospital providing services ranging from delivering babies to performing open heart surgery. A typical hospital generates 25% of its revenue from Medicare, the federal reimbursement system that pays for health care services for the elderly, and an additional 17% of revenue from Medicaid, the state-run program with federal matching that pays for health care for the poor (however, public companies generally only receive 10%-12% of revenues from Medicaid and closer to one-third of their revenue from Medicare). Private health insurance (Managed Care), represent 39% of revenue.

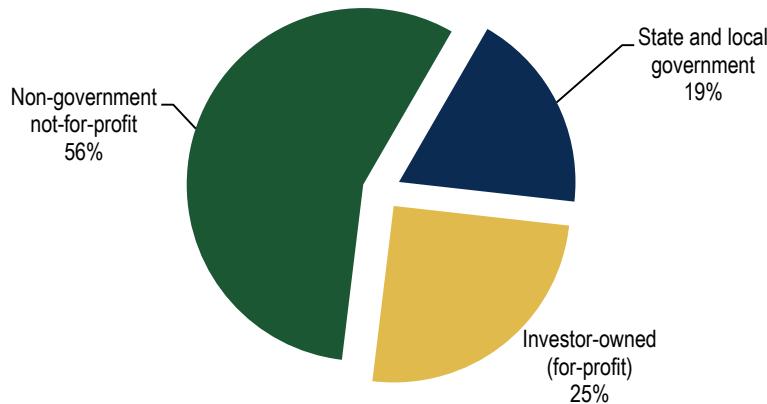
**Chart 1: 2017 Hospitals Expenditures by Source of Funds**



Source: CMS

According to the America Hospital Association (AHA), there are approximately 5,262 community hospitals in the US. In 2017 (the latest data available), 56% of hospitals were not-for-profit entities, while state and local government hospitals comprised 18% of the total, and 25% of hospitals are for-profit entities. We note that publicly traded hospitals represent around 10% of the industry.

**Chart 2: Hospital Ownership by Class, 2017**



Source: AHA

Currently, there are five publicly traded Hospital companies. They consist of 419 hospitals and had about 6.5 million adjusted admissions in 2018, totaling \$91.8 billion in net revenues (after bad debt is subtracted).

**Table 2: Major Industry Players – publicly traded**

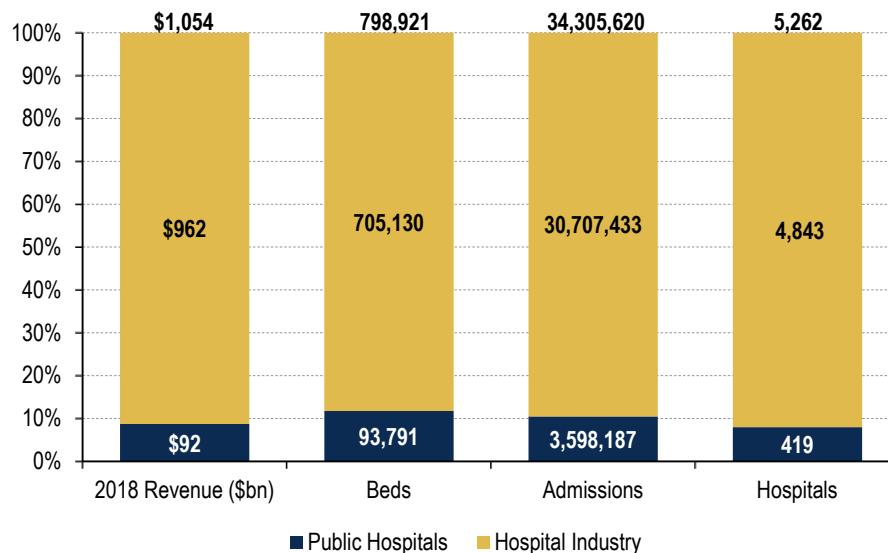
	2018 Revenue (\$bn)	Hospitals	Beds	MC (\$bn)	Admissions	Adj Admissions
HCA	\$46.7	179	46,932	\$43.0	1,903,292	3,233,693
CYH	\$14.2	119	19,771	\$0.4	627,321	1,351,950
THC	\$18.3	68	18,253	\$2.2	689,367	1,241,241
UHS	\$10.8	26	6,232	\$11.1	303,985	487,367
QHC	\$1.9	27	2,604	\$0.9	74,222	183,919
Total	\$91.8	419	93,791	\$57.6	3,598,187	6,498,170

\*Acute care segment data for THC and UHS.

Source: Company filings, BofA Merrill Lynch Global Research

Although publicly traded hospitals represent 8% of hospitals, they tend to operate larger hospitals than average and represent 12% of beds, 10% of hospital admissions and 9% of industry revenue.

**Chart 3: Public hospital revenues, beds, admissions, and hospitals as a percentage of industry**



Source: BofA Merrill Lynch Global Research

There are two non-profit hospital systems with over 100 hospitals in their portfolio. Ascension is the largest non-profit health system in the US with 151 hospitals and more than 50 senior living facilities in 21 states and D.C.

**Table 3: Top 10 hospital systems in the US by the number of hospitals**

System name:	number of hospitals	for profit/non-profit
HCA (HCA)	185	for profit
Ascension	151	non profit
Catholic Health Initiatives	142	non profit
Community Health (CYH)	113	for profit
Trinity Health	94	non profit
LifePoint	89	for profit
Tenet (THC)	68	for profit
Providence St Joseph Health	51	non profit
Baylor Scott & White Health	48	non profit
Prime Healthcare Services	45	for profit

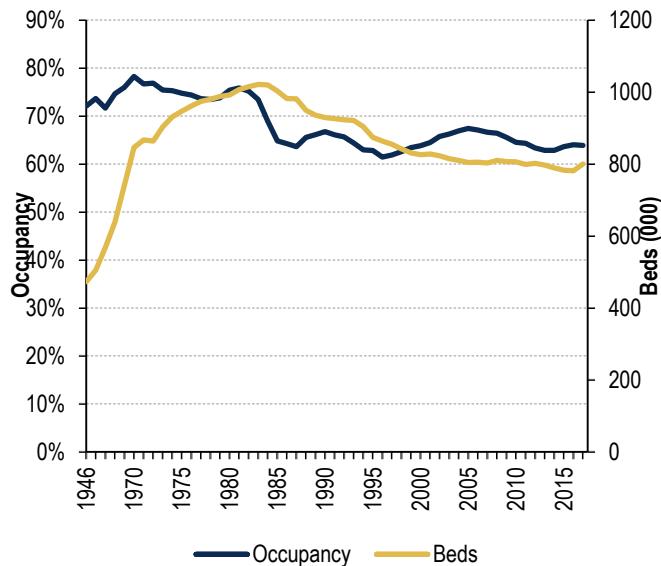
Source: Company websites, BofA Merrill Lynch Global Research

From 1945 through 1975, the hospital industry grew rapidly, more than doubling over that period. However, ever since Medicare moved from a cost based reimbursement system to a prospective payment system in 1983, hospital capacity declined. Overall occupancy fell dramatically at the same time, as the new reimbursement system encouraged hospitals to stabilize patients and move them into lower cost settings as quickly as possible.

As a result, length of stay (LOS), which was over eight days in the 1970s, has steadily declined to 5.4 days. This decline in LOS has contributed to the fact that overall occupancy rates have fallen despite a decline in capacity. Interestingly, in 2014, LOS ticked up to 5.5 days and has stayed at that level through 2017.

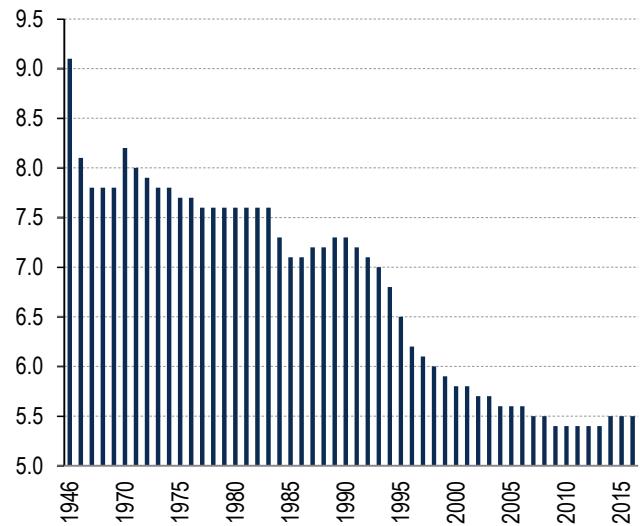
Occupancy rates also reversed the declining trends since FY 2014, increasing from 62.9% in 2014 to 64% in 2016, likely driven by coverage expansion from HC Reform. However, in 2017 it fell to 63.9%.

**Chart 4: Hospital Occupancy 1946-2017**



Source: AHA

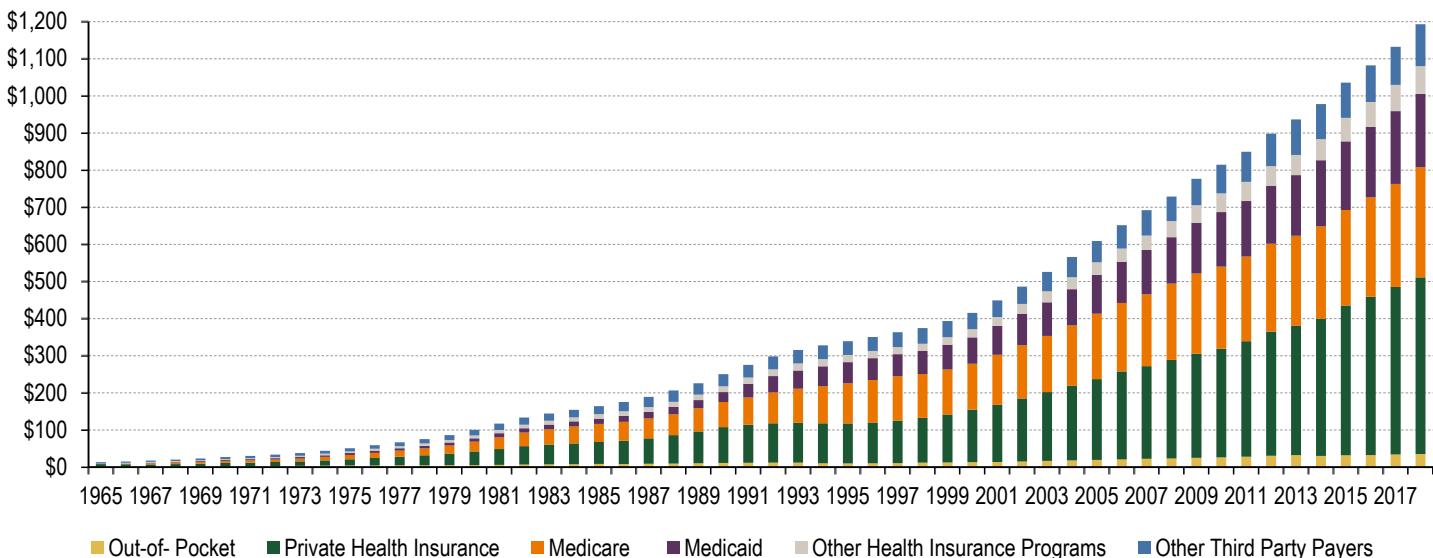
**Chart 5: Hospitals Average Length of Stay 1946-2017**



Source: AHA

US hospital spending increased from \$13.5 billion in 1965 to over \$1 trillion in 2017. Medicare was created with the Social Security Act of 1965 and it is now 25% of total hospital expenditures vs 8% in 1966. Medicaid accounts for 17%, up from 5% in 1966.

**Chart 6: Hospital expenditures 1965-2018 (\$bn)**



Source: CMS

## Urban vs rural hospitals

According to AHA, approximately 1,875 (36%) of hospitals are classified as rural community hospitals and 3,387 (64%) are classified as urban community hospitals.

### Rural or non-urban hospitals (CYH, and QHC)

While definitions vary, a non-urban market is generally classified as having a population of 20,000 to 400,000 people and typically only one to three hospitals in the area.

Community Health Systems (CYH) is trying to become an urban hospital company by divesting its most rural locations, but the truth is that they are still a non-urban hospital company. On 4/29/16, CYH spun off 38 small, rural facilities into a new publicly traded company, Quorum Health (ticker QHC).

Non-urban hospitals, in general, are smaller, operate with lower volumes and have less competition. They also tend to see fewer medically complex patients since there often is not enough population density to support having an open heart or neurosurgery service. However, since these hospitals are usually the only providers in a given area, they normally are able to contract favorable rates from managed care companies.

### Positives

Volume growth in non-urban markets has the potential to be above population growth for the publicly traded companies. In general, volume growth in any market is tied to population growth plus demographic trends. However, given that non-urban hospitals do not have a full suite of services, there are people in-market who must travel long distances to get orthopedic, cardiology or neurosurgery services. The publicly traded companies will often evaluate whether a market can support adding a new service line, thus eliminating the "out migration" of health care in their market and capture more of their existing health care demand.

Meanwhile, competition is somewhat limited. This means that not only are there fewer hospitals in the surrounding area, but it is less likely that there will be surgery centers and other freestanding outpatient service providers that might compete for volumes.

### Negatives

As a smaller population market, usually the market is dependent on one or two major employers. If these large employers experience a downturn and cut jobs, it can have significant ramifications to the uninsured and ultimately the population growth of the

market. More recently, during the weak economic backdrop from 2008 to 2013, there was a shift in the population away from non-urban markets back to urban settings, and this population shift put extra downward pressure on non-urban hospital volumes.

### **Companies (CYH, QHC)**

CYH is a non-urban hospital company. Ten years ago, they might have qualified as “rural,” but as they grew, buying a \$20 million rural hospital did not move the needle. So they began buying bigger hospitals, which added to growth, but as they did so, they entered larger markets where they were less likely to be sole community providers, diminishing one of their key selling points. At this point, we would not call CYH rural as many of their hospitals are in markets with large populations (100,000+), and they are moving towards being an suburban hospital company as they divest their small, non-urban facilities.

### **Urban hospitals (HCA, THC, UHS)**

Urban markets, on the other hand, have populations in excess of 400,000 people and typically have multiple hospital systems in the area. These hospitals are larger, have much higher volumes per facility and see more medically complex patients. Hospitals in these markets are normally “full service” hospitals, meaning they have all specialty and sub-specialty departments. Overall, these markets have a broader service offering, but much more competition. HCA (HCA), Tenet Healthcare (THC) and Universal Health Services (UHS) consider themselves urban hospital companies.

### **Positives**

These markets are large and will support a number of service lines. In general within the health care facility sector, the more health care provided (the higher acuity), the higher the profitability of the service. As a result, layering in higher margin orthopedic, cardiology, and other services will help offset some of the money losing operations (such as emergency room) that all hospitals provide. Meanwhile, the highest acuity services have less competition from non-hospital competition such as surgery centers.

In addition, the employment base in a given market is much broader and tends not to rely disproportionately on a particular company (although some markets may rely on certain sectors (eg, Las Vegas relies on the gaming industry as a major employer).

### **Negatives**

The two main drawbacks to urban markets are that 1) volume growth is tied to market population growth and 2) competition is high. Urban hospitals generally do not have the same “outmigration” opportunities as non-urban markets, so it is important for urban hospitals to pick markets that show long-term attractive population growth and demographic trends. Many of the publicly traded hospitals pick markets in the South and Southwest that benefit from typical migration patterns as the elderly retire and move to warmer climate locations.

Meanwhile, competition is much higher in urban markets as there are usually a number of other participants in a market, often with each operating multiple hospitals. In addition, there are usually a number of freestanding outpatient service providers (surgery centers, imaging, radiology, etc) that might compete for volumes.

**Table 4:Rural versus Urban Hospitals**

	<b>Rural</b>	<b>Urban</b>
Size of Hospital	< 100 beds	> 100 beds
Competition	Minimal	High
Volume growth	Potentially above average	Population growth/demographics
Pricing	Clout with MCOs	Market share determines clout
Acuity	Low	High
Positives	Competition limited	Larger markets, more services
Negatives	Typically dependent on large employers	Competition is high

Source: BofA Merrill Lynch Global Research

# Executive summary

## Pricing driven by commercial but Medicare is usually key

Government payers such as Medicare (30% of hospital revenue) and Medicaid (10-12%) historically paid inflationary rate increases, but more recently the rate updates have been below inflationary. Commercial (50% of revenue) is the only place in the system where hospitals negotiate rates, and can often drive 4-6% rate increases, implying pricing in the 2-4% range on a blended basis over the long term.

Even though Medicare represents a smaller portion of revenues, we believe it is a key driver to the hospital industry. Not only is Medicare the largest single payer (commercial consists of multiple contracts), but it is the only payer where the rules can change overnight (through legislation or regulation). Meanwhile, since commercial rates are driven by market forces, they tend to be tied to economic reality, while government rates are often driven by other forces besides the economics of the patients (e.g. balancing the budget). We note that positive changes in reimbursement are usually more positive than they seem, while negative changes are usually more negative.

## Volumes follow population growth + demographics over LT

We believe that no health care facility sector should show volume growth above/below population growth + demographics over the long term. There can be significant divergence in short/midterm driven by the economy, increased physician recruiting or higher capex spending, but all roads lead back to the mean. At the same time, there are a number of structural headwinds to volume growth such as changing benefit designs, increased competition from non-hospital competitors and increased penetration of managed care in government programs. For the five years prior to 2014, hospital companies have generally reported disappointing volumes. In this report (See section titled *The structural reasons for volume weakness*), we provide an overview of the various theories, listed based upon our view of their order of importance to the trends. Volumes in 2014 and 2015 surprised to the upside and were driven by Reform as well as improving economy. Volumes have since moderated, and in 2018 hospitals posted volume growth of +0.7%, right in line with population growth.

## Cost control

Modest labor cost growth (47% of revenue) was the primary offset to weak volumes and higher uncompensated care during the economic downturn. This has changed with the improving economy, as a tighter labor market puts more pressure on labor costs. Supply expense (16% of revenue) is another area where hospitals achieve savings. During the recession, to the extent a weak economy was driving volume softness, it also maintained a low inflationary environment conducive to cost management.

The ability to manage down costs should not be overlooked. In 2007-09, hospitals showed the highest EBITDA CAGR of any time since the 2002-04 period, despite bad debt pressure, volume headwinds and actually divesting more hospitals than they acquired (the only two-year period when that happened).

## Capital deployment

One of the key investment characteristics of the hospital industry is relatively high free cash flow generation, which not only provides capital to deploy but allows companies to supplement this FCF by using leverage. Historically, hospitals have spent excess cash on deals, although companies generally go through cycles where they lever up to do deals and then follow that with a period of deleveraging before the next wave of deals. For example, in 2014 CYH and THC levered up to do deals, while in 2016-2018 both companies instituted major divestitures programs to attempt to delever. While share repurchase is not a typical use of capital, in some years it increases in prevalence (2011, 2015, 2016). The willingness to deploy capital and ability to access the credit markets to supplement growth is often under appreciated.

## **Acquisitions, but not a typical roll-up**

For the most part, hospitals are not a scalable business, so unless there is a strategic in-market transaction, benefiting from deals is very much about buying assets with low margins and turning them around over time. As a result, acquisitions often create earnings growth for hospital companies over a multi-year period as the acquirer ramps up below average margins at the target to the acquirer's level over a 3-5 year period (see Acquisitions section).

## **Bad debt was key driver; we provide our estimate of cost of treating uninsured**

Bad debt was historically one of the top drivers/overhangs to hospital performance, so we believe that it is vitally important for investors to gain an understanding of the causes of uncompensated care and GAAP accounting for self-pay. Once understood, it becomes clear that bad debt was more of a revenue recognition item than an economic item. We provide our thoughts on metrics that investors should track to determine if companies are properly accrued (we see no issues in our coverage universe). Meanwhile, under the new accounting rules, hospitals stopped reporting bad debt. As such, we argue that it is even more important to focus on the actual cash cost of treating the uninsured (see Bad debt section). We also note that when evaluating the benefit from HC Reform or additional coverage expansion, investors should focus on this metric.

## **HC Reform was a boost in 2014-2016, now risk even if there's no repeal**

The passage of Health Care Reform marked the biggest expansion of health care since the creation of Medicare and Medicaid in 1965. As expected, the Reform benefits were more front end loaded as the sick people rushed to buy insurance as soon as possible (why would a sick person wait until Year 3 to buy insurance?), and those patients represent the majority of hospitals' uncompensated care – the sickest 5% of uninsured represent 67% of uninsured spending. Due to this dynamic, the hospitals saw a boost in earnings in 2014-2016, which we had expected would be only a modest long-term benefit as the margin benefits are largely offset over time by the rate cuts implemented to fund Reform. "Medicare Rules" apply – if Reform wound up being significantly better than expected, Congress would be unlikely to let any sector have a windfall, and will pass rate cuts to return margins toward 2013 levels.

Post 2016 elections, our view turned more cautious given the risks around Reform repeal/replacement. Even if Reform is not repealed, we believe there's downside risk to the number of insured people as the current Administration works to undermine many of the key provisions: 1) the individual mandate was repealed for 2019, 2) the administration has not supported the exchanges the way the prior administration did (eg pulled advertising meant to encourage sign ups) and 3) it gave more flexibility to states to develop new approaches to controlling Medicaid costs, including potential work requirements, increased cost sharing, and moving to more private sector solutions for Medicaid such as the use of Health Savings Accounts. Overall, we believe that the percentage of the population that is uninsured will increase over time, putting upward pressure on bad debt and downward pressure on volume growth. The potential downside from these actions could be bigger than investors realize, as we believe hospitals understated the benefits from Reform, leading to a bigger negative as those benefits are unwound.

# Long term industry growth rates

Historically, hospital EPS has grown 10-15% annually, with capital deployment adding about 2-5% for total growth of about 12-20%. With recent reimbursement pressures on the government side, growth is somewhat less, but still should range 7-15% including capital deployment. Below we outline the growth drivers for top line, costs, EBITDA margins, and EPS, analyzing them both from a historical perspective as well as the current outlook. Then we analyze each of the main drivers in more detail.

## Volumes grow 0-2% plus demographics

We believe no health care facility sector should show volume growth above/below population growth + demographics over the long term. Depending on the location, a hospital can undergo volume growth above national population growth if its markets grow faster than the average. Meanwhile, additional spending on capex and/or physician recruitment can also drive higher than average volume growth over the short to medium term. As a result, there could be periods of above or below average growth but over the long term; it should revert to the mean. However, partially offsetting this are actions taken by managed care to reduce hospital utilization (raising deductibles/copays, reducing readmissions, shift to lower cost settings, etc.)

## All in pricing of +2-4% over long term net of bad debt

Government payers, Medicare and Medicaid, generally pay inflationary or below inflationary rate increases. Commercial, which represents about 50% of hospital revenue, is the only place in the system where hospitals negotiate rates. Historically, Medicare (30% of revenue) has increased rates by an inflation factor, called the market basket, of about 2-3% each year. Medicaid rates (10% of revenue) have been increasing by 1-2% annually. Meanwhile, self-pay rates are growing in line with gross charges increasing 8-10%. With commercial rates increasing 4-7%, the all-in rate for hospitals has ranged 4-6%.

We note that starting January 1, 2012, the new accounting rules require hospitals (and other providers) to report bad debt as a reduction to revenues rather than the cost as was done previously. This has the effect of reducing reported revenue growth by about 1%, although it has no effect on EBITDA. As a result, net of bad debt, pricing should range 2-4%. We also note that because of the coverage expansion, Medicaid has become a slightly higher % of revenues while self-pay declined. Starting in 2018, Bad debt was moved above the revenue line.

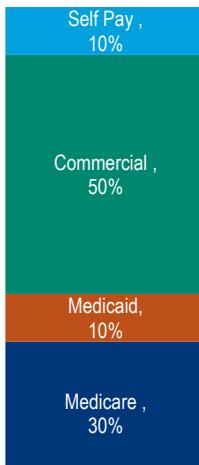
**Table 5: Pricing by payer**

	Historical	Now
Volume	+1-2%	+0-1%
Pricing:		
Medicare (30% of rev)	+2-3%	+1-3%
Medicaid (12% of rev)	+1-2%	+0-1%
Commercial (50% of rev)	+5-7%	+4-6%
Self Pay (8% of rev)	+8-10%	+8-10%
Blended rate	+4-6%	+4%
Total organic revenue growth	+5-8%	+4-5%
minus Bad Debt (8-13% of rev)	+8-10%	+8-10%
Net Revenues (Gross Rev-Bad debt)	+4-7%	+3-5%

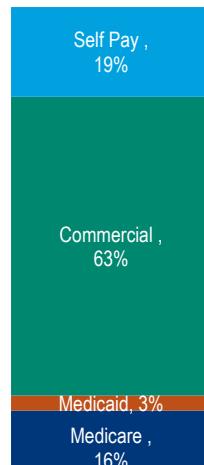
Source: BofA Merrill Lynch Global Research

The current outlook for Medicare and Medicaid rates is below average and indicates that hospital growth in the near term will rely more on commercial rates. The charts below show that commercial rate increases drove 68% of the rate growth for hospitals in 2018, up from 63% historically.

**Chart 7:Pricing by payer - historical growth rates (late 1990s to 2013)**



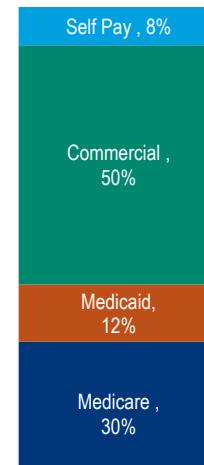
% of revenue



Contribution to pricing growth

Source: BofA Merrill Lynch Global Research

**Chart 8: Pricing by payor - most recent growth rates**



% of revenue



Contribution to pricing growth

Source: BofA Merrill Lynch Global Research

### Costs grow 2-4% on average over the long term

Throughout much of the 2000s, salaries, wages and benefits costs (SWB) have been increasing in the 4-5% range driven by labor shortages. However in times of economic weakness, hospitals tend to benefit from lower labor costs as volumes slow (lowering the demand for labor) and the employee pool increases (as more nurses push off retirement). This dynamic also reduces the need to use contract labor (the most expensive form of staffing). Similarly, supplies cost and other operating expenses historically grew above inflation, but growth rates have slowed with the slowdown in the economy, as it is easier to renegotiate contracts with suppliers, etc.

Historically, costs have been increasing 3-4% annually. However, during the recession, the weak economy has allowed hospitals to push cost inflation down closer to 2%. With the economy improving, and inflation/wages starting to reaccelerate, we have seen hospital cost inflation move back to 3%.

**Table 6: Long-term cost growth rates**

	Growth rates		
	% of revenue	Historical	Now
Salaries, wages and benefits	47%	+4-5%	+2.5-3.5%
Other operating expenses	20-22%	+4%	+2-3%
Supply costs	16-17%	+3-4%	+2-3%
Rent expense	1-2%	+2-3%	+2-3%
<b>Total cost growth</b>		<b>+3-4%</b>	<b>+2-3%</b>

Source: BofA Merrill Lynch Global Research

### Labor cost control is key for hospitals (47% of revenue)

The cost of nursing care is the largest part of labor costs, followed by the cost of hiring physicians. As a result, nurse labor pressure and the use of higher cost temporary staffing can cause swings in hospital profitability. Since 1998, hospitals have reported a shortage of nurses, with the shortage peaking in 2001 when hospital nurse vacancy rates reached 13%. Data show that the recent increase in nurse supply has helped reverse the shortage. According to Health Affairs,<sup>1</sup> researchers indicated two main reasons for the large increase in 2008: 1) nurses were working more hours due to the weak economy and 2) there was re-entry among nurses who might have otherwise not

<sup>1</sup> Dr. Peter Buerhaus, "The Recent Surge in Nurse Employment: Causes and Implications," Health Affairs June 2009

participated in the labor market. For example, the percentage of nurses working part time in 2008 was 17.4%, the lowest observed. In addition, the relative slowdown in hospital volumes due to the economy reduced demand for nurses, leaving fewer open positions to fill.

Since 2010, we have generally seen an increase in labor costs as a percentage of revenue, as volumes were sluggish and the economy has started to improve with the exception being 2014/15 when the ACA boosted both volumes and reduced bad debt, pushing down labor and other expenses as a percentage of total. Since then, we have seen an uptick in labor costs again in 2016-2018 as wages have started to reaccelerate.

To some extent, SWB as a percentage of revenues has been driven upward because hospitals are employing more doctors than in the past and the revenue doctors generate under the physician fee schedule generally equals their salaries, which pushes up labor as a percentage of revenue – but the hospital is better off since doctors also drive hospital admissions on top of the physician fee revenue.

**Table 7: SWB as a % of Cash Revenue**

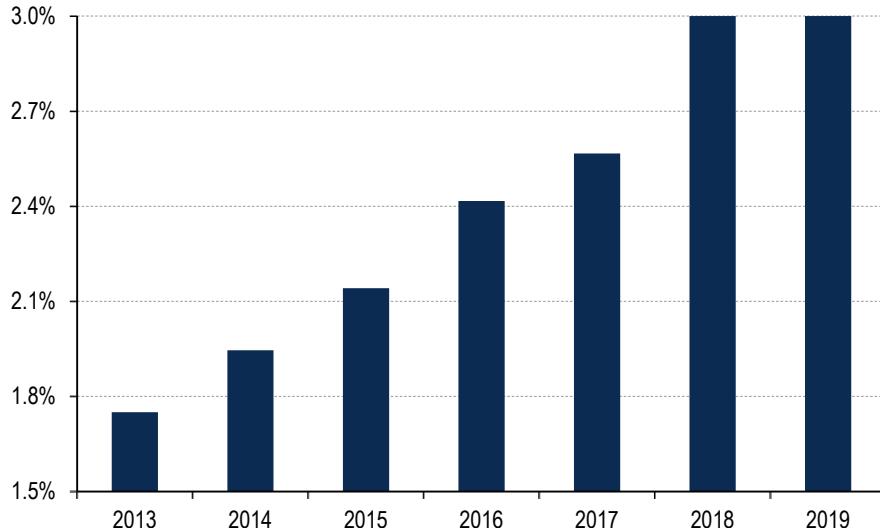
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019E
CYH	46.0%	46.7%	46.8%	47.8%	46.3%	45.9%	46.8%	46.3%	45.1%	45.0%
HCA	44.5%	45.1%	45.7%	45.8%	45.1%	45.7%	45.5%	46.0%	45.9%	46.1%
LifePoint	45.1%	44.9%	46.2%	46.9%	47.6%	47.9%	47.9%	48.0%	47.6%	n/a
UHS	48.3%	49.3%	49.4%	49.5%	47.7%	46.6%	47.0%	47.8%	47.8%	47.8%
THC	46.1%	45.9%	46.6%	48.4%	48.3%	48.3%	47.7%	48.4%	47.1%	46.4%
<b>Average</b>	<b>46.0%</b>	<b>46.4%</b>	<b>47.0%</b>	<b>47.7%</b>	<b>47.0%</b>	<b>46.9%</b>	<b>47.0%</b>	<b>47.3%</b>	<b>46.7%</b>	<b>46.3%</b>

Source: BofA Merrill Lynch Global Research estimates, Company data

Below we examine company commentary around labor costs over the past five years. Companies have a tendency to minimize the seemingly steady increase in labor costs over the years – indicating that labor costs are generally stable, but always incrementally ticking up their outlook year-over-year.

In 2013, the average outlook for labor cost inflation was for a 1.8% increase, which accelerated slightly to +1.9% in 2014, then further to +2.1% in 2015, +2.4% in 2016, +2.6% in 2017, and then +3.0% in 2018. Margin compression from this steady increase in costs combined with a decelerating revenue growth from deteriorating volumes and below inflationary government reimbursement rate updates leaves us questioning core growth in the HC Facilities space in the near term. However, we note that the labor cost outlook from the companies was pretty stable going into 2019.

**Chart 9: Hospital Labor cost outlook over time (% year over year increase in labor costs)**



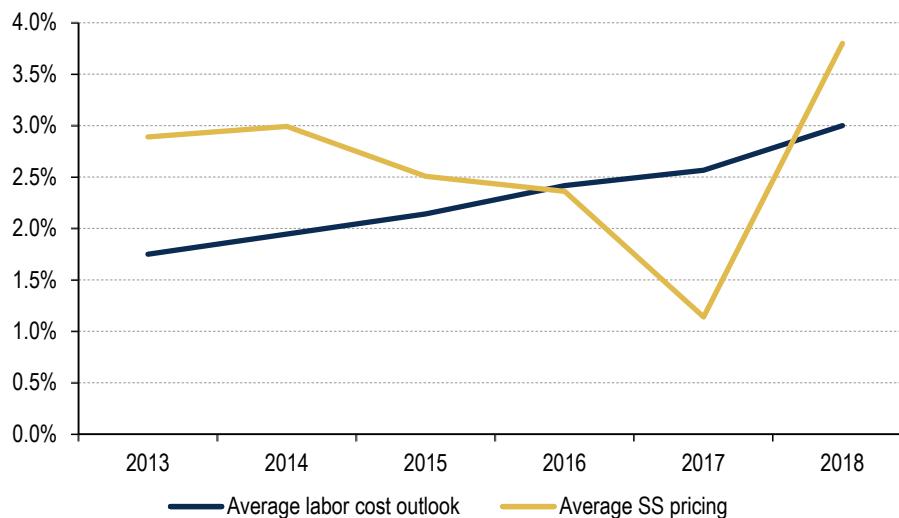
Note: HCA, CYH 2014 outlook estimated. HCA 2015 outlook estimated. Estimates are equal to average of previous year and following year.

Source: Company reports, BofA Merrill Lynch Global Research.

## Labor cost inflation generally above pricing trends

The hospital sector pricing deteriorated between 2013 and 2017, driven by below inflationary government rate updates and a payer mix shift from commercial to government. However, with rate updates from the government improving (the highest rate update in a decade of +2.4% in FY19 and +3.5% proposed) and a lift from higher acuity, pricing rebounded in 2018 above labor cost growth. Although pricing is still expected to be solid going forward, it likely we track closer to labor cost growth over the next few years and could fall below labor cost growth if wages continue to grow.

**Chart 10: Hospital SS pricing trend vs labor cost outlook**

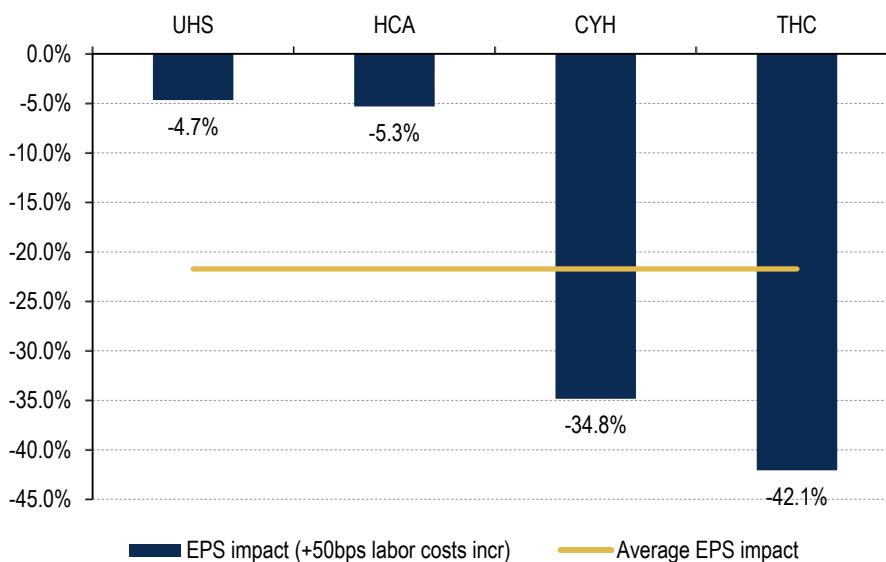


Source: Company reports, BofA Merrill Lynch Global Research.

## 50bps change in labor costs = 22% average hit to EPS

We note that a 50 basis point increase in labor costs would reduce EPS by -21.7%. For hospitals, with relatively low leverage such as UHS and HCA the impact would be of 4.7% and 5.3% respectively. On the other end, the highly levered hospitals would see an impact as high as 34.8% for CYH and 42.1% for THC.

**Chart 11: Hospitals exposure to every +50bps increase in labor expense**



Source: Company reports, BofA Merrill Lynch Global Research.

## Cost control can mitigate weak fundamentals

The recession in 2008-2009 was believed to be one of the worst times for the industry with lower volumes as people delayed care and payer mix worsened due to higher uninsured. However, hospital companies showed consistent growth throughout this time. The median EBITDA growth for 2007-2009 was a 13.5% CAGR, the fourth highest growth rate in the last 15 years.

**Table 8: Hospitals 2-year EBITDA growth**

	2002-04	2003-05	2004-06	2005-07	2006-08	2007-09	2008-10	2009-11	2010-12	2011-13	2012-14	2013-15	2014-16	2015-17	2016-18	2017-19E
CYH	37.5%	30.8%	15.0%	62.9%	169.8%	79.6%	14.7%	11.0%	13.3%	-0.8%	38.3%	54.5%	-19.8%	-40.1%	-27.9%	-3.4%
HCA	0.5%	7.6%	13.1%	14.5%	8.8%	19.4%	28.3%	10.8%	11.3%	8.5%	13.7%	20.4%	10.6%	4.0%	7.9%	17.9%
LifePoint	32.7%	113.8%	115.9%	18.7%	-1.2%	6.6%	11.5%	14.3%	4.4%	0.7%	21.5%	30.6%	17.7%	5.7%	N/A	N/A
THC	-87.9%	-49.2%	86.9%	22.3%	9.6%	43.9%	39.6%	16.8%	15.0%	17.2%	61.7%	69.6%	23.6%	7.4%	5.7%	10.5%
UHS	6.6%	-10.6%	0.3%	19.7%	25.8%	31.8%	31.2%	64.4%	55.8%	13.4%	19.3%	22.6%	14.0%	4.2%	3.6%	8.6%
<b>Average</b>	<b>66.0%</b>	<b>33.3%</b>	<b>36.5%</b>	<b>18.0%</b>	<b>33.5%</b>	<b>31.3%</b>	<b>23.7%</b>	<b>25.2%</b>	<b>28.9%</b>	<b>7.8%</b>	<b>30.9%</b>	<b>39.5%</b>	<b>9.2%</b>	<b>(3.8%)</b>	<b>(2.7%)</b>	<b>8.4%</b>
<b>Median</b>	<b>30.1%</b>	<b>14.3%</b>	<b>15.0%</b>	<b>18.7%</b>	<b>9.6%</b>	<b>28.8%</b>	<b>24.8%</b>	<b>16.8%</b>	<b>15.0%</b>	<b>8.5%</b>	<b>21.5%</b>	<b>30.6%</b>	<b>14.0%</b>	<b>4.2%</b>	<b>4.6%</b>	<b>9.5%</b>
<b>Median CAGR</b>	<b>14.1%</b>	<b>6.9%</b>	<b>7.2%</b>	<b>8.9%</b>	<b>4.7%</b>	<b>13.5%</b>	<b>11.7%</b>	<b>8.1%</b>	<b>7.2%</b>	<b>4.1%</b>	<b>10.2%</b>	<b>14.3%</b>	<b>6.8%</b>	<b>2.1%</b>	<b>2.3%</b>	<b>4.7%</b>

Source: Company reports, BofA Merrill Lynch Global Research

With no volume growth, rising bad debt and companies actually divesting more hospitals than they acquired, the driver of the improvement was the cost control. Hence, we looked at cash margins (EBITDA margins excluding bad debt from both the revenue line and cost line), which removes the impact of changes in bad debt accounting. Average margins grew 125 basis points during that time as cost control during a weak economy more than offset the other pressures that normally come with a recession.

**Table 9: Average Cash margins, as % of Revenue-Bad debt**

	2002-04	2003-05	2004-06	2005-07	2006-08	2007-09	2008-10	2009-11	2010-12	2011-13	2012-14	2013-15	2014-16	2015-17	2016-18
SWB	181	58	102	66	(30)	(106)	(54)	136	139	129	2	(80)	(1)	41	(25)
Supplies	183	86	(227)	(232)	11	(30)	(54)	(84)	(69)	(41)	(34)	(25)	29	45	23
Other	(29)	(35)	231	274	12	16	9	(34)	9	77	92	68	40	29	(8)
Equity in earnings	3	0	1	(4)	(7)	(0)	(1)	(16)	(22)	(10)	(12)	5	10	16	3
HCIT	-	-	-	-	-	-	-	(9)	(41)	(59)	3	42	42	25	14
Rent	(3)	(8)	29	31	(5)	(5)	(2)	(2)	(2)	2	(3)	(6)	3	6	2
<b>EBITDA</b>	<b>(334)</b>	<b>(101)</b>	<b>(136)</b>	<b>(136)</b>	<b>19</b>	<b>125</b>	<b>102</b>	<b>9</b>	<b>(14)</b>	<b>(98)</b>	<b>(48)</b>	<b>(4)</b>	<b>(121)</b>	<b>(159)</b>	<b>(7)</b>

Source: Company reports, BofA Merrill Lynch Global Research.

The most recent two-year period 2016-2018 showed marked improvement from the 2015-2017 period, which had the worst performance in our data set (going back to early 2000s). Median EBITDA growth CAGR was 5%, vs 2% in the period prior, likely a result of better pricing and cost control starting to come online. We do note, however, that 5% median 2-yr CAGR is still near the low end of what we've seen historically.

## Long-term EPS growth rate of double digits

The combination of volume growth of 1-2% and pricing of 4-6% results in total organic revenue growth of 5-8%. Given that the accounting rules require hospitals to report bad debt as a deduction to revenues, the net revenue growth would be 4-7% after subtracting bad debt. Given that hospitals increase gross charges every year by 8-10%, bad debt expense has been growing at a rate exceeding inflation.

With revenues rising 4-7% and costs rising 3-4% annually, historical EBITDA growth ranged from 5% to 10%. Given the high leverage at hospital companies (3-4x Debt/EBITDA), this translates into organic EPS growth of about 10-15%. Strong cash flow generation at these companies allows them to add to growth through capital deployment. Free cash flow spent on acquisitions, share repurchase or debt paydown adds about 2-5% to EPS growth, yielding total EPS growth of 12-20% over the long term.

Meanwhile, the most recent trends have fallen short of those targets. Flat volumes combined with pricing of +3-4% results in revenue growth of 3-5% (after subtracting bad debt), below historical levels of 4-7%. However, cost growth is also below long-term

trends resulting in EBITDA growth of 2-5%. This combined with financial leverage and capital deployment yield total EPS growth of 7-15%.

The benefits from Reform are now in the base and growth is likely to revert to long-term averages (4%+ EBITDA growth on 1%+ volume and 3% pricing). The core business remains under pressure and EPS growth is now around the high single digit range.

**Table 10: Long-term growth rates**

	<b>Historical</b>	<b>Now</b>
Volume	+1-2% plus demographics	0-1%
Blended rate	+4-6%	+3-4%
Total organic revenue growth	+5-8%	+3-5%
minus Bad Debt (8-13% of rev)	+8-10%	+8-10%
Net Revenues (Gross Rev-Bad debt)	+4-7%	+2-4%
Total cost growth	+3-4%	+2-3%
<b>EBITDA growth</b>	<b>+5-10%</b>	<b>+2-5%</b>
Financial leverage		
<b>Organic EPS growth</b>	<b>+10-15%</b>	<b>+5-10%</b>
Capital deployment	+2-5%	+2-5%
<b>Total EPS growth</b>	<b>+12-20%</b>	<b>+7-15%</b>

Source: BofA Merrill Lynch Global Research estimates

In 2014-2016 this growth rate was augmented by the rollout of Health Care Reform (see our section on Health Care Reform below for more details on how Reform affected growth). We expect growth to revert back to more recent trends in 2017-2019.



## Pricing



## Pricing

Pricing is one of the key drivers for any sector. We tend to think of a hospital company's cost structure as fixed over the short term, so whenever pricing comes in below inflation, the effect falls straight through to the bottom line (even if the rate update is positive, it is a headwind if it is not above cost growth). Conversely, whenever pricing is above inflation, it also drops straight through to the bottom line. Below we discuss some of the dynamics in pricing across the three major payers, for a more detailed discussion of how each system works, please see our reimbursement section below ([Reimbursement overview](#)).

### Medicare (30% of revenue)

Medicare was created with the Social Security Act of 1965. Generally, Medicare pays a rate that is equal to the costs of providing care; with rates being updated each year for inflation (the Medicare proxy for inflation is called "the Market Basket"). We believe that Medicare is one of the primary drivers to the hospital industry and is the most important payer to watch. Not only is Medicare the largest single payer (commercial is a higher percentage of revenue but consists of hundreds of contracts with dozens of insurers), but it is the only payer where the rules can change overnight through legislation or regulation. There are three types of Medicare stock calls.

- **Positive/negative reimbursement cycle (president and Congress support sector/want to cut sector).** It is the most obvious call, although inflection points are hard to predict. Generally, this is the time to own/sell the sector, with stock-specific calls being less important. For example, Health Care Reform signed into law in March 2010 was perceived as a positive for hospitals helping lift the group in 2014-15.
- **CMS supports sector/against sector.** This is understood by most from a high level, however, the devil is in the details, and we spend a lot of time in the details. While Congress outlines the broad spending limits and policy goals for health care spending, CMS is the agency responsible for implementing these policies and setting reimbursement levels within the broad framework outlined by Congress. We note that the annual regulations for Medicare rates provided by CMS can move the group.
- **Second derivative effect of changes.** The pricing effect of the reimbursement changes is generally better understood than the second derivative call of how providers respond. We note that positive changes are usually much better than pure price increases, while negative changes usually much worse. The Street tends to underestimate company/sector reliance on seemingly small issues for large portions of earnings.

In the appendix, we discuss the role played by three entities that can influence rate: Congress, CMS, MedPAC. Policy shift such as a Health Care Reform or increased focus on budget deficits can result in significant growth or reimbursement cuts for providers.

### Case study of when things went wrong – THC

Tenet (THC) is an example of a story that turned south when cuts to outlier payments (5% of revenue) eliminated 25% of EBITDA overnight. The company spent most of the next seven years dealing with legal issues, government scrutiny, a high debt burden, and adjusting its cost structure.

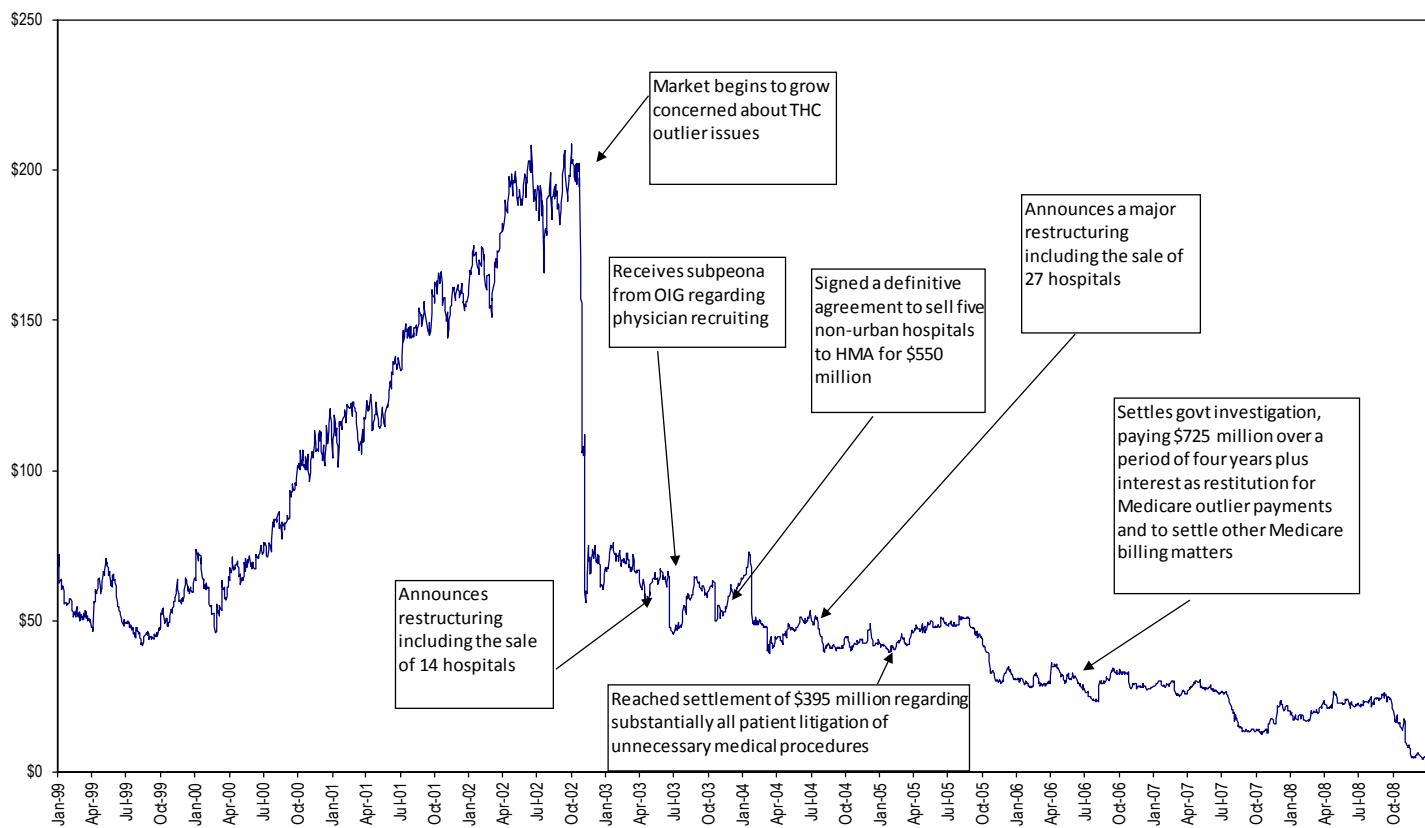
From 2000 through October 2002, Tenet was one of the best performing hospital companies. However, in 4Q 2002 it came to light that the company was receiving a disproportionately large amount of revenue through a Medicare reimbursement loophole and qualifying for extra outlier payments (outlier payments are extra payments Medicare makes regarding patients with above average costs).

Soon after, CMS changed the reimbursement methodology for outlier payments and the company's profitability declined dramatically. Then commercial payers realized that THC was gaining extra payments from them as well, creating an adversarial relationship and a period of below inflation managed care rate increases followed. Meanwhile, the company became subject to a number of government investigations ranging from abusing the outlier system to inappropriate physician recruiting tactics to performing unnecessary cardiology procedures at two hospitals. In addition, nursing unions capitalized on the company's disarray and stepped up their public image attack on the company in order to secure significant wage increases.

The combination of these events created a public image issue for the company, making it difficult to recruit and retain physicians, putting pressure on volumes. As the company faced the reality that it had built an infrastructure based upon a revenue model that was no longer sustainable, it was forced to divest unprofitable facilities until the point that by 2013, the company was half the size it was in 2002.

One by one, the company has put these issues behind it. But the chart below shows that for a six-year period, it dealt with issues that sprang from a reliance on profits from a seemingly small area within Medicare reimbursement.

**Chart 12: THC Case Study**



Source: BofA Merrill Lynch Global Research

## **Managed Care (50% of revenue)**

Health Maintenance Organizations (HMOs) offer private health insurance to individuals, generally through their employers. Typically, the employer will pay the majority of the health care premiums (70-75%) with the employee paying the remainder of the cost through automatic payroll deductions. In addition, the employee is responsible for paying copays and deductibles when they access the health care system.

Although managed care is 50% of revenue, it consists of hundreds or thousands of individually negotiated contracts and the rates are usually a function of the relative bargaining position of each side within a market. When a hospital has dominant market share, a managed care company needs it in its network in order to be competitive, resulting in a favorable negotiating position for the hospital. When a payer has a dominant market share, a hospital needs to be in its network resulting in a less favorable negotiating position.

### **Why commercial rates are so much higher than government**

Commercial rates are generally 30-50% higher than Medicare rates and can be almost twice as much as Medicaid rates. As such, it is the only payer in the system that is categorically profitable for hospitals to treat. The reason for this discrepancy is that managed care essentially subsidizes the below average rates from government payers. Hospitals can lobby state and federal governments for better rate increases, but the hospital has no negotiating leverage – Medicaid and Medicare will tell the hospital its rate and the hospital has to accept it. At the same time, although these programs attempt to provide inflationary updates each year, budgetary pressures usually mean that the pricing that hospitals receive is, on average, below inflation. Meanwhile, self-pay patients often pay less than 10% of their hospital bill, and there is only so much that a hospital can do to improve collections from someone without a job or health insurance. As a result, managed care is the only payer where hospitals are able to negotiate, and they make the most of this dynamic.

Historically, hospitals have done a much better job managing revenue growth than managing cost growth (this is particularly true for the non-publicly traded companies). For example, if costs grow 3% and the 50% of revenue that is Medicare, Medicaid and self pay has rate increases of 1%, commercial pricing has to be up 5% in order to maintain margins.

### **Despite MCO rhetoric, we expect 4-5% commercial pricing**

Every year we hear managed care companies talk about how they are pressuring hospital pricing but historically, the publicly traded hospitals were able to negotiate 5-7% price increases from managed care payers, and we expect these rate increases to be in the +4-5%, at the lower end of the recent trends in the +4-6% range.

Below we provide a couple of observations around this dynamic and why we tend to listen to hospitals over managed care when forecasting commercial rate growth.

- **MCOs are supposed to save money, so they focus on their “wins”** – It is the job of Managed Care companies to control health care costs, and it is in their best interest to highlight the data points that show this. In some negotiations with high cost, inefficient hospitals, MCOs are able to extract rate cuts, but this tends to be the exception rather than the rule. For the most part, publicly traded companies have a pricing strategy of being the second or third highest rate system in a market, and focus on securing steady, consistent rate increases.

**Cost trend guidance largely unit cost driven.** Despite rhetoric around price cuts, the average expected cost trend in 2019 is 5.6%, with 2/3 of that being unit cost driven, implying pricing across all providers up approximately 4%. This has been relatively consistent over the past several years.

**Table 11: Cost Trend Guidance**

	2015 A			2016 A			2017 A			2018 A			2019E	
	Initial Guid.	Final	Y/Y Change, final trend	Initial Guid.	Final	Y/Y Change, final trend	Initial Guid.	Final	Y/Y Change, final trend	Initial Guid.	Final	Y/Y Change, final trend	Initial Guid.	Current Guid. vs 2018 Final
CVS*	6.0%-7.0%	6.0%	-0.5%	6.0%-7.0%	6.0%	0.0%	6.0%-7.0%	5.5%	-0.5%	NA	NA	NA	5.5-6.5%	NA
ANTM	6.5%-7.5%	6.75%	0.25%	7.0%-7.5%	7.0%	0.25%	6.5%-7.0%	6.5%	-0.5%	5.5%-6.5%	5.9%	-0.6%	5.5-6.5%	0.1%
CI	5.0%-6.0%	5.0%	0.5%	4.5%-5.5%	3.8%	-1.5%	4.5%-5.5%	2.8%	-0.8%	4.0%-5.0%	3.6%	0.9%	3.5-4.5%	0.4%
HUM	5.5%-6.5%	NA	NA	NA	NA	5.5%-6.5%	5.5%	NA	5.5%-6.5%	5.8%	0.3%	5.5%-6.5%	0.3%	
UNH	5.5%-6.5%	5.5%	0.0%	5.5%-6.5%	6.0%	0.5%	5.5%-6.5%	5.5%	-0.5%	5.5%-6.5%	5.8%	0.3%	5.5%-6.5%	0.3%
<b>Average</b>	<b>6.3%</b>	<b>5.8%</b>	<b>0.1%</b>	<b>6.2%</b>	<b>5.6%</b>	<b>-0.2%</b>	<b>6.1%</b>	<b>5.2%</b>	<b>-0.6%</b>	<b>5.6%</b>	<b>5.3%</b>	<b>0.2%</b>	<b>5.6%</b>	<b>0.3%</b>

\*AET changed its trend definition for 2015, 2014 comparable trend would be 5.0%-5.5%  
\*\*ANTM changed its trend definition for 2018, 2017 comparable trend would be 5.5%  
Source: Company data, BofA Merrill Lynch Global Research

- MCOs and hospitals have different incentives when talking about pricing.**

Probably the best reason to listen to hospitals over MCOs when it comes to commercial pricing is the incentive each has when discussing it. If hospitals say that they are getting 5-7% pricing, but only get 4%, then they miss estimates and have to cut guidance. As a result, if anything, hospitals have an incentive to be cautious on commercial rates. Meanwhile, as noted above, MCOs want to build a reputation for getting the best price from providers so that they can sell policies to more employers.

#### What could cause rates to fall?

As noted above, we expect commercial pricing to be in the 4-5% range for at least the next couple of years. At this point, the negotiating power tends to reside in the hands of hospitals, as consumers continue to demand broad network products that leave MCOs little room to steer volumes in return for lower pricing. The largest threat to this status quo, in our view, would be a shift to narrow network products. If employers want CI to have 90% of providers in network and HCA is 20-40% of the beds in its markets, then HCA has the upper hand.

However, if employers decide that they only need 50% of the providers in their networks, the dynamic changes. CI does not need every provider and now can shift meaningful volumes to those providers that join its network at the expense of those that are out of network. Now HCA has a decision to make – does it accept a lower price in return for volumes? There is anecdotal evidence that employers are starting to explore narrower networks in some markets, but this seems very much like an evolutionary change that will slowly influence pricing over time.

In some ways, HC Reform has jump-started that shift. It already has encouraged the creation of Accountable Care Organizations for Medicare beneficiaries that have narrow network aspects to them, and this movement has led some hospital systems to look to managed care companies to create ACO type collaboration on the commercial side.

A larger swing factor could be the commercial exchanges that went live in 2014. Our analysis indicates that networks on exchanges are generally narrower than average, as health plans strive to offer lower premium product, but with a limited provider network. When individuals buy insurance on their own, they are likely to seek the cheapest option. An employer based in New York City might want a network with hospitals in NJ, CT and NY because their employees live everywhere, but the individual employee in NJ really only wants a NJ network and all else equal would accept a narrow network plan in NJ if the savings were large enough. If the exchanges gain traction and people start to be more aware of the price/access trade-off, this mindset could spill over into the employer sponsored commercial business. However, with exchanges being de-emphasized by the administration, this risk factor is lessened.

## Government managed care programs

When hospitals refer to managed care trends, they are typically referring to commercial managed care business. As background, managed care companies have three main products: commercial, Medicare, and Medicaid. In the commercial business, managed care companies provide or administer health insurance to approximately 185 million individuals with employer-based or individual coverage in the US. Managed care companies negotiate their unit costs with hospitals (and other providers) and set their prices based on their expected cost trends. However, managed care companies also work within government programs to help restrain government cost growth. The pricing dynamics in these situations is different from the general commercial negotiation.

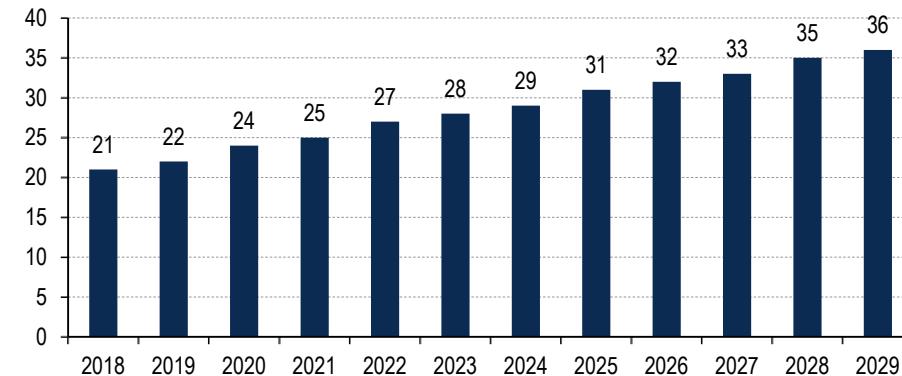
### Managed Medicare (Medicare Advantage or MA)

In the Medicare Advantage program, managed care companies provide health insurance to approximately 22 million seniors in 2019, which accounts for about 36% of the Medicare population. The federal government sets monthly premiums for managed care companies using Medicare Fee For Service rates as a base assumption for the MCO's unit cost. Since the rate paid to MA plans assumes Medicare fee for service, MA plans typically pay hospital rates that are near the Medicare rate but could be higher or lower by a couple percent depending on relative bargaining power and the quality outcomes of a hospital.

Managed care companies will pay more for a service at a high quality hospital, because patients treated there are less likely to be readmitted or require costly after care. In addition, rates are more likely to be slightly below Medicare Fee for Service in a narrow network HMO plan than in a broad network PPO plan, because the HMO can steer volumes to providers that are in-network.

The Congressional Budget Office projects that Medicare Advantage enrollment will continue to grow over the next several years, and by 2029 will have increased 64% to 36 million from its current level, which would be about 42% of the total Medicare population. These enrollment projections include a significant number of assumptions, including the ability of Medicare Advantage plans to generate savings versus Medicare fee-for-service (FFS) and seniors' preference to be enrolled with a managed care plan. Our view is that sophisticated Medicare Advantage plans that generate savings versus Medicare FFS will be able to grow enrollment, but there may be pressure on growth for unmanaged PPO products or smaller, sub-scale health plans. On the margin, this has negative implications for hospitals because the plans best able to steer volumes and therefore get incrementally better rates (HMOs) are the most likely to continue to gain share. In addition, MA plans are focused on controlling utilization and shifting volumes to the low cost setting, potentially putting pressure on volumes compared to a patient who otherwise would have been in unmanaged fee for service Medicare.

**Chart 13: Medicare Advantage Enrollment Projection in millions**



Source: CBO

## **Managed Medicaid**

The dynamic between hospitals and managed care companies in the managed Medicaid business is similar to the managed Medicare business. In the managed Medicaid business, managed care companies provide health insurance to approximately 55 million individuals, mainly composed of low income pregnant women and children, although states are increasingly looking to transition the aged, blind and disabled (ABD) and long term care (LTC) populations to Medicaid Managed Care companies and most of the Medicaid expansion population under Reform is under managed Medicaid. States set monthly premiums for managed care companies, and the managed care companies typically pay providers based on each state's Medicaid fee schedule. Similar to managed Medicare, companies stay close to the fee schedule (plus or minus a couple percent), but they are incentivized to include high quality hospitals with lower costs per episode in their networks.

The penetration rate of Managed Medicaid increased from 57.6% in 2002 to 76% in 2018. We expect the penetration rate will continue to increase as states transition FFS populations to Managed Medicaid to achieve budgetary savings. As mentioned above, we also expect states will continue to transition their ABD and LTC populations into Managed Medicaid, which is actually more meaningful to hospitals since these medically complex populations are more likely to use the system than children and pregnant women. Given that the higher cost patients have yet to transition to Medicaid Managed care, although 76% of members are in Managed Care, approximately 50% of spending is managed by Medicaid MCOs. As a result, there is still significant room for this shift to continue. Since states expect to save 15-20% when they move a population to managed Medicaid, and the rates they pay providers are close to the Medicaid fee schedule, this transition is more likely to have a bigger impact on volume than on pricing.

## **Medicaid (14% of revenue)**

Medicaid was created by the Social Security Act of 1965 (the same act that created Medicare). Medicaid is the state run health care program for the poor. Each state has its own program and is responsible for setting the spending parameters, although the federal government provides the bulk of the spending (spending \$1-\$2 for every \$1 that the state spends). In order to qualify for this federal matching money, the state must provide certain designated services (such as hospital care and long-term nursing home care). Although the state generally has a say in how that money is spent, CMS also has some oversight of the Medicaid program and must approve certain changes.

Generally, Medicaid pays a rate that roughly equals 80% of costs and is typically 30-40% below the average rate that the hospital receives for services. As a result, most hospitals will say that at best, Medicaid is a break even payer on a fully cost allocated basis and usually is a money losing proposition. However, in an environment where hospitals have to take all patients in their ER regardless of their ability to pay, a Medicaid patient is infinitely better than a self-pay patient. Meanwhile, with companies already covering their fixed costs, on a marginal basis, publicly traded hospital companies would rather have a bed full than empty, although less efficient non-profits may even struggle being break even on a marginal basis under Medicaid.

Medicaid represents almost 20% of industry revenue, but it only represents 10-14% of public company revenue, as for-profit hospitals generally target more affluent markets (less exposure to Medicaid).

## **While a small part of revenue, Medicaid could create headline risks**

Although the Medicaid program represents 10-12% of revenue at public hospital companies, it is made up of 50 different state programs, so the exposure to any particular state program would be significantly less. Medicaid spending is typically at least 25% of a state's budget, so when revenue sources dry up, Medicaid spending is usually an area states will target for cuts.

Generally, we are less concerned about Medicaid rate pressures than Medicare, because any given state is a small part of revenue and a rate cut in one state could be mitigated by rate increases in others, resulting in a more muted impact to providers. It is rare that any one state causes an EPS hit of more than a few cents, although TX and FL (often 25% of revenue for the publicly traded companies comes from facilities each state) are big states to watch regarding Medicaid rates. Meanwhile, during sharp economic downturns like the one experienced in 2009, Medicaid pressures are broad based, and the earnings impact can add up. At the very least, proposed Medicaid cuts can create headline risk and hurt sentiment for the group.

#### **Recession put pressure on Medicaid rates, rebound helps**

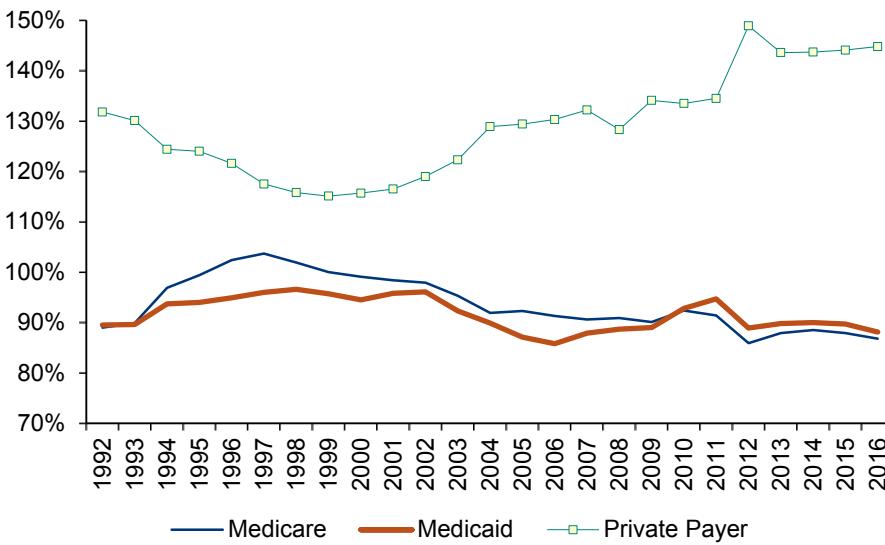
Unlike the federal government, state governments by law have to balance the budget every year (some states have two-year budgets), so when a deficit is predicted, taxes must be raised or programs must be cut. Given that Medicaid represents about 25% of state budgets, any time a state forecasts a deficit, Medicaid reimbursement is at risk.

States' fiscal conditions deteriorated during fiscal 2009-2013, and started to improve in 2016 and more recently more states are talking about budget surpluses and fewer states looking to cut rates. In general, the Medicaid rate outlook is more positive than it has been in years. That said, it is rare to see rate increases above 2%.

#### **Economy impacts payer mix**

Even though the hospital group is considered a defensive sector, the industry is exposed to economic fluctuations through increased bad debt and the effects on volumes, bad debt and negative payer mix shift. As unemployment rises in a weak economy, a larger percentage of patients get Medicaid insurance, causing negative mix shift, as Medicaid pays about 40-60% less than commercial payers. Below we highlight the relative payments to hospitals as a percentage of their costs as estimated by AHA. The chart shows that there are significant implications from a shift in mix from high margin commercial to low margin Medicaid.

**Chart 14: Aggregate Hospital Payment-to-cost Ratios for Private Payers, Medicare, and Medicaid, 1989 – 2016**



Source: AHA Trendwatch Chartbook 2018.

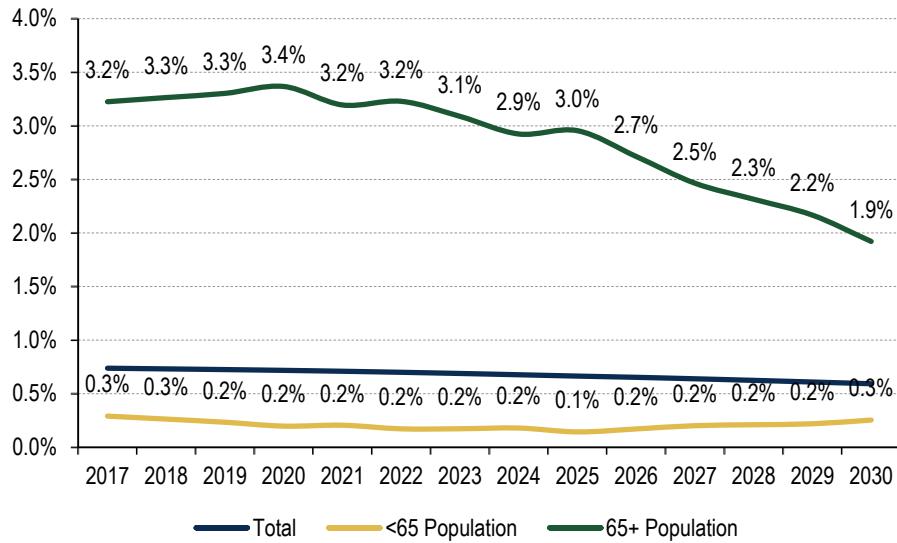
(1) Includes Medicaid Disproportionate Share payments.

(2) Includes Medicare Disproportionate Share payments.

There also exists a structural payer mix headwind that results from the demographics of the US population. Even though the US population as a whole is growing in line with the historical rate (+0.7% per year), the core group of Baby Boomers is reaching the

Medicare age of 65, meaning that the 65+ population is growing at a faster rate than the under 65 population. Using data from the US Census Bureau, we estimate that the 65+ population is growing above +3%, whereas the under 65 population is around +0.2%, creating a dynamic where more people are leaving commercial insurance for Medicare than are getting commercial insurance. This dynamic coupled with the fact that unemployment is at all-time lows means we expect commercial insurance growth to be flat over the next 10 years.

**Chart 15: US population growth, over 65 vs under 65**



Source: US Census Bureau, BofA Merrill Lynch Global Research

## What drives mix shift matters

Some investors see an aging demographic and an inevitable increase in Medicare as a percentage of total admissions and expect a deteriorating business. However, there is a real difference in the economic impact of mix shift from a company that sees commercial convert into Medicare, and a company simply growing Medicare faster than commercial.

Below we show two companies, both getting 50% of their volumes from commercial and 50% from Medicare. In this example, we assume that Medicare has a rate of \$10,000 and margins are 0% while Commercial has rates that are \$20,000 while margins are 40%. However, in Year 2, Company A sees stable volumes but mix moves from 50/50 to 49.5%/50.5% Medicare. Meanwhile, Company B sees 3% growth in Medicare volumes, but only 1% growth in commercial (which also shifts its mix to 49.5%/50.5%). Company A would see a 1% decline in EBITDA, while Company B, would actually see EBITDA grow 1%, despite the lower margin. As a result, mix shift with growing commercial volume is not an issue for profitability, but mix shift driven by declining commercial volume is. Meanwhile, the reality is that Company B would probably grow even faster because the incremental margin on volumes is likely higher than what we are using here.

**Table 12: Mix shift example – Company A**

	Year 1	Year 2	y/y change
Volumes	100	100	0.0%
% commercial	50%	49.5%	-50 bps
commercial volumes	50	49.5	-1.0%
commercial rates	\$20,000	\$20,000	
commercial revenues	\$1,000,000	\$990,000	-1.0%
margins	40%	40%	
EBITDA	\$400,000	\$396,000	-1.0%
% Medicare	50%	50.5%	50 bps
Medicare volumes	50	50.5	1.0%
Medicare rate	\$10,000	\$10,000	
Medicare revenues	\$500,000	\$505,000	1.0%
margins	0%	0%	
EBITDA	\$0	\$0	NM
total revs	\$1,500,000	\$1,495,000	-0.3%
<b>total EBITDA</b>	<b>\$400,000</b>	<b>\$396,000</b>	<b>-1.0%</b>
implied margin	26.7%	26.5%	-18 bps

Source: BofA Merrill Lynch Global Research estimates

**Table 13: Mix shift example – Company B**

	Year 1	Year 2	y/y change
Volumes	100	102	2.0%
% commercial	50%	49.5%	-49 bps
commercial volumes	50	50.5	1.0%
commercial rates	\$20,000	\$20,000	
commercial revenues	\$1,000,000	\$1,010,000	1.0%
margins	40%	40%	
EBITDA	\$400,000	\$404,000	1.0%
% Medicare	50%	50.5%	49 bps
Medicare volumes	50	51.5	3.0%
Medicare rate	\$10,000	\$10,000	
Medicare revenues	\$500,000	\$515,000	3.0%
margins	0%	0%	
EBITDA	\$0	\$0	NM
total revs	\$1,500,000	\$1,525,000	1.7%
<b>total EBITDA</b>	<b>\$400,000</b>	<b>\$404,000</b>	<b>1.0%</b>
implied margin	26.7%	26.5%	-17 bps

Source: BofA Merrill Lynch Global Research estimates

## Worsening payor mix impacts pricing

Meanwhile, the worsening payor mix has implications for the reported pricing. We estimate that a 1% shift in payor mix from Commercial to Medicaid / Self-pay, assuming a 50%/50% split, would result in a 66bps decline in pricing. As such, this shift effectively drives pricing growth down from a blended rate of +3% to +2.34%.

**Table 14: Hypothetical impact of pricing mix shift on pricing**

	Rate vs cost	vs commercial	Company A	PF (-) mix shift	Change	Price cut	Pricing impact
Commercial	140%	0%	50%	49%	-1.0%	0%	0.0%
Medicare	100%	-29%	35%	35%	0.0%	-29%	0.0%
Medicaid	80%	-43%	10%	10.5%	0.5%	-43%	-0.2%
Self pay*	15%	-89%	5%	5.5%	0.5%	-89%	-0.4%
<b>Total</b>			<b>100%</b>	<b>100%</b>		<b>-0.66%</b>	

Source: BofA Merrill Lynch Global Research estimates



## Volumes



## Volumes

Hospital companies tend to have a high fixed cost structure, so the ability to grow volumes is key to long term profitability. Below we analyze the key drivers to volume growth historically and why volumes had been weak heading into Reform. We estimate that the incremental margin on a new admission is in the 35-40% range, making an incremental 1% increase in volumes a significant boost to the bottom line (12% to EPS on average).

**Table 15: Adjusted Admissions EPS Sensitivity**

		Change in Adjusted Admissions									
		0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.0%
CYH	EPS Impact	\$0.04	\$0.07	\$0.11	\$0.15	\$0.18	\$0.22	\$0.25	\$0.29	\$0.33	\$0.36
	% of 2019E EPS	2.8%	5.5%	8.3%	11.1%	13.8%	16.6%	19.4%	22.1%	24.9%	27.7%
HCA	EPS Impact	\$0.05	\$0.09	\$0.14	\$0.18	\$0.23	\$0.27	\$0.32	\$0.36	\$0.41	\$0.45
	% of 2019E EPS	0.4%	0.9%	1.3%	1.8%	2.2%	2.6%	3.1%	3.5%	4.0%	4.4%
THC	EPS Impact	\$0.03	\$0.07	\$0.10	\$0.14	\$0.17	\$0.21	\$0.24	\$0.28	\$0.31	\$0.35
	% of 2019E EPS	1.5%	3.0%	4.6%	6.1%	7.6%	9.1%	10.6%	12.1%	13.7%	15.2%
UHS	EPS Impact	\$0.02	\$0.04	\$0.06	\$0.08	\$0.10	\$0.12	\$0.14	\$0.16	\$0.18	\$0.20
	% of 2019E EPS	0.2%	0.4%	0.6%	0.8%	1.0%	1.2%	1.4%	1.6%	1.8%	2.0%
Average	% of 2019E EPS	1.2%	2.5%	3.7%	4.9%	6.2%	7.4%	8.6%	9.9%	11.1%	12.3%

Source: BofA Merrill Lynch Global Research estimates

## LT growth = population growth + demographics

Our historical point of view on admissions is that admission growth should roughly approximate population growth plus demographics. With the exception of a couple of large events, such as implementation of a PPS system in 1983 shifting volumes out of the hospital or the rise of managed care in the 90s restricting utilization, our general viewpoint has been that very little could cause the correlation between volume growth and population growth to break down for very long.

Hospital volume from 2014-2016 has been relatively strong as both an improving economy and additional coverage through Health Care Reform aided demand for hospital services. However, prior to 2014, admission growth had been close to zero, or even negative for long periods at a time, although adjusted admissions (which includes outpatient volumes) consistently bounced around between 0-2%, and on average represented population growth. We note that 2018 volumes returned back to that 0-2% historical range, with CYH slightly below at -0.5% and HCA (+2.5%) and UHS (+2.1%) slightly above.

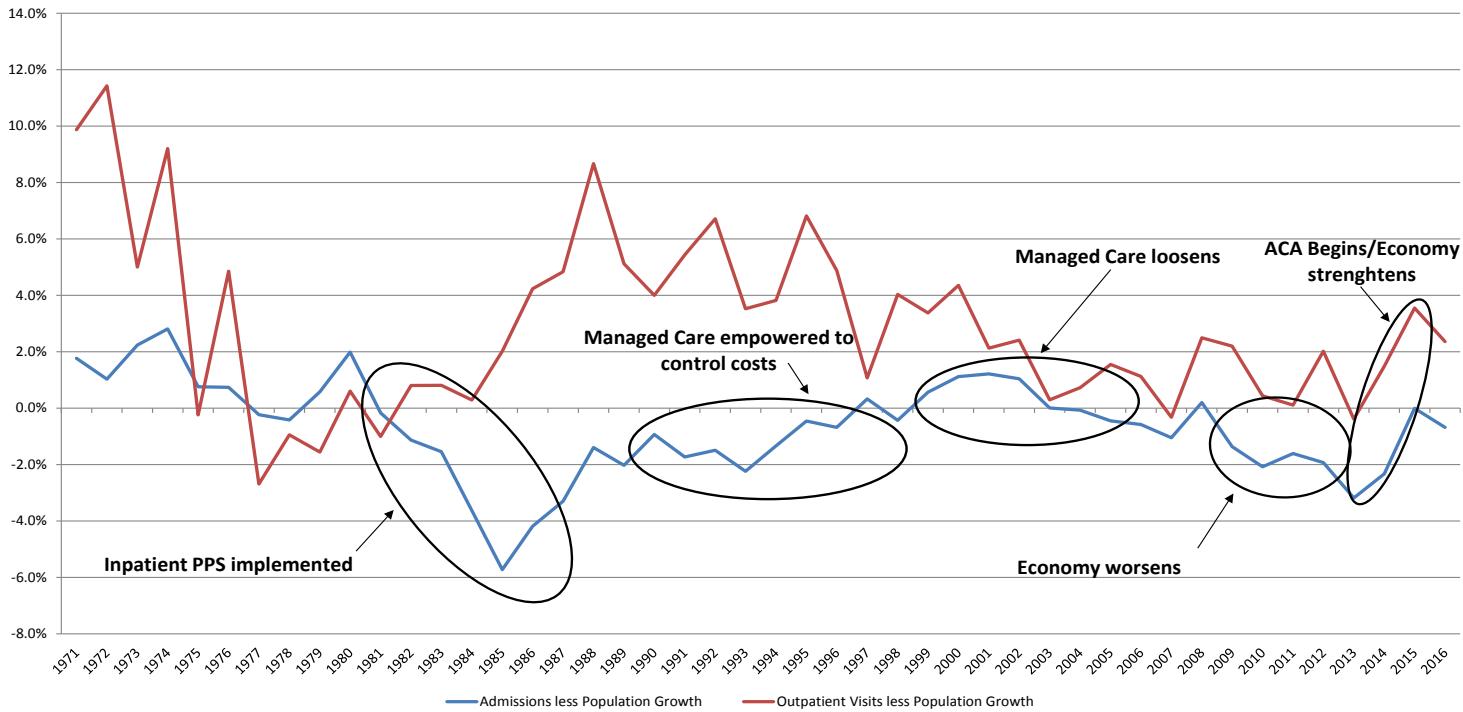
The generally weak volume backdrop prior to the ACA took a sharp negative turn in 2013, and investors often argued whether the pressures are cyclical or structural. The answer, in our view, is the explanation is likely a mixture of some long-term structural headwinds that are exacerbated or overcome by cyclical factors (more on this at the end of the section).

## The structural reasons for volume weakness

### Volume shift from inpatient to outpatient

Improved technology allows more procedures to be done on an outpatient basis than ever before, shifting volumes from inpatient to outpatient. There is no doubt that there have been great strides in technology over the past few decades, which have led to less invasive procedures and shorter recovery times. Of equal significance is the improvement in anesthesia, which has helped doctors feel more comfortable moving patients out of the hospital. In addition, the improvements in drug therapies have allowed doctors to treat medical issues with drugs, before admitting a patient to the hospital. The impact of medicating health issues appears to be most severe in cardiology procedures, historically a very profitable business for hospitals. As a result, outpatient volumes historically have grown more quickly than inpatient volumes.

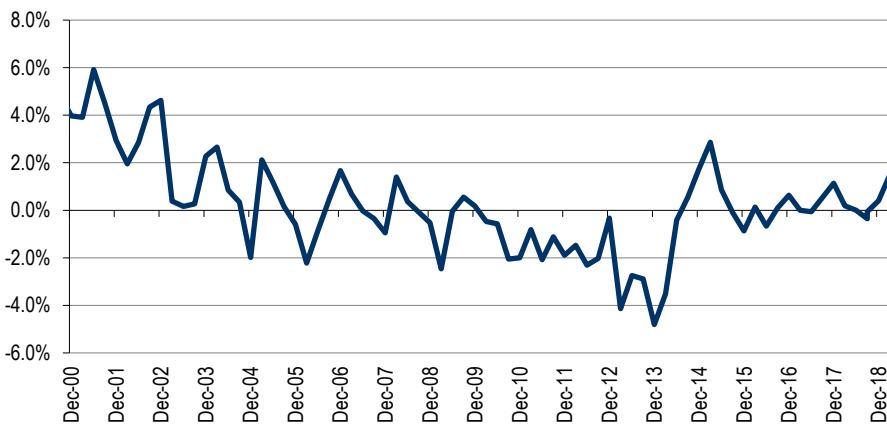
## Exhibit 1: Inpatient and Outpatient Growth Over Population Growth



Source: AHA, US Census Bureau, BofA Merrill Lynch Global Research

Shifting procedures to an outpatient setting is somewhat offset by the fact that new technology also enables new inpatient procedures. However, these tend to be niche specialty procedures, so incremental new volume tends to be outweighed by volume lost to outpatient services. As a result, for the last nine years, hospital companies generally have reported disappointing inpatient volumes. In fact, the group reported negative same store admissions during 24 of the last 38 quarters despite their focus on faster growth population markets, physician recruiting and capital initiatives. In a positive, admission trends have somewhat better more recently and have only been negative once since 4Q17.

### Chart 16: Same Store Admission Growth



\*Includes CYH, HCA, LPNT, THC, and UHS

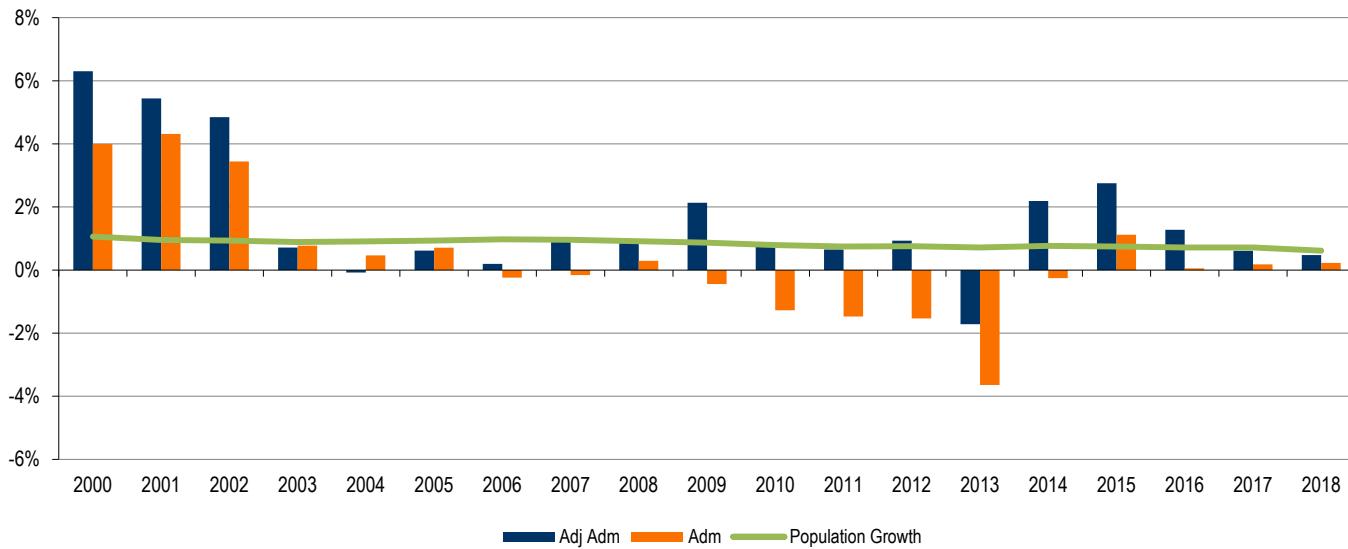
Source: Company filings

The impact of technology moving volumes that previously were inpatient into the outpatient setting is most evident in that adjusted admissions (which include both

inpatient admissions and outpatient visits) generally have grown more quickly than inpatient admissions. However, if the shift to outpatient was the only driver to lower volumes, then we would expect adjusted admissions to grow as fast (if not faster) than population growth, and although adjusted admission growth has been close, it generally trailed that +1% target until 2014-2016 when volumes rebounded sharply on the heels of the Affordable Care Act and an improving economy. However, in 2017 and 2018 this trend reversed once more as volumes began to trail population growth.

The chart below shows that admissions have grown slower than population growth for 15 of the past 16 years and adjusted admissions have grown more slowly 11 of the past 16 (although 5 other years were close to being in-line).

**Chart 17: Same Store Admissions and Adjusted Admissions**



\*Includes CYH, HCA, HMA (historically), LPNT, THC, UHS and VHS (historically)

Source: BofA Merrill Lynch Global Research, company reports

### Move away from fee for service to managed care in government

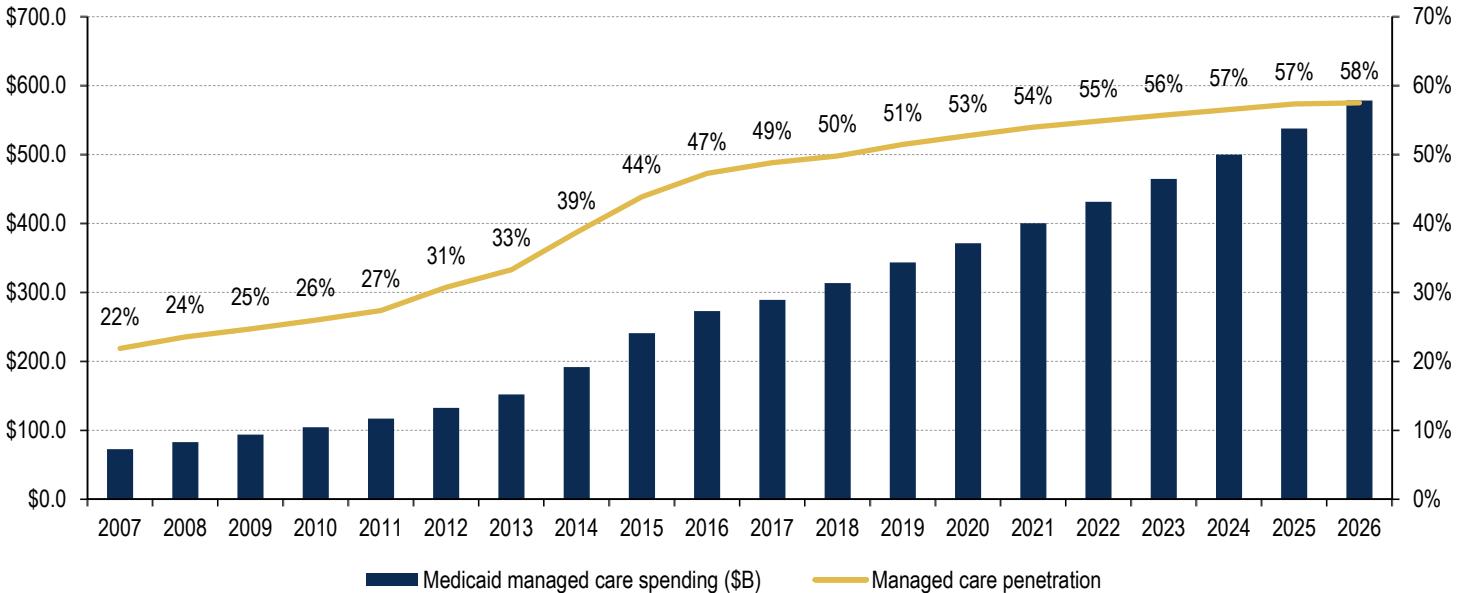
Another dynamic that has depressed volumes is the shift of government programs to managed care as a way to save money. In a fee for service (FFS) environment where no one is managing utilization, there is a significant potential for over utilization. Managed Care companies are able to reduce utilization through keeping people healthy on the front end, and steer members to the lowest cost settings for care (rarely a hospital) when care is needed.

### Medicaid Managed Care

In the Medicaid space, states target 15% savings versus fee for service spending when transitioning populations to managed care. And since Medicaid MCOs pay providers approximately the same rate that the Medicaid FFS schedule would have paid, these savings have to be in the form of lower utilization. Because MCOs also have to cover their SG&A load and earn a profit, the reduction in spending would actually have to be higher than the 15% target and something closer to 25%.

The majority of Medicaid members are enrolled in a Medicaid managed care plan. However, Given that the higher cost patients have yet to transition to Medicaid MCOs although 76% of members are in Managed Care, only 50% of spending is managed by Medicaid MCOs. As a result, there is still significant room for this shift to continue.

**Chart 18: Medicaid managed care spending (\$m) and penetration**



Source: CMS, BofA Merrill Lynch Global Research

Below we estimate that for every 2% penetration gain by Managed Care companies into Medicaid spending, there exists a roughly 10bps headwind to hospital volumes. We note, however, that the impact would vary based on hospital companies' bed exposure to states that move to Managed Medicaid. For instance, Managed Care entering Hawaii Medicaid would have no impact, but Texas or Florida moving to Managed Care would have a larger impact. With 50% of Medicaid spending still not managed by MCOs, this is likely to be a modest headwind to volume growth every year over the next decade.

**Table 16: Hospital Volume Headwind from Increased Managed Medicaid Penetration**

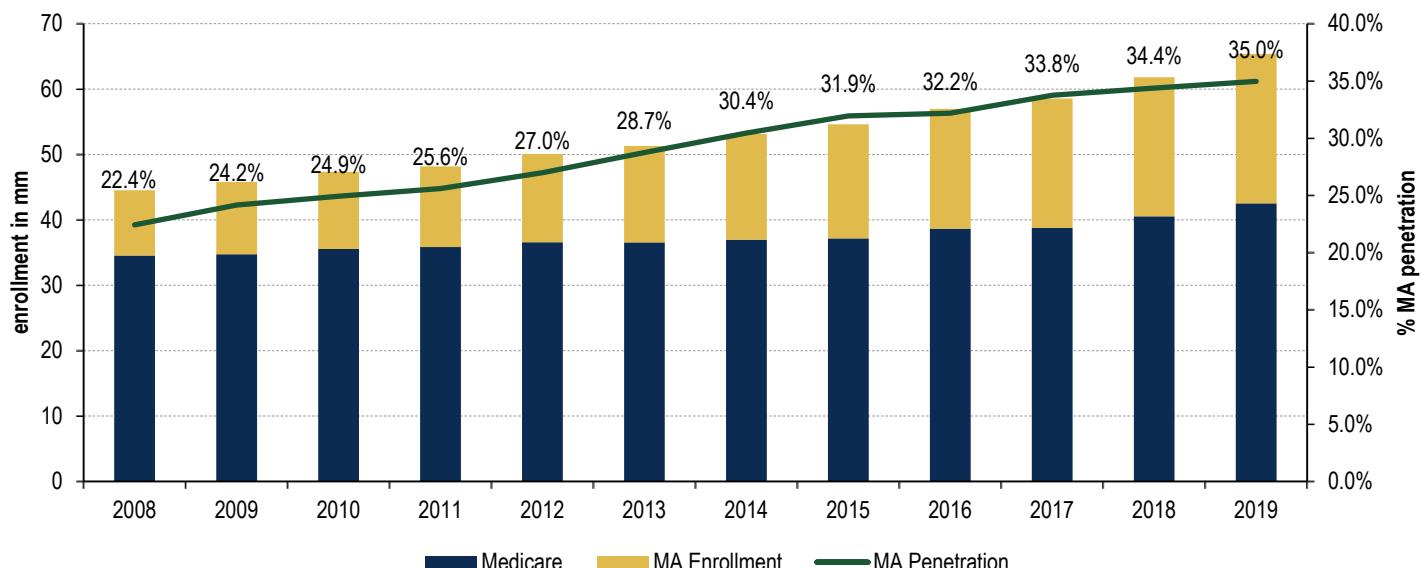
Assumed MCO Penetration Gain	2%	
	Low	High
Hospital Industry Medicaid Rev as a % of Total	12.7%	16%
Medicaid Reimbursement Discount	70%	70%
Medicaid Admissions % of Total Admissions	18.1%	22.9%
Utilization Cut from MCOs	20%	20%
% Headwind to Vols from 2% Penetration Gain	0.09%	0.11%

Source: BofA Merrill Lynch Global Research

### Medicare Advantage

We see a similar dynamic on the Medicare Advantage side, where the most successful plans are tightly networked HMO products that save 20-25% versus Medicare FFS spending. Below we show the rapid growth in MA enrollment in recent years. On conference calls in 2013, many hospitals companies highlighted the growth in MA and Managed Medicaid as contributors to their weak volumes.

**Chart 19: Medicare Advantage penetration**



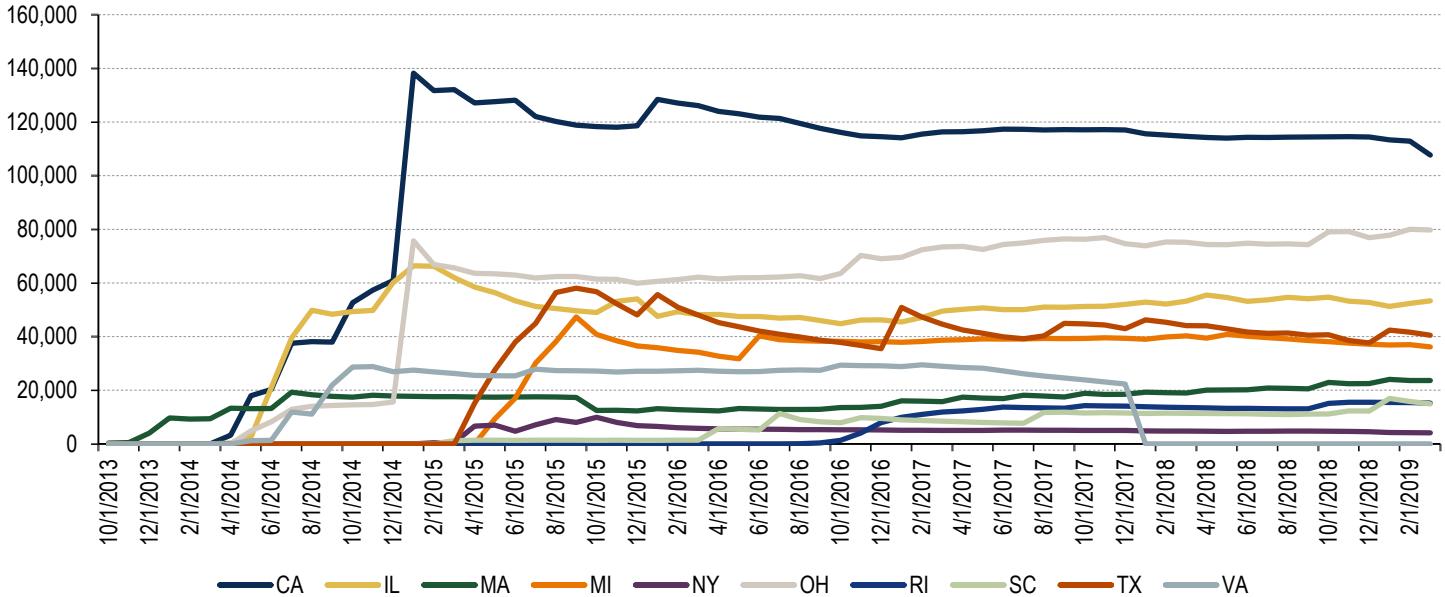
Source: CMS, BofA Merrill Lynch Global Research

#### Early dual demos disappointing, long term still has promise

There has been a movement by the state and federal governments to improve care coordination of “dual eligibles,” people who qualify for both Medicare and Medicaid (see more details in [our Medicare Primer](#)). In July 2013, CMS implemented the dual demonstration. The dual care coordination pilots would aim to focus on keeping people healthy and when care is needed, to steer individuals away from expensive inpatient hospital and nursing facility care and into less expensive options, when appropriate. Since the primary focus for cost savings is to reduce costly inpatient utilization (hospital and nursing home), every dollar that managed care saves is a dollar not given to a provider. We found Texas and California indicated 20% reduction in acute care utilization would be possible.

More than five years into the demonstrations, Dual eligible demos continue to struggle. Many states are struggling to achieve their cost savings goals, primarily driven by the fact that beneficiary participation is optional and many are deciding to opt out – often because providers are pressuring beneficiaries to opt out. The chart below shows a pretty consistent story of duals enrollment growing rapidly during auto-enrollment, but then stabilizing and slightly declining as members are allowed to opt-out.

## Chart 20: Dual Demonstration Enrollment by State



Source: CMS, BofA Merrill Lynch Global Research

Meanwhile, many states, including Florida (a key state for hospital companies), is not participating in the demo. As a result, the impact of duals may be more targeted and create more of a headwind for some companies than others.

Only about \$35 billion of the \$300 billion duals spending is managed by MCOs, but going forward, states are being given more flexibility to create dual special needs plans (D-SNP) which are managed care plans that coordinate Medicare and Medicaid savings – essentially recreating the duals demonstration program on a voluntary state by state basis. As managed spending expands toward the \$300 billion, the shift of coordinated benefits between the two programs would create another headwind to volume growth in what is already a weak utilization environment.

Below we examine the headwind to volumes that we expect hospitals to experience from every additional 1% shift from Medicare Fee For Service (FFS) to Medicare Advantage. Medicare Advantage penetration is expected to increase about 1% every year until at least 2028.

**Table 17: Hospital Volume Headwind from Increased Medicare Advantage Penetration**

Assumed MCO MA Penetration Gain	1%	
Hospital Industry Medicare FFS Rev as a % of Total	Low 30%	High 30%
Medicare FFS Reimbursement Discount	90%	90%
Medicare FFS Admissions % of Total Admissions	33%	33%
Utilization Cut from MCOs for Medicare Advantage	20%	25%
% Headwind to Vols from 1% MA Penetration Gain	0.07%	0.08%

Source: BofA Merrill Lynch Global Research

### Doctors changed "the business of medicine"

Over the last several years, physician reimbursement rates from Medicare and Managed Care have been relatively flat. With issues like rising malpractice expense and the increased overhead costs of electronic billing and medical records, doctors have

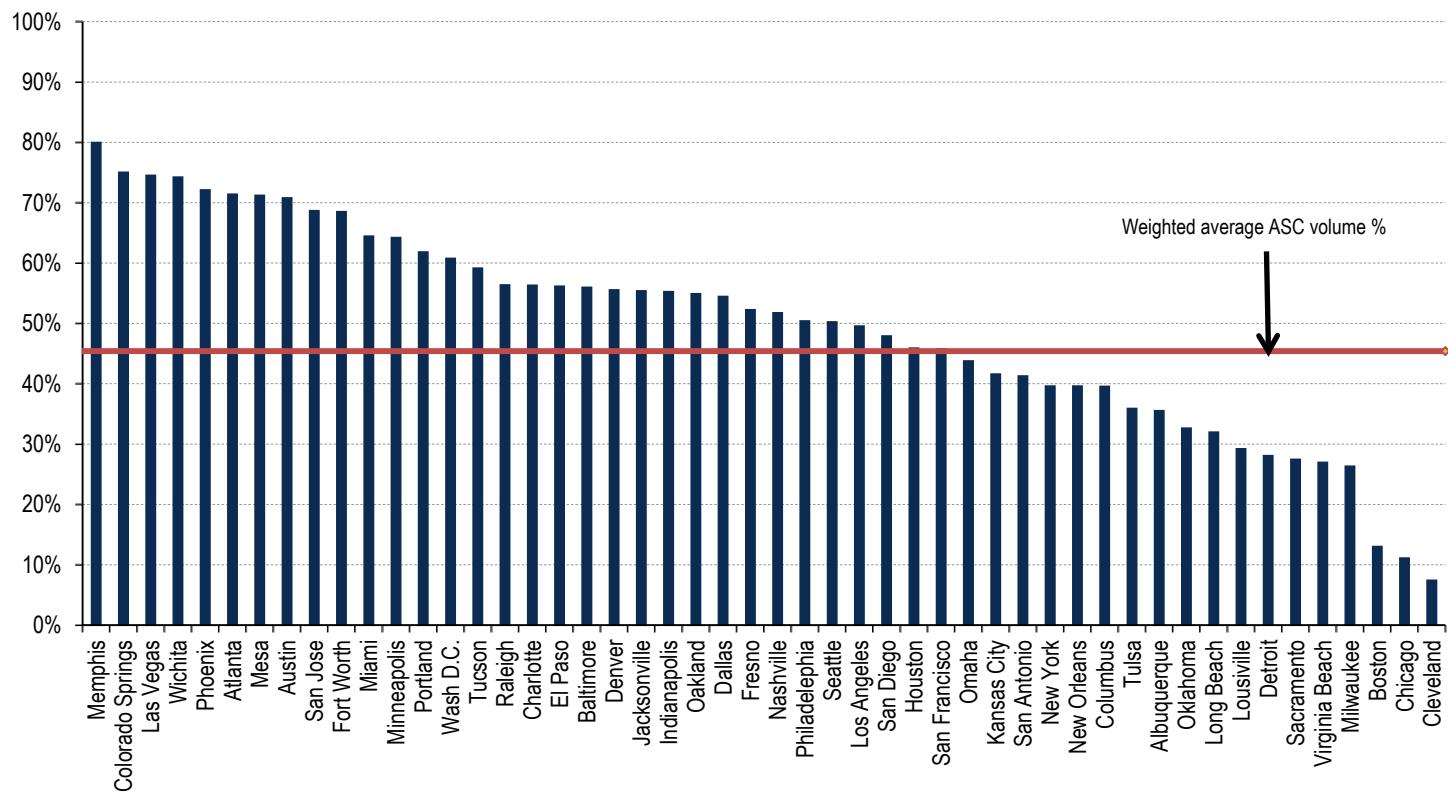
increasingly sought new ways to supplement their income. Their first reaction was to see more patients, which has led to patients spending a smaller and smaller portion of their doctor visit actually with the doctor. When doctors reached the limit of the number of patients they could see in a day, they began adding services that used to be done in the hospital such as lab testing and imaging, allowing them to pocket some of those profits. In addition, doctors increasingly perform low acuity outpatient surgeries in their offices, at a lower cost to the patient, but a higher fee for the doctor. And, many doctors have opened ambulatory surgery centers, allowing them to do even more complex surgeries outside of the hospital and gain a larger percentage of payments.

### **Increased competition from ASCs**

A significant source of disruption to volume growth has been ambulatory surgery centers (ASCs). There was explosive growth in the number of ASCs in the last decade, and today there are more ASCs than there are hospitals in the country. In our view, the volume that these centers have taken likely explains why hospital adjusted admissions are not stronger – although volumes are moving to outpatient settings, ASCs are garnering an increasing share of these surgeries from the outpatient department of hospitals. We note that despite the fact that some ASCs specialize in certain types of procedures and often have some physician ownership, hospitals have been less vocal about the negatives of these facilities because many hospitals also own ASCs (e.g. in June 2015, THC acquired USPI, one of the biggest ASC operators).

Below we show that in the top 50 cities, ASCs represent approximately 45% of volume, but in some markets, that is as high as 80% and as low as 8%. 29 of these 50 cities have more outpatient surgeries taking place in ASCs than in HOPDs, reiterating the shift towards ASCs in urban areas.

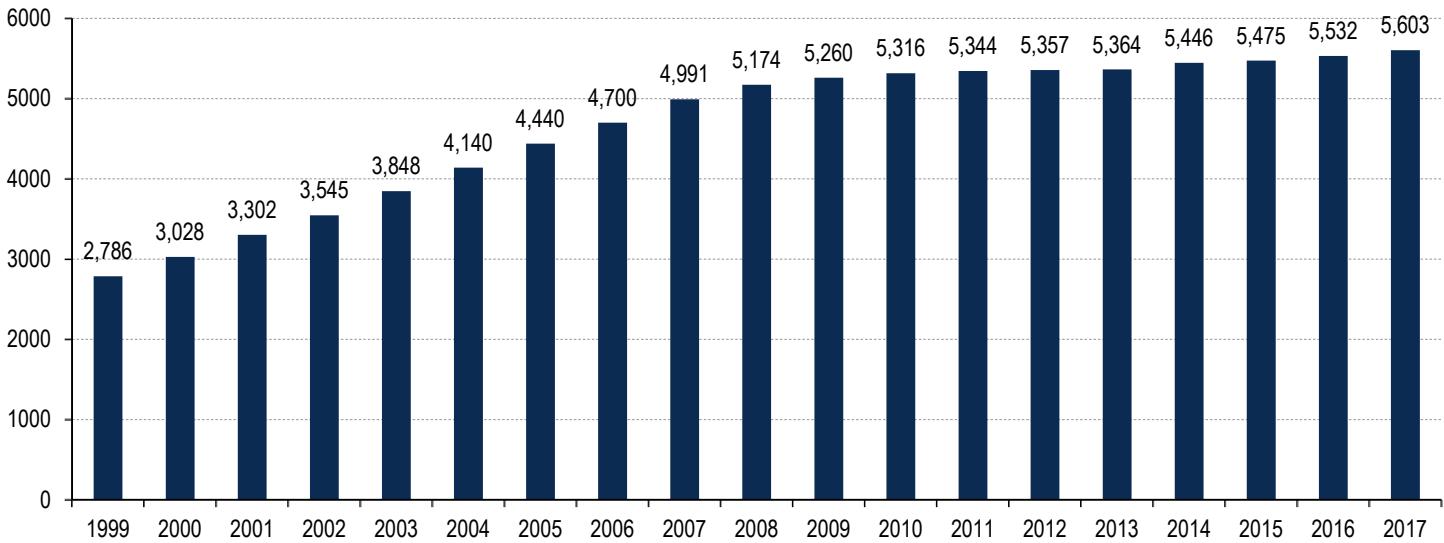
**Chart 21: ASC volume as % of total outpatient surgeries in the 50 most populous US cities (2017)**



Source: Franklin Trust Ratings

From 2000 through 2012, the number of Medicare certified ASCs increased at a compound annual growth rate of 4.9% per year. However, there is more than one ASC per hospital in the country, and most of the ASC companies admit there is oversaturation in many markets. After growing 8.0% annually from 2000 to 2005, the number of new centers grew 2.2% annually in 2006-2012, saw flat growth in 2012 and 2013, saw increased growth of about 1.5% in 2014, but then saw growth slow to +0.5% in 2015, +1.0% in 2016, and +1.3% in 2017. We expect the growth rate will continue to be modest over the next few years as most of the doctors that wish to be part of an ASC already have the ability to join.

**Chart 22: Growth in Medicare Certified ASCs**



Source: MedPAC

The headwind from ASCs has shown evidence of normalizing as the growth in ASCs has slowed. For 2007-2010, the average annual Medicare volume growth rate for ASC services covered by Medicare was 3.0% for freestanding ASCs, compared to hospital outpatient growth for the same set of services of 0.3%, suggesting some migration from hospital outpatient setting to ASCs. However, in 2011 ASC volumes grew only 1.7%, while hospital outpatient volumes grew faster, at 3.7%. In 2012, ASC saw volumes increase by 1.5% while hospital outpatient volumes decreased 1.3%. However, the decline in hospital outpatient volume in 2012 was largely driven by a strong decrease of 10.5% in the volume of pain management services. Excluding the decline in pain management services, hospital outpatient volumes increased by 0.5%. Meanwhile, 2013 through 2016 data show that outpatient volume growth outpaced that of ASCs, more in line with 2011 results. This trend reversed in 2017 when volume per FFS beneficiary increased by 1.7% in ASCs and by 0.7% in hospital outpatient settings.

**Table 18: Annual Medicare Volume Growth of ASC-Covered Services**

Period	Hospital Outpatient Surgeries	Freestanding ASC Outpatient Surgeries
2007-2010	0.3%	3.0%
2011	3.7%	1.7%
2012	-1.3%	1.5%
2013	3.1%	0.5%
2014	1.1%	-0.9%
2015	2.5%	1.8%
2016	3.2%	-0.5%
2017	0.7%	1.7%

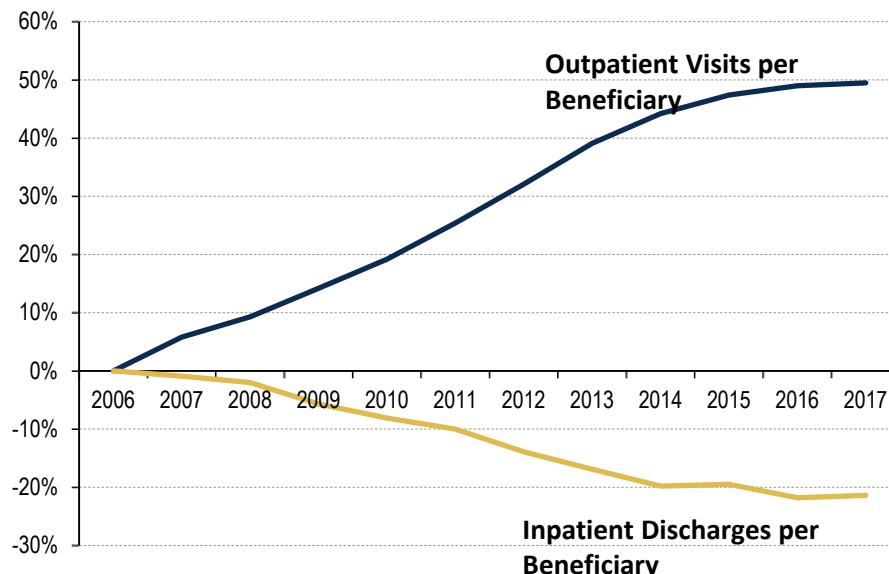
Source: MedPAC

These results imply that the shift from hospital outpatient to ASCs has slowed. One reason could be that higher Medicare payment rates in hospital outpatient settings make it more financially attractive to perform surgical services for Medicare patients there vs ASCs (according to MedPAC, in 2019, most surgical rates at hospital outpatients are 94% higher than in ASCs, up from 92% in 2018). In addition, the slower growth in ASC volume could be a result of physicians moving toward working for hospitals/medical groups from working in private practices, incentivizing them to do surgical procedures at the hospitals that employ them. Finally, after years of moving the lowest acuity procedures to ASCs, the core hospital volumes (that are higher acuity and are more difficult to be moved out), were all that were left and were more likely to grow with population growth over time, whereas lower acuity ASC volume is more discretionary and potentially volatile.

#### **Shift by payers to move volumes to lower cost settings**

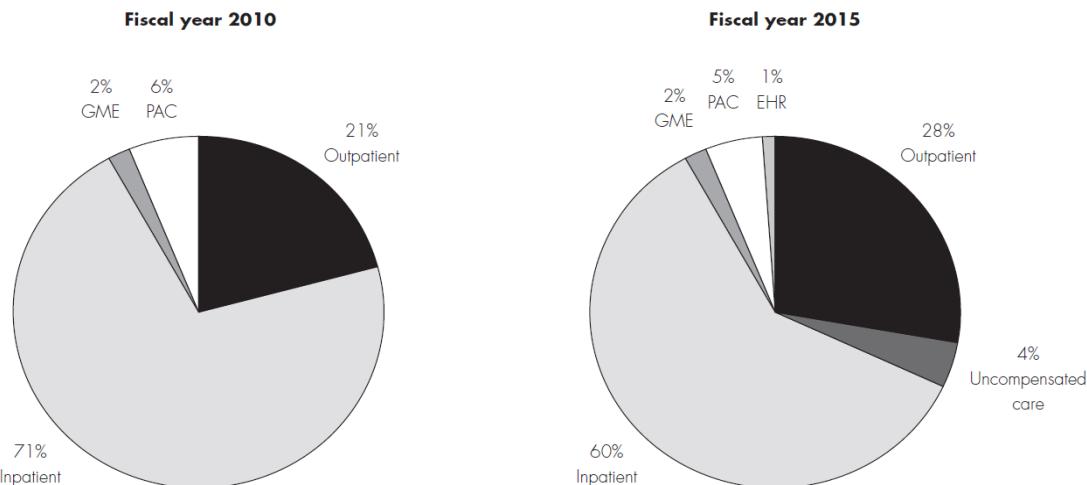
As health care costs continue to rise, payers are increasingly trying to move patients to lower cost settings. If a procedure is cheaper in an ASC than a hospital outpatient department, then the copay for that service will likely be lower as well. Since doctors make more money performing the procedure in a facility that they own, the health plan is paying less and the individual's copay is lower, there is strong incentive to move patients out of the hospital. In addition, health plans generally try to get patients out of the hospital as quickly as possible and into post-acute care settings such as skilled nursing facilities where the daily cost of care is a fraction of what hospitals charge. This turns what used to be a five-day stay into a two-day stay, and what used to be a two-day stay into an outpatient procedure followed by a stay in a post-acute care facility.

**Chart 23: Medicare Outpatient visits per beneficiary vs inpatient discharge per beneficiary**



Source: MedPAC 2019 Report to Congress

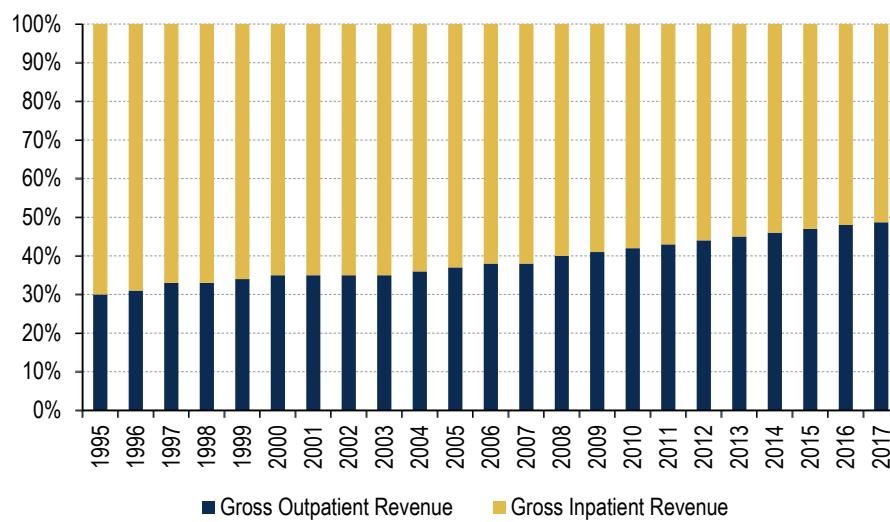
## Exhibit 2: Share of Medicare revenues hospitals receive for inpatient services has declined, signifying volume shift to outpatient



Source: MedPAC 2017

The volumes in outpatient facilities have grown so much that the revenues from outpatient services is approaching the amount of revenues seen from providing inpatient services. Since inpatient services are more expensive, this speaks to the significant volumes at outpatient centers.

**Chart 24: Distribution of inpatient vs. outpatient revenues for community hospitals (1995-2017)**



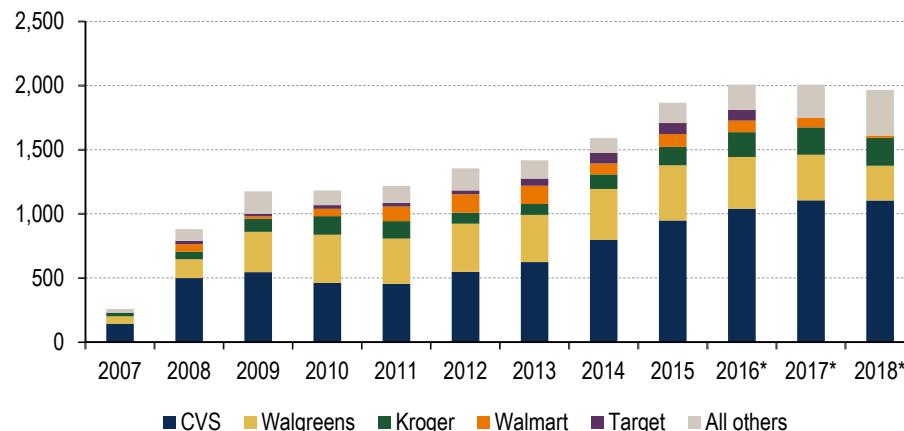
Source: American Hospital Association

### Growth in retail health care clinics

The number of retail health care clinics, such as those based in pharmacies, has grown sharply as consumers seek options that are cost-effective, accessible and provide extended operating hours for health care needs. Services include treatment of uncomplicated illness, such as a sore throat or earache, or preventative care like vaccines or physical exams. In addition, retail clinics are generally a clinic-within-a-store model with limited space, and are staffed by nurse practitioners or physician assistants.

CVS Health's MinuteClinic, the market leader with more than 1,100 locations across 33 states and the District of Columbia, had more than 34 million patient visits.

## Chart 25: Number of retail health care clinics at the start of the year



Source: The Huffington Post, BofA Merrill Lynch Global Research

\*For 2016 and 2017, data from Drugs Channels Institute

\*For 2018, data from Merchant Medicine

According to the Merchant Medicine article, as of January 2018, the number of retail clinics declined 2% from January 2017. It appears the largest chains, including CVS and Walgreens, scaled down their footprint while some large hospital systems, such as Kaiser, added more retail clinics.

**Table 19: Top 10 Retail Clinics by Operator, Jan. 1, 2018 vs Jan. 1, 2017**

Operator	January 2017	January 2018	Difference	
			Y/Y	% Y/Y
MinuteClinic	1,105	1,104	(1)	-0.1%
Walgreens Healthcare Clinic	300	271	(29)	-9.7%
The Little Clinic	213	217	4	1.9%
RediClinic	91	79	(12)	-13.2%
Advocate Clinic at Walgreens	56	56	0	0.0%
FastCare	41	34	(7)	-17.1%
SSM Health at Walgreens	26	25	(1)	-3.8%
Kaiser Permanente/Group Health of WA	4	19	15	375.0%
Walmart Care Clinic	18	19	1	5.6%
Providence Express Care at Walgreens	16	16	0	0.0%
All others	138	126	(12)	-8.7%
<b>Total - all operators</b>	<b>2,008</b>	<b>1,966</b>	<b>(42)</b>	<b>-2.1%</b>

Source: Merchant Medicine LLC

The retail clinics offer basic check-ups plus vaccinations and treatment for minor ailments, and their medical professionals can write prescriptions. According to the Health Affairs analysis, 47.5% of care for patients at retail clinics in 2007-09 was preventive care, in particular, the influenza vaccine, compared to 21.8% in 2000-06. Unlike the pharmacy and grocery chains, Walmart is positioning itself as a true primary care provider, while both Walmart and Walgreens tout their services for patients with chronic diseases. Walmart sets a flat price of \$40 per visit (or \$4 for company employees), while CVS Health and Walgreens charge less than \$100 for most treatments. Lab work, drugs, vaccines and other things carry additional fees. A focus on preventative care could help catch issues before they require hospitalization, while some of the lower acuity health care treatments might have otherwise been performed in the emergency room of a hospital. Although this is low dollar per treatment volume, any volume is good volume for the hospital.

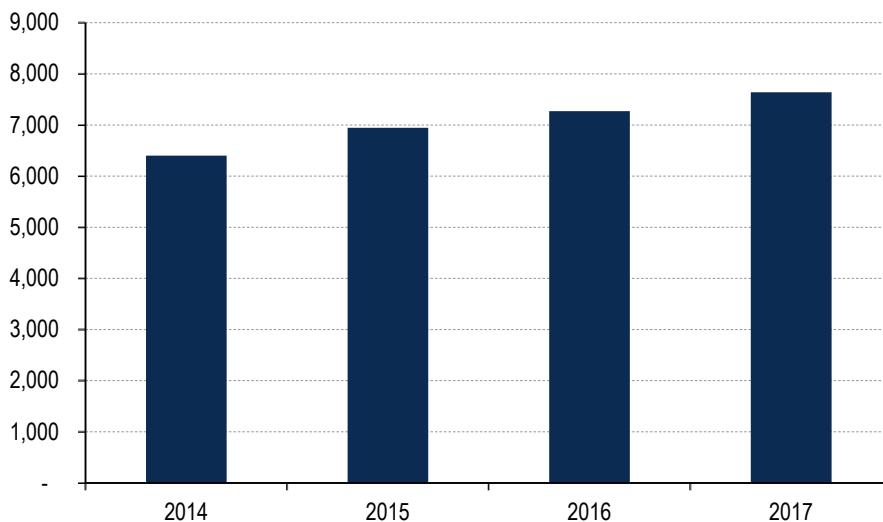
## Urgent care clinics

Another care setting that has been gaining traction is an urgent care clinic. In general, we view retail clinics, which are primarily staffed with nurses as more a substitute for primary care services, although there is certainly some volume substitution vs an ER. However, we view urgent care clinics as more of a substitutable service versus an emergency room. Similar to a retail clinic, an urgent care clinic is also a walk-in clinic, but is designed for after-hours ambulatory care. Urgent care clinics fill patient needs when the doctor's offices are closed or booked (urgent care hours are usually from 8am to 8pm seven days a week), or for urgent health needs that do not require an emergency room visit. Urgent care clinics have multiple exam rooms, and are staffed by nurse practitioners, physician assistants, and medical assistants. Most urgent care clinics have a full-time, on-site licensed physician, who often serves as a medical director. Increasingly, urgent care clinics will operate CT scanners and MRIs, providing ER level care/diagnosis at a fraction of the cost.

The growth of urgent care clinics created pressure on hospital emergency department (ED) volumes. A 2015 Cost Trends Report based on 2014 data provided by the Massachusetts Health Policy Commission indicated that 40% of ED visits did not require that level of service, but are often the only option for after-hours care. It also said that ED visits were reduced by 30% in communities where there was access to walk-in, no-appointment medical care.

According to the Urgent Care Association of America, there were 7,639 urgent care centers as of June 2017, growing at about a 6% CAGR from 2014.

**Chart 26: The number of urgent care clinics as per UCAOA**



Source: UCAOA

As per Merchant Medicine, the number of urgent care operated by independent operators increased rapidly as of Jan 2018, and was up 11% year over year as some of the largest operators, such as MedExpress and CityMD increased their footprint by over 20%.

**Table 20: Top 10 Independent Urgent Care Operators, Jan. 1, 2018 vs. Jan. 1, 2017**

Private UC Operator	January 2017	January 2018	Difference	
			Y/Y	% Y/Y
MedExpress	198	244	46	23.2%
American Family Care	171	186	15	8.8%
NextCare	137	135	(2)	-1.5%
FastMed	114	109	(5)	-4.4%
CityMD/Premier Care	68	86	18	26.5%
Patient First	71	73	2	2.8%

**Table 20: Top 10 Independent Urgent Care Operators, Jan. 1, 2018 vs. Jan. 1, 2017**

Private UC Operator			Difference	
	January 2017	January 2018	Y/Y	% Y/Y
GoHealth*	58	71	13	22.4%
Fast Pace	39	58	19	48.7%
Doctors Care	51	53	2	3.9%
Medspring/ChoiceOne*	45	53	8	17.8%
<b>Total - all private operators</b>	<b>1,514</b>	<b>1,688</b>	<b>174</b>	<b>11.5%</b>

Source: Merchant Medicine LLC

We also note that the large hospital systems themselves have been actively adding urgent care as a way to capture some of the patients that were leaving their systems.

**Table 21: Top Hospital/Multispecialty Group Urgent Care Operators, Jan. 1, 2017 - Jan. 1, 2018**

Independent UC Operator			Difference	
	January 2017	January 2018	Y/Y	% Y/Y
U.S. HealthWorks/Dignity/GoHealth *	178	186	8	4.5%
HCA/Carenow	54	104	50	92.6%
Carespot/Medpost/USP	90	95	5	5.6%
Banner Health	33	46	13	39.4%
Centra Care	39	38	(1)	-2.6%
Aurora Health	33	37	4	12.1%
Northwell Health *	33	40	7	21.2%
Providence Health & Services	31	36	5	16.1%
MultiCare/Immediate Clinic	33	44	11	33.3%
Intermountain Health	32	31	(1)	-3.1%
<b>Total - all Hospital/Multispecialty Group UC operators</b>	<b>1,126</b>	<b>1,253</b>	<b>127</b>	<b>11.3%</b>

Source: Merchant Medicine LLC

### Freestanding ERs

Another care setting that has dramatically increased over the last decade is freestanding emergency department (FED) or Freestanding ER. As the name implies, the level of care provided at these locations is even more similar to a hospital emergency room - open 24/7, 365 days with similar average acuity and similar capabilities.

Acuity at a freestanding ER is comparable to a hospital ED – the facility treats patients with heart attacks, severe abdominal pain, and respiratory distress. Usually, the FED, is staffed by a licensed ER doctor. Also, there is no difference in triaging patients vs a hospital emergency department. If a patient needs to be admitted (as at an ER in a hospital), the freestanding ER will send that patient to an acute care hospital.

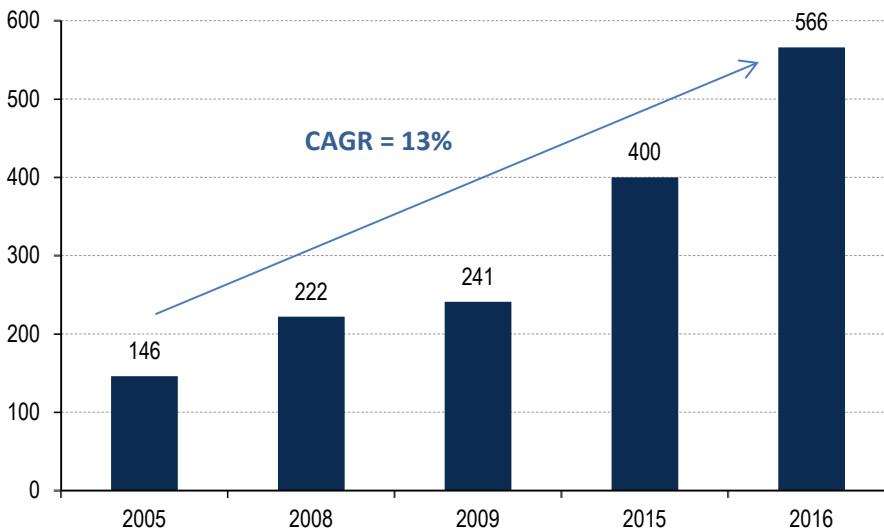
The biggest difference compared to a hospital ED is the cost to the private payor. A hospital ER visit costs \$2,200-\$2,400 per patient including hospital fee plus physician fee, lab, CT etc. Meanwhile, an FER charges \$1,600 per patient, roughly 2/3rds of the hospital total cost. We note that FERs affiliated with a hospital system receive the same Medicare rate as the hospital's ED would. MedPAC proposed to reduce these rates by 30% for FERs that are within 6 miles of an on-campus hospital ED to better reflect the lower costs of operating FER vs the hospital-based ED.

According to MedPAC, as of 2016, there were 566 FEDs, of which 363 are off-campus ERs affiliated with hospitals and about 200 independent ERs but those facilities can't bill Medicare unless they are affiliated with a hospital. MedPAC believes about 400 off-site ERs now are billing Medicare. Based on the MedPAC data, the number of freestanding ERs increased at a 13% CAGR from 2005 to 2016.

While there are some independent FED operators, we note that the hospital systems have been also adding FEDs in their markets. For example, HCA has roughly 75 freestanding emergency room centers with another 45 to 50 that are in development. Since the majority of these sites are actually owned by hospitals, the rise of FEDs has

not been as great a headwind to hospital volumes as urgent care clinics (instead it has moved volumes out of the hospital ER into the community FED).

**Chart 27: Number of Freestanding ERs**



Source: BofA Merrill Lynch Global Research, MedPAC

#### New payment models: ACOs, capitation, etc.

The broad changes in the health care system also influenced hospital volumes, in our view. The trend from fee for service toward pay for performance results in increased focus on reducing hospital stays, as hospitals are the most expensive care setting.

One of the examples is the creation of Accountable Care Organizations (ACOs) under Reform, which are supposed to save money for the system by changing the payment incentive for doctors. If doctors are able to reduce spending below a benchmark level on average per patient, the doctor will get to share in the savings. The most common area targeted for savings is reducing inpatient spending.

Since the ACO program does not allow for networks (patients can choose any doctor or hospital), few hospitals participate in Medicare ACOs. A hospital reducing inpatient spending to generate savings in the ACO would need to either gain a significant risk share bonus payment, and/or ensure that all of the volume that does occur comes to their hospital (ie, they need to gain share within a declining admission pool). Without a network construct, patients could decide to get care at the hospital across the street, so reducing admissions (and profits) in its core fee for service business, without a guarantee of better market share or a shared savings bonus payment is a financially risky proposition.

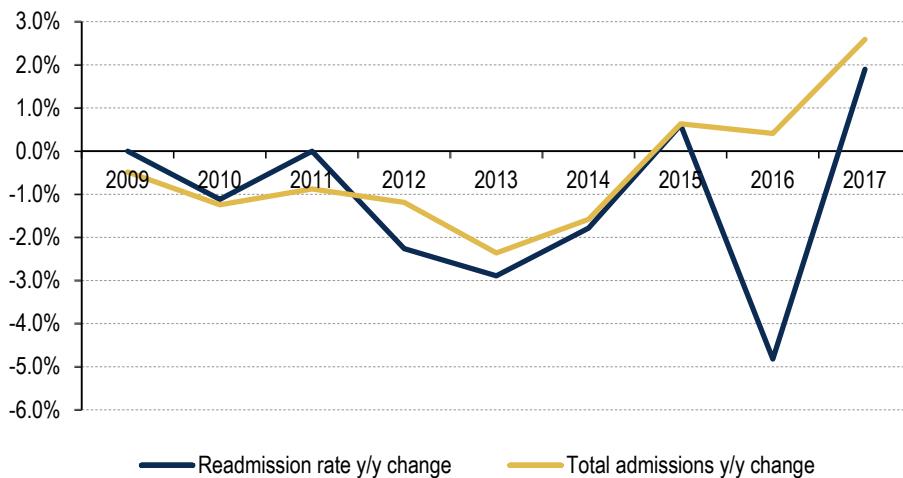
Similarly, if there are capitated arrangements with doctors in the market, there would be pressure to reduce inpatient spending. Under such arrangements, doctors are paid a flat monthly fee to manage and deliver the care to a member. If they can keep spending below that fee, then they make money, but if spending goes above that fee, they would lose money. Under those contracts, providers would focus on wellness and prevention in order to avoid hospitalizations.

Reform also included the implementation of a Hospital Readmissions Reductions program (HRRP) with reduced payments for hospitals with excess readmissions. The readmissions payment penalty included a maximum reduction of 1% in FY2013, and this maximum penalty increased to 2% in FY2014. According to the MedPAC report published in June 2018, the HRRP led to a significant decline in readmission rates.

Readmission rates for conditions covered by the HRRP program declined dramatically, with a -3.6% decline for acute myocardial infarction, -3% for heart failure and -2.3% for

pneumonia. These are much sharper declines than a -1.4% decline for conditions not covered by the program. Overall, the readmission rate declines correlate closely with the total hospital industry admission trends as shown below, although readmissions did fall more quickly in the early years of the readmission program. For example, the readmission rate declined 2.9% in 2013, partially explaining the -2.4% decline in total admissions that year. In the MedPAC Letter to Congress report published in 2019, readmissions ticked up slightly. However, there was also an increase in hospital admissions overall, continuing the trend that the two trends tend to move together.

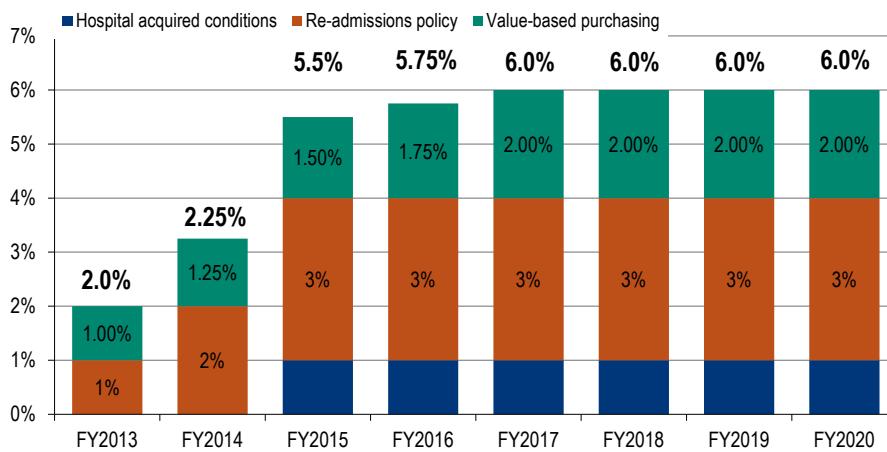
**Chart 28: Change in readmission rate across all conditions vs total admissions growth, 2009–2017**



Source: MedPAC, AHA

Patient readmissions occur when patients who leave the hospital return within the next 30 days for an issue related to the first admission. Although some readmissions are unavoidable, there is a widely held belief that many readmissions could be avoided by better coordinated care post-discharge. It is early in the rollout of some of these payment structures, but they are increasing as a percent of payments. Of note, the Medicare program has ramped up payments tied to quality (6% of Medicare inpatient payments is tied to quality in some way, and commercial MCOs are following suit.

**Chart 29: Hospital Quality Programs**



Source: BofA Merrill Lynch Global Research, CMS

## Hospitals have discontinued certain service lines

Companies often cite the influence on volumes from the decision to end certain service lines. Whether they exit OB/GYN because malpractice costs are too high, or skilled nursing services because rates are too low, hospitals increasingly focus their resources on business lines that produce the highest returns. Although this tends to reduce the reported admission metric, the effects on profitability are more muted, and we generally view these decisions favorably.

Closing service lines may reduce company volumes for a few quarters, but hospitals continually review the types of services that they provide, so this happens every year, and except in rare circumstances should not drag down volumes dramatically. In our experience, companies tend to disclose the discontinuance of certain services when volumes are otherwise weak and do not disclose the impact when volumes are otherwise strong. Meanwhile, companies rarely, if ever, disclose the benefit to volumes when those beds reopen with a new service line.

Given that hospitals consistently close service lines and open new ones and the inconsistent disclosure, we are reluctant to back out its effect in any given quarter. Closing services generally frees up capacity in other areas and should lead to volume growth in the future. The company would face a headwind from a closed unit, but receive the benefit of a new unit that reopened in the last 18 months.

## The cyclical reasons for volume weakness

### Impact of the economy

A 2013 study by the Kaiser Family Foundation and the Altarum Center found that the economy explains about 85% of the growth in health care spending, although the impact is lagged with GDP growth over a six-year period (including the current year), predicting most of the growth in health care spending.

**Exhibit 3: Health Spending Growth, Actual vs Predicted**



Source: Analysis by the Kaiser Family Foundation and the Altarum Center for Sustainable Health Spending

Researchers were somewhat surprised by the six-year lag between economic growth and health care utilization, but provided the following list of possible explanations (some of which we examine in more detail below).

- Most people are insured, and insurance has an economically protective effect in shielding people from the full cost of health care.
- Consumers may perceive health care as a necessity in a way that is different from other economic goods, and therefore cut back on health spending only after exhausting other ways of trimming household budgets.
- Employers may not make immediate changes to health benefits in response to changes in GDP.
- Hospitals (which account for a large share of health spending) are quite deliberate in their decision-making processes regarding whether to expand or contract services and capital expenditures.
- Legislated changes in spending under Medicare and Medicaid may require an extended process of debate before any substantial adjustments are made. In fact, as unemployment rises and incomes fall, Medicaid costs tend to go up as more people become eligible for the program, though states in response may react by cutting back on eligibility or payments to providers.

### Payers shift cost of care to the patient

As employers dealt with years of double digit managed care rate increases, they sought a way to slow the growth in spending. MCOs responded by offering plans that have a leaner benefit design, by shifting more of the cost to the employee. This has the double benefit of having the employee pick up more of the year over year increase in health plan costs, and often causes the employee to cut back on utilization.

Individuals share in the cost of health insurance in a variety of ways, including premiums, copays, coinsurance, deductibles and out-of-pocket maximums.

**Table 22: Elements of health plan design**

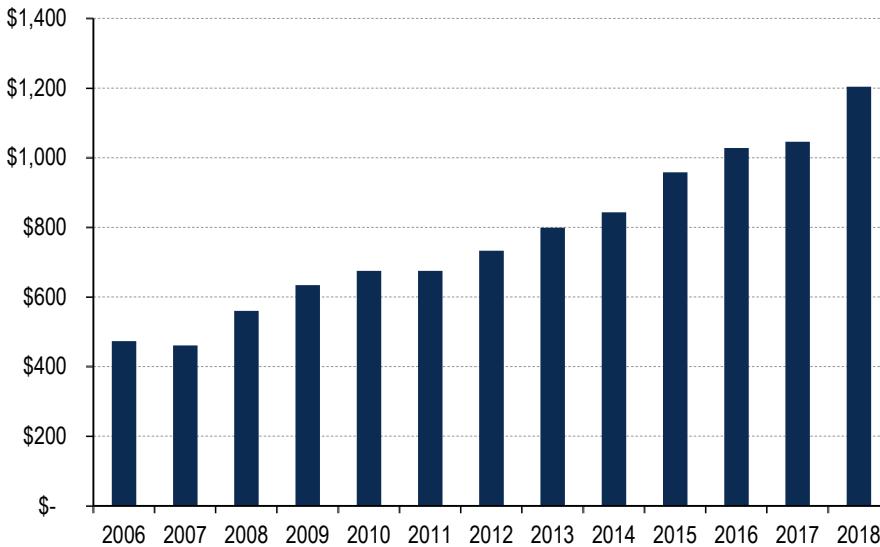
<b>Premium</b>	The amount that must be paid for health insurance. The individual and/or an employer usually pay the premium monthly, quarterly or yearly.
<b>Copay</b>	A fixed amount (for example, \$20) paid by an enrollee for a covered health care service, usually paid when the individual receives the service. The amount can vary by the type of covered health care service.
<b>Coinurance</b>	Enrollee's percentage share of the costs of a covered health care service. This (for example, 20%) is based on the allowed amount for the service provided. Enrollee pays coinsurance, plus any relevant deductibles, for covered services.
<b>Deductible</b>	The amount an enrollee owes for health care services before the health plan begins to pay. For example, if an individual's deductible is \$1,000, the health plan won't pay anything until he/she has paid \$1,000 out-of-pocket for covered health care services. The deductible may not apply to all services.
<b>Out-of-pocket maximum</b>	The limit on the total amount a health insurance company requires an enrollee to pay in deductible and co-insurance in a year. After reaching an out-of-pocket maximum, the enrollee no longer pays co-insurance because the plan will begin to pay 100% of medical expenses. This only applies to covered services.

Source: BofA Merrill Lynch Global Research

As health care premiums have increased at an average rate of 10% since 2000, employers have increasingly tried to shift some of the cost to the consumer in the form of higher deductibles and copays. Below we show how the average amount of deductibles for health plans has increased from 2006 to 2018. The percent of PPO plans with deductibles of \$2,000 or more increased from 4% to 13%, while the percentage of POS plans with deductibles of \$2,000 or more increased even more dramatically from 1% to 21% (it was at 42% in 2016).

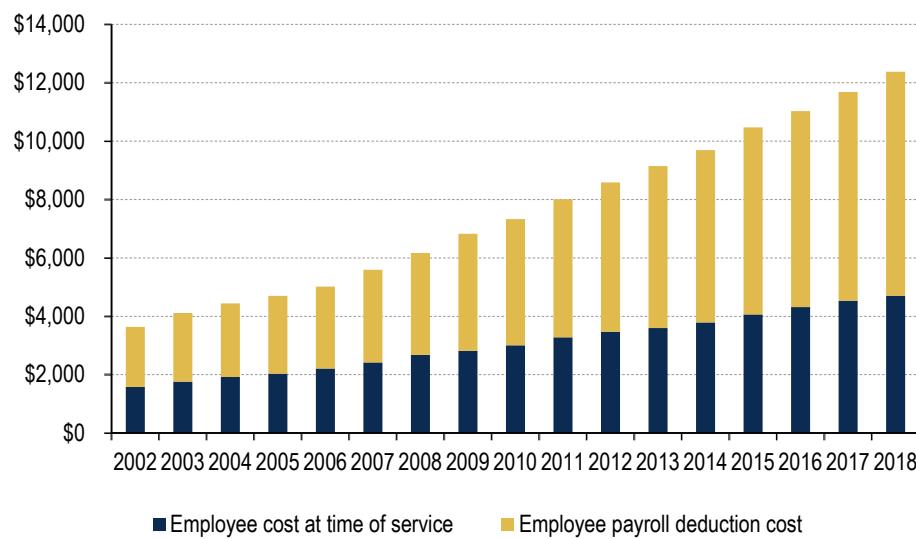
Average PPO coverage deductible has steadily increased over time since 2006, although 2018 saw a pretty sharp increase.

**Chart 30: Average Health Plan Deductible for Single PPO Coverage Among Covered Workers, 2006-2018**



Source: Kaiser/HRET Survey of Employee-Sponsored Health Benefits, 2006-2018, BofA Merrill Lynch Global Research

**Chart 31: Average Employee Share in Medical Costs**



Source: Milliman Medical Index

\*measures average medical spending for a typical American family of four covered by an employer-sponsored PPO program

In some ways, the idea that people will overuse health care when benefits are generous and limit use when benefits are more restrictive is somewhat counterintuitive, because people generally do not go to the doctor or the hospital unless they have a serious health issue. However, in its simplest form, if the doctor examines a patient and gives a clean bill of health, but wants to run three tests just to be sure, if the cost to the patient is \$10, then the patient might agree to let the doctor perform the tests. However, if the patient copay was \$100 per test, the patient would be more likely to question the need for the tests and forgo one, two or all three.

The chart below shows that this is indeed the case. Patients with more complete health care coverage tend to visit the doctor more often and get more preventive medicine than patients with no coverage or who are underinsured (with health insurance but

where medical bills represent 10% of family income or 5% of family income for low-income families).

**Table 23: Insured, underinsured, and uninsured usage, 2016**

	Insured all year			
	All adults	Insured, not underinsured	Underinsured	Uninsured during the year
All adults, millions	187	106	41	40
<b>Access problems: went without care because of costs in the past year</b>				
Did not fill prescription	19%	11%	28%	31%
Skipped test, treatment, or follow-up care	18%	11%	24%	31%
Had a medical problem but did not visit doctor	20%	11%	27%	36%
Did not get needed specialist care	13%	7%	17%	26%
<i>At least one of four access problems because of cost</i>	34%	22%	45%	52%
<b>Preventive care</b>				
Regular source of care	88%	93%	93%	72%
Blood pressure checked in past 2 years	90%	94%	93%	75%
Received mammogram in past 2 years (females age 40+)	68%	74%	66%	47%
Received Pap test in past 3 years (females age 21-64)	73%	75%	72%	68%
Received colon cancer screening in past 5 years (age 50+)	58%	62%	62%	37%
Cholesterol check in past 5 years	74%	80%	78%	51%
Seasonal flu shot in past 12 months	43%	48%	47%	28%
<b>Access problems for people with health conditions</b>				
Skipped doses or not filled a prescription because of the cost of the medicines	19%	10%	24%	35%
Stayed overnight in a hospital/went to the ER because of the above	20%	16%	23%	26%

Source: Commonwealth Fund Biennial Health Insurance Surveys, 2017

As copays for physician visits move from \$10 to \$50 and for hospital stays go from \$100 to \$1,000, prospective patients have started to question whether they need to see a doctor or treat a health issue. Outpatient services tend to be elective, so can be delayed, while inpatient services are less likely to be elective (since people only stay overnight in a hospital if they have to). So the impact on outpatient procedures is clear, and this may be another explanation for why adjusted admission growth has fallen short of expectations.

However, it is less clear how this trend lowers inpatient volumes. One theory is that although it is true that if a doctor tells a patient they need to go to the hospital, they generally go, the higher financial cost to the consumer may lead to fewer office visits or fewer diagnostic tests. If someone convinces themselves that increased fatigue is a sign of getting older rather a growing heart issue, they may skip the expensive doctor visit, and a health issue that would have led to an inpatient admission may go undiagnosed for some time.

The change in benefit design may seem like a structural shift in the health care sector. However, benefit design tends to ebb and flow with the economy. As the unemployment rate rises, employees feel lucky to have a job and are more willing to accept benefit cuts. When unemployment drops, the demand for labor increases and employers use benefits to attract and retain valuable workers. Meanwhile, there is a structural limit to how much higher cost share to the individual can go and still impact year over year utilization. There is likely to be a big reduction in utilization when the deductible goes from \$100 to \$1,000, but less of an impact going from \$1,000 to \$2,000 (since many people do not reach \$1,000 of spending) and an even smaller reduction when the deductible goes from \$2,000 to \$5,000.

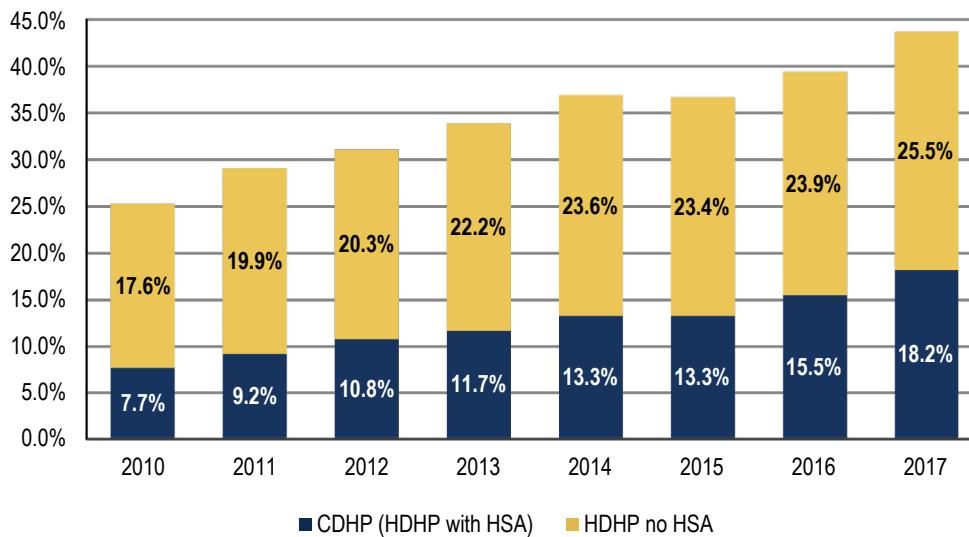
#### **Shift to high deductibles/copays putting pressure on HC utilization**

According to a study done by Health Care Cost Institute, individuals enrolled in consumer-driven health plans were 10% less costly than those enrolled in other employer based coverage. The lower cost was driven primarily by lower utilization of services. Out of pocket spending was significantly higher for workers enrolled in high-

deductible plans paired with health savings accounts or with a health reimbursement arrangement. These individuals spent \$1,030 on average (vs \$687 for other employees).

According to a report from the National Center for Health Statistics, in 2017, 44% of privately insured adults aged 18–64 were enrolled in a high-deductible health plan. This is up from 25.3% in 2010.

**Chart 32: Percentage of persons under age 65 enrolled in a high-deductible health plan without a health savings account or in a customer-directed health plan, among those with private health insurance coverage, United States 2010-September 2017**



Source: NCHS

Given that 56% of non-elderly population has employment-based coverage, we estimate that the 17% percentage point shift to high-deductible plans and a 10% reduction in utilization reduced overall volumes by 100bps. Every 5% shift to high deductible plans would reduce total utilization by 30bps. However, since the reduction would be on high margin commercial volumes, the EBITDA impact would be higher than that.

**Table 24: Estimated incremental impact from shift to high deductible plans**

	2011	2018
Total population under age of 65	269	277.5
Employment-Based Coverage	152	155.4
% population with commercial insurance	56.5%	56.0%
% of commercial population with high deductible plans	26.3%	43.7%
% employed with high deductible plans	14.9%	24.6%
reduction in utilization	-10%	-10%
% impact	-1.5%	-2.5%
incremental change		-1.0%

Source: BofA Merrill Lynch Global Research estimates

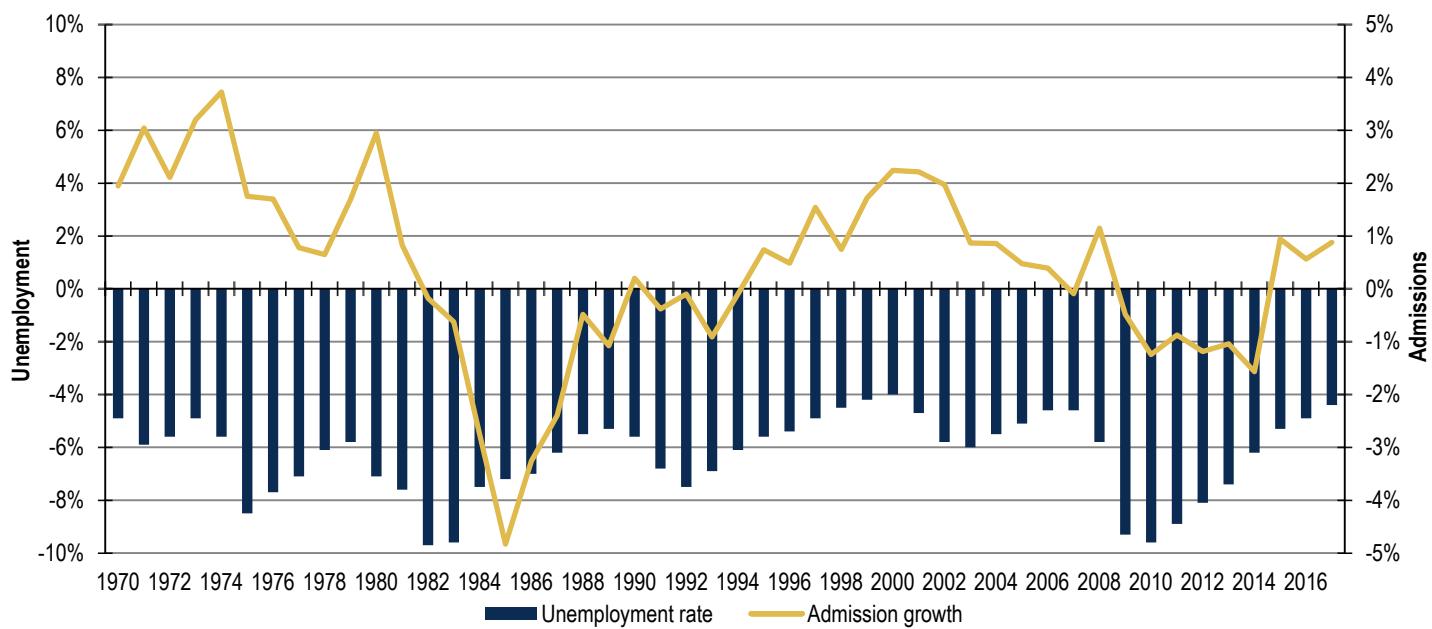
### Weaker (or stronger) economy impact number of uninsured

The weaker economy from 2008-2013 increased the number uninsured and raised the bar for the types of procedures that are non-discretionary. In a way, this driver is a magnified version of the previous point – as individuals pay more of the cost of care out of pocket (and uninsured 100% of the cost), they will use the system less. In addition, as people become worried about their job security, they are less willing to take time off to have procedures done. We generally have found this to be true, but with a lag.

The Consolidated Omnibus Budget Reconciliation Act of 1986 (COBRA) gives individuals the option of maintaining their previous insurance for 18 months (in some cases longer)

after they are laid off. Some studies have shown that health care utilization under COBRA is actually 50% higher than under the original plan, as people who fear losing coverage try to get their health care taken care of while it is covered. Since layoffs tend to happen over a several month period, the first people fired in a recession tend to be part time people who may not have health care benefits. Then as full time employees with benefits lose their jobs, there is an 18-month lag before people use all of their COBRA benefits. As a result, there is generally a 1-3 year lag before rising unemployment actually leads to lower utilization. In theory, with the passage of Health Care Reform and the ability of people who lose their jobs to get free Medicaid or qualify for subsidized exchange coverage, there may not be as pronounced a correlation during the next economic downturn. Note that in the chart below, the correlation breaks down somewhat in 2014-16 due to increased volumes as a result of the ACA.

**Chart 33: Hospital Admissions vs. Unemployment (shown as a negative number)**



Source: US Department of Labor, AHA Statbook, BofA Merrill Lynch Global Research

### Government scrutiny

Another dynamic that we wrestled with classifying as structural or cyclical is the concept of government scrutiny. We have found that government scrutiny is present every year, but scrutiny does tend to move in cycles, focusing on different parts of the health care system for a number of years before moving on to another provider set.

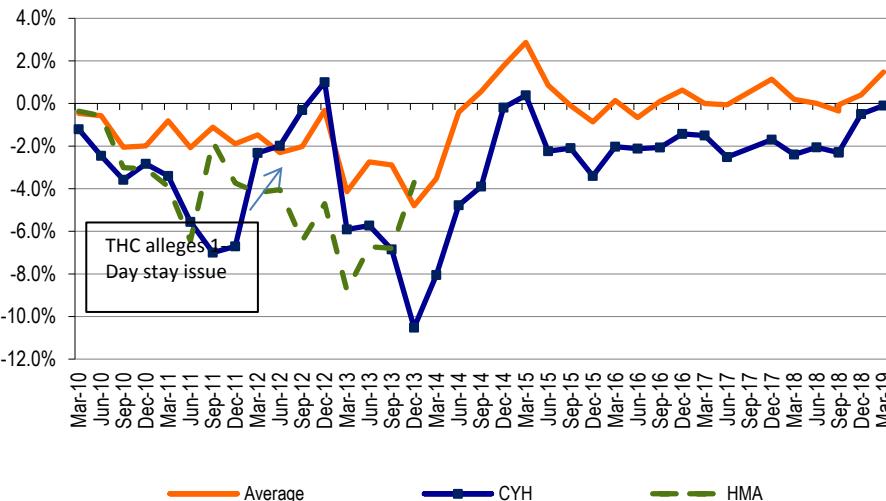
### One day stays versus observation visits

Volumes have been affected by a shift in the number of one day stays to observation visits. This became a major investor focus in 2011. In April, as part of its defense against a hostile bid by CYH for THC, Tenet sued Community Health, alleging the company overbilled Medicare by \$280-\$377 million in 2006-2009 by admitting Medicare patients to the hospital for one day, instead of treating them as outpatient observation visits (at 1/3 the cost to Medicare). Then in August, Health Management Associates (HMA) disclosed it had received an OIG subpoena requesting information on its emergency room management, specifically its admission criteria software (ProMed).

CYH and LPNT both pointed to observation visits impacting their inpatient volumes as managed care companies scrutinize the validity of admissions, well before these investigations, so there had been some impact for a number of years. Nevertheless, the

impact was more severe in 2011 than at any other time – particularly for CYH and HMA. This issue seems to have affected non-urban hospitals more than urban hospitals.

**Chart 34: CYH/HMA Admission Growth versus Peers (2010-1Q19)**



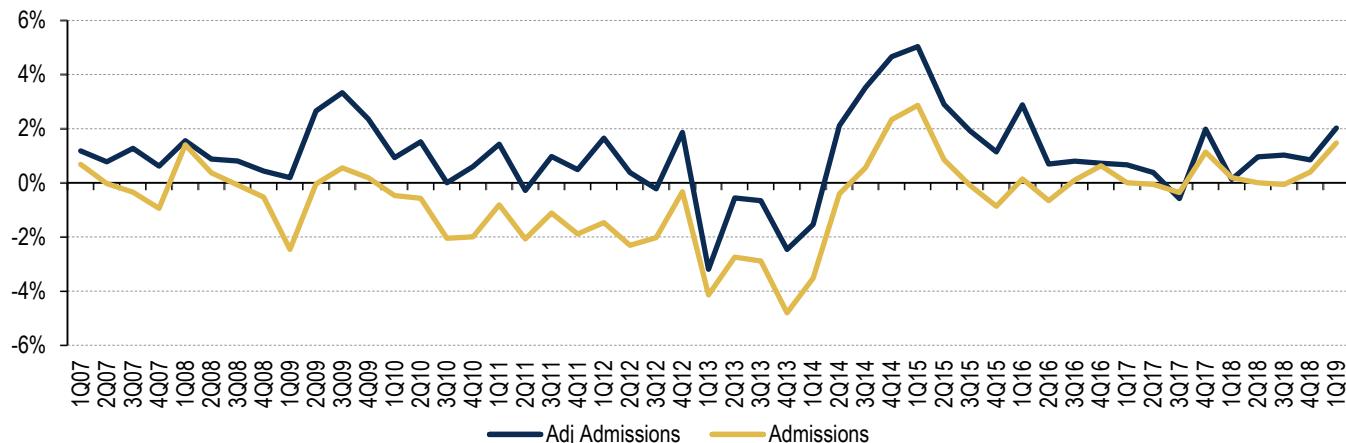
Source: BofA Merrill Lynch Global Research, Company data

For reference, a one day stay is considered an inpatient admission. A patient enters the hospital, is admitted, and stays overnight for a period longer than 24 hours. An observation visit, on the other hand, is a stay in the hospital where the doctor does not feel comfortable discharging the patient home, but also does not find medical justification to formally admit the patient. As a result, the doctor holds the patient in the hospital and monitors the condition - it either shows improvement and the patient can be sent home, or it has deteriorated and the patient should be admitted. Patients can be held on observation for 24-48 hours, or longer. In general, the main difference is whether the doctor formally admits the patient, although when patients are admitted, there is generally a higher standard of care (and cost), than when under observation.

Historically, the determination of admission versus observation is decided by the treating physician (hospitals do not admit patients, doctors admit patients). While each company has admission criteria guidelines (industry standard is InterQual), the doctor makes the decision based on medical judgment.

Nevertheless, the increased focus on categorizing patients as inpatient or observation added pressure to inpatient volumes in 2011. We find that when the government is scrutinizing a certain part of the health care system, utilization tends to drop. Notably, most companies indicated the lost inpatient volumes were converting to outpatient volumes, so the impact on adjusted admissions was more modest than on admissions.

**Chart 35: Hospitals - Adjusted Admission versus Admission Growth**



Source: BofA Merrill Lynch Global Research.

### Cardio scrutiny

Higher acuity volumes were influenced by increased scrutiny on cardiology volumes. In 2011, the majority of urban hospital companies reported lower acuity levels, notably in cardiology. In 2Q11, for example, HCA lowered its EBITDA guidance to 3-5% from mid-single digits due to lower revenue caused by a shift to lower acuity admissions. HCA indicated that declines in Medicare cardiovascular cases drove the 1.2% decline in Medicare case mix and noted all payers saw a decline in total cardio cases.

Commentary from other providers throughout the year indicated cardiovascular volumes, including open heart and stent procedures, were weak. While the economy is likely responsible for some of the weakness, the DoJ launched an investigation into unnecessary heart procedures, which we believe is the major cause. According to a JAMA article, a CRM study published in January 2011 showed that more than 20% of cardioverter-defibrillators were implanted outside of "medical guidelines." The Medical device ICD market had a double-digit decline in 2011 because of these studies and government investigations. This example had a significant, although something of a one-time reset on volumes.

### Demographics - Migration from suburbs to cities affected rural providers

Long term, volume growth should equal population growth and demographics, and because of this dynamic, hospitals generally try to own hospitals in markets where population growth is above average. During the latest recession, the migration trend from suburbs to cities pressured volumes for non-urban hospitals such as CYH. According to the most recent US Census Bureau data from 2018, US metro areas with populations of 1 million or more in 2018 grew 0.7%, compared with +0.1% for those with populations of less than 250,000. The 715 counties not inside either a metro area or micro area had a collective population decline of 10,621 between 2017 and 2018, with 60% of these counties losing population. Oil and gas-rich areas in the Great Plains as well as FL and TX contained many of the fastest growing areas in the US in 2018.

Census data shows a handful of states saw net migration. "Winning" states (population gained over 25,000 from other states - does not include immigration into the US) in 2018 remained similar to 2015-17, albeit in a different order, with FL (119,000), AZ (99,000), NC (71,000), WA (62,000), and TX (58,000) in the top 5.

**Table 25: Net domestic migration by state 2017**

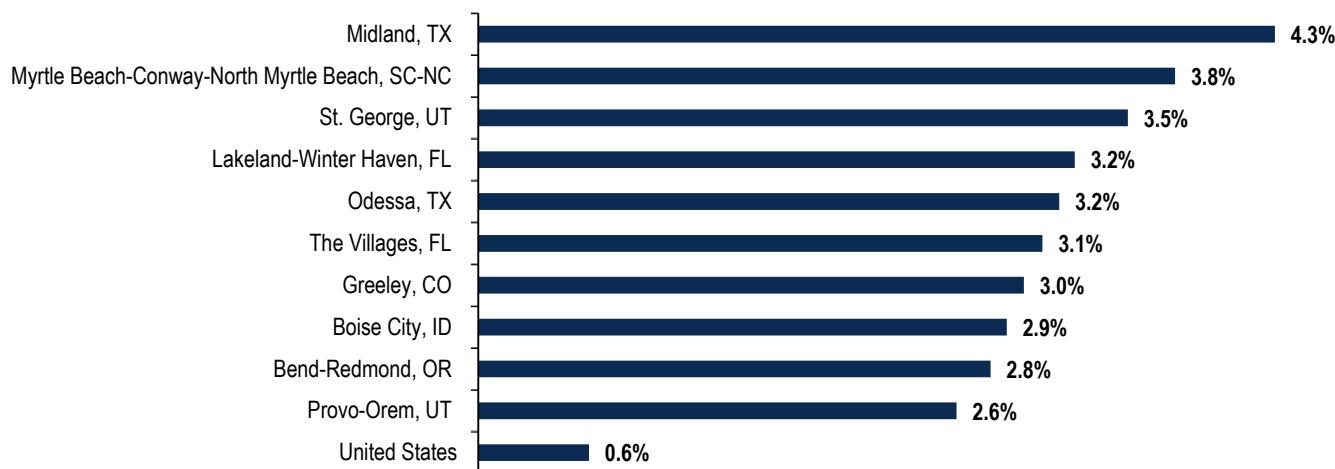
State	Net Migration
Florida	118,890
Arizona	98,513
North Carolina	70,628
Washington	61,974
Texas	57,173
Oregon	40,059
South Carolina	37,776
Tennessee	36,244
Nevada	34,848
Colorado	32,637
Georgia	23,933
Idaho	14,945
Missouri	11,673
New Hampshire	11,153
Alabama	10,337
Indiana	10,196
Utah	9,863
Arkansas	9,561
Montana	7,444
Maine	6,827
Rhode Island	6,684
Oklahoma	5,956
Nebraska	4,747
Kentucky	4,495
Delaware	2,879
Vermont	996
Michigan	728
North Dakota	(29)
Wisconsin	(973)
South Dakota	(1,306)
Iowa	(2,286)
West Virginia	(3,314)
Mississippi	(4,494)
Pennsylvania	(4,514)
Wyoming	(7,443)
Ohio	(7,550)
District of Columbia	(8,787)
Minnesota	(9,507)
New Mexico	(10,041)
Virginia	(12,073)
Alaska	(12,773)
Kansas	(13,506)
Connecticut	(15,646)
Maryland	(18,246)
Hawaii	(20,140)
Massachusetts	(26,734)
Louisiana	(29,376)
New Jersey	(72,855)
California	(137,895)
Illinois	(144,343)
New York	(167,328)

Source: US Census Bureau

Below we analyze 2018 Census data to show the ten fastest growing metropolitan areas. The metro with the highest growth rate is Midland, TX (4.3%), followed by Myrtle Beach-Conway-North Myrtle Beach, SC-NC (3.8%), and St. George, UT (3.5%). Seven of the ten fastest growing metro areas are in states that ranked as the "winning states". Population growth in metro areas is partially driven by net migration.

**Chart 36: 10 fastest growing metropolitan areas in 2018**

### 10 Fastest Growing Metro Areas



Source: US Census Bureau

With the data above, we analyzed public hospital exposure to the “winning” net migration states using their 2018 beds. Our analysis shows that UHS (77%), HCA (71%), and THC (59%) have the most bed exposure to the “winning” states. Not coincidentally, these companies also had the best volume growth in 2018. If this trend continues in 2019, these companies are likely to continue to see better than average volumes.

**Table 26: Hospital exposure to “winning” net state migrations as of 2018 (net migration >25,000)**

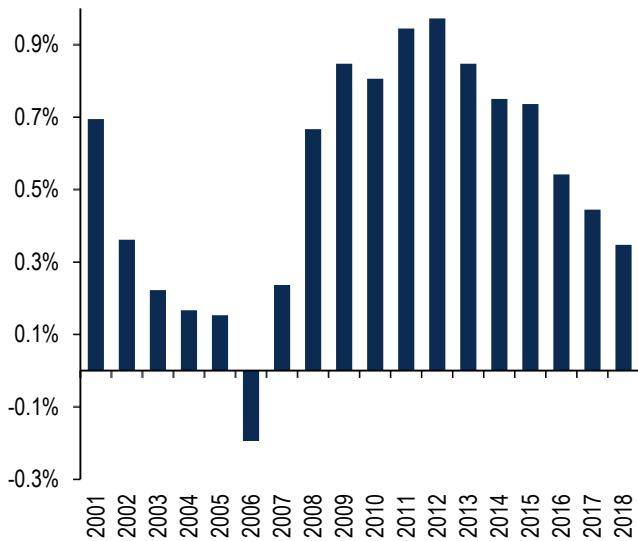
% of beds % state	UHS-Acute	HCA	THC	CYH
Florida	11.0%	25.9%	21.4%	16.6%
Arizona	0.0%	0.0%	8.9%	3.4%
North Carolina	0.0%	2.3%	0.0%	1.5%
Washington	0.0%	0.0%	0.0%	0.0%
Texas	32.3%	28.0%	21.7%	12.9%
Oregon	0.0%	0.0%	0.0%	0.0%
South Carolina	4.2%	1.9%	3.0%	0.0%
Tennessee	0.0%	5.3%	3.9%	9.2%
Nevada	29.8%	2.6%	0.0%	0.0%
Colorado	0.0%	5.2%	0.0%	0.0%
<b>Total Exposure</b>	<b>77.3%</b>	<b>71.3%</b>	<b>58.9%</b>	<b>43.6%</b>
<b>Weighted Avg % pop growth</b>	<b>7.4%</b>	<b>9.1%</b>	<b>8.3%</b>	<b>5.9%</b>

Source: BofA Merrill Lynch Global Research

The US urban core is becoming denser, while far-flung suburbs had slower growth during and after the recession. Driven by young professionals and retiring Baby Boomers who like living in cities, the trend is 180 degrees from the previous decade's rush to the exurbs. The trend was also driven by increasing numbers of young people delaying or foregoing marriage and childbirth, which often prompt moves to the suburbs.

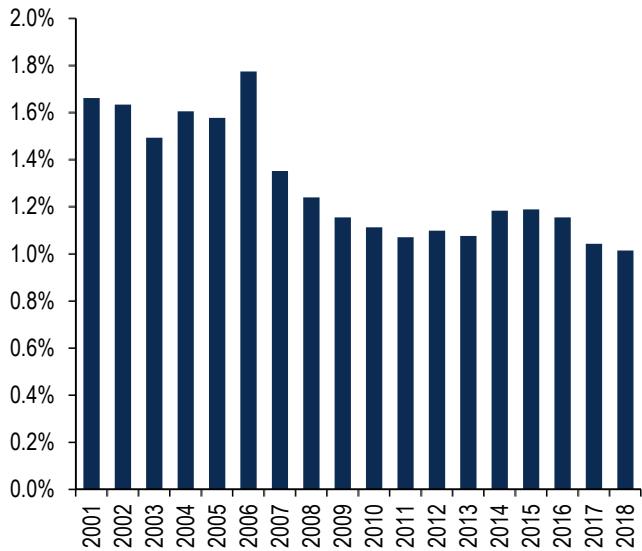
However, 2015 Census data showed that the trend is reversing and the exurbs are now again growing faster (although slightly faster) than more urban places, and we have seen this trend continue through 2018. The data below highlights the fact that urban core population growth is slowing, as well as mature suburb population growth. In contrast, emerging suburb population growth is picking up, and exurb population growth is dramatically increasing.

**Chart 37: Population growth in Urban core areas (y/y change)**



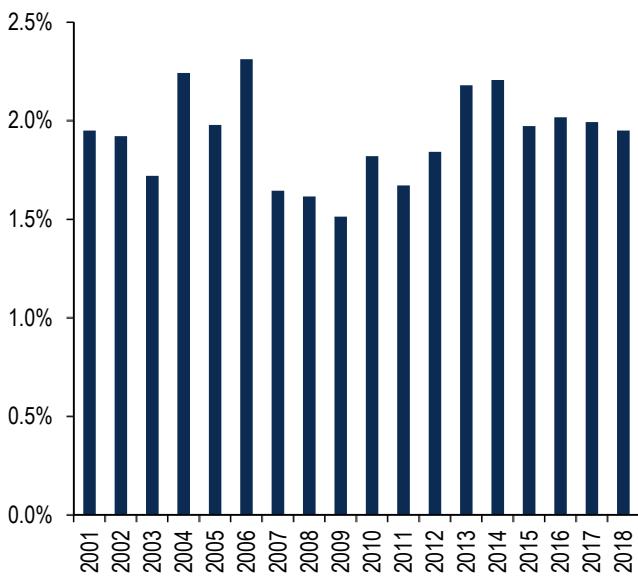
Source: William H Frey, The Brookings Institution analysis of US Census data

**Chart 38: Population growth in Mature suburb areas (y/y change)**



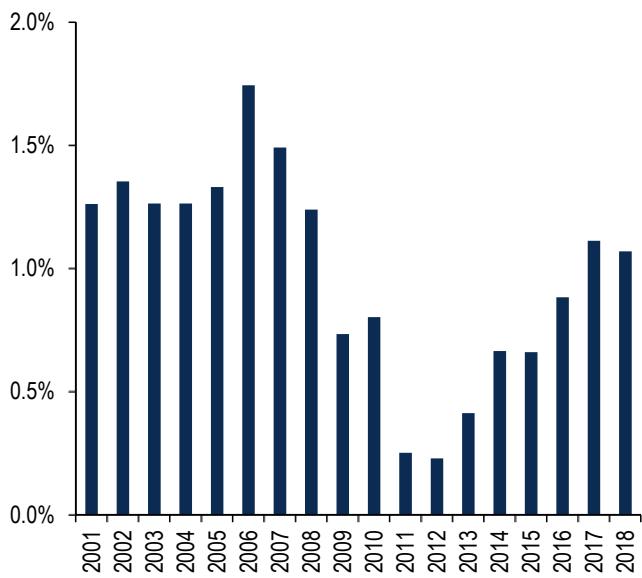
Source: William H Frey, The Brookings Institution analysis of US Census data

**Chart 39: Population growth in Emerging Suburb (y/y change)**



Source: William H Frey, The Brookings Institution analysis of US Census data

**Chart 40: Population growth in Exurb (y/y change)**

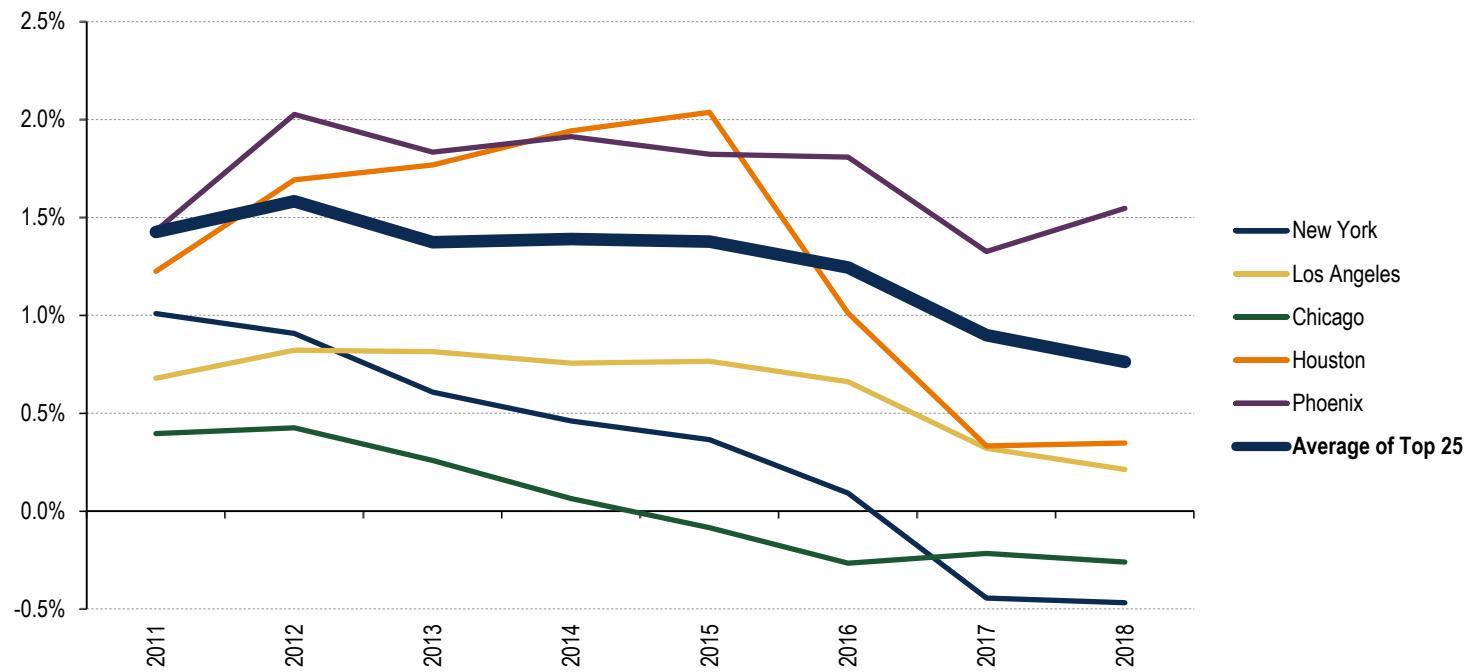


Source: William H Frey, The Brookings Institution analysis of US Census data

Another demographic trend is higher growth in the South and West (+1.0%) at the expense of the Northeast and Midwest (+0.25%). As a result, it is not surprising that the fastest growing company companies tend to be predominantly in the South and West.

This trend has continued into the largest cities, with population growth slowing in 19 of the 25 most populous cities in the United States since 2010. Below we show the 5 largest cities in the US, where we see that population growth has actually turned negative in New York, Chicago, San Jose and Detroit.

**Chart 41: Top 5 cities in the United States population growth compared to average of the top 25**



Source: Census Bureau, BofA Merrill Lynch Global Research



## Reimbursement overview

Medicare

Medicaid

Commercial

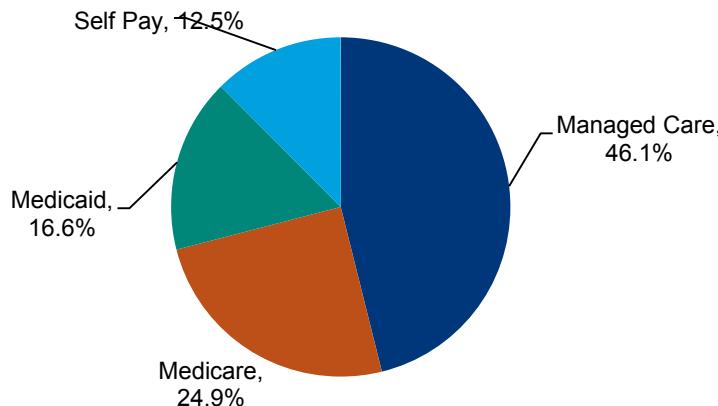
Self-Pay



## Understanding reimbursement

Hospitals, at the center of the health care system, would appear to have a relatively stable growth profile. However, there is a significant amount of volatility in results and much of that volatility is a function of the reimbursement cycle. As a result, we believe that it is vitally important for investors to understand the reimbursement outlook in order to make the appropriate investment decisions. Below we provide an overview of the dynamics behind the Medicare, Medicaid and Commercial pricing decisions.

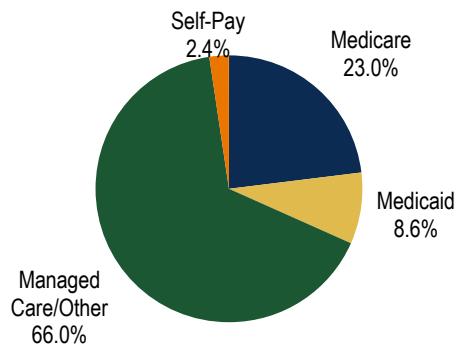
**Chart 42: Hospital Industry Payer Mix (2018)**



Source: CMS

Publicly traded hospitals have a payer mix similar to industry, however commercial mix is slightly higher and self-pay mix is lower (5% vs 12.5%). Public companies tend to position their portfolio toward markets with a better payer mix which means more commercial payers (higher margin) and less self-pay, to reduce loss from bad debt. We note that there could also be some classification issue, as some hospitals include Medicaid Managed Care and Medicare Advantage as Managed Care instead of Medicaid and Medicare respectively, even though the rates they receive are essentially tied to the government programs and are well below the rates received in the commercial market.

**Chart 43: Public Hospitals Payer Mix, 2018**



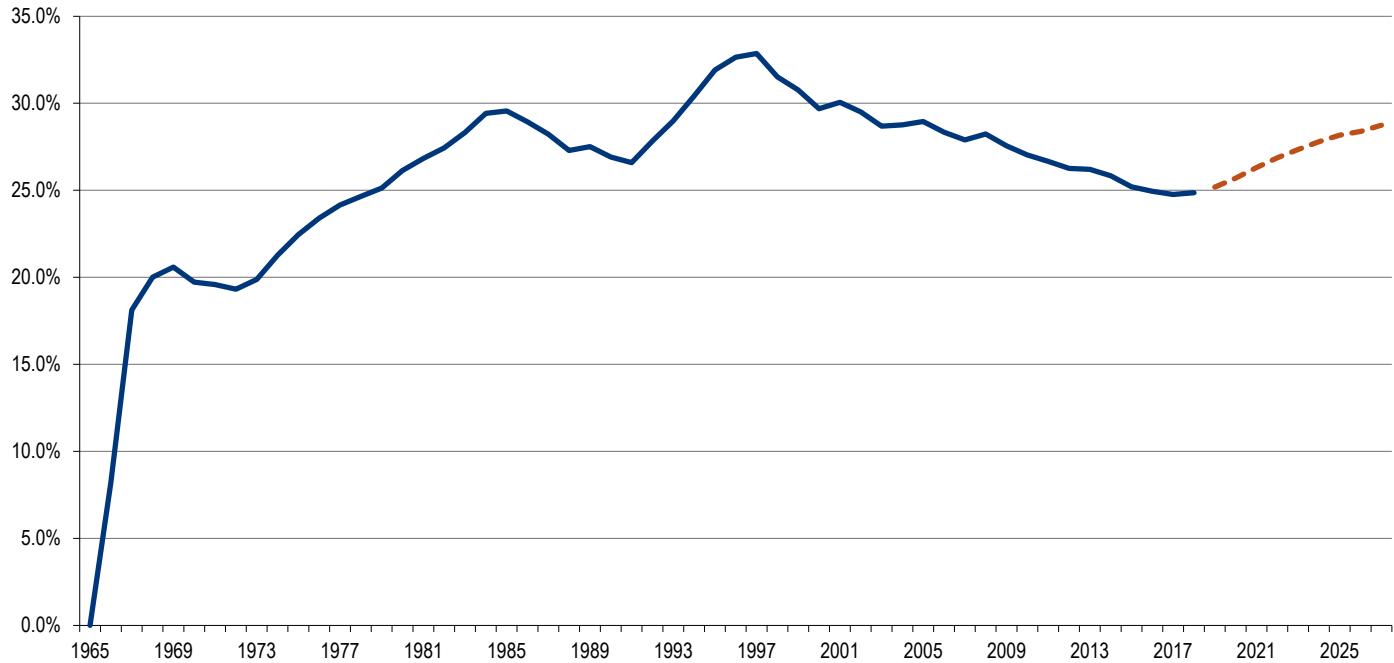
Average for CYH, HCA , THC, UHS

Source: Company filings

## Medicare (23% of revenue)

Medicare is the federal health care program for the elderly. Since its creation in 1965, Medicare spending has grown rapidly and now represents 20% of total health care spending. Medicare is also the largest single payer for hospital services, accounting for 25% of hospital revenue. As a result, we believe that investors need a solid understanding of Medicare reimbursement in order to understand the industry.

Chart 44: Medicare as a percentage of total expenditures on hospitals, 1965-2027



Source: BofA Merrill Lynch Global Research, CMS

## Medicare alphabet

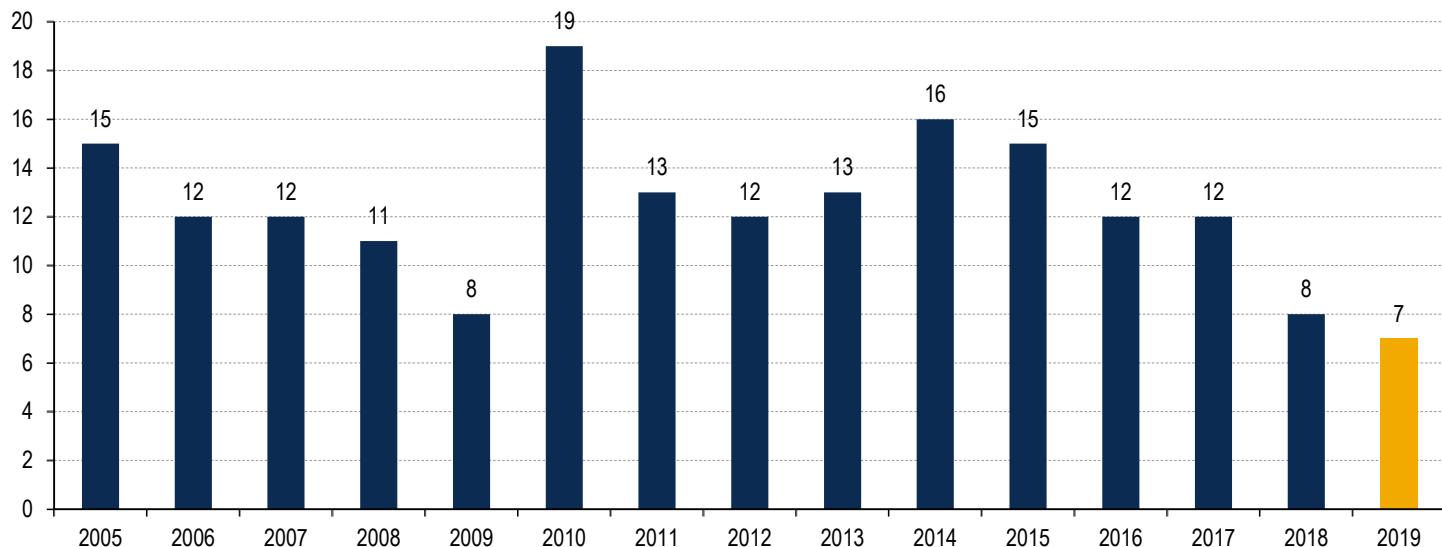
Medicare is separated into four segments, Part A, Part B, Part C and Part D.

### Part A – Hospital Insurance

Part A is often referred to as Hospital Insurance (HI) and is the base benefit provided under Medicare. It covers inpatient hospital, skilled nursing, home health and hospice services. Funding for Part A spending comes from an automatic payroll deduction called the Federal Insurance Contributions Act tax (FICA tax). The tax is 1.45% on the first \$200,000 income and 2.35% on the amount above \$200,000. In addition, employers must also pay a matching tax on the 1.45% on the first \$200,000 (there is no matching on the amount above \$200,000). Self-employed people pay both halves of the tax.

There are no premiums charged to Medicare Part A enrollees, so these payroll withholdings are used to pay for all Part A expenditures and any surplus is invested in U.S. Treasuries and held in the Hospital Insurance (HI) Trust Fund. Historically the government collected more in revenue than it paid out in claims resulting in a HI Trust Fund surplus. However, the Medicare Trustees Report (published in April 2019) estimates that the Medicare Part A HI Trust Fund will be insolvent in 2026. Below we show the projected solvency date of the Hospital Insurance Trust Fund over time.

**Chart 45: Estimated years until Solvency Date of Medicare Part A Trust Fund – 2026 estimated insolvency year**



Source: Annual Medicare Trust Fund Reports

### **Part B – Supplementary Medical Insurance**

Part B is often called Supplementary Medical Insurance (SMI) and is optional for beneficiaries. Part B covers hospital outpatient services, physician services, home health and durable medical equipment as well as certain physician administered drugs. The majority of the funding for Part B (70%) comes from general revenues of the U.S. Treasury while the remainder comes in the form of premiums from beneficiaries. Similar to Part A, any surplus collections will be held in the Supplemental Medical Insurance Trust Fund. However, unlike the Part A where collections occur at a flat rate regardless of estimated spending, each year the government changes the contribution to the fund in an attempt to match spending, which can lead to large increases in the premiums that seniors have to pay. The average Part B premium for 2019 is \$135.50 per month, a slight increase from the \$134 per month in 2018. Lower income beneficiaries may be charged a lower amount.

### **Part C – Medicare Advantage**

Part C is also known as Medicare Advantage. This is a managed care program where CMS pays a certain amount per member per month to an HMO who then offers a managed care plan to seniors. The plans usually offer a mixture of services from Part A, Part B and Part D (see below) and compete against other plans as well as the core Medicare benefit for enrollees based upon the services covered and the amount of copays and deductibles. The business can be sold directly to individuals or to employer group as part of their retiree health benefit program. Generally, these plans have narrow networks that restrict which providers a member can see, but in return, they tend to offer more benefits than traditional fee for service Medicare.

### **Part D – Outpatient prescription drugs for seniors**

Part D provides outpatient prescription drugs to seniors and is run by MCOs and Pharmacy Benefit Manager. These plans compete against each other based upon the types of drugs that are covered as well as the premiums and copays that are charged. Part D only covers outpatient drugs - drugs a patient receives during an inpatient stay are covered by the payment Medicare makes to that inpatient care provider.

#### **Individual cost sharing:**

**Inpatient – Inpatient hospital services are covered under Part A.** For an acute care hospital stay, there is a 90-day limit to length of stay per illness with a 60-day lifetime

reserve. In 2019, there is a deductible of \$1,364, up 1.8% from 2018, and a daily copayment of \$341 (+1.8%) is imposed beginning on day 61. The lifetime reserve daily coinsurance is \$682 per day in 2019.

**Outpatient** – Outpatient hospital services are covered under Part B. There is a \$185 deductible for all Part B services (up \$2 from 2018). In addition, there is a coinsurance amount, typically 20% of the Medicare fee.

## Congress vs CMS

There are three governmental agencies that have significant influence over Medicare spending: Congress, MedPAC and the Center for Medicare and Medicaid Services (CMS).

### Congress provides framework for HC spending

Congress sets the broad budgetary spending limits and general policy goals for health care spending. As a result, Congress has the ability to make significant changes to reimbursement levels for providers in a relatively short period of time. In addition to making policy decisions that adequately reimburse providers for the services that they offer, Congress often takes other considerations into account (such as overall budget deficits). To the extent that factors other than appropriate rates are driving policies, changes made by Congress can create dramatic swings in industry profitability.

### Congressional budget process

Given that Republicans and Democrats tend to have dramatically different views on the role of entitlement programs, in certain instances, major changes to the Medicare and Medicaid programs may come as part of a budget process known as reconciliation. The reconciliation process makes it easier to pass certain tax and deficit reduction packages as only 50 votes (plus the vote of the vice president) are needed to pass a bill in the Senate instead of the normal 60 vote majority. The caveat is that such bills can only include provisions that directly impact the budget and the bill must reduce the deficit.

The budget process starts in February – under the Congressional Budget and Impoundment Control Act of 1974 the president must submit a budget request to Congress by the first Monday in February every year (although this date has slipped in recent years). The budget request is developed by the Office of Management and Budget, OMB, in consultation with other federal agencies.

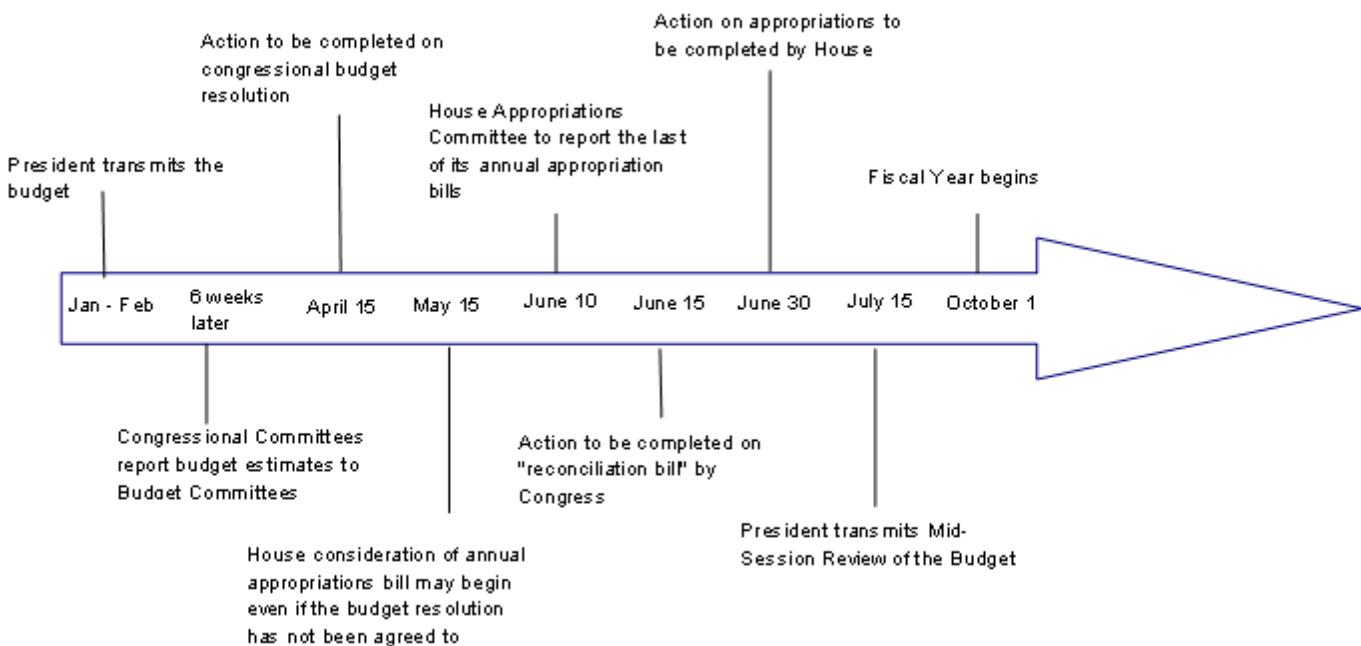
The president's budget is only a request to Congress, as Congress is not required to adopt these recommendations. Nevertheless, the power to formulate and submit the budget is a vital tool that lays out the president's policy proposals and initiatives.

At the same time, also in February, all congressional committees develop views and estimates of spending and revenue levels for programs under their jurisdiction, which are transmitted to the respective House and Senate Budget Committees. Both the House and Senate Budget Committees then craft their own respective budget resolutions, based on input from the committees of jurisdiction, as well as the president's proposals, and other sources. The budget resolution provides the framework and spending limits for appropriations bills, as well as provides guidelines for any major entitlement (including Medicare or Medicaid) or tax reforms that can be addressed using the Reconciliation process.

Budget resolutions are voted on, first in the two budget committees, then by the House and Senate, respectively. Differences between the Senate and House versions are theoretically resolved during conference negotiations, after which the final conference report is approved by both chambers. The conference report, which takes the form of a concurrent budget resolution, is slated for final approval by April 15 but in most years, the House and Senate do not meet this deadline. In fact, there is no statutory requirement that Congress even enacts a final budget resolution.

Once approved by both chambers, the budget resolution is binding on Congress. The resolution sets spending limits within which Congress operates when passing any new legislation. However, the president does not sign the budget resolution – it is entirely a process of Congress to enforce budget discipline on itself.

**Chart 46: Budget calendar**



Source: OMB Budget Concepts and Budget Process

### MedPAC gives recommendations

The Medicare Payment Advisory Commission (MedPAC) is the advisory panel to Congress on Medicare issues. It is made up of 17 commissioners who have experience across a number of sectors within healthcare. MedPAC has been charged with determining the appropriate reimbursement for each sub-sector and making recommendations to Congress about potential changes. MedPAC is most interested in preserving access to care and will base its decisions about whether the current system is working upon margin data, access to capital, utilization trends and the increase/decrease in the number of providers. There has been a significant amount of focus on MedPAC's recommendations in recent years, but Congress has a spotty track record of actually implementing the recommendations.

Below we highlight three key points that investors should take into account when evaluating MedPAC's recommendations:

- **The commission's recommendations are not binding.** We have found that Congress or CMS will tend to cite MedPAC findings when it aligns with their agenda, but will generally ignore those findings if they do not support their views.
- **MedPAC tends to be overly hospital centric.** In our view, MedPAC generally makes relatively favorable recommendations regarding hospital reimbursement while making more negative recommendations for post acute care providers. As a result, such recommendations should be taken with a grain of salt and we would view any recommendations that run counter to this trend (ie, more negative for hospitals or positive for post acute care providers) to have more weight.
- **MedPAC is focused on Medicare payments, whereas Congress must often take other factors into account.** One of the clearest examples of this conflict

regards nursing homes. Medicare margins for nursing homes are relatively high (projected by MedPAC to be around 10% in 2019), but overall margins for nursing homes are low because nursing homes often lose money on their Medicaid patients (who represent two-thirds of industry patients). As a result, MedPAC historically would argue to cut Medicare reimbursement, while Congress, which also has some oversight of Medicaid, is generally reluctant to make cuts without a solution to the Medicaid issue. At the same time, the elderly are a large voting constituency so it may be politically difficult to make cuts even if data support it. Due to this conflict, the health care reform bill required MedPAC to review costs/trends/margins for Medicaid pay for sectors with a significant portion of revenues from Medicaid - it appears MedPAC is only applying this methodology for skilled nursing facilities.

### **CMS sets provider rates**

The Center for Medicare and Medicaid Services (CMS) is in charge of implementing the policies outlined by Congress (in Statutes) and working within that broad framework to set reimbursement levels. Generally speaking, only Congress has the authority to change aggregate funding levels for providers and any changes that CMS makes will be to redistribute that fixed pool to better align it with the cost of care (as opposed to changing aggregate funding). As a result, the changes made by CMS are typically more incremental in nature than the sweeping changes that Congress can make. However, in recent years we have seen CMS become increasingly aggressive in its use of power to change aggregate reimbursement levels, particularly as it has used its authority to make "budget neutrality adjustments" or "coding intensity adjustments". CMS is a division within the Department of Health and Human Services (HHS). The heads of the HHS and CMS are appointed by the president and therefore the strategic direction of CMS's policies is often influenced by the president's agenda.

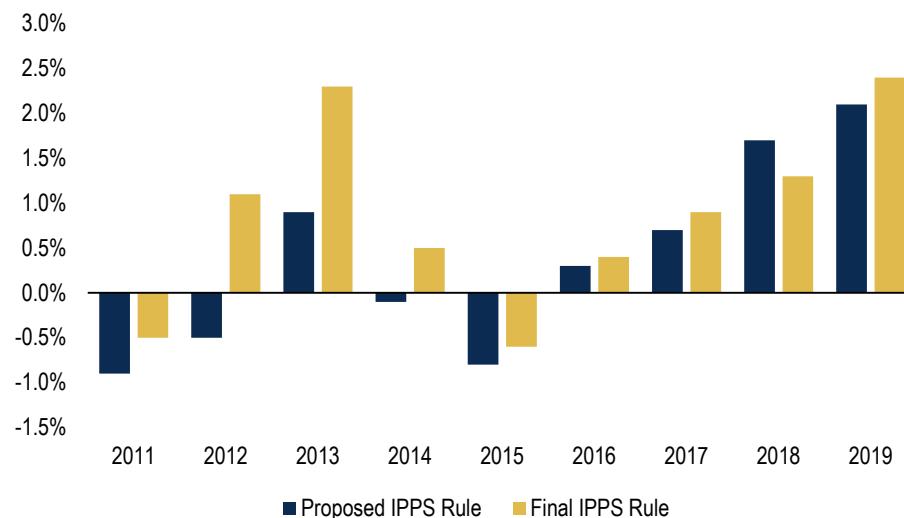
### **Annual rate update process**

While Congress outlines the broad spending limits and policy goals for health care spending, CMS is the agency responsible for implementing these policies and setting reimbursement levels within the broad framework outlined by Congress.

There are several steps before the actual rate change becomes effective. First, MedPAC provides its payment update recommendations to Congress. Then, CMS publishes a proposed regulation with a 60-day comment period. After the feedback from providers is collected, CMS publishes a final regulation with policy changes. The timing differs depending on the type of the provider (providers reimbursed under Part A vs Part B). Usually the proposed rules are more onerous for providers than final rules, as industry players try to influence the final regulation.

Over the last several years, there were instances when the impact of regulations was lessened in the final regulation as CMS appears to support the hospital industry and nonprofit hospitals provide a buffer in terms of how much pressure from the government the hospital industry can take. The chart below shows that in 8 of the last 9 years, the final rule was better than the proposal.

**Chart 47: Hospital Inpatient PPS, Proposed vs Final net rate update, FY 2011-2019**



Source: BofA Merrill Lynch Global Research, CMS

Below we provide an outline of the annual update process that involves recommendations by MedPAC and rate update by CMS.

#### Part A providers

(hospital inpatient, long-term acute care hospitals (LTACs), SNFs, home health, hospice, inpatient psych facilities)

- **December of prior year:** MedPAC pulls together draft recommendations for the upcoming Fiscal Year Medicare payment updates.
- **January:** MedPAC finalizes its recommendations to Congress for each Medicare provider.
- **March:** MedPAC publishes its annual report to Congress, including all Medicare payment update recommendations. Note that these are only recommendations to Congress, and Congress can, and usually does ignore most of the recommendations.
- **April/May:** CMS issues proposed regulations with policy changes and updates for each Part A provider (Hospital Inpatient regulation, LTACs, Inpatient Rehab Facilities, Skilled Nursing Facilities, Hospice, and inpatient psych facilities).
- **60 Days after proposed regulation:** Comment period for each proposed regulation – provides opportunity for industry and others to provide comments on any changes proposed by CMS.
- **By August 1:** CMS issues final regulations with policy changes.
- **October 1:** Fiscal year begins, and new Part A payment reforms and updates take effect.

#### Part B providers

(hospital outpatient, doctors, dialysis, ambulance, DME, ASCs)

- **December of prior year:** MedPAC pulls together draft recommendations for the upcoming Fiscal Year Medicare payment updates.

- **January:** MedPAC finalizes its recommendations to Congress for each Medicare provider.
- **March:** MedPAC publishes its annual report to Congress, including all Medicare payment update recommendations. These are only recommendations to Congress, and Congress can, and usually does ignore most of the recommendations.
- **June/July:** CMS issues proposed regulations with policy changes and updates for each Part B provider (hospital outpatient regulation, ASCs, Home health, physician payments, DME, ambulance, dialysis, clinical labs).
- **60 Days after proposed regulation:** Comment period for each proposed regulation – provides opportunity for industry and others to provide comments on any changes proposed by CMS.
- **By November 1:** CMS issues final regulations with policy changes.
- **January 1:** Calendar year begins, and new Part B payment reforms and updates take effect.

## **Major policy reforms**

Changes in Medicare policy have had significant effects on Medicare spending. Whether it was the move to a prospective payment system for inpatient hospital services in 1983 which pushed down length of stay and helped move volumes out of the inpatient setting, or situations like the Balanced Budget Act of 1997, which made sweeping payment reforms for certain sectors, Congress can cause significant swings in Medicare spending. In the last 20 years, there have been five major Congressional bills that have had a significant impact on Medicare reimbursement for hospitals. Below we briefly outline each:

### **Balanced Budget Act of 1997**

In the late 1990s, the president and Congress were focused on budgetary discipline with a goal of balancing the budget. Given that Medicare represents 15% of government spending, realistically no efforts to balance the budget can be accomplished without some cuts to the Medicare program. The Balanced Budget Act of 1997 (BBA) outlined a number of changes across almost every provider class, expected to save \$115 billion over five years, and \$50 billion of that amount was to come from hospitals.

The main source of savings was to reduce the inflationary update (market basket) for hospitals from 1997-2002, which was expected to save \$30 billion. The bill also implemented a prospective payment system for outpatient hospital reimbursement and outlined less than inflationary updates from 2000-2002, which along with some other changes reduced hospital outpatient reimbursement by \$7.5 billion over five years.

### **Balanced Budget Refinement Act of 1999**

The Medicare cuts outlined in BBA were draconian. According to MedPAC, hospital margins dropped from 10.4% in 1997 to 4.7% in 1999. Congress belatedly realized that it cut reimbursement too much and passed the Balanced Budget Refinement Act of 1999 (BBRA) which returned \$17 billion to providers. The biggest change for hospitals was that it returned the full market basket update for 2002, but the bill also limited losses to hospitals in the first 3.5 years of the implementation of the Hospital Outpatient PPS.

### **Benefits Improvement and Protection Act of 2000**

As providers continued to struggle, Congress passed the Benefits Improvement and Protection Act of 2000 (BIPA). BIPA spread out the 110bp inpatient MB rate cut scheduled for 2001 into a 55bp cut in 2002 and 2003. In addition, it eliminated the MB

– 1% cut for hospital outpatient services in 2001 and increased the amount of bad debt expense for which hospitals could be reimbursed, raising it to 70% from 55%. In total, BIPA restored \$36 billion to providers, \$7.9 billion of which was restored to hospitals.

### **Medicare Modernization Act**

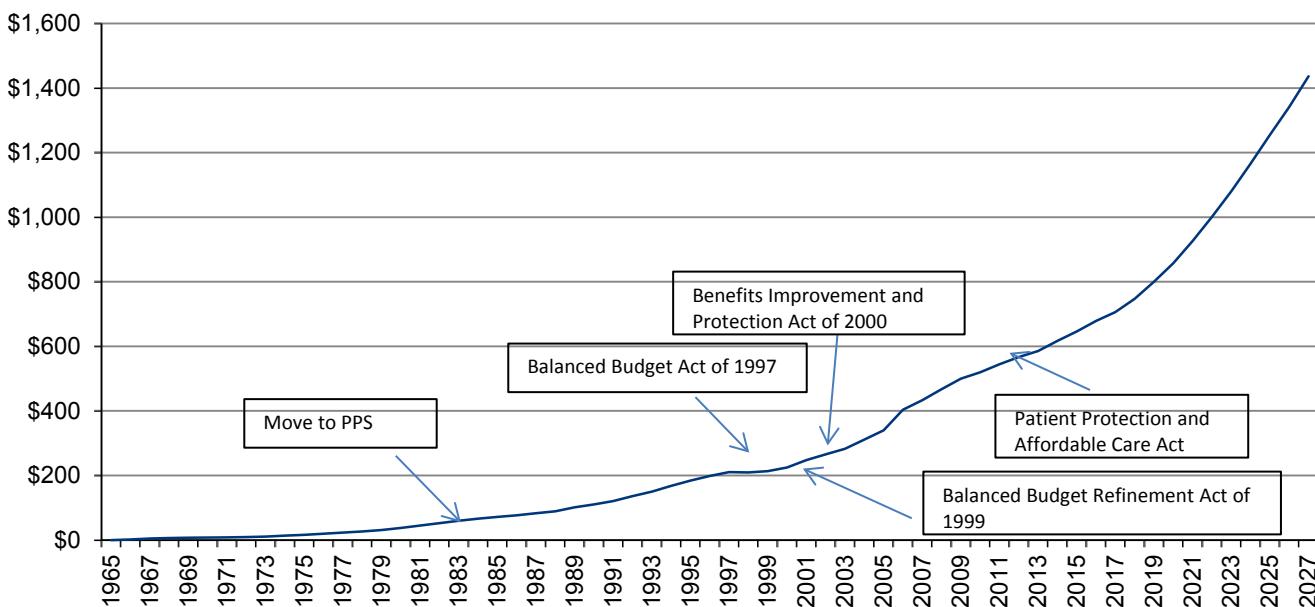
On December 8, 2003, President George Bush signed the Medicare Prescription Drug and Modernization Act of 2003, creating a new Medicare Prescription drug benefit (to be implemented in 2006), “Medicare Part D,” and restructuring the Medicare Part C program to encourage plans to re-enter the Medicare Advantage program.

### **Patient Protection and Affordable Care Act**

On March 23, 2010, PPACA (the Health Care Reform bill) was signed into law. The Health Care Reform bill includes both positives and negatives for providers. On the positive side, the reform bill was estimated to expand health insurance coverage to 25-30 million people beginning in 2014, providing reimbursement to hospitals for previously uncompensated care.

Republican President Donald Trump campaigned in part on repealing Reform and Republicans attempted to repeal Reform in 2017. As it stands, the Affordable Care Act is expected to remain the law of the land for the foreseeable future, but administrative actions that the Republican administration can take to undermine the ACA even without a new bill passed means that there is likely to be pressure on payor mix.

**Chart 48: Total Medicare spending since 1965 (\$ billions)**



Source: CMS, BofA Merrill Lynch Global Research

### **Medicare inpatient reimbursement**

The Medicare program is projected to spend \$149 billion on inpatient hospital services in 2019, representing 20% of Medicare spending.

### **Components of the rate**

Medicare sets per-discharge base rates for 761 medical severity diagnosis related groups (MS-DRGs), which are based on patients' clinical conditions and treatment strategies. The system has 335 base DRGs, most of which are split into two or three MS-DRGs based on the presence of either a comorbidity or complication (CC) or major

CC. In other words, there are 335 clinical reasons that CMS will pay for a patient to be in a hospital setting, and the rate that they pay could be higher for a diagnosis, if that patient has other illnesses in addition to the one that is the cause of the admission. The current reimbursement system has a standardized payment for all codes, but since providing open heart surgery costs more than treating the flu, each code has a relative weight, which measures its costs versus the standardized amount.

**A number of adjustments are made to the base payment:**

**Wage Index:** CMS has determined that 68.3% of hospital costs is based on labor costs in the market. Since labor is more expensive in New York City than Montana, CMS multiplies 68.3% of the standardized rate by the wage index in each market to reflect the relative difference in costs. Markets with high labor costs have a wage index above 1.0, so this adjustment will increase their rates, while markets with low labor costs will have a wage index below 1.0, resulting in lower reimbursement. Congress passed a law stating that for markets where the wage index is less than 1.0, CMS will use a labor share of only 62%, reducing the negative impact to providers in rural areas.

**Transfer adjustment:** The DRG system is based upon payments for the average cost of treating a patient. CMS became concerned that hospitals were incentivized to stabilize a patient and then discharge them early (before the full course of treatment was complete) in order to receive the full payment, but not incur the full cost of treating the patient. As a result, CMS reduces DRG payments for certain transfer cases when the length of stay falls below a threshold. Transferring facilities under this policy are paid a per diem rate. Generally, hospitals receive twice the per diem rate for the first day and the per diem rate for each additional day up to the full DRG rate.

**New technology payments:** Hospitals with cases treated using certain technologies receive add-on payments for new technologies.

**Medicare-dependent hospital adjustment:** Effective through FY22, small rural hospitals (and some urban hospitals) receive IPPS payments plus 75% of the difference between those payments and payments based on their updated base year costs. Hospitals receive as much as 25% add-on to the rate of each case, depending on their number of Medicare discharges, if they qualify as a low-volume facility.

**Indirect medical education (IME) adjustment:** Teaching hospitals receive a percentage add-on payment depending on the ratio of residents-to-beds under the IPPS for operating costs, and according to the ratio of residents-to-average daily census under IPPS for capital costs. For FY2019, the IME adjustment is 5.5% for every 10% increase in the resident to bed ratio and this is expected to stay the same for FY20.

**Disproportionate share hospital (DSH) adjustment/Uncompensated care pool:** Hospitals where 15%+ of their patients are low-income, receive a percentage add-on payment applied to the DRG-adjusted base payment rate. Health Care Reform changed the way that DSH payments are calculated by creating an uncompensated care pool which replaces part of the DSH payment and will decline over time as more uninsured get coverage through Health Care Reform (see below for more details).

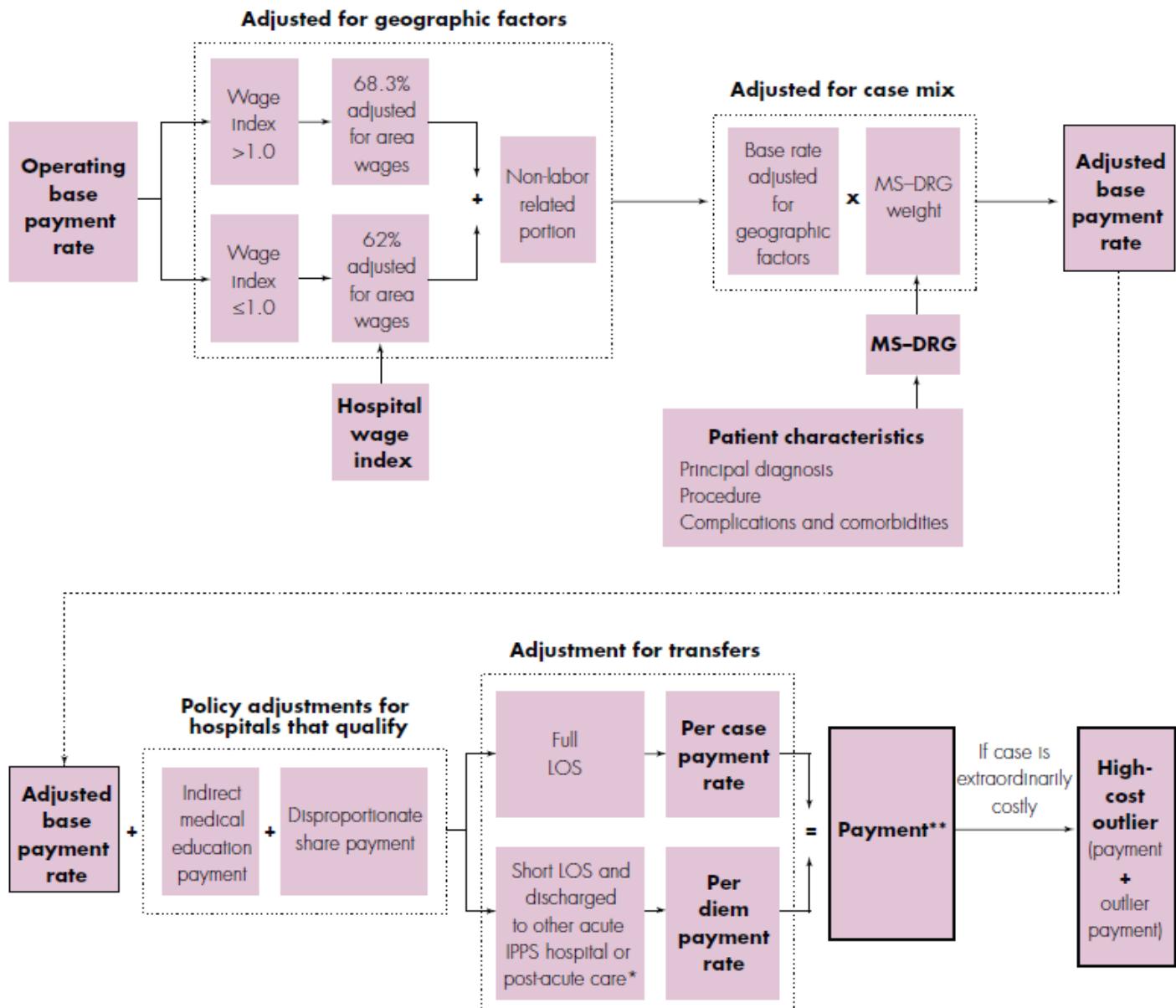
**Outlier Payments:** Hospitals are paid additional amounts for patients that are unusually high cost. In order to receive an outlier payment, the cost to the hospital treating the patient must exceed the PPS payment plus the outlier threshold of \$25,769 in FY 2019. Facilities are paid 80% of their costs above the PPS rate + the outlier threshold. CMS sets the outlier threshold so that outlier payments represent no more than 5.1% of industry payments.

**Rate cut for readmissions:** As part of Health Care Reform the hospital readmission reduction program was implemented beginning in FY2013. Now, hospitals whose Medicare risk-adjusted readmission rates are greater than the national average rates

will have their IPPS payments reduced by up to 3%. Starting in FY2018 (and continuing into FY2019), the readmissions policy applied to six conditions (up from three in 2013) - acute myocardial infarction, heart failure, pneumonia, chronic obstructive pulmonary disease, total hip/knee arthroplasty and coronary artery bypass graft surgery.

**Value-based incentive payment:** As part of Health Care Reform, CMS implemented the value-based incentive payment program in FY2013. In the first year of the program CMS redistributed a pool of dollars equal to 1% of base inpatient DRG payments, which grew to 2% for FY2017 and beyond. For FY2019, CMS estimated that the number of hospitals that would receive an increase in their base operating DRG payment amount is higher than the number of hospitals that receive a decrease.

#### Exhibit 4: Acute inpatient prospective payment system overview, FY2020



Note: MS-DRG (Medicare severity diagnosis related group), LOS (length of stay), IPPS (inpatient prospective payment system). Capital payments are determined by a similar system.

\* Transfer policy for cases discharged to post-acute care settings applies for cases in 280 selected MS-DRGs.

\*\* Additional payment made for certain rural hospitals.

Source: CMS, MedPAC

## The market basket vs the net update

Inpatient hospital Medicare operating and capital payment rates are updated annually. The annual hospital market basket (inflation) rate is used to update operating payment rates, while CMS separately determines the capital payment update. Of the two, the operating payment is the main driver to reimbursement. In theory, each year hospital spending should increase by the market basket update, but a combination of rate cuts outlined by Congress and CMS adjustments often mean that there is a difference between the market basket update and the actual increase in spending.

The market basket is a fixed-weight index, as it represents the change in price over time of a constant mix of indices. CMS has adopted a rebasing frequency of four years, with the most recent rebasing included in the FY18 IPPS regulations, with the market basket moving to being 2014-Based. CMS uses the IHS Global Inc.'s (IGI) most recent forecast of the 2014-based IPPS market basket rate-of-increase, which in FY2019 was from the 2Q18. Below we outline the components of the market basket for hospitals and the indices used to forecast growth.

**Table 27: 2014-Based market basket components and weights**

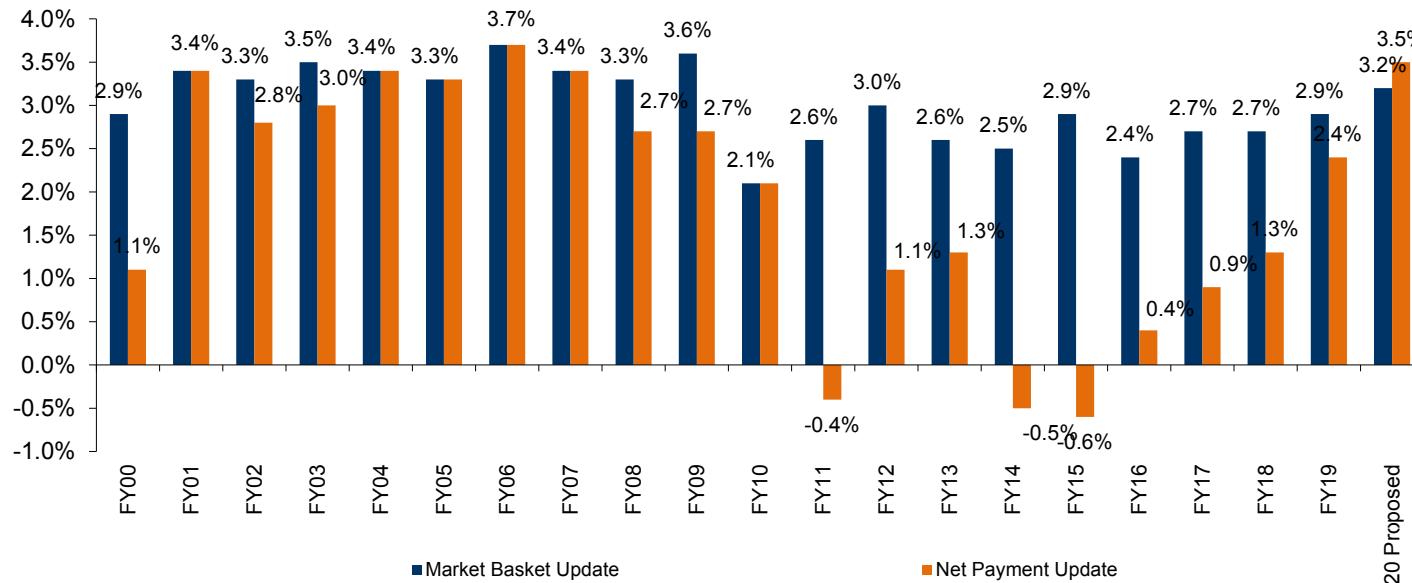
Expense Category	Price/Wage Variable	2014-Based IPPS market basket cost weights
<b>Compensation</b>		
Wages	ECI- Wages & Salaries Hospital Workers (Civilian)	55.8%
Benefits	ECI- Benefits Hospital Workers (Civilian)	43.4%
Utilities		12.4%
Electricity	PPI - Commercial Electric Power	2.5%
Fuel, Oil, Coal, etc	PPI - Petroleum Refineries	1.0%
Water & Sewerage	CPI - Water & Sewage	1.3%
Prof. Liability Insurance		0.1%
Malpractice	HCFA - Prof. Liab. Prem.	1.2%
<b>All Other</b>		1.2%
<b>All Other Products</b>		40.5%
Drugs	PPI - Prescription Drugs	17.4%
Food-direct purchase	PPI - Processed Foods	5.9%
Food-away from home	CPI - Food Away From Home	2.3%
Chemicals	Blend of Chemical PPIs	1.3%
Blood	PPI - Blood and Organ Banks	0.9%
Medical Instruments	Blended PPI - Surgical, Medical Instruments and Surgical, Medical Appliances and Supplies	0.8%
Rubber & Plastics	PPI - Rub. & Plast. Prod.	2.9%
Paper & Printing Products	PPI - Convert. Paper And Paperboard	0.8%
Miscellaneous Products	PPI - Finished Goods Less Food and Energy	1.5%
<b>Labor-Related Services</b>		1.1%
Professional fees (labor-related)	ECI - Compensation Prof. and Related (Private)	12.5%
Administrative	ECI - Compensation Office & Admin. Support Services	6.8%
Installation, Maintenance, and Repair	ECI - Compensation Installation, Maintenance, and Repair (Civilian)	1.0%
All Other (labor-related)	ECI - Service Occupations (Private)	2.4%
<b>Non Labor-Related Services</b>		2.3%
Professional fees (nonlabor-related)	ECI- Compensation Prof. and Related (Private)	10.7%
Financial Services	ECI - Compensation, Financial Activities	5.1%
Telephone	CPI - Telephone Services	3.0%
All Other (nonlabor-related)	CPI - All Items Less Food And Energy	0.8%
<b>Total</b>		1.7%
		<b>100.0%</b>

Source: CMS

## Congressional adjustments

If there is a Congressional adjustment, it is almost always negative as only once in the past 30 years have hospitals received an increase above the market basket rate from Congress. In fact, since 1984, (the first year of the prospective payment system), hospitals have received less than a full market basket about 80% of the time. As a result, hospitals have a long track record of operating when government reimbursement is less than inflation. Of note, the FY20 Proposal features a proposed rate update higher than the market basket, largely due to a positive coding adjustment.

**Chart 49: Medicare IPPS Payment Updates, FY2000-2020**



Source: CMS

#### CMS adjustments – coding, recoupment, etc

CMS also makes a number of adjustments to the rates each year. However, for the most part these adjustments are meant to be budget neutral and do not change aggregate spending. However, CMS does have the power to make changes that can add or subtract from spending. For example, CMS has found that when it makes major changes to reimbursement systems (such as adding new billing codes) companies often adjust their coding, which usually causes more patients to be classified into higher reimbursement categories than anticipated. This is known as coding creep and, although not technically illegal, CMS is generally charged with making budget neutral changes, so CMS believes that any benefit that comes purely from coding must be offset by a price reduction to maintain budget neutrality.

CMS has actively compared expected increases in acuity versus the increases implied by coding, and adjusted rates downward if it finds that coding creep has occurred. When CMS first implemented the MS-DRG system, it estimated that providers would see a 4.8% benefit purely from coding and attempted to proactively implement a rate cut to adjust for this benefit, outlining a 1.2% cut in FY08, 1.8% cut in FY09 and 1.8% cut in 2010. This was somewhat of a departure for CMS who had historically waited until it had data (which usually takes 2-3 years) to determine the actual coding benefit. Congress intervened, cutting the proactive reduction to 0.6% in FY08 and 0.9% in FY09 and mandating that CMS make a determination in FY10 using actual data to determine if future adjustments are necessary.

When Congress intervened to delay the coding creep adjustment, in order to make the delay budget neutral, it included a provision allowing CMS to go back and recoup any overpayments due to coding creep. Unlike the prospective adjustments which permanently reduce the baseline off of which future rates are based, the recoupment adjustments are one time in nature and do not affect rates in out years. CMS estimated a recoupment adjustment of -5.8% was required to remove the full effects of documentation and coding due to the transition to MS-DRGs. Therefore, CMS reduced the national standardized amount for IPPS hospitals by 2.9% in both FY11 and FY12.

However, by 2017, the prior year overpayments had been completely recouped, so in 2018, the cumulative 3.2% recoupment adjustment was set to be reversed. The permanent physician fee fix includes a provision which would spread out the positive 3.2% adjustment that hospitals are scheduled to receive in FY18 over a six-year period and essentially lowered to 3.0% as it calls for six years with a positive 0.46% adjustment each year (shown in the chart below as -0.46% because it is an increase in a column that is showing cuts). With the ACA mandated market basket cut going away for FY20, the reversal of the recoupment adjustment.

Note that the Medicaid DSH cuts were delayed to 2020, but there is still no concrete plan to put them in place. As of right now, Medicaid DSH reductions are to be \$4 billion in FY20 and \$8 billion from FY21 through FY25, with the largest reductions imposed on states that have the lowest percentages of uninsured individuals or do not target DSH payments on hospitals with high volumes of Medicaid inpatients or uncompensated care. However, since there hasn't been a concrete proposal, we expect these to be pushed back again.

**Table 28: Hospital Reimbursement reductions FY10-FY20E**

	Productivity Adj.	Add'l MB cut (readmits, HAC)	Other Medicare DSH cut	Total Reform cuts	Recoup.	Other	Sequest.	Total cut
FY2010		0.25%		0.25%				0.25%
FY2011		0.25%		0.25%	2.90%			3.15%
FY2012	1.0%	0.10%		1.10%	0.00%	2.00%		3.10%
FY2013	0.7%	0.10%	0.30%	1.10%	-2.90%	1.90%	1.00%	1.10%
FY2014	0.5%	0.30%	0.20%	0.4%	1.40%	0.80%		3.20%
FY2015	0.5%	0.20%	0.50%	0.9%	2.06%	0.80%		2.86%
FY2016	0.5%	0.20%		0.9%	1.56%	0.80%		2.36%
FY2017	0.3%	0.75%		0.1%	1.18%	1.50%	-0.80%	1.88%
FY2018	0.6%	0.75%		-1.0%	0.35%	-0.46%	0.60%	0.49%
FY2019	0.8%	0.75%		0.0%	1.55%	-0.46%		1.09%
FY2020 Proposed	0.5%	0.00%		0.0%	0.50%	-0.46%		0.04%

Source: CMS, CBO, BofA Merrill Lynch Global Research

## Moving toward pay for performance

In recent years CMS has moved to reward hospitals for quality. The first step in its attempt to improve quality was to require hospitals to report their performance against certain quality metrics. If hospitals fail to report specific quality indicators, then those hospitals receive a reduction of 2.0% in their market basket update for that particular year. Virtually all hospitals now report quality data.

### 6% of Medicare inpatient payments are tied to performance

Under Reform there are several quality programs that were implemented for hospitals beginning FY13: value-based purchasing, a program to reduce hospital acquired conditions, and re-admission policy. Under each program, hospitals would receive a reduction in reimbursement if certain requirements are not met.

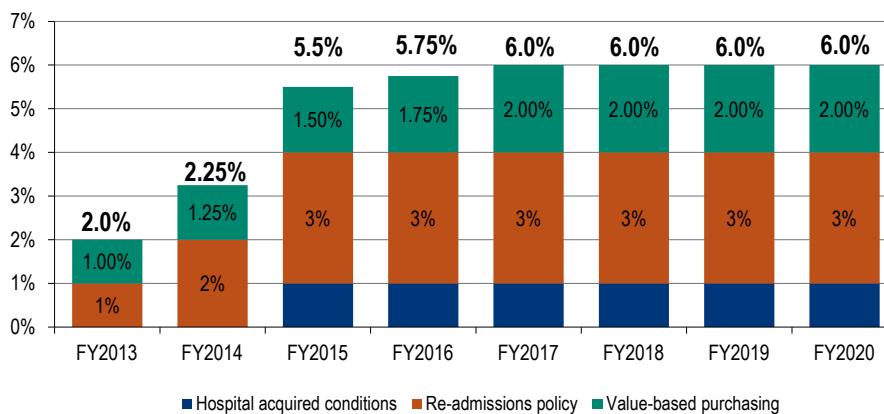
- **Hospital Acquired Conditions.** The Reform bill includes a reduction of 1% in payments beginning in FY2015 and beyond for the worst 25% of hospitals for Hospital Acquired Conditions.
- **Readmissions.** In addition, the Reform bill includes payment reductions beginning in 2013 for hospitals with readmissions rates above certain thresholds for certain conditions. It builds on the existing policy, which prevents higher payment to a hospital for treatment costs associated with certain preventable conditions that were not present on admission. Payment reductions increased from 1% in FY2013 to 2% in FY2014 and 3% in FY2015 and beyond.

- **Value-based purchasing.** The aggregate VBP payments across all hospitals will be funded through a reduction in base operating DRG payments for each discharge, which was 1% in FY2013, rising to 2% by FY2017 and beyond.

The scoring system for VBP will incentivize both low- and high-performing hospitals. CMS will score each hospital on relative achievement and improvement ranges for each measure. A hospital's performance would be evaluated based on the higher of an achievement score or an improvement score, which is determined by comparing the hospital's score in the performance period with its score during a baseline period of performance. A hospital will earn 0-10 points depending on where a measure fell within an achievement range. Finally, CMS will calculate a Total Performance Score (TPS) for each hospital by combining its scores on all of the measures, multiplying its performance by the proposed weight for the domain (25% for each of: clinical care, safety, person and community engagement, and efficiency and cost reduction), and adding the weighted scores for the domains.

The combined impact of these programs left the industry exposed to 2% of Medicare inpatient payments in FY13 with the exposure increasing to 6% starting in FY17 if certain quality metrics are not met.

**Chart 50: Hospital Quality Programs**



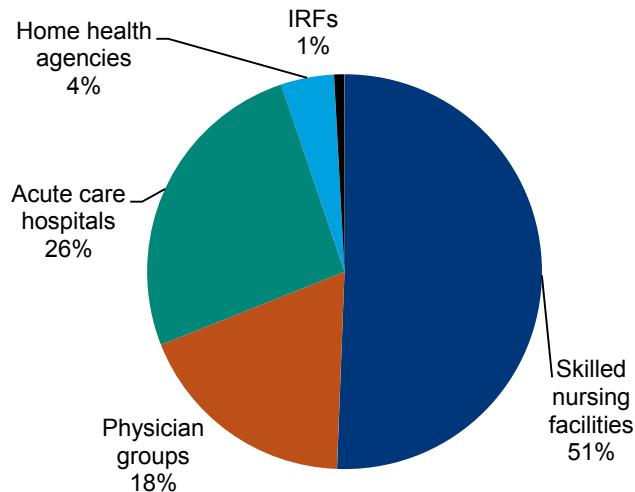
Source: BofA Merrill Lynch Global Research, CMS

## Bundled Payments for Care Improvement

In 2011, CMS launched the Bundled Payments for Care Improvement (BPCI) Initiative, a three-year demonstration project testing four different models of bundled payments. Each model defines the episode of care differently. There are 48 different episodes that may be included in the BPCI model, which CMS estimates to represent approximately 70% of spending on episodes of care.

In 2013, CMS announced the first round of BPCI participants. In March 2013, there were 450 participating providers, expanding to close to 7,000 participants in the initial phase during which the participants gathered information on as many episodes as they desired. In August 2015, CMS announced that 2,100 providers finished the review and entered into bundled payment contracts. The following was the mix of provider types before BPCI was replaced by BPCI Advanced: skilled nursing facilities account for over half of the participants (1,071), followed by physician groups (441), acute care hospitals (423), home health agencies (101), IRFs (9) and LTCH (1).

**Chart 51: BPCI participants by type of provider (FY 2018)**



Source: CMS

### **BPCI Advanced replaced BPCI**

In January 2018, CMS' Center for Medicare and Medicaid Innovation (Innovation Center) announced a new voluntary episode payment model, Bundled Payments for Care Improvement Advanced (BPCI Advanced). It replaced the previous voluntary BPCI models. Under the new model, participants can receive payments for 32 clinical episodes of care, including additional outpatient episodes.

BPCI Advanced qualifies as an Advanced Alternative Payment Model (APM) under the Quality Payment Program. The first cohort of Participants started participation in the Model on October 1, 2018, and the Model Period Performance will run through December 31, 2023. CMS will provide a second application opportunity in January 2020. Also in Year 3 (Jan 1, 2020), the number of clinical episodes will increase to 37 (33 inpatient and 4 outpatient).

Only hospitals and physician groups can participate in the BPCI Advanced. There is no longer Model 3, which was meant to be initiated by post-acute.

When the program began in October there were 1,547 physician group practices in the program (832 acute care hospitals and 715 physician group practices). However, by the March 1 deadline to drop out of the program, that number dropped to 1,295 (-16%), with the composition now 715 acute care hospitals and 580 physician groups.

For a more in-depth discussion of the shift to value based payments see our section on [Evolving Payment Models](#).

### **2-midnight rule**

There has been significant scrutiny on the industry around patients admitted for one day, who might have better been classified as held for observation at a lower Medicare rate. In an effort to provide clarity on this issue, CMS implemented the 2 midnight rule, which says that hospital stays are generally appropriate for inpatient hospital admission and payment under Medicare Part A when the physician expects the beneficiary to require a stay that crosses at least two midnights. There are some exceptions, (eg services that are listed as inpatient only), but CMS indicates that patients coded as admissions without meeting the two-midnight benchmark should be "rare and unusual."

As part of the 2016 Medicare HOPD regulation, CMS finalized its proposed changes to the "2-Midnight" including:

- **Changes in review for short inpatient hospital stays** – For stays expected to last less than two midnights, an inpatient admission would be payable under Medicare Part A on a case-by-case basis, based on the judgment of the admitting physician. Documentation must still support that an inpatient admission is necessary, and will be subject to medical review.
- **Expectation that it would still be “rare and unusual” for inpatient admissions that would last only several hours.**
- **For hospital stays expected to be longer than 2 midnights, CMS notes that the current policy will remain unchanged** – Meaning that if the admitting physician expects the patient to require hospital care that spans at least 2 midnights, then the services are generally appropriate for Medicare Part A payment.

As part of the 2017 IPPS regulation, CMS finalized its proposal to include a 0.8% increase to offset the 0.2% rate reduction it put in place with the 2 midnight rule in 2014. The 0.8% rate increase includes a 0.2% permanent rate increase and a 0.6% one year boost to offset underpayment from FY2014-16. To ensure that 0.6% of this 0.8% add-back is not continued forward, CMS reduced payments by 0.6% in FY2018.

#### **Financial effects likely; already some impact**

The two-midnight rule likely affected admissions reported by hospitals because under the rule, one-day, short stay patients are reclassified from inpatient to outpatient. Additionally, this reclassification could have an effect on rates because a one-day stay would be considered an observation stay, which is paid at about one-third the rate of a one-day stay. The combination of lower inpatient admission and lower rates has had an effect on hospitals.

CYH said that there was a \$5 million negative impact to EBITDA in 4Q13, and the headwind was expected to be \$20 million in 2014. The company did not comment what it actually was in 2014, providing only the impact to volumes in 1H14 which to us implies the headwind was smaller than initially expected. THC said the two-midnight rule headwind could be significant, with up to \$100 million impact to EBITDA in 2014, but since it is difficult to quantify, the guidance range included \$0-\$100 million. The company did not comment what it actually was in 2014.

#### **Proposed IPPS FY20 rule strong, as expected**

On April 23, 2019, CMS issued the FY20 proposed rule for the Inpatient Hospital Prospective Payment System (IPPS). The rule calls for an update of +3.5%, better than the +2.4% in FY19 and better than ~1% increases in FY18 and FY17. In addition, the reg includes a 3% increase to disproportionate share (DSH) payments, worse than the +16% raise in FY19 and +11% raise in FY18 (but still a solid increase), which combined with other changes adding +0.2%, resulting in a net +3.7% increase in FY20, slightly worse than +4.0% in FY19 but still strong. Our analysis indicates that on average the publicly traded hospitals would see a 6% increase in DSH, or a 0.2% increase to EBITDA in addition to the 3.5% base update, with HCA (1.4% of EBITDA) and UHS (0.2%) the biggest beneficiaries

#### **+3.7% rate update driven by market basket, other changes**

A market basket update of +3.2% (30bps better than +2.9% in FY19) is reduced by a -0.5% productivity adjustment (30bps better than 0.8% in FY19), but increased by a +0.5% adjustment for hospitals paid under the national standardized amount, resulting in a +3.2% increase to hospitals, better than better than +2.4% in FY19, +1.3% in FY18, and +0.9% in FY17. CMS is also proposing a 3% increase in DSH payments, which combined with the base update and +0.2% from other changes results in a net +3.7% increase. Elements of the update:

- Market Basket Update of +3.2%.
- Productivity Factor Adjustment of -0.5%.
- CMS continues its 6-year add-back for previous Coding Adjustment with a 0.5% increase for FY2020.
- 3% increase in DSH payments, which when combined with the base update and +0.2% from other changes results in a net +3.7% increase
- Proposed Medicare DSH and Uncompensated Care Payment increases – As part of the ACA, hospitals were slated to receive both Medicare and Medicaid DSH payment reductions beginning in FY2014. Congress, however, delayed the Medicaid DSH cuts until FY2020, but, Medicare DSH cuts continue as expected. There was also no mention of the Medicaid DSH cuts in the FY2020 proposal, meaning we will find out about the Medicaid DSH cuts in the final rule. Hospital lobbies have been pushing for another delay of the Medicaid DSH cuts. CMS is proposing to increase Medicare Uncompensated Care payments for FY2020 by roughly \$250 million to \$8.5 billion. Total DSH and uncompensated care fund payments will increase by \$350 million from \$12.3 billion to \$12.6 billion in FY2020. CMS notes that these changes were due to both an increase in CMS' estimate of payments that would otherwise be made for Medicare DSH and an updated estimate of the change.
- Outlier payments. CMS is proposing a decrease in the outlier threshold for inpatient hospitals for FY2020 to \$26,994, which is lower than the FY2019 threshold of \$25,769. The revised threshold ensures that outlier payments are held at 5.1% of total Medicare DRG payments.

**Table 29: Impact of Proposed FY20 Changes to Hospital Inpatient Prospective Payment System**

		Proposed FY 2020 Weights and DRG Changes with Application of Recalibration	Proposed FY 2020 Wage Data with Application of Wage Budget Neutrality	FY 2020 MGCRB Reclassifications	Proposed Rural Floor with application of National Rural Floor Budget Neutrality	Proposed Application of the frontier Wage Index and Outmigration Adjustment	Proposed Application of lowest and highest quartile Wage Index Policies	All Proposed FY 2020 Changes
All Hospitals	3,242	3.1%	0.0%	0.0%	0.0%	0.1%	0.0%	3.5%
<b>By Geography</b>								
Urban hospitals	2,476	3.1%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.0%
Large urban areas	1,268	3.1%	-0.1%	0.0%	-0.7%	-0.1%	0.1%	-0.2%
Other urban areas	1,208	3.1%	0.0%	0.0%	0.5%	0.1%	0.2%	0.1%
Rural hospitals	766	2.8%	0.2%	0.1%	1.0%	-0.1%	0.1%	0.4%

Source: CMS, BofA Merrill Lynch Global Research

#### **DSH boost to HCA/UHS EBITDA; others no benefit**

Our facility by facility analysis indicates that the publicly traded companies would see an increase of 6% in their DSH payments on average. The increase is the biggest for HCA, 19%, which represents 1.4% of EBITDA, followed by UHS at 3% or 0.1% of EBITDA. THC and CYH would see some decreases.

**Table 30: Estimated FY20 Medicare DSH Proposed Rule Impact**

2019	Industry	CYH	HCA	THC	UHS	Average
% of DSH/Uncompensated pool		1.37%	6.15%	1.40%	0.70%	
New DSH	\$4,085	\$56	\$251	\$57	\$28	
Uncompensated care pool	\$8,273	\$113	\$509	\$116	\$58	
Total	\$12,358	\$169	\$760	\$173	\$86	

**Table 30: Estimated FY20 Medicare DSH Proposed Rule Impact**

2019	Industry	CYH	HCA	THC	UHS	Average
2020	Industry	CYH	HCA	THC	UHS	
% of DSH/Uncompensated pool		1.33%	7.10%	1.24%	0.70%	
New DSH	\$4,214	\$56	\$299	\$52	\$29	
Uncompensated care pool	\$8,489	\$113	\$603	\$106	\$59	
Total	\$12,703	\$169	\$902	\$158	\$89	
Y/Y Change	\$345	(\$1)	\$142	(\$15)	\$2	
Y/Y Change %	2.8%	-0.3%	18.7%	-8.5%	2.9%	6.3%
Proposed FY20 Change, % of 2020E EBITDA		0.0%	1.4%	-0.5%	0.1%	0.2%
Proposed FY20 Change, % of 2020E EPS*		-1.4%	2.9%	-3.0%	0.2%	-0.3%
FY19 DSH changes, % of 2019E EBITDA		0.0%	3.1%	-1.6%	0.8%	1.2%
FY19 DSH changes, % of 2019E EPS*		1.0%	6.8%	-23.1%	1.1%	-0.7%

\* FCF/share used for CYH

Source: CMS, BofA Merrill Lynch Global Research

### Background on Disproportionate Share Payments (DSH)

The Reform bill called for reducing Medicare and Medicaid DSH payments, and according to the original score of the bill, it would ultimately result in \$36 billion of savings to the federal government. However, we note these cuts would likely be accompanied by a cut to the state portion of Medicaid DSH payments (states also make DSH payments to compensate providers for the cost of treating low income and uninsured). We estimated the cut to Medicare DSH payments in 2010-2019 would be \$11 billion.

In the context of Medicare spending on hospitals, the \$36 billion cut would be equivalent to about a 2.5% cut to overall Medicare spending, so it would be quite manageable for the group during a period of coverage expansion. As noted above, some of the cuts have been delayed, so the actual cut to hospitals has been less than the original CBO score. The \$11b Medicare DSH cuts represent less than 1% of the hospital spending.

However, in addition to the cut, the ACA made a significant change to how DSH payments are allocated, which could have modestly negative implications for the publicly traded companies. These changes are summarized below.

DSH payments are based on a complex formula that factors in the hospital's geographic designation, the number of beds, and the hospital's disproportionate patient percentage (DPP). A hospital's DPP is the sum of two fractions: the "Medicare fraction" and the "Medicaid fraction." To determine the Medicare fraction, divide the number of inpatient days treating patients who were entitled to both Medicare Part A and Supplemental Security Income benefits (ie, low income Medicare patients) by the total number of Medicare patient days. To determine the Medicaid fraction, divide the hospital's number of inpatient days treating Medicaid patients who were not also entitled to Medicare Part A, by the hospital's total number of inpatient days.

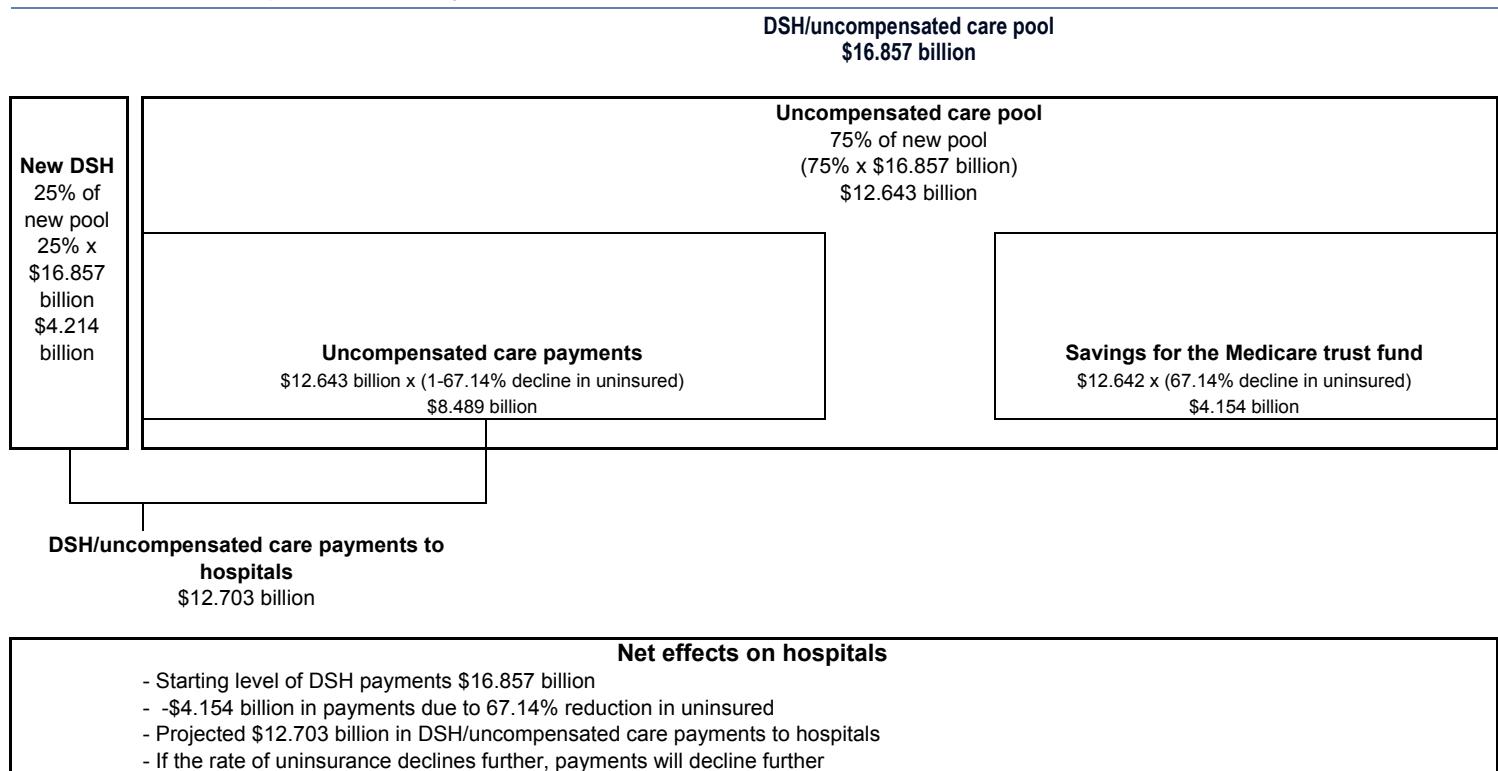
As part of Reform, the DSH payments are cut into two pools: 25% remain in the base DSH program and is distributed in the same manner as they were previously. The remaining 75% is placed in what is called an uncompensated care pool, to be allocated between uncompensated care payments to hospitals and savings for the Medicare trust fund based on the decline in the number of uninsured. For FY19, CMS proposed a reduction of 67.51% as it estimated a 67.71% reduction in uninsured minus 0.2% as per

the ACA bill. For FY20, the Act no longer includes any reduction to the calculation, so it is estimated at 67.14% for FY20.

The remaining funds in the uncompensated care pool would be distributed to hospitals based on their level of uncompensated care, expected to be defined as non-Medicare bad debts, non-reimbursed Medicare bad debt and charity care. It is this change in allocation (from percentage of days treating low income people to cost of uncompensated care) that may negatively redistribute the funds away from a company. Initially, CMS indicated that it was not confident that its data collection was accurate, so it chose to base uncompensated care pool payments off of the same calculation as DSH. CMS maintained this stance through 2017 but began incorporating the new methodology for allocating money in the uncompensated care pool in 2018.

The change in the methodology resulted in an increase in DSH payments after decreases in payments every year since FY14. In FY18, DSH payments actually increased 11% year over year adding 1.0% to the overall industry spending as CMS changed its methodology. For FY19, CMS proposed another increase (+16%), adding 1.3% to spending. In the FY20 proposal, CMS proposes a much more modest 3% increase.

**Table 31: Illustration of Proposed 2020 DSH Payments**



Source: CMS, Bofa Merrill Lynch Global Research

## Medicare outpatient reimbursement

Medicare pays to treat beneficiaries for a wide range of services in hospital outpatient departments, from injections to complex procedures that require anesthesia. The Medicare program spent \$66 billion on outpatient hospital services in 2017, representing 9% of total Medicare spending. Medicare hospital outpatient reimbursement represents only 5-10% of public company reimbursement, so the sector is less exposed to changes in hospital outpatient rates than the inpatient hospital rates, which represents 20-25% of revenue.

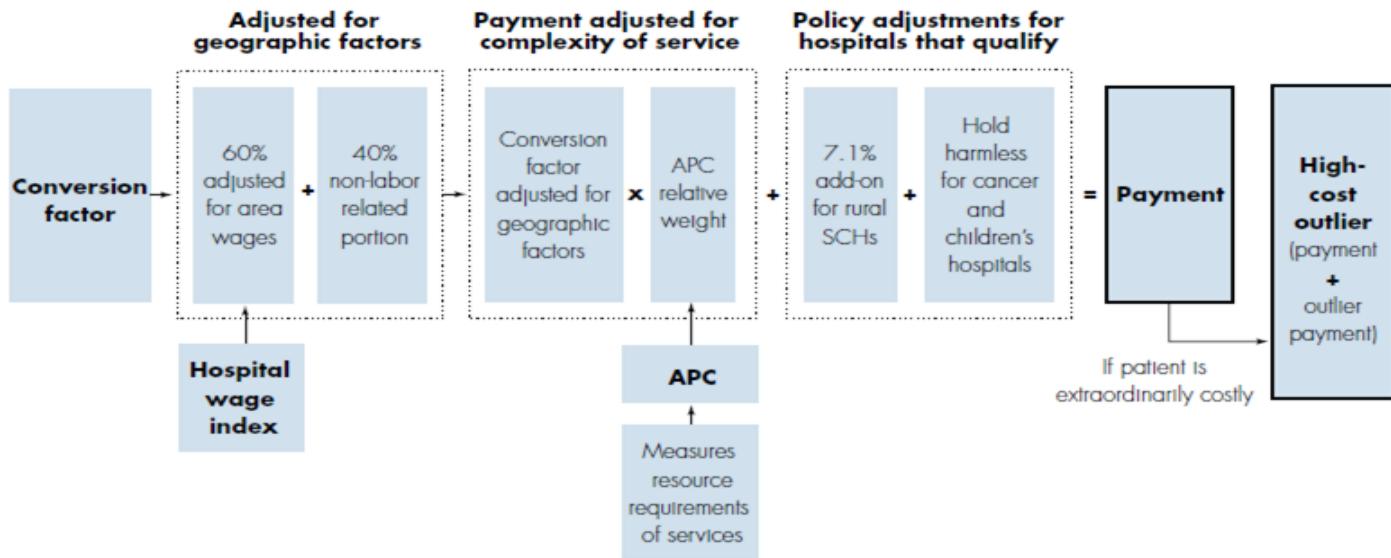
### Payment rate

The unit of payment under the outpatient prospective payment system (OPPS) is the individual service as identified by Healthcare Common Procedure Coding System codes. CMS then classifies similar clinical and cost services into ambulatory payment classifications (APCs). All services within an APC have the same conversion factor or payment rate. The conversion factor is then multiplied by the APC relative weight to determine the actual payment. For example, given that the cost of a hernia procedure is higher than an endoscopy, the relative weight for a hernia is also higher to align costs and reimbursement.

### A number of adjustments are made to the payment rate

- **Wage index:** CMS adjusts the labor portion of the conversion factor (60%) by the hospital wage index. CMS does not adjust the remaining 40%.
- **Pass-through payments:** CMS makes pass-through payments for new technology (specific drugs, biologicals, and devices) used in the delivery of service. The purpose of pass-through payments is to help ensure beneficiaries' access to technologies that are too new to be well represented in the data that CMS uses to set OPPS payment rates. For pass-through devices, CMS bases payments on each hospital's costs, determined by adjusted charges to costs using a cost-to-charge ratio. Total pass-through payments cannot be more than 2% of total OPPS payments.
- **Hold-harmless payments:** When hospitals went from a cost based reimbursement system to a prospective payment system, Congress passed a law to minimize the impact on certain, protected classes of providers (eg cancer and children's hospitals) to ensure that they never receive less reimbursement than their costs.
- **Rural adjustment:** Sole community hospitals (SCHs) are the only hospitals in their markets and CMS wants to ensure access to care. As a result, they are paid 7.1% above standard payment rates on all OPPS services except drugs and biologicals.
- **Outlier payments:** CMS makes outlier payments for individual services that cost significantly more than the payment rates for the services' APC groups. Currently, to be eligible for outlier payments, a procedure must exceed the APC payment rate by 1.75x and the costs must also exceed the APC payment rate plus \$4,600. For a service meeting both thresholds, CMS will reimburse the hospital for 50% of the difference between the cost of furnishing the service and 1.75x the APC rate. CMS limits the aggregate outlier payments to 1% of total OPPS payments.

**Chart 52: Hospital Outpatient Prospective Payment System overview**



Source: MedPAC

Note: APC (ambulatory payment classification), SCH (sole community hospital). The APC is the service classification system for the outpatient prospective payment system.

### Annual payment update

Outpatient hospital payment rates also receive an annual market basket update. For 2019, the market basket update is 2.9% less a 0.8% productivity adjustment, a 0.75% statutory reduction from Reform, and other changes resulting in a +1.35% update.

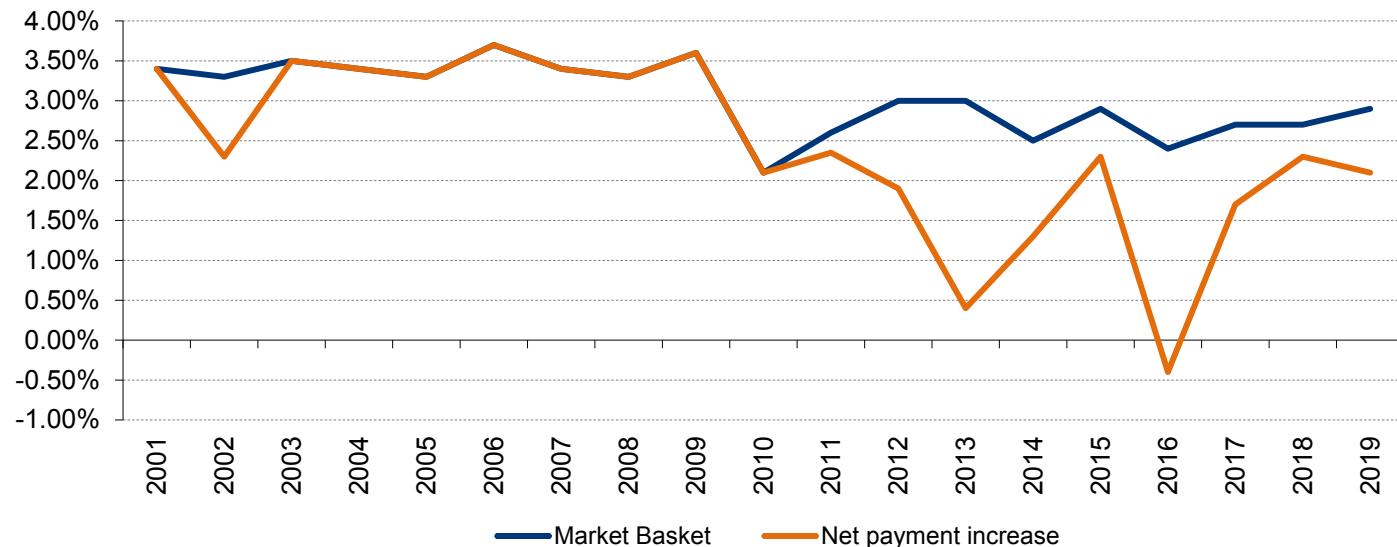
**Table 32: MB update reductions under Reform**

	Productivity Adj.	Add'l cut	Total cut
CY2010		0.25%	0.25%
CY2011		0.25%	0.25%
CY2012	1.0%	0.10%	1.10%
CY2013	0.7%	0.10%	0.80%
CY2014	0.5%	0.30%	0.80%
CY2015	0.5%	0.20%	0.70%
CY2016	0.5%	0.20%	0.70%
CY2017	0.6%	0.75%	1.35%
CY2018	0.6%	0.75%	1.35%
CY2019	0.8%	0.75%	1.55%
CY2020	0.5%	0.00%	0.50%

Source: BofA Merrill Lynch Global Research

Historically, there have been fewer adjustments to the outpatient market basket than for other sub sectors (including inpatient hospital), and hospitals historically have received a full update (we note that hospital outpatient services moved to a prospective payment system in 2000). Going forward, like most subsectors, hospital outpatient rates will increase by the market basket less a productivity adjustment.

**Chart 53: Outpatient Medicare payment updates, FY2001-FY2019**



Source: CMS, AHA

## Final Hospital Outpatient rule better than proposal

The CY19 rule finalizes a market basket update of 2.9%, reduced by a productivity adjustment of -0.8% (in line with -0.8% in the FY19 IPPS final reg and in line with the proposal) and a -0.75% rate cut outlined under HC Reform, resulting in net market update of +1.35%. The changes to the off-campus provider based payments will reduce payments by 0.6% (vs -1.2% proposed). Combined, these changes along with other small changes would result in the overall rate update of +0.6%. This is better than -0.1% proposed, but lower than +1.4% in FY18 and +1.7% in FY17.

## Site Neutral Payment Provisions

As part of the Bipartisan Budget Act of 2015 ("Site neutral payment provisions"), CMS included several provisions to implement payment changes for off-campus provider based departments. Payments to these providers were reduced to physician fee schedule payment rates in 2017 (unless grandfathered in). In the CY 2018 final rule, CMS reduced the reimbursement rate from 50% of the applicable OPPS rate to 40%.

## 340B Drug Pricing Program update

Previously, the 340B Drug Pricing Program reimbursed participating hospitals average sales price (ASP) plus 6%. In the CY2018 final rule, CMS adjusted the applicable rate to average sales price (ASP) -22.5%. The new prescription drug rate will apply to separately payable, non-pass-through drugs and biologicals, except vaccines. All other medications purchased outside of the 340B Drug Pricing Program will continue to be reimbursed at the ASP plus 6%. According to CMS, the applicable rate change is estimated to reduce payments \$1.6 billion and CMS is redistributing the savings among all hospital paid under the OPPS through increased payment rates for non-drug items and services. Since the 340B program is only for non-profit hospitals, cutting that program and redistributing the payment to the base rate was a positive for for-profit hospitals.

## Productivity adjustment of -0.8%, in line with -0.8% proposed

The rule finalizes a full market basket update of +2.9%, which is reduced by a productivity adjustment of -0.8% and a statutory reduction of -0.75%. These updates combined with some other changes (-0.6% for off-campus provider based payments) result in a net update of +0.6%, 70bps better than the -0.1% proposed.

**Table 33: Estimated Impact of the Final CY2019 Hospital Outpatient PPS Regulation (percent change in payments)**

	Number of Hospitals	APC Recalibration (all Changes)	New wage index and provider adjustments	All budget neutral changes with market basket update	Off-Campus Provider-Based Department Visits Policy	All Changes
All Providers	3,840	0.0	0.0	1.3	-0.6	0.6
All Hospitals	3,727	0.0	0.0	1.4	-0.6	0.6
Urban Hospitals	2,938	0.0	0.0	1.4	-0.6	0.7
Rural Hospitals	789	0.1	-0.2	1.3	-0.6	0.5
Type of Ownership						
Voluntary	1,977	0.0	0.0	1.4	-0.7	0.6
Proprietary	1,281	0.1	0.0	1.4	-0.2	1.0
Government	469	0.0	0.1	1.4	-0.7	0.5
Community Mental Health Centers	46	-16.8	0.7	-15.0	0.0	-15.1

Source: CMS

## Potential for Medicare rate cuts

Given that Medicare is the largest single payer for hospitals, we highlight the potential revival of balanced budget discussions, which could result in Medicare cuts for all providers. Meanwhile, there is always risk providers, including hospitals, could be used as pay-fors whenever new spending is introduced. However, as discussed earlier in the report, the non-profit hospitals represent a buffer. Since Medicare margins for the hospital industry as a whole are negative, it is hard to imagine the government would be willing to cut rates too much. As a result, as long as the public hospitals can maintain a margin spread versus their less efficient peers, there is some downside protection.

### Case study of risk from budgetary discipline - Sequestration

As part of the agreement by legislators on 7/31/11 to increase the US government debt ceiling and reduce the national deficit, there were cuts to government rates for providers. Since Congress was unable to come to a consensus on cuts, sequestration was implemented on April 1, 2013, creating a 2% Medicare cut across the board.

A 2% rate cut is painful, but manageable in our view. The real risk to rates is what happens when the government gets serious about balancing the budget again? Health care spending is likely to be part of the cuts necessary to reduce the deficit. Although our understanding is that hospital spending is not a target of reductions, per se, it is the single largest line item in Medicare spending, so in order to come up with large savings, hospital spending likely has to be cut somewhat.

Below we highlight some of the health care provider cuts proposed in 2012 when Congress was attempting to avoid sequestration. Notice that post acute care cuts come up more often and with a higher price tag than hospital cuts, even though hospital spending is larger than post acute care spending. This is because post acute care generally has Medicare margins in the 8-15% range compared to hospitals, where Medicare margins are break even to a loss. As a result, if health care spending cuts are targeted to specific providers, we would expect that hospital cuts would end up slightly below the average cut to Medicare spending.

**Table 34: Summary of potential deficit proposals**

	Bowles -Simpson	Biden -Cantor	Obama	MedPAC	House Ways and Means	Savings over 10 years	Savings per year
<b>Post Acute</b>							
President's proposal - Rate Cuts			X			\$32	\$3.2
Equalizing IRF Rates to SNF level			X			\$4	\$0.4
Moving IRF 60% Rule to 75%			X	X		\$3	\$0.3
Reducing SNF Readmissions			X			\$2	\$0.2
Provider Payment Freeze (1-2yrs)					X	\$14-\$28	\$1.4-\$2.8
Accelerate Home Health Rebasing		X		X		\$3	\$0.3
Increase SNF Cost Sharing		X				\$23	\$2.3
Recoup SNF Overpayments					X	\$4.5	\$0.5
Rebase SNF payments				X		\$23	\$2.3
Reduce hospice rates in nursing homes				X		\$3	\$0.3
New Home Care Co-Payments			X	X		\$0.4-\$40	\$0.04-\$4
Eliminate/Phase down Bad Debt Reimbursement	X	X	X			\$4-\$7	\$0.4-\$0.7
FMAP Blended Matching Rate	X		X			\$1.5-\$5	\$0.2-\$0.5
Eliminate Medicaid Provider Taxes				X		\$2.5-\$5.0	\$0.5-\$0.8
<b>Total</b>						<b>\$119.9-\$182.5</b>	<b>\$11.9-\$18.3</b>
<b>Hospitals</b>							
Eliminate Rural Hospital Add-Ons			X			\$6-\$62	\$0.6-\$6.2
Eliminate/Phase down Bad Debt Reimbursement	X	X	X			\$11-\$23	\$1.1-\$2.3
Cut Teaching Hospital Subsidies		X	X	X		\$9-\$15	\$0.9-\$1.5
Recoup for IHD and Coding Improvements				X	X	\$5	\$0.5
Rebase Medicaid DSH payments beg in FY2021			X			\$4	\$0.4
FMAP Blended Matching Rate	X		X			\$5.7-\$19	\$0.6-\$1.9
Eliminate Medicaid Provider Taxes			X			\$9.5-\$19	\$0.9-\$1.9
<b>Total</b>						<b>\$50.0-\$147.0</b>	<b>\$5.0-\$14.7</b>
<b>Other</b>							
Reduce Medicare Part B drugs						\$3	\$0.3
Recover Erroneous payments from MA Plans		X			X	\$2.6	\$0.3
Establish Part D rebates for Duals and Low Income		X	X			\$120-\$135	\$12.8
Increase Cost Sharing/Premiums on MediGap	X	X				\$53	\$5.3
Raise Medicare Eligibility Age to 67					X	\$125	\$12.5
Freeze income thresholds for means testing of Part B premiums		X	X		X	\$14	\$1.4
Increase means testing for Part B and Part D Premiums			X			\$20	\$2.0
Medicare Part B premium surcharge			X			\$2.5	\$0.3
New Cost sharing for Medicare Part B	X	X				\$1.0	\$0.1
FMAP Blended Matching Rate	X		X			\$7.8-\$26	\$0.8-\$2.6
Eliminate Medicaid Provider Taxes			X			\$26-\$39	\$2.6-\$3.9
Clinical Lab Co-Payments/Deductible		X			X	\$24	\$2.4
Prior Authorization for Advanced Imaging		X	X		X	\$1.1	\$0.1
Reduce Payments for retail Diabetic strips		X			X	\$0.8	\$0.1
Chain CPI instead of CPI-U for payment updates	X	X				\$7	\$0.7
Medicaid DME payments			X	X		\$4	\$0.4
Medicare DME cuts			X	X		\$15	
Medicaid Social Security Eligibility Calculation			X			\$15	\$1.5
Reduce Waste/Fraud			X			\$1.4	\$0.1
<b>Total</b>						<b>\$443.1-\$488.1</b>	<b>\$44.3-\$48.8</b>

**Table 34: Summary of potential deficit proposals**

	Bowles -Simpson	Biden -Cantor	Obama	MedPAC	House Ways and Means	Savings over 10 years	Savings per year
Medicare Total						\$542.0-\$685.6	\$54.2-\$68.6
Medicaid Total						\$72.0-\$132.0	\$7.2-\$13.2
<b>Grand Total</b>						<b>\$614.0-\$818.6</b>	<b>\$61.4-\$81.9</b>

Source: CBO, BofA Merrill Lynch Global Research

Below we show the Medicare margin by subsector. We generally view those sectors with the highest margins as being at elevated risk of Medicare cuts.

**Table 35: Medicare Margins by subsector**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Medicare exposure
Hospice	5.0%	4.6%	6.4%	5.8%	5.5%	7.4%	7.4%	8.8%	10.1%	8.5%	8.2%	10.0%	10.9%	7.7%	8.7%	10.1%	90%
IRFs	16.7%	13.4%	12.4%	11.8%	9.3%	8.4%	8.7%	9.9%	11.2%	11.6%	12.5%	13.9%	13.3%	13.8%	11.9%	11.6%	61%
SNFs	13.8%	13.1%	12.8%	14.7%	16.7%	18.0%	19.4%	21.3%	14.1%	13.2%	12.5%	12.6%	11.4%	11.2%	9.0%	10.0%	40%
Home Health	16.0%	17.4%	15.8%	16.6%	17.4%	17.7%	19.1%	14.8%	14.5%	12.7%	10.8%	15.6%	15.5%	15.2%	14.4%	16.0%	80%
LTACs	9.0%	11.9%	9.7%	4.7%	3.7%	5.7%	6.8%	6.9%	7.5%	6.8%	4.9%	4.6% - 6.8%	3.9%	4.6%	4.7%	1.2%	66%
Outpatient Dialysis	3.9%	5.8%	5.9%	4.8%	3.2%	3.1%	2.3%	2.5%	3.9%	4.3%	2.1%	0.4%	0.5%	-1.1%	0.4%	-0.4%	60%
Total Hospital	-3.0%	-3.0%	-4.7%	-6.0%	-7.3%	-5.3%	-4.8%	-5.4%	-5.4%	-5.4%	-5.8%	-7.1%	-9.6%	-9.9%	-11.0%	-11.0%	30-35%

Source: MedPAC Data Book

### Release of star ratings for hospitals was controversial

In April 2015, CMS released the first-ever star ratings on the agency's Hospital Compare website. These ratings solely reflect patients' experience of care, not clinical outcomes or safety. Our analysis of the star ratings for 2018 shows that the publicly traded hospital companies score worse than the national average rating of 3.1. Of the publicly traded hospitals HCA scored best with a 2.8 average rating. THC's and CYH's average ratings are 2.5 and UHS's average rating is 2.3. See Tables below for details.

We also analyzed Truven Health Analytics' list of the top 20 Large Community Hospitals in the country. Truven's methodology is based on clinical and safety measures such as mortality rates, risk-adjusted readmission rates, Medicare spending per beneficiary, expense and operating profit calculations and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) ratings. The average rating for these hospitals was 4.3, well above the national average (see Table below).

According to Kaiser Health News, many of the hospitals that received 5 star ratings are small and focus on elective procedures. It is difficult for general hospitals to provide as streamlined of an experience given the large spectrum of services being provided and with the emergency room more likely to be part of the process.

While interesting, these Star ratings are not especially meaningful. In contrast to Medicare Advantage star ratings, where plans with high stars get paid more money, there is no direct financial incentive for performing well in the hospital star system. We believe the publicly traded companies generally do well on quality, which MCOs and Medicare are increasingly willing to pay more for. Regardless, our sense is that now that these measures are tracked, the companies will show improvement over time, although performance was mixed – CYH, UHS and THC all dropped by 0.2 from 2017, although we note that the industry average also dropped by 0.2. Meanwhile HCA increased 0.2.

**Table 36: Patient Survey Star Ratings**

Patient Survey Star Ratings	CYH	HCA	THC	UHS	Industry
1	16	15	5	6	281
2	36	53	18	8	797
3	28	39	22	5	1,258
4	16	37	5	2	1,087
5	0	6	0	1	292
Not Available	13	33	15	8	1,057
<b>Average</b>	<b>2.5</b>	<b>2.8</b>	<b>2.5</b>	<b>2.3</b>	<b>3.1</b>

Source: CMS, BofA Merrill Lynch Global Research

**Table 37: Patient Survey Star Ratings, as a %**

Patient Survey Star Ratings	CYH	HCA	THC	UHS	Industry
1	15%	8%	8%	20%	6%
2	33%	29%	28%	27%	17%
3	26%	21%	34%	17%	26%
4	15%	20%	8%	7%	23%
5	0%	3%	0%	3%	6%
Not Available	12%	18%	23%	27%	22%

Source: CMS, BofA Merrill Lynch Global Research

**Table 38: Top 20 Large Community Hospitals in the United States – Truven Health**

Hospital	Location	Medicare ID	Total Year(s) Won	CMS Patient Experience Rating
Advocate Sherman Hospital	Elgin, IL	140030	Two	5
Banner Del E. Webb Medical Center	Sun City West, AZ	030093	Five	4
Baylor Scott & White Medical Center - Grapevine	Grapevine, TX	450563	One	4
Hoag Hospital Newport Beach	Newport Beach, CA	050224	Four	4
IU Health Bloomington Hospital	Bloomington, IN	150051	One	4
Mease Countryside Hospital	Safety Harbor, FL	100265	Eleven	3
Memorial Hermann Memorial City Medical Center	Houston, TX	450610	Eight	5
Mercy Health - Anderson Hospital	Cincinnati, OH	360001	Twelve	4
Mercy Health - St Rita's Medical Center	Lima, OH	360066	Four	5
Mercy Hospital	Coon Rapids, MN	240115	Seven	4
Mercy Hospital Oklahoma City	Oklahoma City, OK	370013	Four	3
Northwestern Medicine Central DuPage Hospital	Winfield, IL	140242	Ten	5
Sarasota Memorial Hospital	Sarasota, FL	100087	Four	5
Scripps Memorial Hospital La Jolla	La Jolla, CA	050324	Eight	5
St. Clair Hospital	Pittsburgh, PA	390228	Five	5
St. David's Medical Center	Austin, TX	450431	Ten	5
St. Joseph's Hospital	Tampa, FL	100075	Three	5
Texas Health Harris Methodist Hospital Southwest Fort Worth	Fort Worth, TX	450779	Seven	2
University of Maryland St. Joseph Medical Center	Towson, MD	210063	One	5
WellStar West Georgia Medical Center	LaGrange, GA	110016	Five	4
<b>Average</b>				<b>4.3</b>

Source: CMS, IBM Watson Health, Truven, BofA Merrill Lynch Global Research

In April 2016, after pressure from hospitals criticizing the reliability, validity, and meaningfulness of rating to consumers, CMS agreed to delay the release of the new hospital rating measure until July 2016. In July 2016, the Obama administration published the hospital star ratings over the objection of hospitals and members of congress. The ratings applied to 3,662 US hospitals. As feared by Hospitals, the rating unfairly penalized institutions that perform a greater number of complex surgeries and that serve low income and complex patients with significant socioeconomic challenges. These hospitals received 1 and 2 stars out of 5 stars since the rating relied heavily on measures that MedPAC and other researchers have identified as being inappropriately risk adjusted. The hospitals that consistently scored worst were typically teaching and safety net hospitals that provided the sickest patients with the most sophisticated care. Consequently, hospitals believe these star ratings are misleading to consumers.

In December 2017, CMS released updated Star ratings based on 57 quality measures across seven areas of performance: mortality (seven measures), safety of care (eight measures), readmission (nine measures), patient experience (11 measures), effectiveness of care (10 measures), timeliness of care (seven measures) and the efficient use of medical imaging (five measures).

The updated formula slightly flattens the usual bell curve of hospitals that receive stars on a scale of 1 to 5, with 5 being the highest rating. In the previous methodology, few hospitals received 1 or 5 stars, and the majority had 2, 3 or 4 stars. While that's still the case, the number of hospitals with 1 or 5 stars increased.

The numbers were much more similar between 2018 and 2017 than between 2017 and 2016. 281 hospitals received 1 star (8% vs 7% prior) and 292 hospitals received 5 stars (8% vs 9% prior)

**Table 39: Hospital Star Ratings**

	Number of hospitals by category		% of total	
	December 2018	December 2017	December 2018	December 2017
1 Star	281	260	8%	7%
2 Stars	797	753	21%	20%
3 Stars	1,258	1,187	34%	32%
4 Stars	1,087	1,155	29%	31%
5 Stars	292	337	8%	9%
Total	3,715	3,692	100%	100%

Source: CMS, BofA Merrill Lynch Global Research

## Medicaid (9% of revenue)

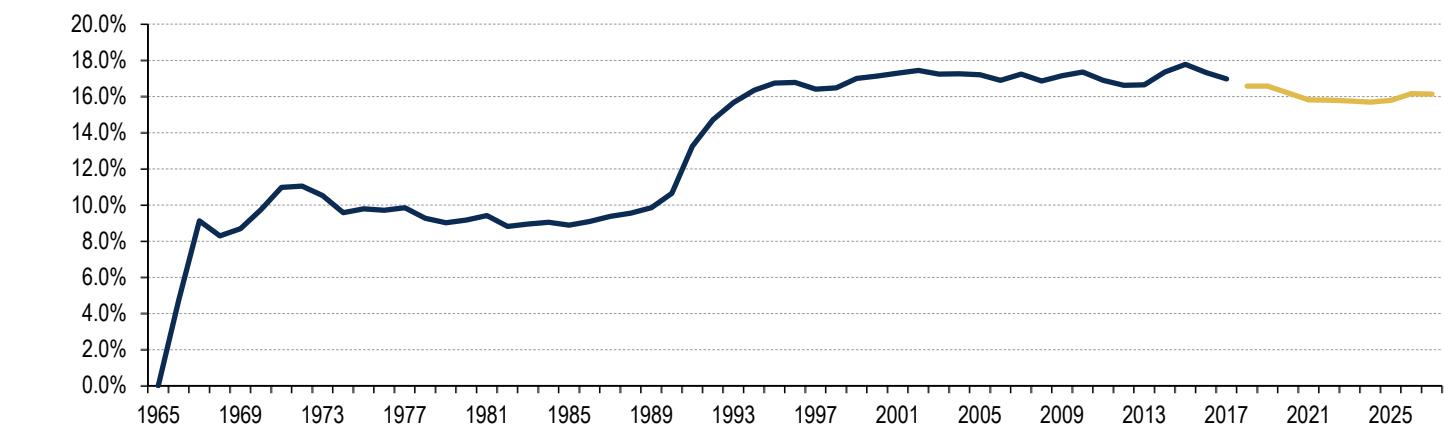
Medicaid is the state-run program that pays for health care for the poor. The system was created as part of the Social Security Act of 1965, allowing each state to receive federal matching money for every dollar spent. In order to qualify for Medicaid, the person must fall below certain income and asset level tests, which vary by state, but generally fall within 1-3x the federal poverty level. Although the state allocates spending and sets rates, the federal government provides matching funding, generally \$1-2 for every dollar that the state spends. Although the state generally determines how that money is spent, CMS also has some oversight of the Medicaid program and must approve certain changes. For example, in order to qualify for this matching money, the state must provide certain designated services (such as hospital care and long-term nursing home care).

Medicaid represents 17% of industry revenue, but it only represents 9-10% of public company revenue. This discrepancy is a function of the location of the facilities as for profit hospitals generally target more affluent markets. In addition, some companies include Medicaid Managed Care revenue in their Managed Care revenue disclosure; even though the rates are significantly more similar to Medicaid than commercial. Meanwhile, although the Medicaid program represents 9% of revenue of public hospital companies, it is comprised of 50 different state programs, so the exposure to any particular state program would be significantly less.

The most common method of payment is a prospective payment system, similar to Medicare's system although some states have other policies. We note that Medicaid rates are usually the lowest of all providers, in part because unlike the federal government, most state governments have to balance their budget every year. This level of fiscal discipline results in continuous budgetary pressures on Medicaid spending.

While the first two decades proved tumultuous, with various disagreements on eligibility caps, during the mid-1980s and 1990s, Medicaid grew rapidly, moving from a safety net program into a program for the lower middle class as states raised the eligibility threshold. Also, Medicaid started expanding its coverage of pregnant women in an effort to deal with the rising problems of infant mortality and high risk pregnancies. Medicaid was also greatly advanced through the enactment of the Children's Health Insurance Program (CHIP) in 1997, which provides coverage to children in families with incomes too high to qualify for Medicaid, but that cannot afford private coverage.

**Chart 54: Medicaid as a Percentage of Total Expenditures on Hospitals, 1965-2027E**



Source: CMS, BofA Merrill Lynch Global Research

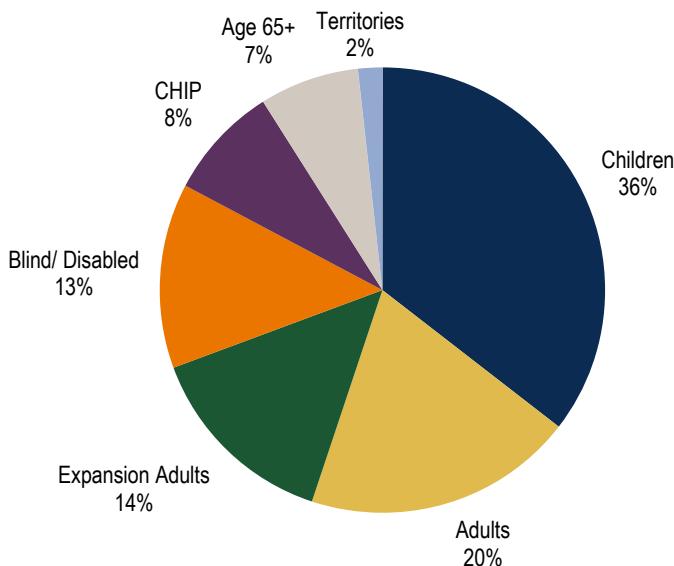
### Coverage

Common perception is that if someone is poor, then they automatically qualify for Medicaid coverage. However, historically, people had to meet other eligibility criteria in

addition to the financial requirements (eg, children, pregnant women, aged, blind, disabled or receiving care in a long-term setting), and depending on that criteria, were put into different programs. Prior to 2014 and Medicaid expansion under Health Care Reform, 15-20 million people would have qualified for coverage due to income levels, but didn't meet the other eligibility criteria to qualify (generally childless adults under 65). There are five programs in Medicaid: TANF, ABD, LTC, CHIP and Expansion.

- **Temporary Assistance for Needy Families (TANF)** – This program covers children and pregnant women. This is the largest classification of coverage, but given that children and pregnant women don't incur much in the way of health care spending (outside of the birth itself), it is a minority of Medicaid spending.
- **Aged, Blind and Disabled (ABD)** – This program covers people who meet the criteria of being blind, over the age of 65 or otherwise disabled.
- **Long-term Care (LTC) or Long-term services and support (LTSS)** – This covers people who are eligible to live in a long-term care setting (eg nursing home).
- **Children's Health Insurance Program (CHIP)** – Covers children in families with incomes too high to qualify for Medicaid, but that cannot afford private coverage.
- **Medicaid Expansion** – In states that expanded Medicaid, all people under 138% of the poverty level are covered, regardless of whether they meet any other criteria. However, not every state expanded Medicaid, so in 14 states, people still have to meet one of the criteria above in addition to meeting the income threshold.

**Chart 55: Medicaid and CHIP enrollment by type – 2016 (average monthly enrollment - % of total)**



Source: HHS "2016 CMS Statistics"

#### **Recent recession put pressure on Medicaid rates**

Unlike the federal government, state governments by law have to balance the budget every year (some states have two-year budgets), so when a deficit is predicted, taxes must be raised or programs must be cut. Given that Medicaid represents about 28.7% of state budgets, any time a state forecasts a deficit, Medicaid reimbursement is at risk.

States' fiscal conditions deteriorated during fiscal 2009-2013, and only recently have started to improve. The severe national recession reduced tax revenues from every source, including sales, personal income, and corporate income taxes, causing many states to cut their budgets significantly from 2009-2013. The improving economy has

lifted state budgets in recent years with more states talking about budget surpluses and fewer states looking to cut rates. In general, the Medicaid rate outlook is more positive than it has been in years, but we still see a handful of states look to cut rates each year.

### State budgets are improving

The NASBO summary of governors' budget proposals for FY 2019 indicated that the majority of governors' budget recommendations project modest spending and revenue growth, which would mark the 10<sup>th</sup> straight year of nominal growth. Specifically, most budget proposals had health and human services seeing modest increases.

Most states experienced a modest growth in tax collections, and only 5 states are proposing recurring revenue changes exceeding 2% of general revenues. In addition, there is less federal uncertainty as a result of the failed attempt to repeal and replace the ACA, the sanctioning of federal tax reform bill and the passage of a 2-year spending deal framework. The majority of states emphasized the need to increase general fund spending by an average of 4.3%, below the historical average growth of 5.5%.

Moreover, governors once again emphasized their elementary education budgets, K-12 and higher education, and workforce development. Additionally, some proposals included modest increases for health and human services funding. Governors in Idaho, Maine, Montana, Nebraska, and Utah outlined how Medicaid expansion would be financed.

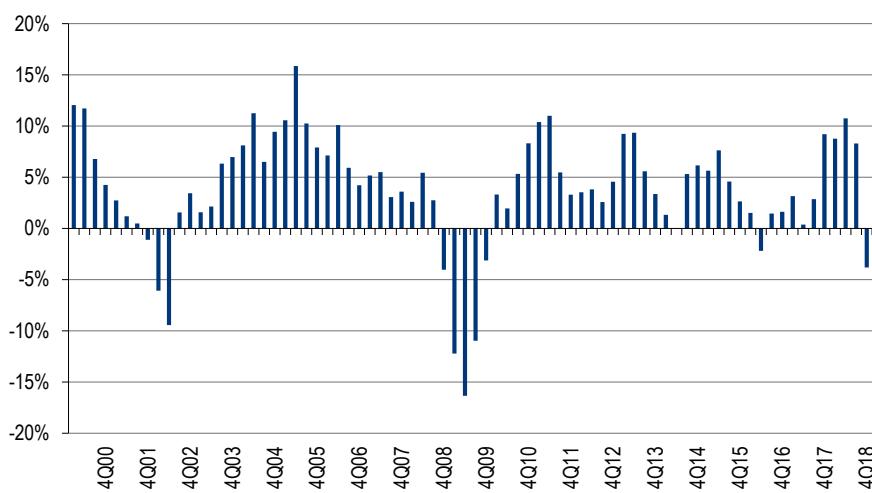
Behavioral health was also a focus, with many proposals including increased funding for community-based treatment. Disability services, pharmacy, children's health, home care, child welfare, and housing were also in focus.

### State revenues returning to pre-recession levels

Improvements in the economy resulted in modest growth in Medicaid spending and enrollment in FY 2013, and allowed states to reduce restrictions and improve provider rates and benefits. FY14 was a transformative year for Medicaid, since the implementation of Reform resulted in major changes to Medicaid eligibility and enrollment. However, Medicaid expansion was 100% funded by the Federal government from 2014-2016, and will drop down to 90% funded by the government over time, so Medicaid expansion has not put significant pressure on state budgets at this point.

Tax revenues did not return to pre-recession levels until 2012. Since then, growth has generally been in the low- to mid-single digits. Of note, y/y tax revenue was negative in 4Q18 for the first time since 2Q16.

**Chart 56: Quarterly State tax revenues, year over year change 2000-2018**



Source: US Census Bureau, BofA Merrill Lynch Global Research

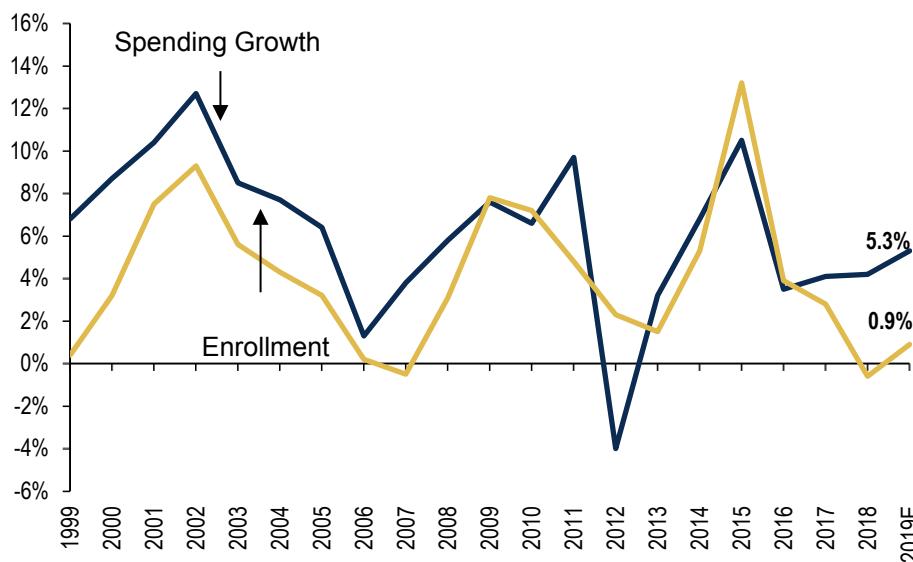
## Enrollment expected to continue to be slow in FY19

A Kaiser report found that Medicaid enrollment is expected to grow 0.9%, accelerating from -0.6% in FY2018, but worse than +2.8% in FY2017. The flattish Medicaid enrollment can be attributed to a stronger economy, as well as relatively steady spending growth in states. Year over year enrollment has been in a continued deceleration since FY2014 and FY2015 when sharp increases were driven by coverage expansion under Health Care Reform and additional participation among those currently eligible, due to the so called “woodwork effect”. This is the dynamic where people who were already eligible for coverage but did not realize it, now sign up because of the focus on gaining coverage during Health Care Reform.

Meanwhile, Medicaid spending was up 3.2% in FY13, bouncing back from -4.0% in 2012, the lowest annual rate in the last 15 years. The growth accelerated further to +6.8% in FY14 and 10.5% in FY15, but decelerated to 5.9% in FY16 (driven by decelerating enrollment growth after HC Reform) and has grown in the 4-5% range from FY17-FY19, despite weaker enrollment growth.

The chart below shows that since 2009, Medicaid spending has approximately matched enrollment growth, implying little net pricing across the system. We note that spending growth is projected to be above enrollment growth in FY19 for the 3<sup>rd</sup> straight year. Beyond enrollment, states reported that other drivers of increases in spending are provider rate increases and the higher cost of health care, including prescription drugs.

**Chart 57: Percent Change in Total Medicaid Spending and Enrollment, FY 1998 – FY 2019E**



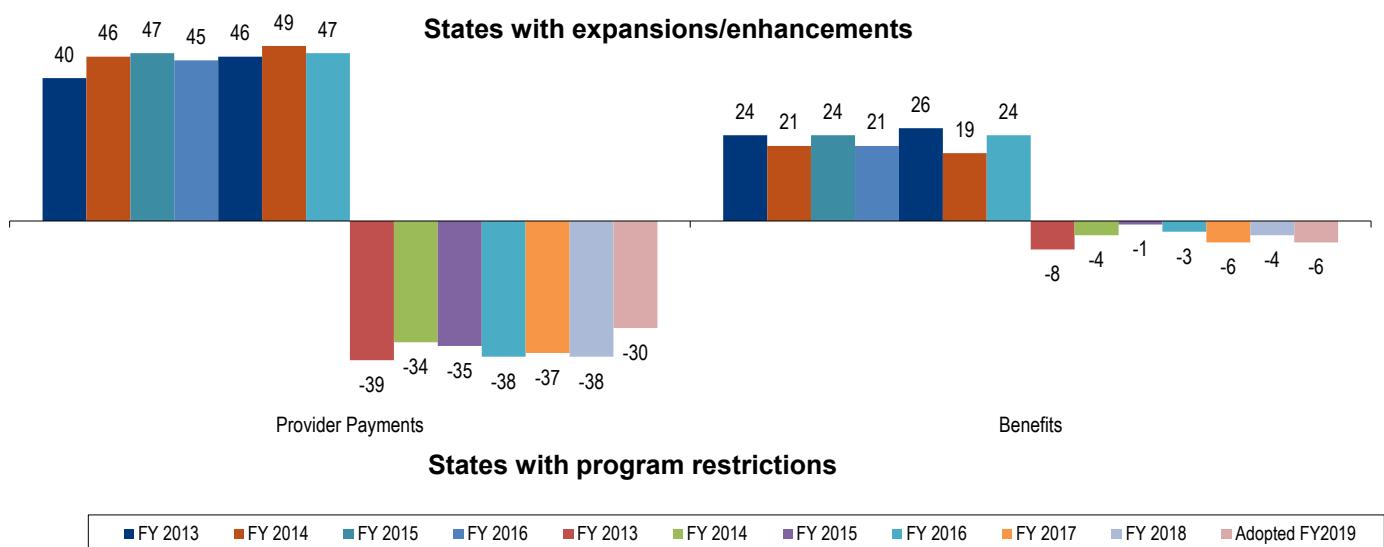
Source: Medicaid in a Historic Time of Transformation KFF, BofA Merrill Lynch Global Research

## More states expand provider rates in FY19 than decrease rates

As a result of the deep recession, the majority of states turned to controlling Medicaid costs as a way of closing budget gaps. However, now that the economy continues to improve, states are able to eliminate some restrictions and make some improvements.

According to Kaiser, improving state finances since 2013 resulted in more states enhancing Medicaid rates than restricting rates overall. In FY 2018 and adopted for FY2019, the number of states with planned or implemented rate restrictions (38 states and 30 states, respectively) were lower than the number of states with planned rate increases (49 states and 47 states, respectively).

**Chart 58: State policy actions implemented in FY2013 - FY2018, and adopted for FY2019**

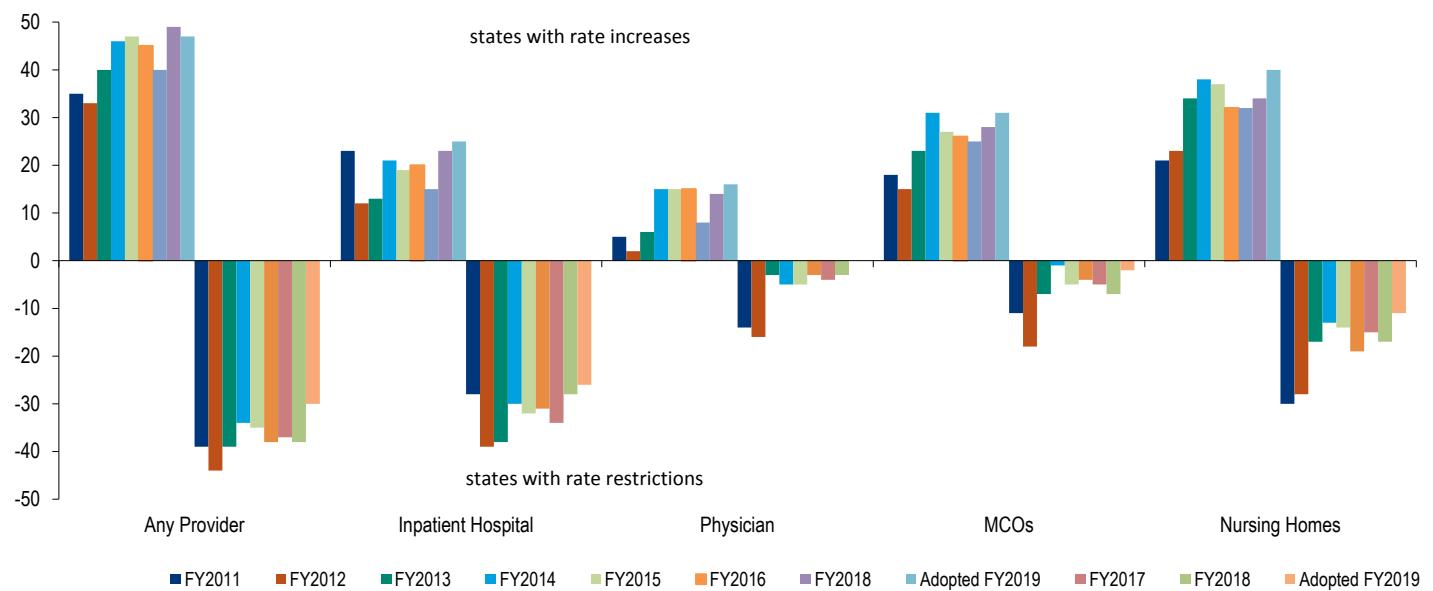


Source: Kaiser Commission on Medicaid and the Uninsured "Medicaid in a Historic Time of Transformation"

### More hospitals faced rate restrictions than increases, FY18 looks slightly better

In general, more hospitals see rate cuts than increases. In FY18, there was big improvement in the amount of states that increased rates, with 49 states giving some sort of increases and 38 with some sort of restrictions. This positive environment for the providers is expected to continue in FY19, as 47 states adopted increases and only 30 states adopted restrictions. The table below shows rate increases and cuts in FY2011 through FY2019.

**Chart 59: States with Provider Rate Changes FY2011-FY2019**



Source: Kaiser Commission on Medicaid and the Uninsured, BofA Merrill Lynch Global Research

## Provider Taxes

Provider taxes are a way for states to qualify for extra Federal matching dollars. States tax the providers, then spend that amount back on provider services, net creating no impact on their budget. However, since the Federal government matches \$1-\$2 for every \$1 spent, the federal government matches that spending, resulting in a net increase in rates for providers.

Institutional providers like hospitals and nursing homes are more likely than other providers to have inflation adjustments built into their rates, so have been more likely to have rate increases. States are more likely to use provider tax arrangements to bolster Medicaid payment rates for these provider groups.

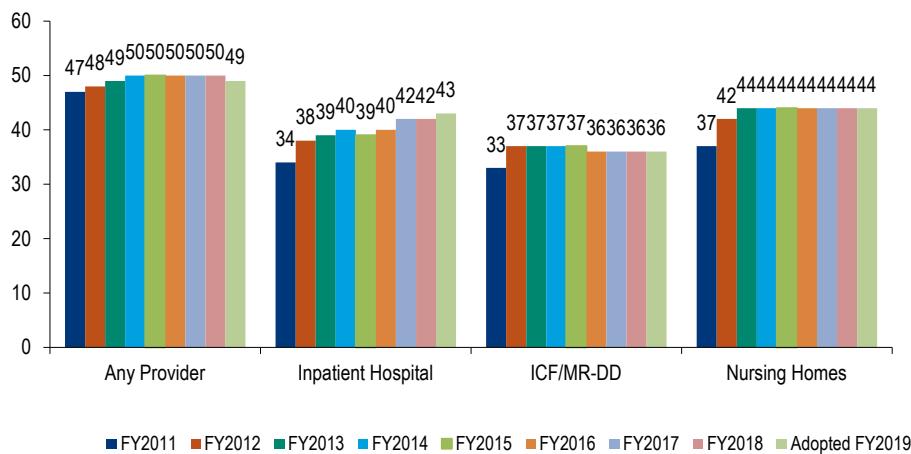
However, in order to qualify as a provider tax, the tax must meet three basic requirements:

- **Must be broad-based:** The tax must apply to all providers across the state. For example, if the tax related to inpatient services, then it must apply to all hospitals (public hospitals can be exempt).
  - **Must be uniform:** A tax is uniform if it is the same amount or rate for each provider in the class. For example, if the tax is a fee related to a facility, it must be the same fee assessed to all facilities.
  - **Cannot hold providers harmless:** A provider cannot receive directly or indirectly non-Medicaid payments or waivers from the state to hold the provider harmless for all or a portion of the provider tax.
1. Notably, the Secretary of HHS can waive the first two requirements if certain requirements are met under certain conditions.

Some states increased or imposed new provider taxes that mitigated rate cuts in some cases. At the beginning of FY 2003, a total of 21 states had at least one provider tax in place. In FY13, all but one state (Alaska) used some form of provider taxes to help alleviate Medicaid cuts to providers. The most common provider tax was a tax on nursing facilities (44 states).

For FY19 only 2 states reported plans to add new taxes: Virginia is adding a new hospital tax to fund Medicaid expansion and California is implementing a new tax on Ground Emergency Medical Transportation.

**Chart 60: States with Medicaid Provider Taxes FY2011-FY2019**



Source: Kaiser Commission on Medicaid and the Uninsured

State provider taxes generate billions of dollars each year, while shifting the spending from the state to the federal government. We note that one of the key targets during

the prior round of deficit discussions related to Medicaid was closing the loophole that allows states to use provider taxes to qualify for extra matching funding.

Below we also provide a table of the types of provider taxes used by each state.

**Table 40: Provider Taxes in Place FY18 and FY19**

State	Hospitals		ICF-ID		Nursing Facilities		Other	
	2018	2019	2018	2019	2018	2019	2018	2019
Alabama	X	X			X	X	X	X
Alaska								
Arizona	X	X			X	X		
Arkansas	X	X	X	X	X	X		
California	X	X	X	X	X	X	X	X*
Colorado	X	X	X	X	X	X		
Connecticut	X	X	X	X	X	X	X	X
Delaware					X	X		
District of Columbia	X	X	X	X	X	X	X	X
Florida	X	X	X	X	X	X		
Georgia	X	X			X	X		
Hawaii	X	X			X	X		
Idaho	X	X	X	X	X	X		
Illinois	X	X	X	X	X	X		
Indiana	X	X	X	X	X	X		
Iowa	X	X	X	X	X	X		
Kansas	X	X			X	X		
Kentucky	X	X	X	X	X	X	X*	X*
Louisiana	X	X	X	X	X	X	X*	X*
Maine	X	X	X	X	X	X	X	X
Maryland	X	X	X	X	X	X	X	X
Massachusetts	X	X			X	X	X	X
Michigan	X	X			X	X	X	X
Minnesota	X	X	X	X	X	X	X	X
Mississippi	X	X	X	X	X	X	X	X
Missouri	X	X	X	X	X	X	X*	X*
Montana	X	X	X	X	X	X	X	X
Nebraska			X	X	X	X		
Nevada					X	X		
New Hampshire	X	X			X	X		
New Jersey	X	X	X	X	X	X	X*	X*
New Mexico							X*	X*
New York	X	X	X	X	X	X	X*	X*
North Carolina	X	X	X	X	X	X		
North Dakota			X	X				
Ohio	X	X	X	X	X	X	X	X
Oklahoma	X	X	X	X	X	X		
Oregon	X	X			X	X	X	X
Pennsylvania	X	X	X	X	X	X	X*	X*
Rhode Island	X	X			X	X	X	X
South Carolina	X	X	X	X				
South Dakota			X	X				
Tennessee	X	X	X	X	X	X	X	X
Texas			X	X			X	X
Utah	X	X	X	X	X	X	X	X
Vermont	X	X	X	X	X	X	X*	X*
Virginia			X	X				
Washington	X	X	X	X	X	X		
West Virginia	X	X	X	X	X	X	X*	X*
Wisconsin	X	X	X	X	X	X		
Wyoming	X	X			X	X		
<b>Total</b>	<b>42</b>	<b>43</b>	<b>36</b>	<b>36</b>	<b>44</b>	<b>44</b>	<b>26</b>	<b>26</b>

NOTES: This table includes Medicaid provider taxes as reported by states. Some states also have premium or claims taxes that apply to managed care organizations and other insurers. Since this type of tax is not considered a provider tax by CMS, these taxes are not counted as provider taxes in this report. (\*) has been used to denote states with multiple 'other' provider taxes.

SOURCE: Kaiser Family Foundation Survey of Medicaid Officials in 50 states and DC conducted by Health Management Associates

## **Provider taxes are not “one-time” in our view**

The approval of these programs by CMS can take time, which delays payments and results in ultimate payments including some retroactive (prior period) component. For example, a state that planned a provider tax on January 1 and got it approved on July 1, might make a nine-month payment in 3Q. Although a portion of this relates to earlier periods, it reflects real cash flow, and although including it might overstate earnings in a particular quarter, excluding it would underestimate the annualized earnings.

The prevalence of these initiatives, (50 states now have some type of program) means that each company receives some benefit from these programs. Nevertheless, given the lumpy nature of these payments and the sometimes retroactive nature of parts of the payments, the market tends to look at these items as low quality ways to achieve earnings. We also would note that since these are provider taxes, there is a tax expense that companies incur in order to receive the higher rates. These expenses are usually booked in other operating expense. When analyzing the true earnings impact to providers, investors need to net the revenue impact against the cost.

Although provider tax payments and receipts can be lumpy, in our view they are a funding mechanism, not one-time payments. In other words, states have a view as to the appropriate rate for hospitals and use these programs to qualify for extra federal matching to achieve that rate. We believe that if a provider tax allows a state to fund a \$100 rate for a procedure, and if provider taxes were to go away, the state would still view \$100 as the appropriate rate and try to find another way to fund that spending.

## **Commercial payers (50% of revenue, 66% incl govt MCO)**

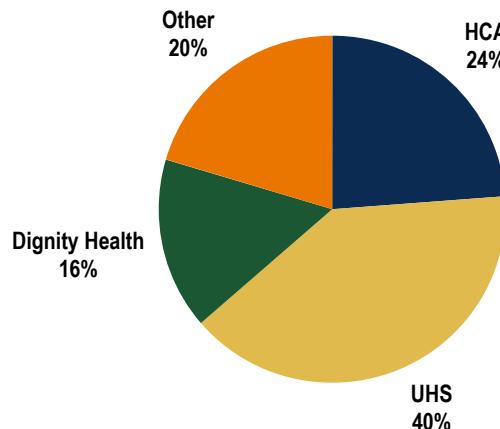
Managed Care Organizations (MCOs) offer private health insurance to individuals, generally through their employers. Typically, the employer will pay the majority of the health care premiums (generally 70-75%), with the employee paying the remainder of the cost through automatic payroll deductions. In addition, the employee is responsible for paying copays and deductibles for services.

Reimbursement from MCOs is generally based on contracts negotiated between the hospital and the MCO, and the rates are usually a function of the relative position of each side within a market. When a hospital has dominant market share, an MCO needs the hospital in its network in order to be competitive, resulting in a favorable negotiating position for the hospital. When a payer has a dominant market share, a hospital needs to be in its network resulting in a less favorable negotiating position.

### **Case study: Vegas market**

To show the market share dynamics that influence pricing negotiations, we analyze data for the Las Vegas market. On the hospital side, UHS has leading market share (40%) followed by HCA (24%), and Dignity Healthcare (formerly Catholic Healthcare West at 16%). With 40% of the beds in the Las Vegas market, UHS is well positioned to negotiate pricing increases with managed care companies. For perspective, HCA is the #1 or #2 player in all of its core markets, with market share ranging 20% to 40%. However, the picture is incomplete without knowing the managed care market share breakdown.

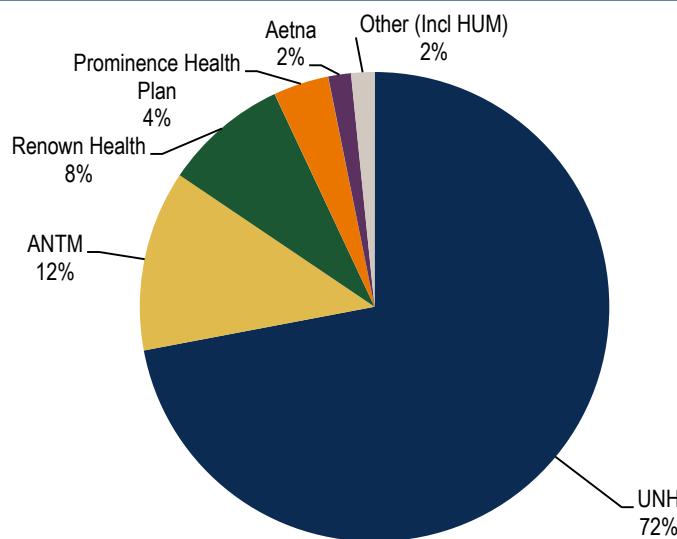
**Chart 61: Hospital Bed Market Share – Clark County, NV (2019)**



Source: AHD, BofA Merrill Lynch Global Research

On the managed care side, UNH has leading commercial risk market share in Nevada (72%), followed by Anthem (12%), and Renown Health (9%). There are two caveats to the managed care market share data: 1) it includes the entire state of Nevada – not just Las Vegas, and 2) it is for commercial fully insured enrollment and excludes self-insured enrollment. Similar to hospital market share, the top two managed care companies (UNH and Anthem) have dominant market share, especially UNH with 72% market share.

**Chart 62: Commercial Managed Care Risk Enrollment Market Share – Nevada (2018)**



Source: SNL

Market share dynamics Las Vegas were particularly relevant in 2006 during contentious negotiations between Sierra Health Services (subsequently acquired by UNH in 2008) and HCA. Sierra and HCA ultimately could not reach an agreement, resulting in Sierra excluding HCA from its network in 2007. Under its previous contract, HCA was the preferred hospital provider for Sierra in Las Vegas. The termination of the contract resulted in a redistribution of patients to other hospitals in the market, and UHS was a primary beneficiary (the market share gap was historically quite small between UHS and HCA and now is about 16%). HCA remained excluded from Sierra's network since 2006, choosing to back fill its volumes with other payers, with a view that holding the line on pricing was overall more advantageous than giving up pricing for volume.

## **The role of “Blues plans” – typically leading market share**

In most states, Blue Cross/Blue Shield or “Blue” managed care plans have leading market share, often making them the most difficult negotiating partners for hospitals. The Blue Cross and Blue Shield Association is a national federation of 36 independent, community-based and locally operated Blue Cross and Blue Shield companies. Plans get either the Blue Cross or Blue Shield charter in a given region (usually a state, but could be part of a state in more populous states) and no other Blues plan can sell insurance in that region under the Blue name brand. As some of the oldest health plans in the country, Blues plans tend to have extremely high market share.

According to the AIS Health Data, the national commercial market share for all Blue Cross and Blue Shield plans in 2018 was 35% of the risk-based commercial insurance market and 43% of the ASO/self-funded market. On a national basis, Blues plans cover about one in three Americans, and each Blue plan has access to other Blue plans’ provider networks outside its region, giving Blues plans a national network with tremendous local market scale.

For the most part, Blues are non-profit (Anthem and Triple-S Management are the only publicly traded Blues plans) and as such are often viewed as the insurer of last resort in their states. Although Blues plans can participate in all three products (commercial, Medicare and Medicaid), historically they have the largest footprint in commercial, where their strong local market share gives them strong provider discounts and allows for attractive pricing.

## **Why commercial rates are so much higher than government**

Commercial rates for hospitals and other health care providers are generally 50-100% higher than Medicare rates and can be almost twice as much as Medicaid rates. So it is the only payer in the system that is categorically profitable for most providers to treat. The reason for this discrepancy is that managed care essentially subsidizes the below-average rates from government payers and the uninsured.

For example, hospitals can lobby state and federal governments for better rates, but ultimately the hospital has no negotiating leverage – Medicaid and Medicare will set the rates and the hospital has to accept. Meanwhile, although these programs provide inflationary updates each year, budgetary pressures usually mean the pricing hospitals receive is, on average, below inflation. In addition, self-pay patients often pay less than 10% of their bill, and there is only so much that a hospital can do to improve collections from someone without a job or health insurance. As a result, managed care is the only payer where hospitals are able to negotiate, and they make the most of this dynamic.

Historically, hospitals have done a much better job managing revenue growth than managing cost growth (this is particularly true for the non-publicly traded companies). For example, if costs grow 3% and the 50% of revenue that is Medicare, Medicaid and self-pay has increases of 1%, commercial pricing has to increase 5% in order to maintain margins.

## **Despite MCO rhetoric, we expect 4-5% commercial pricing**

Historically, hospitals were able to negotiate 5-7% price increases from managed care payers, and we expect +4-5% for the next couple of years.

Every year we hear managed care companies talk about how they are pressuring hospital pricing but historically, the publicly traded hospitals were able to negotiate 5-7% price increases from managed care payers, and we expect these rate increases to remain at 4-6% for the next couple of years (low end of historical ranges, but overall inflation is also below historical average). Below we provide a couple of observations around this dynamic and why we tend to listen to hospitals over managed care when forecasting commercial rate growth.

- MCOs are supposed to save money, so they focus on their “wins”** – It is the job of Managed Care companies to control health care costs, and it is in their best interest to highlight the data points that show this. In some negotiations with high cost, inefficient hospitals, MCOs are able to extract rate cuts, but this tends to be the exception rather than the rule. For the most part, publicly traded companies have a pricing strategy of being the second or third highest rate system in a market, and focus on securing steady, consistent rate increases.
- Actual expected cost trend remains high, mostly unit cost driven.** Despite rhetoric around price cuts, the average expected cost trend in 2019 is 5.6% for the large managed care companies, after being +5.3% in 2018 on average. Each and every company has said that this trend remains largely “unit cost” (ie, pricing) driven, as utilization remains somewhat muted. By definition, this means that pricing is in the mid-single digits on average across the country and is consistent with hospital pricing commentary.

**Table 41: Commercial Cost Trend Guidance**

	2013 A		2014 A		2015 A			2016 A		2017 A		2018 A		2019 E
	Initial Guid.	Final	Initial Guid.	Final	Initial Guid.	Final	Initial Guid.	Final	Initial Guid.	Final	Initial Guid.	Final	Initial Guid.	Final
AET	6.0%-7.0%	5.5%	6.0%-7.0%	6.5%	6.0%-7.0%	6.0%	6.0%-7.0%	6.0%	6.0%	6.0%-7.0%	5.5%	NA	NA	5.5-6.5%
ANTM	6.5%-7.5%	6%	6.0%-7.0%	6.5%	6.5%-7.5%	6.75%	7.0%-7.5%	Lower end of 7.0%-7.5%	6.5%-7.0%	6.50%	5.5%-6.5%	5.90%	5.5-6.5%	
CI	6.0%-7.0%	<5%	5.0%-6.0%	Slightly below 4.5%	5.0%-6.0%	5.0%	4.5%-5.5%	Modestly below 4%	4.5%-5.5%	2.8%	4.0%-5.0%	3.6%	3.5-4.5%	
HUM	6.0%-7.0%	4.5%-5.0%	5.0%-6.0%	4.5%-5.0%	5.5%-6.5%	NA	NA	NA	5.5%-6.5%	6%	5.5%-6.5%	6%	5.5%-6.5%	
UNH	5.0%-6.0%	~5%	5.5%-6.5%	Slightly below 5.5%	5.5%-6.5%	5.5%	5.5%-6.5%	6.0%	5.5%-6.5%	5.5%	5.5%-6.5%	5.8%	5.5%-6.5%	
<b>Average</b>	<b>6.4%</b>	<b>5.2%</b>	<b>6.0%</b>	<b>5.6%</b>	<b>6.3%</b>	<b>5.8%</b>	<b>6.2%</b>	<b>5.8%</b>	<b>6.1%</b>	<b>5.2%</b>	<b>5.6%</b>	<b>5.3%</b>	<b>5.6%</b>	

\*AET changed trend definition for 2015, 2014 comparable trend would be 5.0%-5.5%

Source: Company data

- MCOs and hospitals have different incentives when talking about pricing.**

Probably the best reason to listen to hospitals over MCOs when it comes to commercial pricing is the incentive each has when discussing it. If hospitals say that they are getting 5-7% pricing, but only get 4%, then they miss estimates and have to cut guidance. As a result, if anything, hospitals have an incentive to be cautious on commercial rates. Meanwhile, MCOs want to build a reputation for getting the best price from providers and prefer to talk about their successes.

### What could cause rates to fall?

As noted above, we expect commercial pricing to be in the 4-5% range for at least the next couple of years. At this point, the negotiating power tends to reside in the hands of hospitals, as consumers continue to demand broad network products that leave MCOs little room to steer volumes in return for lower pricing. The largest threat to this status quo, in our view, is the shift to narrow network products. If employers want United to have 90% of providers in network and HCA is 20-40% of the beds in its markets, then HCA has the upper hand.

However, if employers decide that they only need 50% of the providers in their networks, the dynamic changes. United does not need every provider and now can shift meaningful volumes to those providers that join its network at the expense of those that are out of network. Now HCA has a decision to make – does it accept a lower price in return for volumes? There is anecdotal evidence that employers are starting to explore narrower networks in some markets, but this seems very much like an evolutionary change that will slowly influence pricing over time.

In some ways, HC Reform has jump-started that shift. It already has encouraged the creation of Accountable Care Organizations (ACO) for Medicare beneficiaries that have

narrow network aspects to them, and this movement has led some hospital systems to look to managed care companies to create ACO type collaboration in commercial.

A larger swing factor could be the ACA exchanges. Our analysis indicates that networks on exchanges are narrower than average, as MCOs strive to offer lower premiums, but with a limited provider network. When individuals buy insurance on their own, they are likely to seek the cheapest option. An employer based in New York City might want a network with hospitals in NJ, CT and NY because their employees live everywhere, but the individual employee in NJ really only wants a NJ network and all else equal would accept a narrow network plan in NJ if the savings were large enough.

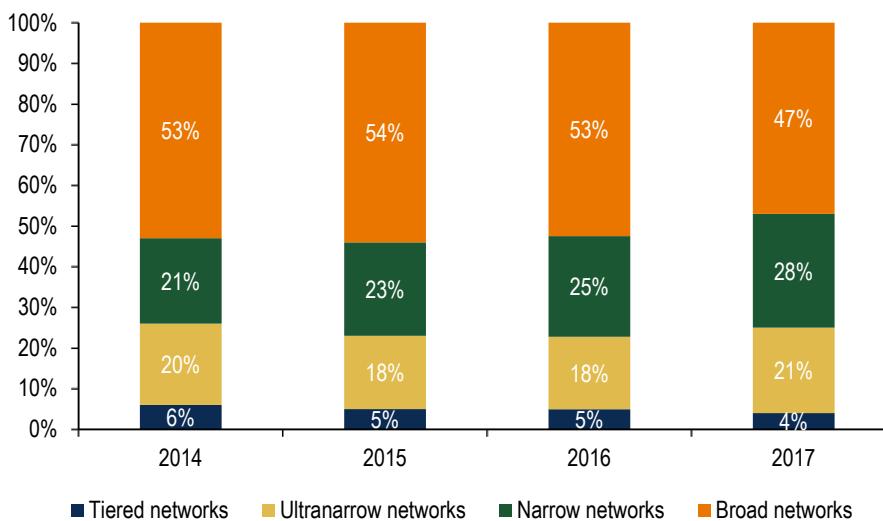
We are hearing anecdotal evidence that this is beginning to happen, as customers are increasingly searching for ways to control costs. A 2014 analysis by Milliman found that high-value provider networks (narrow network) can generally reduce premiums by 5%-20%, with some health plans reporting that they can achieve even larger discounts. As the exchanges continue to gain traction and people start to be more aware of the price/access trade-off, this mindset could spill over into the employer sponsored commercial business.

#### Narrow networks account for 72% of plans on exchanges in 2019

According to a report from consulting firm Avalere, 72% of the plans offered on public exchanges are so-called narrow network options, which sharply limit the number of providers that patients can see (patients can go to other providers, but would see substantially higher copays and out of pocket costs).

The McKinsey Center for U.S. Health System Reform also put out an analysis of the 2019 individual exchange market. Below they show the network breadth by carrier status, where we can see that broad networks have been trending downward.

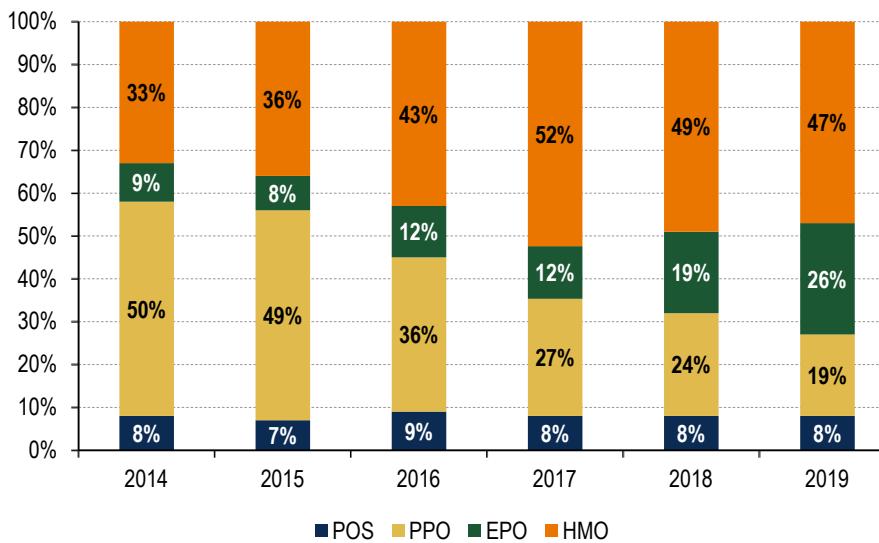
**Chart 63: Network breadth by carrier status**



Source: McKinsey Center for U.S. Health System Reform

The report also noted that 83% of the lowest-priced plans for 2017 were based on narrow networks of hospitals.

**Chart 64: Plan type trends by year (% of exchange plan offerings)**



Source: McKinsey Center for U.S. Health System Reform

### Government managed care programs

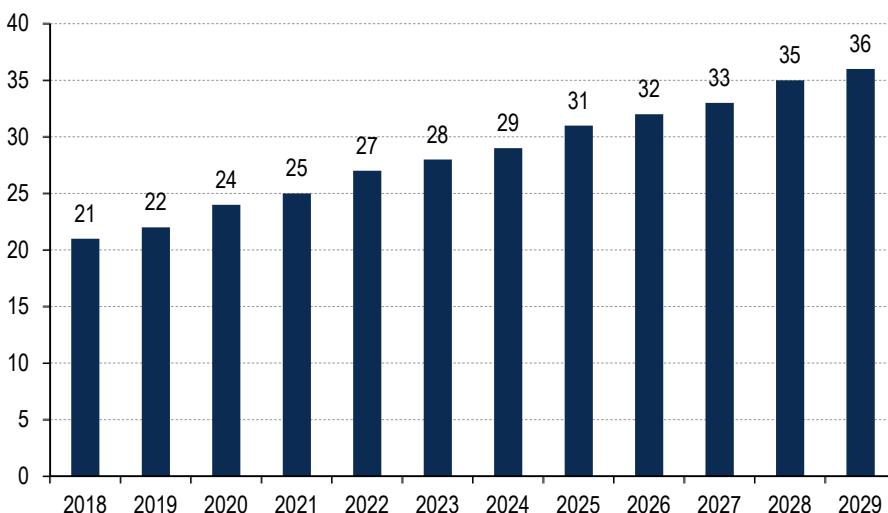
When hospitals refer to managed care trends, they are typically referring to commercial managed care business. As background, managed care companies have three main products: Commercial, Medicare, and Medicaid. In the commercial business, managed care companies provide or administer health insurance to approximately 180 million individuals with employer-based or individual coverage in the US. Managed care companies negotiate their unit costs with hospitals (and other providers) and set their prices based on their expected cost trends. However, managed care companies also work within government programs to help restrain government cost growth. The pricing dynamics in these situations is different from the general commercial negotiation.

### Managed Medicare (MA)

In the Medicare Advantage program, managed care companies provide health insurance to approximately 22 million seniors in the Medicare program (approximately 35% of the Medicare population). The federal government sets monthly premiums for managed care organizations using Medicare Fee for Service rates as a base assumption for the MCO's unit cost. Since the rate paid to MA plans assumes Medicare fee for service, MA plans typically pay hospital rates that are near the Medicare rate but could be higher or lower by a couple percent depending on relative bargaining power and quality of a hospital.

Managed care organizations will pay more for a service at a high quality hospital, because patients treated there are less likely to be readmitted or require costly after care. In addition, rates are more likely to be slightly below Medicare Fee for Service in a narrow network HMO plan than in a broad network PPO plan, because the HMO can steer volumes to providers that are in-network.

The Congressional Budget Office projects that Medicare Advantage enrollment will continue to grow over the next several years, and by 2029 will have increased 64% from its current level.

**Chart 65: Medicare Advantage Enrollment Projection**

Source: CBO

### Managed Medicaid

The dynamic between hospitals and managed care companies in the managed Medicaid business is similar to the managed Medicare business. In managed Medicaid, managed care companies provide health insurance to approximately 55 million individuals, mainly composed of low income pregnant women and children, although states are increasingly looking to transition the aged, blind and disabled (ABD) and long term care (LTC) populations to Medicaid Managed Care companies. States set monthly premiums for managed care companies, and the managed care companies typically pay providers based on each state's Medicaid fee schedule. Similar to managed Medicare, companies stay close to the fee schedule (plus or minus a couple percent), but they are incentivized to include high quality hospitals with lower costs per episode in their networks.

The penetration rate of Managed Medicaid increased from 56% in 2000 to about 76% as of 2019. We expect the penetration rate will continue to increase as states transition FFS populations to Managed Medicaid to achieve budgetary savings. As mentioned above, we also expect states will continue to transition their ABD and LTC populations into Managed Medicaid, which is actually more meaningful to hospitals since these medically complex populations are more likely to use the system than children and pregnant women. We note that although Managed Medicaid manages about 76% of enrollment, since they tend to focus on the lower acuity populations currently, they only manage 50% of Medicaid spending. As a result the shift of spending to Medicaid Managed Care, still has a ways to go.

### More of a negative implication for volumes

As noted above, the pricing dynamics in the government managed care business is different from the commercial side because government pricing is largely tied to the Medicare or Medicaid fee schedule. As a result, increased managed care penetration into government programs only would have modest impact on rate growth. However, managed care companies work within government programs to help restrain government cost growth, and they do this by restricting utilization, moving patients to the lowest cost setting and trying to keep people healthy and avoid costly hospitalizations. Because the rates that MCOs are paid are tied to government rate schedules, and the rates they pay providers are also tied to government rate schedules, then the only way for MCOs to make money on this business is to control utilization. Therefore, the bigger impact that government MCOs have is by restraining volumes.

## **Threats to commercial pricing – Surprise Billing and Price Transparency**

Over the last few years, issues around out of network charges causing surprise billing gained a lot of attention in media and in Congress. At the same time, the government also turned its attention to the lack of price transparency in health care as a reason for elevated costs for individuals and the government. As a result, a number of initiatives have been proposed that could start to erode the relative bargaining power of hospitals versus MCOs. Anything that limits commercial rate increases or gets hospitals to compete on price in the only area where hospitals actually make money, would be a negative.

The spotlight on hospital pricing has been driven in large part to the rise in high deductible plans. Ten years ago, if a patient went to an out of network provider, they would have a modest copay, but with a high deductible plan, the patient is generally responsible for the entire bill up to the deductible. As a result, what might have been a \$100 copay, could now be several thousands of dollars or more. The sticker shock of an unexpected health care bill and the difficulty in determining the cost of a procedure in advance has caused Congress to draft legislation to address the issue.

### **Surprise Billing explained**

“Surprise billing” occurs predominantly in two instances. The first happens when a patient goes to an emergency room where the hospital is out of network. In theory, in an emergency, the patient doesn’t have time to research in-network versus out of network, and therefore shouldn’t be held accountable. The second instance happens when a patient is treated in a hospital which is in-network with the patient’s health insurance carrier but the physician who treated the patient is not in-network with that insurance carrier. For example, the patients being treated in an in-network facility by an ED doctor or an anesthesiologist who are out-of-network. In these instances, the patient did the right thing by going to the in network hospital, but couldn’t know in advance what doctor they might see to avoid the out of network charge. The bill also applies to a situation when an ED patient is referred for a follow up visit with a specialist and would require the provider to disclose that the specialist is out of network and that it would result in an out of pocket expense for the patient.

### **Surprise billing legislation gaining traction**

In early 2019, Congress started working on a legislation to address “surprise billing” (an out of network charge for an emergency hospital visit, or an out of network charge from a physician group with the hospital is in network) with the leading proposal calling for the median in-network rate to be used as a benchmark for billing out-of-network services. An alternative approach has also been debated and could be included in the final legislation. The alternative approach includes arbitration, as a way to determine the rate that providers get paid, which is generally viewed as less onerous for providers.

If the final legislation includes the median in-network rate as a benchmark for out-of-network billings, it would be negative for hospitals as rates would move about 30% lower on the portion of revenues that is currently out-of-network. We estimate only a small portion of volumes is out of network but it is a larger percentage of revenues and the impact would fall right to the bottom line. In addition, subsidies paid to physicians would increase.

Finally and most importantly, the hospitals’ negotiating power with health plans would be diminished. Historically providers would use a “threat” of moving out-of-network as a tool to negotiate rates with managed care. Under the new rules, which would require plans to pay the median in-network rate to providers that are out-of-network, the higher out of network rate would only apply to elective procedures – procedures which the MCO has some ability to steer away from the hospital. In our conversations with companies, about 2/3 of inpatient admissions come through the emergency room, so this could potentially impact the majority of out of network volumes.

With only a small portion of volume subject to the higher out of network rates, the threat of going out of network is diminished and the negotiating leverage would move back towards the MCO. In fact, health plans would have an incentive to go out of network with the highest rate hospitals, knowing that the majority of their rates would drop to the median. This in turn, would lower the median rate in the market as the high outliers essentially would be forced to lower their rates.

Conversely, once all providers learn what the median in-network in their market is, those that are significantly below the median would try to negotiate a higher rate, thus moving to the median. Overall, the rate differential would narrow over time. Although low rate hospitals would benefit, our belief is that the publicly traded hospitals are rarely, if ever, the low rate hospital, and therefore would be more likely to see rate pressure than increases. Meanwhile, even if HCA or UHS is not the highest rate hospital in a market, if the highest rate hospital is forced to take a cut, or an increase below its demands, it will make it harder for the rest of the market to secure normalized rate increases as well, since the high rate hospital set the max for where rates can go.

We note that local scale, reputation in the market and quality will still be the main drivers to negotiating leverage, so a company with great local share like HCA would be in a better position to deal with these pressure than average. That said, given the reliance of the industry on commercial rates for profitability, any pressure would be a negative.

#### **Price transparency efforts**

In addition, in June 2019, the President issued an Executive Order calling the Department of Health and Human Services (HHS) to require hospitals to publicly disclose amounts that reflect what people actually pay for services in an easy-to-read format. At President's direction, HHS will begin the process of making information on out-of-pocket spending more readily available to patients before they receive care. Most of the specifics of these transparency efforts will need to be fleshed out in upcoming HHS and CMS regulations, potentially in the FY20 proposed outpatient hospital regulation due sometime in July 2019.

Overall, the impact of price transparency will depend on the level of transparency that it implemented. The more granular the information, the easier it will be for individuals and health plans to use the data to steer volumes to the lowest cost settings. The broader the definition (market level data) the less useful it would be to consumers and the less likely it is to have an impact on spending.

If transparency was provided at the individual hospital contract level, it would open up hospital rates to the general public, and more importantly to the health plans. This could cause individuals to price shop for elective services and force hospitals to compete on price. However, we view this as a marginal risk, as health care is unlike other goods and services and from a consumer perspective, given the lack of reliable data on quality, people might perversely view the higher cost provider as the better provider.

The greater risk is health plans will become more aware of how their pricing compares to others in the market, putting downward pressure on the hospitals with the highest prices in the market. Although the main drivers to relative pricing (local share, reputation/ name brand in the market, quality, etc) will still be the main drivers to pricing, it will be incrementally more difficult to have contracts with outsized relative pricing.

Most of the publicly traded hospital companies have indicated that they rarely are the high priced provider in a market, somewhat mitigating this risk, but any pressure on the highest rates is likely to put a limit on the rates that the rest of the market can receive. On the flip side, hospitals with the lowest rates would be positioned to negotiate higher

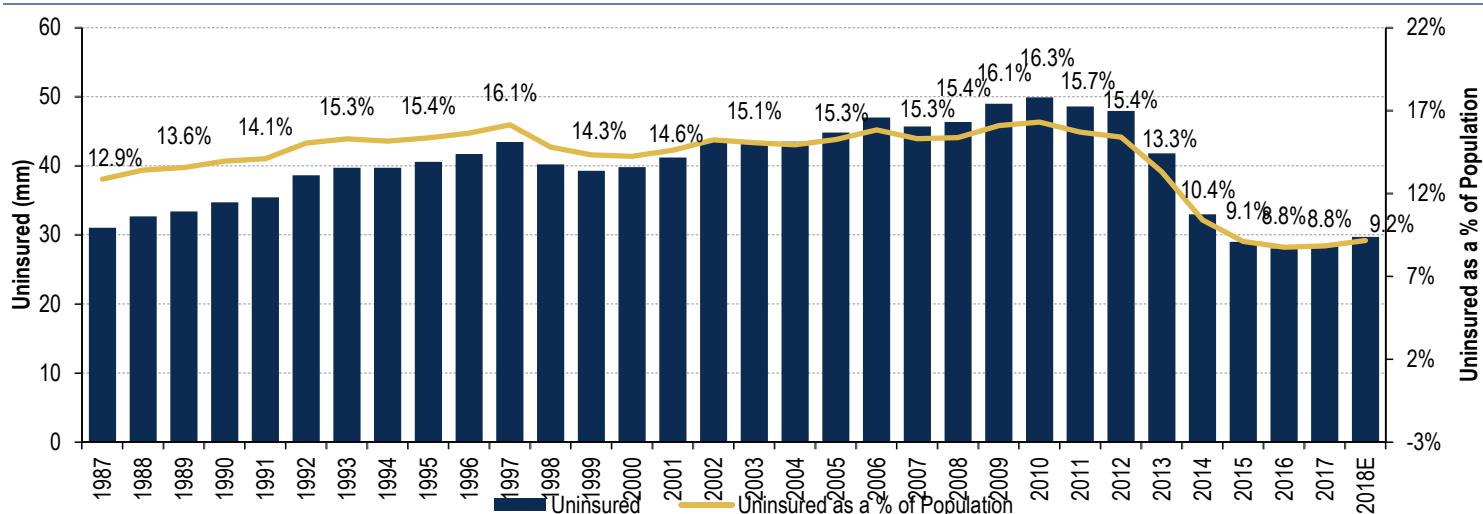
rates, but the publicly traded hospitals are much more likely to have above average pricing than below average pricing and likely would not benefit from this dynamic.

## Self-pay (2% of revenue)

Self-pay consists of direct payments by patients who do not have health insurance or the copays and deductibles for patients that do have insurance. We note that uninsured represent about 6-8% of volumes for the publicly traded companies, but due to changes in revenue recognition, companies book a bad debt reserve against the vast majority of self pay revenue above the net revenue line, so it is a small percentage of net revenue. Prior to this accounting change, companies booked about 10% of their revenue from self pay.

In 2012, the US Census Bureau the uninsured rate peaked in 2010 at 16.3%, due in part to the recession, but has since improved due to the ACA and an improving economy. The Centers for Disease Control and Prevention survey implies that the uninsured rate increase slightly in 2018 to 9.2%, up 40 bps off of its lows. The increase is largely due to the current Administration pushing back on Medicaid expansion and de-emphasizing the exchanges.

**Chart 66: Trends in Uninsured**

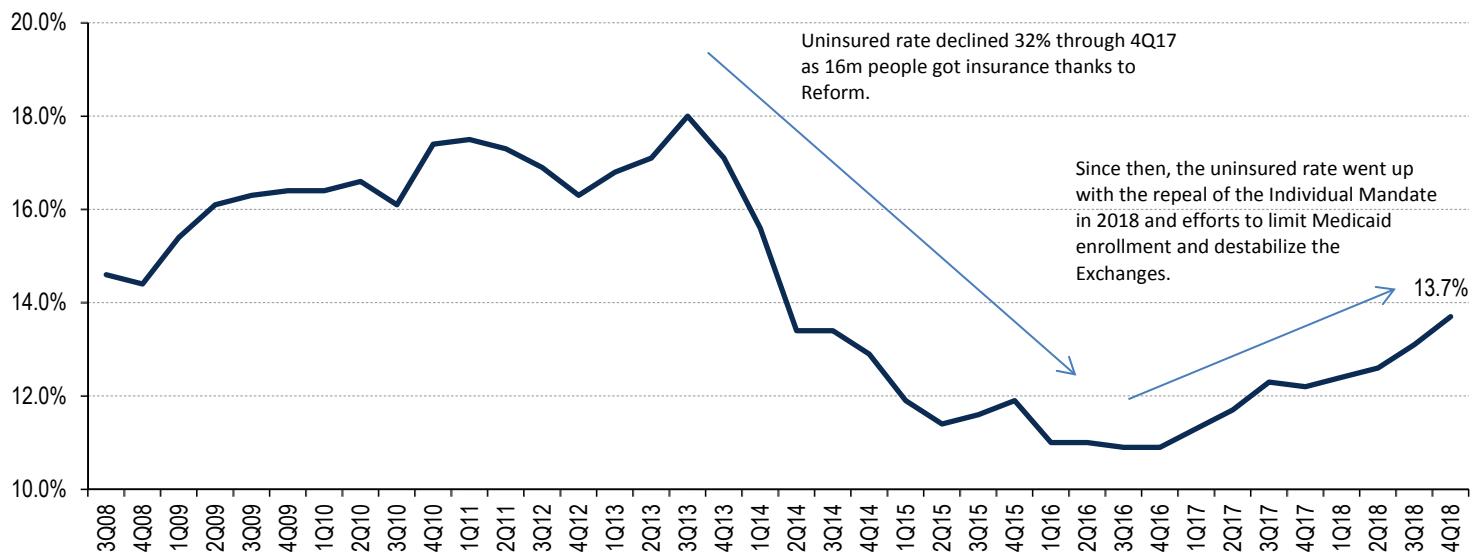


Source: US Census Bureau, National Health Interview Survey

Meanwhile, the Gallup survey showed a similar decline in the uninsured over time. The uninsured rate declined sharply in the first and second quarters of 2014 as more people signed up for health insurance through federal and state exchanges. The 10.9% in 4Q16 is the lowest Gallup recorded since beginning to track the measure daily in 2008. However in 1Q17, uninsured rate ticked up to 11.3% and continue to increase through 2017, reaching 12.2% in 4Q17. By 4Q18, the end of a year where the individual mandate was repealed, uninsured trended back upwards, coming in at 13.7% in 4Q18.

We note that this survey is a snapshot of the uninsured rate based approximately 45,000 interviews collected each quarter, and does not appear to include children (which is why the number is higher than the Census data, given that children are largely insured under Medicaid and CHIP when they lack commercial insurance).

**Chart 67: Uninsured rate, 2011-4Q18**



Source: Gallup, BofA Merrill Lynch Global Research

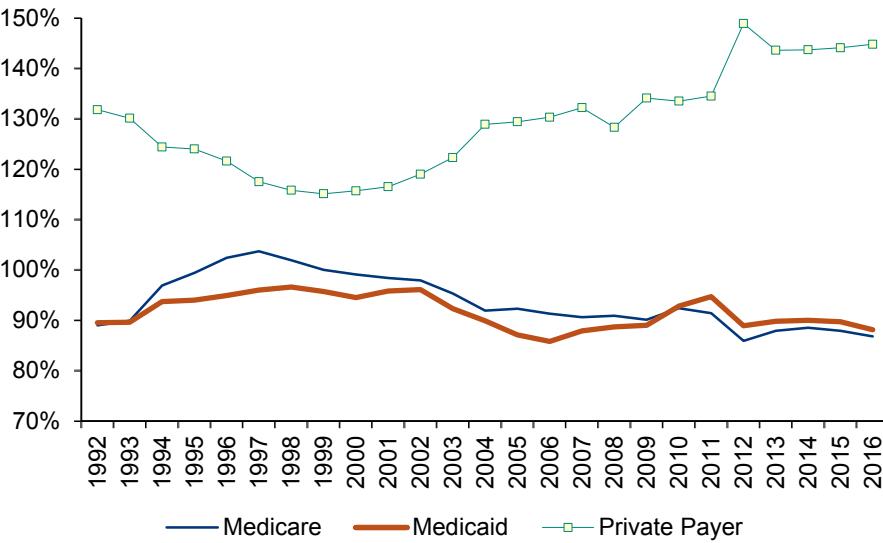
In those cases where the hospital believes that a patient cannot pay, the company usually will treat that patient as charity care and not book any revenue for that patient. However, if the hospital believes that the patient can pay a portion of the bill, then it will charge the patient for service (see our Bad debt section for more details). For non-elective services, the fee is generally a discount off of the gross charges.

## Economy impacts payer mix

Even though the hospital group is considered a defensive sector, the industry is exposed to economic fluctuations through increased Bad debt and the effects on Volumes (both discussed elsewhere in this report in detail), as well as negative payer mix shift. As unemployment rises in a weak economy, people lose employer sponsored coverage and many gain Medicaid insurance, causing negative mix shift, as Medicaid pays about 40-60% less than commercial payers.

Below we highlight the relative payments to hospitals as a percentage of their costs as estimated by AHA. The chart shows that there are significant implications from a shift in mix from high margin commercial to low margin Medicaid from 1989 to 2016.

**Chart 68: Aggregate Hospital Payment-to-cost Ratios for Private Payers, Medicare, and Medicaid, 1989 – 2016**



Source: AHA Trendwatch Chartbook 2018.

(1) Includes Medicaid Disproportionate Share payments.

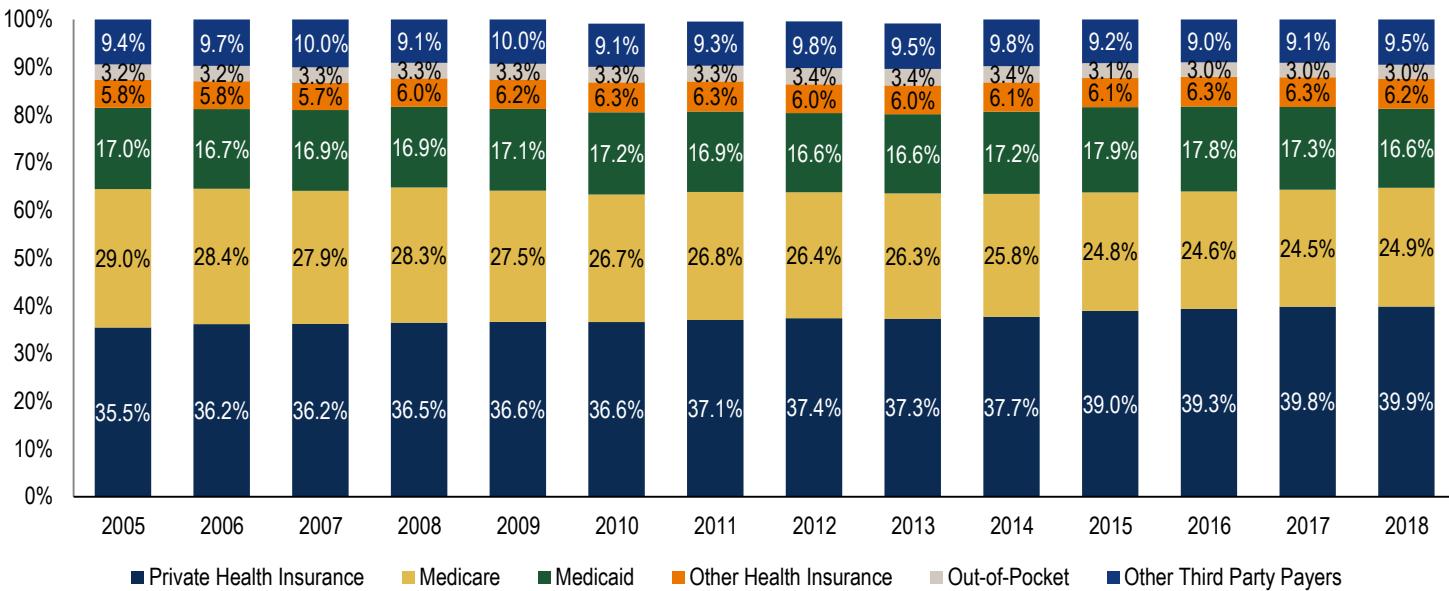
(2) Includes Medicare Disproportionate Share payments.

According to CMS National Health Expenditures data, out-of-pocket as a percentage of spending on hospital care has increased from 3.2% in 2005 to 3.4% in 2013 as copays/deductibles continue to increase but then it declined to 3.0% in 2016, 2017, and 2018 as Medicaid as % of spending increased due to the coverage expansion.

We note Medicaid as a percentage of hospital spending increased 20 basis points in 2009 and 10 basis points in 2010, while private health insurance increased 10 basis points in 2009 but remained flat in 2010. This negative mix shift was a result of the recession and higher unemployment, and had negative implications for margins.

However, not all Medicaid growth is bad. In contrast to the mix shift above (where commercial volumes converted into Medicaid), as a result of coverage expansion under Reform, Medicaid increased to 17.8% in 2016, a 120 basis points increase from 2013, and the corresponding decrease in uninsured revenue was a net positive for the industry, but is down to 16.6% in 2018, likely due to the repeal of the individual mandate as well as pressure on Medicaid expansion.

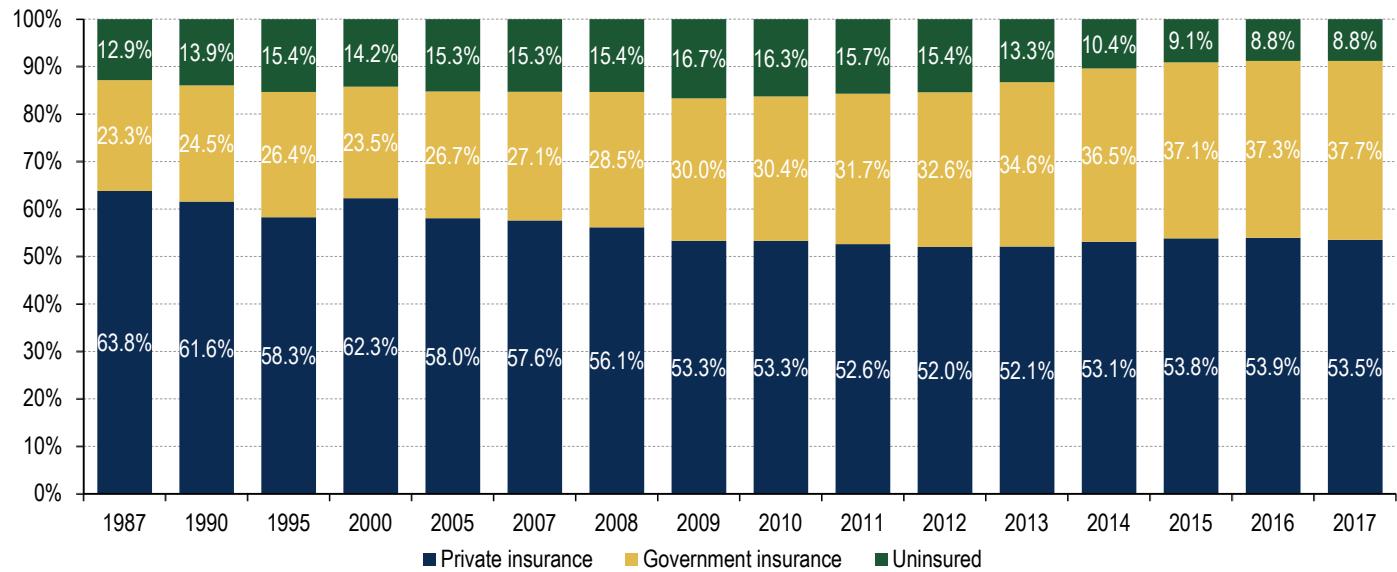
**Chart 69: % of national expenditures on hospital care by payer**



Source: National Health Expenditures

The percentage of insured increased 210 basis points in 2013, primarily due to an increase in enrollment in government insurance programs (Medicare and Medicaid) which increased 200 basis points. Private insurance (including insurance provided by employers) increased 10 basis points in 2013, the first year over year increase since 2000. Reform and increased enrollment in exchanges caused the uninsured rate to further decrease to 10.4% in 2014, 190 basis points below 2013 rate and further down to 8.8% in 2016/2017, 450 basis points below 2013 rate.

**Chart 70: Trends in Private Insurance, Government Insurance and Uninsured**



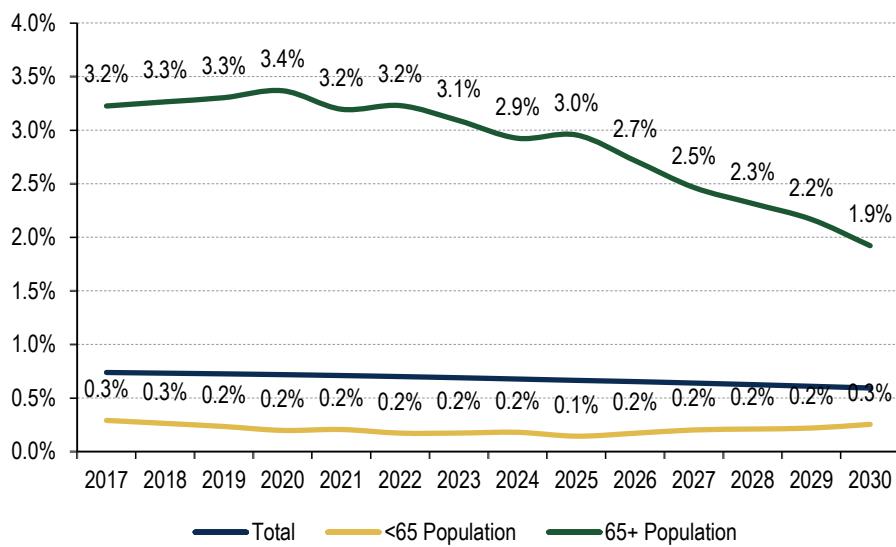
Note: the estimates by type of coverage are not mutually exclusive; people can be covered by more than one type of health insurance during the year.

Source: US Census Bureau, "Income, Poverty, and Health Insurance Coverage in the United States: 2017"

## Demographic trends impact payor mix

We also note another dynamic that impacts payor mix for health care providers. Overall population growth is expected to be in the +0.7-0.8% range. This growth is mostly driven by aging demographics in the US. The cohort that is over the age 65 is expected to grow in the 3% range over the next decade. Meanwhile, the population under the age of 65 is expected to grow only 0.2-0.3% per year. This is particularly negative for the hospital companies which derive about half of their revenues from the commercially insured population, which would be represented by the cohort under the age of 65. With unemployment near historic lows and the potential for Medicaid to grow slightly faster than average, the total number of commercially insured people in the US may end up being flat to negative over the next 5 years.

**Chart 71: US population growth by age cohort**



Source: US Census Bureau



## Bad debt



## Bad debt

Bad debt has been a major driver/overhang to hospital performance in recent years, so we believe that it is vitally important for investors to gain an understanding of the causes of uncompensated care and how its accounted for. Meanwhile, investors need to understand how bad debt is accounted for in order to understand what the benefit from Reform was for hospitals. Coverage expansion under Reform lowered bad debt, and as long as it remains in effect, over time it should make hospital results more predictable as bad debt becomes a smaller portion of the P&L.

While the rise in uncompensated care for hospitals has been a focus for investors, our view is that it is more important to focus on the actual cash cost of treating the uninsured than the reported GAAP metric. Therefore, we created a metric to track the cost of treating the uninsured for hospital companies. Based on our metric, we have found that the cost of uncompensated care, or more precisely the cost of treating the uninsured, was only a modest headwind to earnings growth during the prior recession.

Meanwhile, the recent accounting rule change requires hospitals to report revenues after subtracting bad debt and thus essentially making the results even less clear as the majority of companies stopped reporting bad debt (now called implicit price concessions) separately starting in 1Q18.

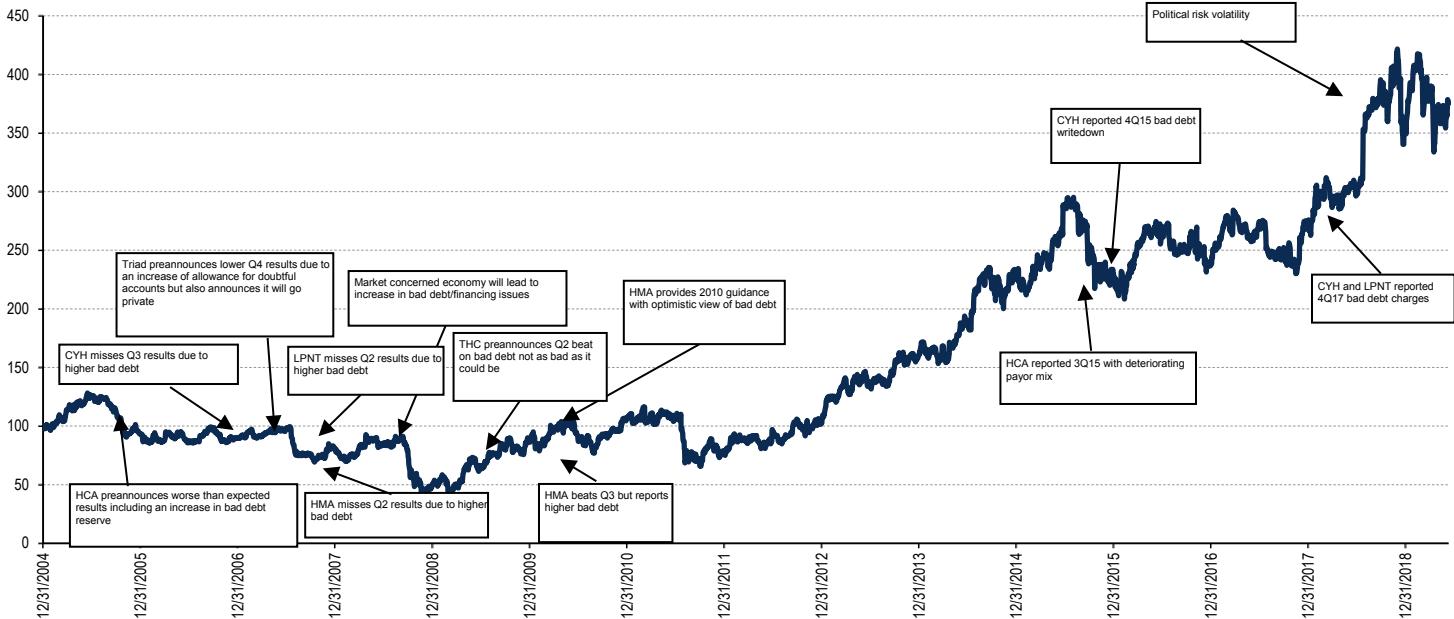
In this section, we provide an overview of the accounting for bad debt, first providing details of how hospitals book revenue. We then provide our thoughts on metrics that investors should track to determine if companies are properly accrued. Then we review the sources and drivers of bad debt. We also analyze the actual cash cost of treating the uninsured based on our metric. Finally, we provide our perspectives on bad debt trends and the outlook.

## Bad debt and stock performance

We looked at the industry price performance and some of the major spikes/improvements in bad debt. The graph below shows that in several instances in recent years bad debt was driving hospital performance. For example, in January 2010 when HMA (acquired by CYH in 2014) was the first hospital company to provide 2010 guidance that included a better than expected bad debt outlook, the group was up 6%. Similarly, when HMA beat 3Q09 results but reported higher than expected bad debt, the group was off 4% that day. Part of the sell off during Q3 2015 was due to a number of companies (including HCA) reporting a deterioration in payer mix, so soon after Reform had been a tailwind. In addition, CYH traded down 22% when it reported Q4 2015 results, including a \$169 million bad debt write-down.

More recently, LifePoint and CYH traded down with 4Q17 results when both companies reported large bad debt charges. On 2/23/18, LifePoint was down 14% after the company missed Q4 EBITDA by 40% largely driven by a \$73m bad debt charge. On 2/28/18, CYH was down 26% after the company reported a hefty \$591m bad debt charge driving EBITDA to turn negative for the quarter.

**Chart 72: Hospital Industry Prices Changes vs Bad Debt (market cap weighted), based at 100 on 12/31/2004**

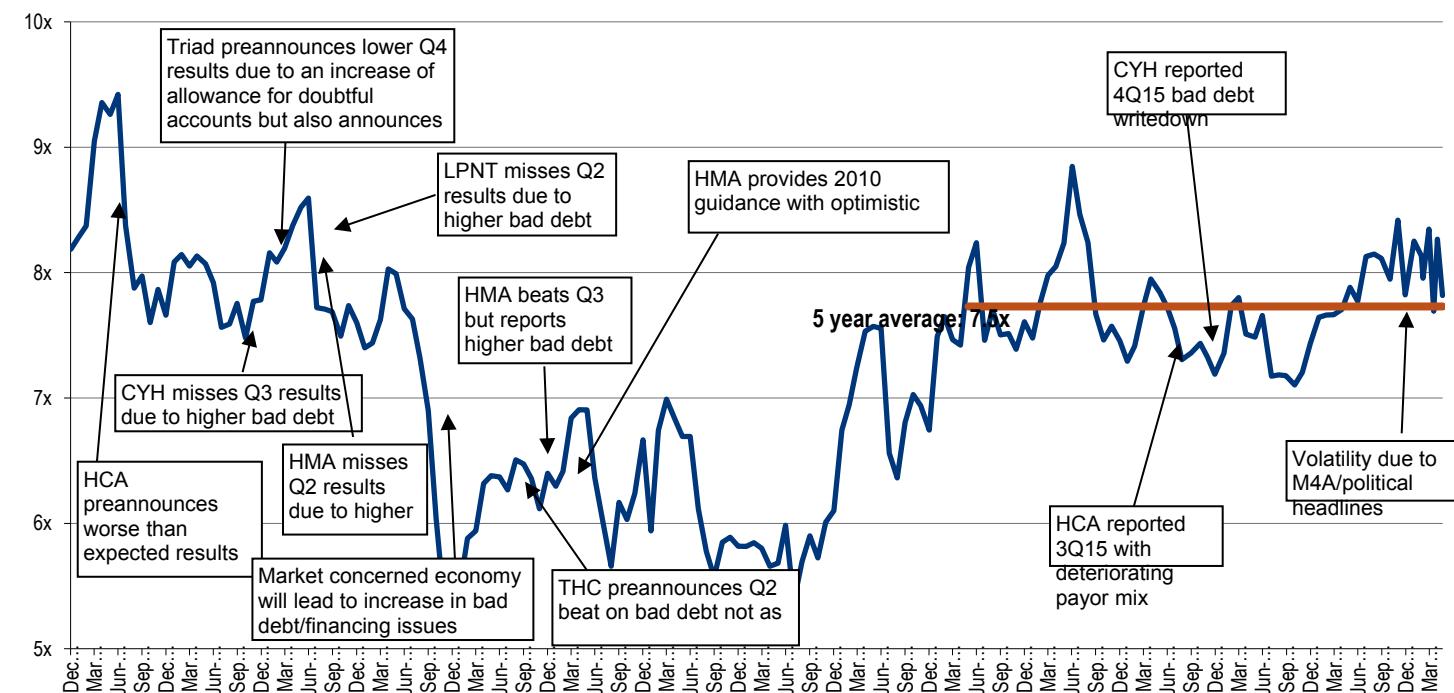


Industry includes: CYH, HMA, HCA, LPNT, THC, UHS, VHS, TRI

Source: Bloomberg, BofA Merrill Lynch Global Research

We also observed that in these instances bad debt affected results and/or outlook on group valuation.

**Chart 73: Hospital Industry Historical EV/EBITDA Multiple vs Bad Debt (EV/EBITDA Multiple)**



Source: FactSet, BofA Merrill Lynch Global Research.

## Overview: sources of bad debt

Virtually all industries have some amount of revenue that they book that ultimately they do not collect and must write off as bad debt. The issue is one of greater importance for hospitals than other health care providers due to their roles as providers of emergency care and their inability to turn away emergent care patients who cannot pay. Below we discuss the drivers of bad debt:

- **Uninsured (65-70% of bad debt)** – In its simplest form, bad debt occurs when patients receive care and cannot pay for it. This happens most often when patients do not have any form of third-party insurance (Managed Care, Medicare, Medicaid, etc.). Generally, hospitals collect less than \$0.10 on the dollar for uninsured patients.
- **Copays and Deductibles (30-35% of bad debt)** – The second largest portion of bad debt comes from copays and deductibles. As employers increasingly shift the cost of health care to their employees in the form of higher deductibles and copays, hospitals have had an increase in the amount of bad debt from the self-pay portion of the bill for people who actually have insurance. Even Medicare and some other government programs have copays. Currently, most hospitals collect only 50% or less of the bills from deductibles and copays.
- **Denials (<1% of bad debt)** – Denials occur when a patient has third-party coverage but for some reason a claim is not paid. This generally occurs when a claim is not submitted properly (e.g. is missing data or incorrectly coded). Most payers require that a bill be submitted correctly within a certain time from the provision of care, so if a claim is not submitted properly and is rejected, it must be re-filed in a timely manner or risk not being paid. We note that most hospitals collect 98%+ of their managed care and government revenue.
- **Emergency rooms** – The Emergency Medical Treatment and Active Labor Act (EMTALA) states that all hospitals who receive reimbursement from Medicare must provide emergency care to anyone who enters the emergency room without regard of their ability to pay. The care requires “an appropriate medical screening” and the provision of any necessary care to stabilize the patient or transfer the patient to another setting (in conformance with the statute’s directives – ie, cannot transfer patients to another facility for economic reasons).

Tying the requirement to participation in the Medicare program (30% of hospital spending) means that virtually all acute care hospitals will be subject to the statute. This requirement to perform emergency care is unique to general acute care hospitals and thus, bad debt tends to be a larger issue for acute care hospitals than for other health care providers.

## Accounting for bad debt

We believe that accounting policies have contributed to the trends in bad debt (both the historical increases and the recent moderation in increases). To better understand how the accounting for bad debt works, we must first provide an overview of how hospitals book revenue.

We note that the first number investors see on the income statement is “net revenues”, but there are a large number of above the line items that companies book, besides bad debt, in order to go from gross revenues to net revenues.

### Gross vs net revenue before bad debt

Every hospital has a charge master that outlines the list price for providing every service the hospital offers. However, similar to a sticker price for a car, few people actually pay the list price on the charge master and depending on the payer, some receive dramatic discounts to the list price. In 2017, net revenue before bad debt represented only 26% of industry gross revenue (down from 42.4% in 2002).

Below we outline the main line items that are subtracted from gross revenue to calculate net revenue before bad debt.

### Contractual allowance

Generally, Medicare and Medicaid have a flat rate that they pay for each type of treatment and they will pay that amount regardless of the charge master list price. The same is true for commercial payers, who either negotiate a flat rate for service or structure their contracts to be priced as a percentage of charges (such as 50% of the list price). The difference between list price and the revenue that the company actually will receive based on the payer’s rates is known as a contractual allowance. Below we show the accounting for a patient who undergoes a procedure that has a list price of \$20,000, and how the accounting would work across different types of payers based upon the different rate that the hospital receives from the payer.

**Table 42: Contractual Allowance Example**

	Managed Care			
	Medicare	Medicaid	Negotiated	% of Charges
Gross Revenue	\$20,000	\$20,000	\$20,000	\$20,000
Contractual allowance	\$12,000	\$14,000	\$11,000	\$10,000
<b>Revenue before bad debt</b>	<b>\$8,000</b>	<b>\$6,000</b>	<b>\$9,000</b>	<b>\$10,000</b>

Source: BofA Merrill Lynch Global Research estimates.

We note that prior to 1983, hospitals were paid based upon costs, and gross revenue was relatively similar to net revenue. However, paying providers based upon their costs is inherently inefficient since there is no incentive for providers to rein in cost growth. As a result, in 1983 Medicare switched from a cost-based system to a prospective payment system for inpatient services, which pays hospitals a set rate depending on the diagnosis of the patient. Hospitals that can provide the service for less than the Medicare rate make money while hospitals with costs above than that amount lose money. CMS would then increase its payment rates by the hospital market basket (essentially the CPI rate for inpatient hospital services).

Over time, to maximize pricing from business that was still tied to charges, hospitals would raise their gross charges for services faster than the market basket update (inflation), creating an increasing disparity between the gross revenue and net revenue for Medicare patients. Meanwhile, as managed care became a larger force in the 1990s, they were able to negotiate larger discounts from the “list price” or moved away from cost based reimbursement toward a per diem or per discharge payment.

However, some parts of the Medicare reimbursement system continued to be paid based upon costs such as outpatient services, outlier payments, inpatient psych, inpatient rehab and skilled nursing. In addition, managed care companies also tended to

pay hospitals for outpatient services and stop loss payments (the managed care equivalent of outlier payments) based upon costs. It often would take three years for hospitals to submit cost reports to CMS and have them audited. So instead of paying based upon actual costs, CMS would estimate costs by using the ratio of costs/charges in the most recent year with audited cost reports and then multiply that ratio by current charges. If providers raised gross charges at the same rate as their costs grew, then the system would remain in equilibrium. However, if hospitals increased their gross charges faster than their cost growth, they could qualify for more revenue (since CMS would overestimate the hospital's costs). This further contributed to the widening differential between gross and net revenue before bad debt.

**Table 43: Industry Gross Revenue versus Net Revenue before bad debt**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Gross Revenue	\$961	\$1,114	\$1,239	\$1,379	\$1,510	\$1,646	\$1,803	\$1,957	\$2,112	\$2,245	\$2,432	\$2,634	\$2,823	\$3,076	\$3,320	\$3,564
Net Revenue	\$407	\$438	\$470	\$506	\$541	\$574	\$611	\$647	\$676	\$700	\$762	\$793	\$827	\$883	\$930	\$970
Net as % of Gross	42.4%	39.3%	38.0%	36.7%	35.8%	34.8%	33.9%	33.1%	32.0%	31.2%	31.3%	30.1%	29.3%	28.7%	28.0%	27.2%

Source: AHA Statbook

From 1998 to 2005, CMS began moving outpatient hospital services, skilled nursing, inpatient rehab and inpatient psych to prospective payment systems and increasing those provider rates by the market basket rate (which was approximately 3% compared to gross charge increases of 5-10%). In addition, CMS changed the methodology for calculating outlier payments and many managed care companies have moved away from cost-based reimbursement. These changes once again contributed to net revenue growing less quickly than gross charges.

Although there has been a decoupling of actual payments and gross charges in recent years, we note that self-pay revenue and a portion of third party insurance is still based upon a percentage of charges, so companies still have an incentive to raise charges above and beyond underlying cost growth.

### Charity care

Many times, by the time a patient is discharged from the hospital, the hospital will know that the patient does not have insurance and has no chance of paying any portion of his bill. When this occurs, the patient is classified as "charity care," the company writes off the entire amount above the net revenue line and books zero net revenue for that patient. Since the company does not book net revenue before bad debt for charity care patients, there is no corresponding bad debt when the patient does not pay. We note that each company has a different policy as to when a patient qualifies for charity care treatment, making comparisons across companies difficult. In the table below, we provide the accounting for a typical self-pay patient versus a charity care patient. Note that a hospital company can book less bad debt (and revenue) if it classifies more patients as charity care, but in both cases, it collects \$0 for treating the patient.

**Table 44: Accounting for Self Pay and Charity Care Patients**

	Self pay	Charity care
Gross Revenue	\$20,000	\$20,000
Contractual allowance	\$0	\$0
Uninsured Discount	\$0	\$0
Charity Care	\$0	\$20,000
<b>Revenue before bad debt</b>	<b>\$20,000</b>	<b>\$0</b>
Bad debt	\$20,000	\$0
<b>Net Revenue</b>	<b>\$0</b>	<b>\$0</b>

Source: BofA Merrill Lynch Global Research

## Uninsured discounts

Large payers such as the government or commercial payers have leverage in negotiations with hospitals and can negotiate rate concessions off of the hospital list price. However, individuals without insurance do not have any leverage and historically were charged the full list price by the hospital. As a result, in a somewhat ironic twist, the one payer who had the least ability to pay was charged the highest rate. In recent years, there has been increased scrutiny of this situation and in an effort to head off mandated changes, hospitals voluntarily began implementing discounts to the uninsured (although some states such as Tennessee have mandated such discounts). Generally, the discounts would be in the range of (but somewhat less than) the types of discounts that managed care payers were receiving. This change has the impact of reducing net revenue before bad debt, with a corresponding decline in bad debt expense. Net, there is no change in EBITDA. Given the change in 2012 in the accounting for bad debt, there is no change in the EBITDA margin.

Below we provide an analysis of how a company might account for a patient without insurance. Assuming a \$20,000 list price and \$4,000 cost of treatment, if the company provides no discount, it would book \$20,000 in revenue, but \$20,000 in bad debt and \$4,000 in costs, for a net loss of \$4,000. Meanwhile, if the company provides a 45% discount to the uninsured, the hospital would only book \$11,000 of revenue and \$11,000 of bad debt, \$4,000 in costs and a net loss of \$4,000. This example shows that there is no EBITDA or net revenue impact from this change, but the reported revenue before bad debt and bad debt would be lower if the company provides a discount.

**Table 45: Accounting Impact of Providing Discounts to the Uninsured**

	<b>Self pay</b>	<b>Self pay discounted</b>
Gross Revenue	\$20,000	\$20,000
Contractual allowance	\$0	\$0
Uninsured Discount	\$0	\$9,000
Charity Care	\$0	\$0
<b>Revenue before bad debt</b>	<b>\$20,000</b>	<b>\$11,000</b>
Bad debt	\$20,000	\$11,000
% of revenue before bad debt	100%	100%
<b>Net Revenue</b>	<b>\$0</b>	<b>\$0</b>
Cost of Service	\$4,000	\$4,000
<b>EBITDA</b>	<b>(\$4,000)</b>	<b>(\$4,000)</b>
EBITDA margin (old methodology)	-20.0%	-36.4%

Source: BofA Merrill Lynch Global Research

Essentially, this is an accounting change more than anything else, but since hospitals can book lower bad debt simply by increasing the discounts that they provide, we add back discounts to the uninsured to determine if changes in bad debt are real or purely the result of a change in accounting. In a way, the change in accounting standards in 2012 helped visibility as net revenue (less bad debt) is now reported the same in both cases.

## Bad debt no longer reported separately

Effective January 1, 2018, hospital companies adopted the new accounting rule (FASB ASU 2014-09) that essentially caused them to stop reporting bad debt as a separate line item. Previously the companies were reporting bad debt as a reduction to revenues. Starting in 2018, the companies report revenues after bad debt without reporting the bad debt amount.

Under this accounting rule, the estimated uncollectible amounts due from uninsured and underinsured patients are now generally considered “implicit price concessions” that are

a direct reduction to net operating revenues. The implicit price concessions are essentially similar to provision for doubtful accounts, but only THC reports the metric.

### **Summary of revenue accounting**

Below we provide a summary of different type of payers and how discounts and contractual allowance affect bad debt and EBITDA margins. In each case we highlight that the gross revenue per patient is \$25,000 and the cost of service is \$7,000. The final column takes a weighted average based upon a typical hospital's payer mix.

As previously mentioned, companies don't report bad debt anymore (except for THC), but we provide revenues before bad debt and bad debt as separate lines in our analysis for a better understanding of bad debt. We note that we adjusted our analysis for 2019 to reflect that although the weighted average margin is about the same, Medicare margins are flat, and Medicaid margins are slightly negative on a fully cost allocated basis.

**Table 46: Accounting – Summary**

	Managed Care				Self Pay discounted	Charity Care	Weighted Average
	Medicare	Medicaid	Negotiated	% of Charges			
Gross Revenue	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Contractual allowance	\$18,000	\$19,000	\$14,000	\$13,000	\$0	\$0	\$15,120
Uninsured Discount	\$0	\$0	\$0	\$0	\$12,000	\$0	\$600
Charity Care	\$0	\$0	\$0	\$0	\$0	\$25,000	\$250
<b>Revenue before bad debt</b>	<b>\$7,000</b>	<b>\$6,000</b>	<b>\$11,000</b>	<b>\$12,000</b>	<b>\$13,000</b>	<b>\$0</b>	<b>\$9,030</b>
Bad Debt	\$0	\$0	\$220	\$240	\$11,700	\$0	\$686
% of revenue before bad debt	0.0%	0.0%	2.0%	2.0%	90.0%	NA	7.6%
<b>Net Revenue after bad debt</b>	<b>\$7,000</b>	<b>\$6,000</b>	<b>\$10,780</b>	<b>\$11,760</b>	<b>\$1,300</b>	<b>\$0</b>	<b>\$8,344</b>
Cost of Service	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000
<b>EBITDA</b>	<b>\$0</b>	<b>(\$1,000)</b>	<b>\$3,780</b>	<b>\$4,760</b>	<b>(\$5,700)</b>	<b>(\$7,000)</b>	<b>\$1,344</b>
EBITDA Margin (cash basis)	0.0%	-16.7%	35.1%	40.5%	-438.5%	NM	16.1%

Source: BofA Merrill Lynch Global Research estimates

### **2012: Change in accounting rule made it easier to compare across companies**

In July 2011, the Financial Accounting Standards Board issued accounting standards update 2011-07, "Health Care Entities (Topic 954): Presentation of Patient Service Revenue, Provision for Bad Debts, and the Allowance for Doubtful Accounts for Certain Health Care Entities." It required healthcare providers to present the provision for doubtful accounts related to patient service revenues as a deduction from patient service revenues in the statement of operations rather than as an operating expense. Since January 1, 2012, all hospital companies had to report revenues net of bad debt (some companies adopted the standard earlier).

Before the change in accounting for 2012, the manner in which a company reported its charity care and discounts to the uninsured historically skewed a number of reported metrics including net revenue before bad debt, revenue per admission, and EBITDA margins. As a reminder, when a hospital designates a patient as charity care, no revenue is recorded, and correspondingly, no bad debt is allocated for services rendered, although the hospital still treats the patient and incurs costs. The net result is that EBITDA stays the same, but since revenue is lower, the reported EBITDA margins increased under the methodology used before 2012. At the same time, as companies record a greater amount of charity care, bad debt as a percentage of revenue before bad debt declines.

Increasing the amount of charity care recorded depressed revenue per admission, because although revenue is not recorded for the patient, the patient is included in the

admission count. Therefore the denominator increased but the numerator remains the same, resulting in lower revenue per admission under the methodology used before 2012.

Below we provide the example of Company A, Company B and Company C, which have the same number of admissions, payer mix and cost structure. However, Company B books more of its self-pay patients as charity care and Company C provides a larger discount to the uninsured. Although this has no impact on EBITDA, under the old methodology of reporting bad debt, Company B and Company C report lower revenue, revenue per admission and bad debt expense while reporting higher EBITDA margins. Note that each company has the same amount of uncompensated care (bad debt plus charity care plus discounts is \$11,500 for each company).

**Table 47: Impact of Charity Care on Margin, Revenue per Admission and Bad Debt - methodology used before 2012**

	<b>Company A</b>	<b>Company B</b>	<b>Company C</b>
Gross Revenue	\$55,000	\$55,000	\$55,000
Discounts to Uninsured	\$5,000	\$5,000	\$6,000
Charity care	\$500	\$2,500	\$500
<b>Net revenue</b>	<b>\$49,500</b>	<b>\$47,500</b>	<b>\$48,500</b>
SWB	\$20,000	\$20,000	\$20,000
Supplies	\$10,000	\$10,000	\$10,000
Other exp	\$7,500	\$7,500	\$7,500
Bad debt	\$6,000	\$4,000	\$5,000
<b>% of revenue</b>	<b>12.1%</b>	<b>8.4%</b>	<b>10.3%</b>
EBITDA	\$6,000	\$6,000	\$6,000
<b>Margin</b>	<b>12.1%</b>	<b>12.6%</b>	<b>12.4%</b>
Admissions	500,000	500,000	500,000
<b>Revenue per admission</b>	<b>\$99</b>	<b>\$95</b>	<b>\$97</b>
<b>Uncompensated Care</b>	<b>\$11,500</b>	<b>\$11,500</b>	<b>\$11,500</b>

Source: BofA Merrill Lynch Global Research estimates.

The 2012 change in accounting standards helped to provide better comparability into some of the metrics. Below we show the same three hospitals. Similar to the above example, there is no impact on EBITDA, and Company B and Company C report lower revenue before bad debt and lower bad debt ratio. However, net revenue after bad debt, EBITDA margins (calculated now using net revenues after bad debt), and revenue per admission are the same for all three companies under the new accounting standards. The new accounting of bad debt as a revenue reduction results in EBITDA margin being reported on a cash basis, which normalizes the impact of bad debt accounting. In addition, revenue per admission is now the same for all three companies. Similar to the methodology used before 2012, the uncompensated care is \$11,500 for each company.

**Table 48:Impact of charity care on Margin, Revenue per Admission and Bad Debt – methodology used from 2012-2017**

	<b>Company A</b>	<b>Company B</b>	<b>Company C</b>	<b>Notes</b>
Gross Revenue	\$55,000	\$55,000	\$55,000	
Discounts to Uninsured	\$5,000	\$5,000	\$6,000	
Charity care	\$500	\$2,500	\$500	
<b>Revenue before bad debt</b>	<b>\$49,500</b>	<b>\$47,500</b>	<b>\$48,500</b>	
Bad debt	\$6,000	\$4,000	\$5,000	Bad debt varies based upon how revenue is booked
<b>% of revenue before bad debt</b>	<b>12.1%</b>	<b>8.4%</b>	<b>10.3%</b>	
<b>Net revenue after bad debt</b>	<b>\$43,500</b>	<b>\$43,500</b>	<b>\$43,500</b>	But Net revenue after bad debt is the same
SWB	\$20,000	\$20,000	\$20,000	
Supplies	\$10,000	\$10,000	\$10,000	
Other exp	\$7,500	\$7,500	\$7,500	

**Table 48:Impact of charity care on Margin, Revenue per Admission and Bad Debt – methodology used from 2012-2017**

	Company A	Company B	Company C	Notes
EBITDA	\$6,000	\$6,000	\$6,000	EBITDA not affected but margin was
Margin (% of revenue after bad debt)	13.8%	13.8%	13.8%	Cash Margin is the same
Uncompensated Care	\$11,500	\$11,500	\$11,500	Total uncompensated care is the same across all 3
Admissions	500,000	500,000	500,000	
Revenue per admission	\$87	\$87	\$87	New accounting rule helps visibility

Source: BofA Merrill Lynch Global Research estimates.

### 2018: New revenue recognition

In May 2014, the Financial Accounting Standards Board issued accounting standards update 2014-09, "Revenue from Contracts with Customers" (Topic 606). It requires companies to recognize revenue in an amount that reflects the total consideration they expect to collect for providing goods and/or services.

Prior to 2018, all hospital companies reported bad debt above the net revenue line by reporting "revenue before bad debt", then the "provisions for bad debt" and then a "net revenue" line as demonstrated above. Starting January 2018, the companies report Revenues net of estimated implicit price concession revenue deductions, and no longer present bad debt as a separate line. Other than the changes in the presentation on the income statement and balance sheet, the adoption of the new accounting revenue recognition did not have an impact on "net revenues" for any periods prior to the adoption.

The new accounting rule is meant to provide a single comprehensive principle for the recognition of revenues across all industries through the implementation of a five-step process:

1. Identify the contract with a customer.
2. Identify the performance obligations in the contract.
3. Determine the transaction price.
4. Allocate the transaction price to the performance obligations in the contract.
5. Recognize revenue when (or as) the entity satisfies a performance obligation.

Below we provide the example of Company A reporting under the new methodology vs the prior method. As you can see, investors have less transparency under the new model, unless a company chooses to disclose more data in the footnotes.

**Table 49: Revenue recognition – new methodology as of 2018**

	old accounting	new accounting	
Gross Revenue	\$55,000	NA	
Discounts to Uninsured	\$5,000	NA	
Charity care	\$500	NA	
Bad debt	\$6,000	NA	Bad debt is not reported
<b>Net revenue after bad debt</b>	<b>\$43,500</b>	<b>\$43,500</b>	Net revenue after bad debt is the same
SWB	\$20,000	\$20,000	
Supplies	\$10,000	\$10,000	
Other exp	\$7,500	\$7,500	
EBITDA	\$6,000	\$6,000	EBITDA and cash margin are not affected
Margin (% of revenue after bad debt)	13.8%	13.8%	

**Table 49: Revenue recognition – new methodology as of 2018**

	old accounting	new accounting	
Uncompensated Care	\$11,500	\$5,500	
Admissions	500,000	500,000	
Revenue per admission	\$87	\$87	Revenue per admission is the same

Source: BofA Merrill Lynch Global Research estimates.

With the new methodology, the first metric to be seen on the income statement is Net revenue after bad debt, which remains the same as with the previous methodology as implicit price concessions include the provision for doubtful accounts. As a result, EBITDA, cash margin and Revenue per admission also remain the same.

We note that only THC provides implicit price concessions / bad debt with its quarterly results while other hospital companies do not disclose this metric. They do, however, provide uncompensated care and charity care. Without bad debt as a separate line we lose some of the visibility that we gained with the 2012 accounting change.

Nevertheless, as we mentioned previously, before 2012, revenues and EBITDA margins were skewed depending on how a company booked charity care and discounts to uninsured, making it difficult to compare revenues across different companies. Although companies do not report bad debt, charity care and/or uninsured discounts with their earnings, we know that revenues are booked net of these metrics, consistent with the net revenues after bad debt reported before the accounting change in 2018.

## **Bad debt = bad metric; uncompensated care is more useful**

In some ways the focus on bad debt expense has made analyzing the issue more difficult. Bad debt is the amount of revenue that a company books that it deems it will not collect. Nevertheless, as we showed previously, a company could show an improvement in bad debt ratio year over year by simply categorizing more patients as charity care or providing larger discounts to the uninsured. Therefore, it is more useful to track the amount of care that hospitals provide for which they are not compensated. Owing to the accounting treatment of net revenue, bad debt and uncompensated care are two very different metrics. As a result, investors have begun to realize that *bad debt in many ways is a revenue recognition issue as much as it is a collection issue*. However, investors should not ignore bad debt (or uncompensated care) simply because it is above the revenue line.

Below we discuss the difference between bad debt and uncompensated care and highlight a number of metrics to track to determine how well a company is performing and whether it is accrued adequately.

### **Methods to track appropriateness of reserves**

Each company has different policies on whether a person qualifies as charity care and how much of a discount it offers a self-pay patient. Therefore, the degree to which a company is conservative above the net revenue line will play a role in how much bad debt it books below the line. As a result, simply analyzing bad debt expense as a percentage of net revenue before bad debt does not provide a good basis for comparable company analysis. And, to the extent that the company has changed its discount or charity care policy, it may not even be useful in analyzing the situation at a company over time. As a result, below we outline a number of metrics that we track in order to determine whether a company is properly accrued.

### **Uncompensated care**

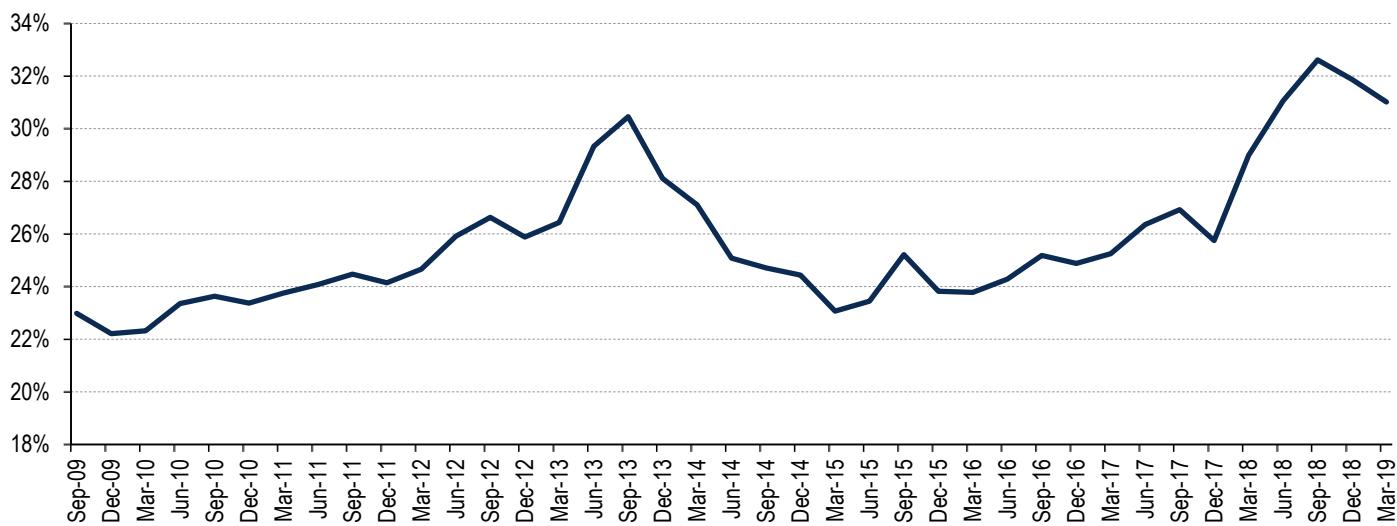
Since bad debt tells only part of the story on uncompensated care, the Market decided it would be useful to add all of the portions of uncompensated care together: Bad Debt + Charity Care + Discounts to the Uninsured. In our view, all three metrics reflect that a patient has entered the hospital and the company is not collecting revenue. We measure

Bad Debt + Charity Care + Discounts as a percentage of Net Revenue + Bad Debt + Charity Care + Discounts. In our view, this is the best measure for changes in uncompensated care. The greatest drawbacks to this metric are: 1) not all companies break out the three components; 2) those that do disclose these metrics only started breaking out the numbers for the past few years (making comparable company analysis and analysis over time somewhat problematic); and 3) these numbers are tied to gross charges, which generally inflates the impact on the P&L when compared to net revenue.

As a result of Reform (see section below for details), uncompensated care declined in 2014 with the average for the hospitals down 370 basis points year over year in 4Q14. Prior to 2014, uncompensated care has been on the rise for the industry. In 2013, every hospital reported total uncompensated care well above pre-2009 levels. As the incremental new coverage growth slowed down, uncompensated care increased 110 basis points year over year in 4Q16 and was up 160 basis points in 4Q17. Interestingly, uncompensated care shot up in 2018, with 3Q18 coming in at 32.6% of net revs, or 570bps above 3Q17. HCA posted 37.2% and UHS posted 36.2% in the quarter. Uncompensated care came down slightly in 1Q19.

As previously mentioned, as of 1Q18 companies do not report all the metrics needed to calculate this metric.

**Chart 74: Uncompensated care as % of Net revenue + Charity + Discount (average for publicly traded hospital companies), 3Q09-1Q19**

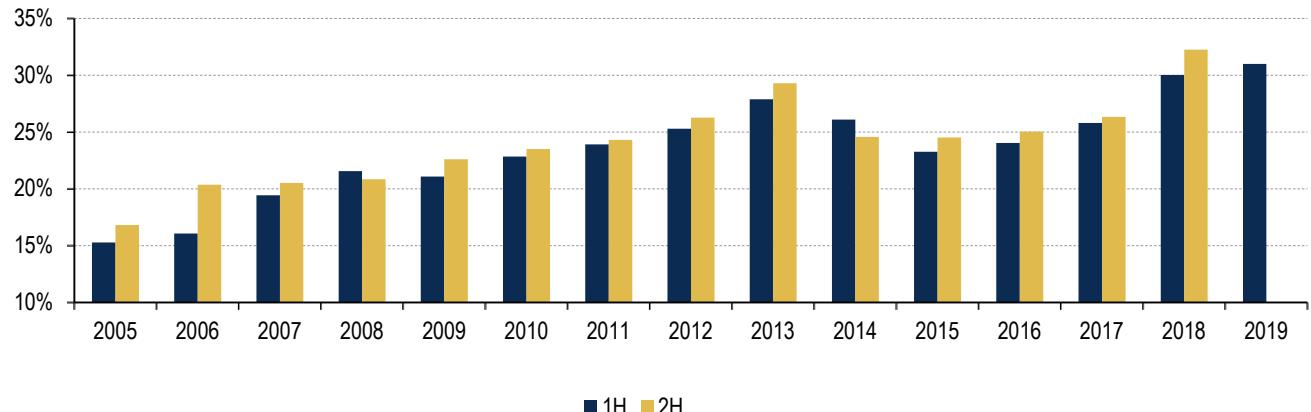


Source: BofA Merrill Lynch Global Research

In general, we observed that uncompensated care as a percentage of net revenue + charity care + discounts increased in 2H vs 1H every year except in 2008 and in 2014. This happens seasonally since there tends to be a seasonal decline in Q3 elective procedures as patients and doctors go on vacation, dampening commercial volumes as a percentage of total (while uninsured volume tends to be more consistent through the year).

The chart below provides the uncompensated care for an average hospital company.

**Chart 75: Uncompensated care as % of Net revenue + Charity + Discounts (1H vs 2H Avg.), 2005-2019**



Note: The average for CYH, HCA, HMA, LPNT, THC, UHS and VHS.

Source: BofA Merrill Lynch Global Research, Company data

#### Days sales outstanding (DSOs) vs expected DSOs

In our view, the most reliable metric to determine whether a company is properly booking revenue and accruing for uncompensated care is the one that has been tracked the longest – days sales outstanding (DSOs). Essentially DSOs measure how quickly a company turns revenue into cash flow. As DSOs build, it indicates that collections have slowed down, increasing the likelihood that the company expects to collect revenue that ultimately it will not. Generally, the trend is more important than the absolute number when determining whether there will be a charge in the future – ie, it is more worrisome to see a company go from DSOs of 50 to 60 than to see a company consistently at 60. However, we do believe that DSOs should not be dramatically different than the implied DSOs based upon the payer mix. In the table below, we outline the time it takes for each of the major payers to pay their bills and given a typical payer mix, we would expect to see DSOs in the 42-60 day range.

**Table 50: Estimated DSOs**

	DSOs		% of Revenue
	Low End	High End	
Medicare	30	35	30%
Medicaid	60	80	10%
Commercial	45	70	50%
Self Pay	45	60	10%
<b>Average</b>	<b>42</b>	<b>60</b>	<b>100%</b>

Source: BofA Merrill Lynch Global Research estimates.

If we weight each range by the percentage of revenue at a given company, we can determine how far away the company is from its predicted DSO range. If a company is toward the high end of the range, it would imply that the company is at a higher risk of an AR write-off.

DSOs were high in 1Q19, with CYH and THC near the high end of our expected DSOs and HCA and UHS's acute care business were also near the middle-top of the range. HCA called out a payer settlement (which they collected in April) as well as the Mission acquisition as the reason for their high DSOs, but no other company commented on the numbers from 1Q19.

**Table 51: Expected versus Expected DSOs**

	Expected DSOs		Reported DSOs
	Low End	High End	1Q19
CYH	43	62	58
HCA	41	58	53
THC	43	63	59
UHS	42	58	53

Source: Company reports, BofA Merrill Lynch Global Research estimates.

### Allowance as a percentage of self-pay receivables

Given that the vast majority of bad debt is a function of self-pay revenue, possibly the best metric to analyze would be the allowance for doubtful accounts as a percentage of self-pay receivables. With companies collecting 10% of self-pay and 50% of copays and deductibles, companies should be reserved for the vast majority of their self-pay AR. However, few companies provide this data.

In 2018, CYH's allowances for doubtful accounts and self-pay related contractual allowances were 90% of hospital segment self-pay receivables, 200bps below the 92% in 2017, but above the 88% in 2015 and the 84% in 2013, 2012, 2011 and 2010. In 4Q17, CYH recorded a \$394m increase in allowance for doubtful accounts to reflect the adoption of the new revenue recognition rule.

### Best metric - the actual cost of care for the uninsured

On its 3Q09 conference call, Tenet management noted that while 3Q09 bad debt expense was up \$28 million on a year over year same-store basis, the actual cost of care for the uninsured and charity care was only up \$12 million. The difference between the two numbers reflects the fact that bad debt on the income statement is booked at amounts well above the cost of care, despite large discounts to the uninsured.

Specifically, the fully burdened cost of caring for the uninsured and charity care in the quarter was \$130 million, but THC collected \$15 million from this population for a net cost of \$115 million. This compares to a net cost in 3Q08 of \$103 million, or a y/y increase in 3Q09 of \$12 million (versus a \$28 million increase in bad debt). Looked at this way, the financial impact of the increase in uncompensated care is less than half of the \$28 million increase in bad debt indicates.

**Table 52: Tenet - Bad Debt vs Financial Impact, 3Q09 vs prior year**

	3Q08	3Q09	Change y/y
Bad debt	\$166	\$193	\$28
% of revenue	7.7%	8.5%	84bp
Financial impact (net cost of care)	\$103	\$115	\$12
<b>Financial impact as % of bad debt</b>	<b>62.0%</b>	<b>59.6%</b>	<b>42.9%</b>

Source: BofA Merrill Lynch Global Research

In addition to the variable versus fixed cost analysis and the fact that uninsured revenue is booked at higher average net revenue per patient, we note that the year over year comparison of bad debt to actual cost of treating the uninsured is skewed by another factor – namely the differential in the rate of increases in gross charges versus the increase in cost growth. In general, companies tend to raise their gross charges about 8% per year regardless of how quickly costs are growing. This is also well above the average blended increase in rates from commercial/Medicare/Medicaid of about 3%.

We looked at each company's increase in bad debt in 4Q13 and calculated the real increase in bad debt expense assuming that each company increased its gross charges by 8% year over year in 2013 (we chose 4Q13 because it is the last quarter that was not affected by Reform). On a reported basis, bad debt was up 160 basis points on average. But on the adjusted metric, the average "real" bad debt expense was only up 64 basis points.

**Table 53: Bad Debt vs Financial Impact in 4Q13 vs 4Q12**

(\$MM)	THC			CYH			HCA			LPNT			UHS			Average y/y change
	4Q12	4Q13	Chg y/y	4Q12	4Q13	Chg y/y	4Q12	4Q13	Chg y/y	4Q12	4Q13	Chg y/y	4Q12	4Q13	Chg y/y	
Bad debt	\$200	\$348	\$148	\$485	\$512	\$27	\$1,104	\$1,126	\$22	\$160	\$207	\$48	\$204	\$315	\$111	
% of revenue	7.90%	8.20%	30 bp	12.90%	13.70%	80 bp	11.60%	11.30%	-30 bp	15.20%	17.90%	270 bp	10.40%	14.90%	450 bp	160 bp
Reported increase in bad debt	\$148			\$27			\$22			\$48			\$111			
Gross charges annual 8% increase	\$16			\$39			\$88			\$13			\$16			
'Real' increase % of reported increase	\$132			(\$11)			(\$66)			\$35			\$95			
	89%			-42%			-301%			73%			85%			-19%
% of revenue	7.90%	7.80%	-10 bp	12.90%	12.50%	-40 bp	11.60%	10.30%	-130 bp	15.20%	16.60%	140 bp	10.40%	14.00%	360 bp	64 bp

Source: BofA Merrill Lynch Global Research, Company data

## Our metric: cost of treating uninsured

By now it should be clear that bad debt/uncompensated care as normally tracked by the Street is more of a revenue recognition issue than it is a cost problem. Companies that raise gross charges quickly will show a dramatic increase in uncompensated care, while companies that raise gross charges more slowly will see a smaller increase. However, the economic impact of the uninsured has almost nothing to do with how much a company charges for treatment – instead it is tied to how much it costs that company to provide the service. In our view, the Street should focus on the cost of treating the uninsured rather than GAAP accruals, because it is cost growth that would create an earnings headwind/tailwind. Therefore, we created a metric to track the actual cost of treating the uninsured for hospital companies.

We calculate the cost of treating the uninsured by multiplying the average cost per adjusted admission excluding bad debt by the number of uninsured. The difference between the cost in the current quarter and the previous quarter is the true cost headwind of uncompensated care. Then, since companies do collect some amount from the uninsured, we assume that the company collects 8% of self-pay revenue in both quarters to back into the net cost of treating the uninsured in each quarter.

For a hypothetical hospital company with \$100 million of revenue in 4Q17 and 12,500 adjusted admissions, the average cost excluding bad debt per adjusted admission would be \$5,840. Assuming 7% of admissions are uninsured, the cost of treating uninsured in the quarter was \$5.1 million. Then, if we assume revenue grows 5% in 4Q18 with a stable uninsured ratio at 7%, the cost of treating uninsured would be \$5.4 million in 4Q18. Then, assuming that the company collects 8% of self pay revenue in both quarters, the net cost of treating the uninsured was \$4.1 million in 4Q17 and \$4.3 million in 4Q18.

In this example, based on our metric, the cost of treating the uninsured increased only \$0.2 million, indicating a slight headwind to earnings as a result of treating the uninsured.

**Table 54: Cost of treating the uninsured - Hypothetical Hospital Example**

	4Q17	4Q18
Total costs ex. bad debt (\$mm)	\$73.0	\$76.7
Total adj. admissions	12,500	12,750
Uninsured admissions as a % of total	7.0%	7.0%
Uninsured admissions	875	893

**Table 54: Cost of treating the uninsured - Hypothetical Hospital Example**

	4Q17	4Q18
Avg cost per adj adm	\$5,840	\$6,012
Cost of treating uninsured (\$mm)	\$5.1	\$5.4
<b>Cost headwind of uncomp. care</b>		<b>\$0.3</b>
Collections	\$1.0	\$1.1
Net cost of uncomp care (\$mm)	\$4.1	\$4.3
<b>Net cost headwind of uncomp. Care (\$mm)</b>		<b>\$0.2</b>

Source: BofA Merrill Lynch Global Research

**Company by company cost of treating uninsured**

We applied the above methodology to each of the companies (except UHS which does not disclose percentage of uninsured admissions) to determine the economic impact of bad debt for each as of 1Q19. We are not able to compare it to bad debt since the companies stopped reporting bad debt with 1Q18. In some ways, this makes our metric even more important as a tool.

Only THC reports full bad debt and uninsured admissions as a % of total revenue, as HCA reports only uninsured admissions as a % of total and CYH reports neither. We used most recently available data points for any not reported.

Overall, we found that bad debt dramatically overstates the economic impact of treating the uninsured across our coverage. The analysis shows that, in general, bad debt headwinds are overstated when looking at bad debt or uncompensated care alone. At the same time, when analyzing the benefits of Reform (or the impact of repealing it) one should look beyond just bad debt/uncompensated care and also look at the cost of treating these patients as the former generally overstates the actual impact to earnings.

**CYH Q1 19 bad debt benefit, despite increase in uncompensated care**

Total uncompensated care was 31.4% in 1Q19, up 160 basis points year over year as discounts to uninsured increased, partially offset by bad debt and charity care declining. As a result, the total value of uncompensated care increased \$119 million. Meanwhile, we assumed collections in 2018 and 2019 remained stable, implying net cost of treating the uninsured decreased \$18 million (based on our metric), well below the implied drag of higher uncompensated care.

As we mentioned previously, CYH does not provide bad debt as of 1Q18, and as such we have assumed that uninsured admissions as a % of total admissions remained flat.

**Table 55: CYH cost of treating the uninsured**

	4Q14	1Q15	2Q15	3Q15	4Q15	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19
Bad debt	\$723	\$735	\$732	\$734	\$757	\$755	\$700	\$704	\$678	\$682	\$679	\$667	\$426					
\$mm change	\$211	\$30	(\$20)	(\$34)	\$34	\$20	(\$32)	(\$30)	(\$79)	(\$73)	(\$21)	(\$37)	(\$252)					
Bad debt % of rev	12.8%	13.0%	13.0%	13.2%	13.2%	13.1%	13.2%	13.8%	13.2%	13.2%	14.1%	15.4%	10.5%					
Uninsured admissions as a % of total	4.7%	6.2%	4.8%	6.2%	5.5%	5.5%	5.6%	6.3%	5.8%	5.5%	6.2%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	
Avg cost per adj adm	\$7,967	\$8,089	\$7,969	\$8,071	\$8,321	\$8,350	\$8,458	\$8,560	\$8,667	\$8,594	\$8,729	\$8,627	\$8,885	\$8,913	\$8,892	\$9,078	\$9,237	\$9,391
Cost of treating uninsured (\$mm)	\$192	\$256	\$196	\$256	\$231	\$236	\$222	\$240	\$221	\$212	\$225	\$221	\$215	\$215	\$209	\$204	\$201	\$198
<b>Cost headwind of uncomp. care</b>	<b>(\$13)</b>	<b>\$14</b>	<b>\$32</b>	<b>\$38</b>	<b>\$39</b>	<b>(\$20)</b>	<b>\$26</b>	<b>(\$16)</b>	<b>(\$9)</b>	<b>(\$23)</b>	<b>\$3</b>	<b>(\$19)</b>	<b>(\$7)</b>	<b>\$3</b>	<b>(\$16)</b>	<b>(\$17)</b>	<b>(\$13)</b>	<b>(\$18)</b>
Collections	\$63	\$64	\$64	\$64	\$66	\$66	\$61	\$61	\$59	\$59	\$59	\$58	\$37	\$37	\$37	\$37	\$37	
Net cost of uncomp care	\$129	\$192	\$132	\$193	\$165	\$170	\$161	\$179	\$162	\$153	\$166	\$163	\$178	\$178	\$172	\$167	\$164	\$161
As % of net revenue	2.3%	3.4%	2.4%	3.5%	2.9%	3.0%	3.0%	3.5%	3.2%	3.0%	3.4%	3.8%	4.4%	4.8%	4.8%	4.8%	4.8%	4.8%
<b>Net cost headwind of uncomp. care</b>	<b>(\$31)</b>	<b>\$11</b>	<b>\$34</b>	<b>\$41</b>	<b>\$36</b>	<b>(\$22)</b>	<b>\$29</b>	<b>(\$13)</b>	<b>(\$3)</b>	<b>(\$17)</b>	<b>\$5</b>	<b>(\$16)</b>	<b>\$15</b>	<b>\$25</b>	<b>\$6</b>	<b>\$4</b>	<b>(\$13)</b>	<b>(\$18)</b>
<b>Bad debt change/uncomp care cost headwind</b>	<b>-6.7x</b>	<b>2.6x</b>	<b>-0.6x</b>	<b>-0.8x</b>	<b>0.9x</b>	<b>-0.9x</b>	<b>-1.1x</b>	<b>2.2x</b>	<b>30.6x</b>	<b>4.3x</b>	<b>-4.2x</b>	<b>2.3x</b>	<b>-16.4x</b>					

Note: 3Q17 uninsured admissions as a % of total used for 4Q17 and beyond, since the company does not report the metric as of 3Q17.

Source: BofA Merrill Lynch Global Research, Company data

The net cost of uncompensated care as a percent of revenue + bad debt + discounts + charity care increased 160 basis points year over year in 1Q19, continuing the increases observed through 2017 and 2018.

**Table 56: CYH – Uncompensated care vs cost of treating uninsured (\$m)**

	4Q14	1Q15	2Q15	3Q15	4Q15	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19
Uncompensated care	23.9%	23.7%	24.3%	25.4%	25.0%	25.0%	26.0%	26.5%	26.5%	27.1%	28.0%	28.9%	30.4%	29.8%	31.0%	32.3%	31.1%	31.4%
Y/Y bps change	-99	-270	-145	-98	109	130	162	112	150	210	203	235	390	270	300	343	71	160
Uncomp care y/y change	\$475	\$23	\$91	(\$68)	\$107	\$137	(\$142)	(\$69)	(\$41)	\$5	\$0	(\$93)	(\$17)	(\$102)	(\$10)	\$158	(\$35)	\$119
Net cost headwind of uncomp. care	(\$31)	\$11	\$34	\$41	\$36	(\$22)	\$29	(\$13)	(\$3)	(\$17)	\$5	(\$16)	\$15	\$25	\$6	\$4	(\$13)	(\$18)
Uncomp care y/y chg/ uncomp care cost headwind	-15.2x	2.0x	2.7x	-1.7x	3.0x	-6.3x	-4.9x	5.1x	15.7x	-0.3x	0.0x	5.7x	-1.1x	NA	NA	NA	NA	NA

Source: BofA Merrill Lynch Global Research, Company data.

### HCA uncomp. care up 3x more than the cost of treating the uninsured

HCA's bad debt in 4Q17 increased \$70 million year over year, while, based on our metric, the cost of treating the uninsured actually increased \$79 million, implying that the bad debt headwind is somewhat understated. Bad debt increase represented 0.9x the actual cost of treating the uninsured. As we mentioned previously, the company did not report bad debt as of 1Q18.

**Table 57: HCA cost of treating the uninsured (\$m)**

	4Q13	4Q14	1Q15	2Q15	3Q15	4Q15	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19
Bad debt \$mm change	\$1,126	\$832	\$646	\$1,035	\$1,158	\$1,074	\$790	\$762	\$840	\$865	\$760	\$1,073	\$1,271	\$935					
Bad debt % of rev	11.3%	7.9%	6.3%	9.5%	10.5%	9.5%	144	(\$273)	(\$318)	(\$209)	(\$30)	\$311	\$431	\$70					
Uninsured admissions as a % of total	8.3%	7.2%	6.3%	7.1%	6.5%	7.7%	6.9%	7.5%	7.0%	7.6%	7.0%	7.8%	8.4%	7.9%	7.0%	8.0%	9.0%	8.1%	
Avg cost per adj adm	\$10,014	\$10,154	\$10,077	\$10,173	\$10,236	\$10,316	\$10,367	\$10,449	\$10,432	\$10,535	\$10,623	\$10,695	\$10,909	\$10,886	\$10,968	\$10,938	\$10,953	\$11,291	
Cost of treating uninsured (\$mm)	\$595	\$556	\$488	\$562	\$524	\$626	\$571	\$621	\$584	\$642	\$604	\$675	\$750	\$728	\$652	\$745	\$843	\$791	
Cost headwind of uncomp. care	\$76	(\$40)	(\$61)	\$67	(\$19)	\$70	\$82	\$59	\$60	\$16	\$33	\$54	\$167	\$86	\$48	\$70	\$92	\$64	
Collections	\$98	\$72	\$56	\$90	\$101	\$93	\$69	\$66	\$73	\$75	\$66	\$93	\$111	\$81	\$81	\$81	\$81	\$81	
Net cost of uncomp care	\$497	\$483	\$432	\$472	\$423	\$532	\$502	\$555	\$510	\$567	\$538	\$582	\$640	\$646	\$571	\$663	\$761	\$710	
Net cost headwind of uncomp. care	\$75	(\$14)	(\$43)	\$41	(\$54)	\$49	\$70	\$83	\$87	\$34	\$36	\$27	\$129	\$79	\$33	\$82	\$122	\$64	
Bad debt change/uncomp care cost headwind	0.3x	21.1x	4.8x	7.5x	-7.4x	4.9x	2.1x	-3.3x	-3.6x	-6.1x	-0.8x	11.5x	3.3x	0.9x	NA	NA	NA	NA	

Note: we assumed 2018 and beyond collections remained stable

Source: BofA Merrill Lynch Global Research, Company data.

HCA's uncompensated care (bad debt + discounts + charity care) in 1Q19 increased \$833 million year over year. Based on our metric, the cost of treating the uninsured increased \$289 million, or 42%, indicating that the headwind from the uncompensated care is overstated if we look at just the uncompensated care numbers.

**Table 58: HCA – Uncompensated care vs cost of treating uninsured (\$m)**

	4Q13	4Q14	1Q15	2Q15	3Q15	4Q15	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19
Uncompensated care	32.1%	30.6%	29.0%	30.5%	32.9%	32.4%	31.9%	32.4%	33.5%	33.6%	33.4%	34.7%	35.6%	34.3%	35.4%	36.0%	37.2%	37.0%	36.1%
Y/Y bps change	273	-152	-239	165	308	177	291	194	64	122	145	233	207	71	200	128	162	270	70
Uncomp care y/y change	\$670	\$67	(\$89)	\$600	\$915	\$657	\$857	\$610	\$350	\$476	\$510	\$764	\$731	\$654	\$931	\$778	\$878	\$1,198	\$833
Net cost headwind of uncomp. care	\$75	(\$14)	(\$43)	\$41	(\$54)	\$49	\$70	\$83	\$87	\$34	\$36	\$27	\$129	\$79	\$70	\$82	\$103	\$230	\$289
Uncomp care y/y chg/ uncomp care cost headwind	9.0x	-4.8x	2.1x	14.7x	-17.0x	13.4x	12.3x	7.4x	4.0x	13.9x	14.3x	28.3x	5.7x	8.2x	13.3x	9.5x	8.5x	5.2x	2.9x

Source: BofA Merrill Lynch Global Research, Company data.

Meanwhile, in its 1Q, HCA reported cost of uncompensated care of \$836 million in 1Q19 vs \$775 million in 1Q18. HCA estimated a net headwind to earnings of \$61 million.

**Table 59: HCA – Estimated cost of uncompensated care as reported by company (\$mm)**

	1Q18	1Q19	y/y change
Gross patient charges	\$79,572.58	\$89,881.36	
Patient care costs	\$9,867	\$10,606	
Cost-to-charges ratio (patient care costs as % of gross patient charges)	12.4%	11.8%	
<b>Total uncompensated care</b>	<b>\$6,252</b>	<b>\$7,085</b>	<b>\$833</b>
Multiply by the cost-to-charges ratio	12.4%	11.8%	
<b>Estimated cost of total uncompensated care</b>	<b>\$775</b>	<b>\$836</b>	<b>\$61</b>
% of revenues	8.3%	8.4%	

Source: Company filings, BofA Merrill Lynch Global Research.

### THC's costs of uncomp. care up \$1m in 1Q19

Total uncompensated care was 25.3% in 1Q19, up 280 basis points year over year as charity care and discounts and bad debt increased.

THC's bad debt in 1Q19 increased \$17 million year over year. Based on our metric, the cost of treating the uninsured increased \$1 million.

**Table 60: THC cost of treating the uninsured**

	4Q14	1Q15	2Q15	3Q15	4Q15	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19
Bad debt	\$356	\$363	\$352	\$371	\$391	\$376	\$352	\$367	\$354	\$383	\$371	\$355	\$325	\$347	\$346	\$359	\$366	\$364
\$mm change	\$8	(\$17)	\$32	\$122	\$35	\$13	\$0	(\$4)	(\$37)	\$7	\$19	(\$12)	(\$29)	(\$36)	(\$25)	\$4	\$41	\$17
Bad debt % of rev	7.4%	7.6%	7.3%	7.3%	7.2%	7.5%	7.2%	7.6%	7.3%	7.4%	7.2%	7.2%	6.1%	6.9%	7.1%	7.4%	7.3%	7.4%
Uninsured adm. as a % of total	5.4%	5.3%	5.2%	5.6%	5.0%	4.9%	5.3%	5.9%	5.4%	5.1%	5.5%	5.6%	6.4%	6.2%	6.7%	6.7%	6.7%	6.4%
Uninsured adj. admissions	18,781	18,650	18,154	19,730	18,600	17,778	18,169	20,367	18,302	17,705	18,834	18,594	21,289	19,894	20,506	20,515	20,644	19,721
Avg cost per adj adm	\$10,897	\$10,914	\$11,202	\$11,594	\$11,839	\$12,053	\$12,298	\$12,282	\$12,442	\$12,234	\$12,265	\$12,164	\$12,338	\$12,398	\$12,510	\$12,590	\$12,684	\$12,611
Cost of treating uninsured (\$mm)	\$205	\$204	\$203	\$229	\$220	\$214	\$223	\$250	\$228	\$217	\$231	\$226	\$263	\$247	\$257	\$258	\$262	\$249
<b>Cost headwind of uncomp. care</b>	<b>(\$42)</b>	<b>(\$30)</b>	<b>(\$20)</b>	<b>(\$17)</b>	<b>\$16</b>	<b>\$11</b>	<b>\$20</b>	<b>\$21</b>	<b>\$8</b>	<b>\$2</b>	<b>\$8</b>	<b>(\$24)</b>	<b>\$35</b>	<b>\$30</b>	<b>\$26</b>	<b>\$32</b>	<b>(\$1)</b>	<b>\$2</b>
Collections	\$31	\$32	\$31	\$32	\$34	\$33	\$31	\$32	\$31	\$33	\$32	\$31	\$28	\$30	\$30	\$31	\$32	\$32
Net cost of uncomp care	\$174	\$172	\$173	\$196	\$186	\$182	\$193	\$218	\$197	\$183	\$199	\$195	\$234	\$216	\$226	\$227	\$230	\$217
<b>Net cost headwind of uncomp. care</b>	<b>(\$43)</b>	<b>(\$29)</b>	<b>(\$23)</b>	<b>(\$27)</b>	<b>\$12</b>	<b>\$10</b>	<b>\$20</b>	<b>\$22</b>	<b>\$11</b>	<b>\$2</b>	<b>\$6</b>	<b>(\$23)</b>	<b>\$37</b>	<b>\$33</b>	<b>\$28</b>	<b>\$32</b>	<b>(\$4)</b>	<b>\$1</b>
<b>Bad debt change/uncomp care cost headwind</b>	<b>-0.2x</b>	<b>0.6x</b>	<b>-1.4x</b>	<b>-4.5x</b>	<b>2.8x</b>	<b>1.4x</b>	<b>0.0x</b>	<b>-0.2x</b>	<b>-3.4x</b>	<b>4.1x</b>	<b>3.2x</b>	<b>0.5x</b>	<b>-0.8x</b>	<b>-1.1x</b>	<b>-0.9x</b>	<b>0.1x</b>	<b>-9.3x</b>	<b>28.8x</b>

Source: BofA Merrill Lynch Global Research, Company data

The delta is even wider when comparing it to bad debt + charity care + discounts. Net cost of uncompensated care increased \$1 million year over year, compared to the reported \$174 million increase in bad debt + charity care + discounts.

**Table 61: THC – Uncompensated care vs cost of treating uninsured**

	4Q14	1Q15	2Q15	3Q15	4Q15	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19
<b>Uncompensated care</b>	<b>22.2%</b>	<b>21.8%</b>	<b>21.4%</b>	<b>21.7%</b>	<b>22.0%</b>	<b>20.6%</b>	<b>19.9%</b>	<b>21.4%</b>	<b>21.5%</b>	<b>21.8%</b>	<b>22.3%</b>	<b>22.9%</b>	<b>21.5%</b>	<b>22.5%</b>	<b>23.5%</b>	<b>24.7%</b>	<b>25.1%</b>	<b>25.3%</b>
Y/Y bps change	-377	-298	-129	85	-13	-122	-153	-36	-53	120	235	151	-3	70	120	183	358	280
Uncomp care y/y change	<b>(\$88)</b>	<b>(\$59)</b>	<b>\$37</b>	<b>\$200</b>	<b>\$148</b>	<b>\$73</b>	<b>(\$16)</b>	<b>\$15</b>	<b>(\$88)</b>	<b>\$33</b>	<b>\$165</b>	<b>\$43</b>	<b>\$29</b>	<b>\$20</b>	<b>\$6</b>	<b>\$113</b>	<b>\$183</b>	<b>\$174</b>
Net cost headwind of uncomp. care	<b>(\$43)</b>	<b>(\$29)</b>	<b>(\$23)</b>	<b>(\$27)</b>	<b>\$12</b>	<b>\$10</b>	<b>\$20</b>	<b>\$22</b>	<b>\$11</b>	<b>\$2</b>	<b>\$6</b>	<b>(\$23)</b>	<b>\$37</b>	<b>\$33</b>	<b>\$28</b>	<b>\$32</b>	<b>(\$4)</b>	<b>\$1</b>
<b>Uncomp care y/y chg/ uncomp care cost headwind</b>	<b>2.0x</b>	<b>2.0x</b>	<b>-1.6x</b>	<b>-7.3x</b>	<b>11.8x</b>	<b>7.6x</b>	<b>-0.8x</b>	<b>0.7x</b>	<b>-8.2x</b>	<b>19.3x</b>	<b>28.0x</b>	<b>-1.9x</b>	<b>0.8x</b>	<b>0.6x</b>	<b>0.2x</b>	<b>3.6x</b>	<b>-41.7x</b>	<b>295.0x</b>

Source: BofA Merrill Lynch Global Research, Company data

## Avg. hospital company cost of care overstated by bad debt numbers

The combined hospital companies' bad debt in 4Q17 decreased \$231 million year over year. Meanwhile, based on our metric, the net cost of treating the uninsured increased \$131 million. This indicates that the impact of the uncompensated care is overstated if we consider only the bad debt numbers.

In 1Q19, the net cost of treating the uninsured increased \$273 million, well above the net cost increase in 4Q18. As a reminder, the hospital companies do not disclose bad debt in 1Q18. As such, our metric is even more valuable to analyze given the lack of disclosure going forward.

**Table 62: Uncompensated Care versus Bad Debt**

	Mar-15	Jun-15	Sep-15	Dec-15	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19
CYH	\$11.4	\$33.7	\$40.9	\$36.1	(\$21.7)	\$28.8	(\$13.4)	(\$2.6)	(\$17.1)	\$5.0	(\$16.3)	\$15.4	\$25.4	\$6.0	\$4.2	(\$13.5)	(\$17.5)
HCA	(\$43.0)	\$40.8	(\$53.9)	\$49.0	\$69.9	\$82.8	\$87.3	\$34.4	\$35.7	\$27.0	\$129.4	\$79.5	\$70.1	\$81.6	\$102.9	\$229.9	\$289.5
LifePoint	(\$6.5)	\$9.0	\$10.0	\$5.8	\$12.8	\$9.3	\$4.1	\$6.9	(\$1.1)	\$1.6	\$0.6	(\$1.2)	\$5.4	NA	NA	NA	NA
THC	(\$28.8)	(\$23.1)	(\$27.3)	\$12.5	\$9.6	\$20.1	\$21.7	\$10.7	\$1.7	\$5.9	(\$22.9)	\$37.5	\$33.2	\$27.7	\$31.8	(\$4.4)	\$0.6
Total	(\$66.9)	\$60.4	(\$30.3)	\$103.3	\$70.6	\$141.0	\$99.8	\$49.4	\$19.3	\$39.5	\$90.8	\$131.1	\$134.0	\$115.2	\$138.8	\$212.1	\$272.5
<b>Change in Bad Debt</b>																	
	Mar-15	Jun-15	Sep-15	Dec-15	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19
CYH	\$30.0	(\$20.0)	(\$34.0)	\$34.0	\$20.0	(\$32.0)	(\$30.0)	(\$79.0)	(\$73.0)	(\$21.0)	(\$37.0)	(\$252.0)	NA	NA	NA	NA	NA
HCA	(\$205.0)	\$307.0	\$400.0	\$242.0	\$144.0	(\$273.0)	(\$318.0)	(\$209.0)	(\$30.0)	\$311.0	\$431.0	\$70.0	NA	NA	NA	NA	NA
LifePoint	\$12.3	\$0.2	(\$9.4)	(\$20.8)	\$32.2	\$24.5	\$22.6	\$30.2	\$13.5	\$3.4	(\$7.0)	(\$20.4)	NA	NA	NA	NA	NA
THC	(\$17.0)	\$32.0	\$122.0	\$35.0	\$13.0	\$0.0	(\$4.0)	(\$37.0)	\$7.0	\$19.0	(\$12.0)	(\$29.0)	(\$36.0)	(\$25.0)	\$4.0	\$41.0	\$17.0
Total	(\$179.7)	\$319.2	\$478.6	\$290.2	\$209.2	(\$280.5)	(\$329.4)	(\$294.8)	(\$82.5)	\$312.4	\$375.0	(\$231.4)	NA	NA	NA	NA	NA

Source: BofA Merrill Lynch Global Research, Company data

As investors realized that bad debt does not give a complete picture of the impact of the uninsured, they moved toward looking at total uncompensated care. However, many of the issues of bad debt are magnified when analyzing total uncompensated care. Based on our metric, the average cost of treating the uninsured as a percentage of revenue increased 100 basis points from 2009 to 2013, well below the reported 550 basis point increase of uncompensated care as a percent of Revenue + Discounts + Charity Care.

On the flip side, when quantifying the Reform benefits the focus should be on a reduction in cash costs, not just reported uncompensated care costs. The Reform benefits in 2014 resulted in a 400 basis point year over year reduction in uncompensated care in 4Q14, equating to a 14% reduction. Meanwhile, the cost of treating these uninsured according to our metric declined 150 basis points year over year, representing a 30% reduction.

In 2015, the uncompensated care increased 30 basis points year over year while our metric indicates the costs to treat the uninsured increased 70 basis points year over year. Meanwhile in 2016, the uncompensated care increased 30 basis points year over year while our metric indicates the costs to treat the uninsured also increased 30 basis points year over year. In 2017, the uncompensated care increased 60 basis points year over year while our metric indicates the costs to treat the uninsured increased 130 basis points year over year. In 2018, the uncompensated care increased 70 basis points year over year while our metric indicates the costs to treat the uninsured increased 220 basis points year over year.

**Table 63: Uncompensated care as % of Revenue before bad debt + Charity + Discount**

	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19
CYH	3.9%	4.0%	5.0%	2.3%	2.9%	3.2%	3.0%	3.4%	3.8%	4.4%	4.8%	4.8%	4.8%	4.8%	4.8%
HCA	4.7%	4.4%	5.0%	4.6%	5.2%	5.3%	5.1%	5.4%	6.0%	5.6%	5.3%	5.8%	6.5%	7.1%	7.2%
Lifepoint	3.1%	3.6%	4.1%	2.0%	2.3%	2.3%	2.0%	2.4%	2.5%	2.3%	2.7%	2.6%	2.7%		
THC	4.8%	4.7%	5.1%	3.6%	3.4%	4.1%	3.5%	3.8%	4.0%	4.4%	4.3%	4.7%	4.7%	4.6%	4.4%
Avg	4.4%	4.4%	5.0%	3.5%	3.8%	4.2%	3.9%	4.2%	4.6%	4.8%	4.8%	5.1%	5.3%	5.5%	5.5%
Y/Y bps Δ	45	(4)	63	(152)	34	34	3	11	23	61	97	85	77	71	64

Note: Hospital companies did not provide bad debt for 1Q18. The average excludes Lifepoint.

Source: BofA Merrill Lynch Global Research, Company data.

**Table 64: Net Cost of Uncompensated Care as % of Revenue**

	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19
CYH	22.3%	22.7%	24.9%	23.9%	25.0%	26.5%	27.1%	28.0%	28.9%	30.4%	29.8%	31.0%	32.3%	31.1%	31.4%
HCA	25.7%	29.4%	32.1%	30.6%	32.4%	33.6%	33.4%	34.7%	35.6%	34.3%	35.4%	36.0%	37.2%	37.0%	36.1%
Lifepoint	16.7%	17.7%	19.7%	15.8%	13.9%	13.9%	13.9%	13.8%	14.2%	13.2%	NA	NA	NA	NA	NA
THC	30.9%	29.7%	25.9%	22.2%	22.0%	21.5%	21.8%	22.3%	22.9%	21.5%	22.5%	23.5%	24.7%	25.1%	25.3%
UHS	31.7%	35.6%	39.3%	29.7%	29.8%	28.9%	30.1%	33.0%	33.0%	29.4%	NA	NA	NA	NA	NA
Avg	27.7%	29.4%	30.6%	26.6%	27.3%	27.6%	28.1%	29.5%	30.1%	28.9%	29.2%	30.2%	31.4%	31.1%	30.9%
Y/Y bps Δ	290	170	120	(397)	72	31	186	261	217	128	115	66	133	216	170

Note: Hospital companies did not provide bad debt for 1Q18. The average excludes Lifepoint.

Source: BofA Merrill Lynch Global Research, Company data.

Looked at another way, Bad Debt + Charity Care + Discounts increased \$449 million on average in 4Q18, while the actual cost of treating these patients increased only \$71 million.

**Table 65: Change in uncompensated care vs change in cost of treating the uninsured**

	Mar-13	Jun-13	Sep-13	Dec-13	Mar-14	Jun-14	Sep-14	Dec-14	Mar-15	Jun-15	Sep-15	Dec-15	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19
<b>Uncompensated care</b>																									
CYH	\$65	\$83	\$92	\$106	\$543	\$622	\$640	\$475	\$23	\$91	(\$68)	\$107	\$137	(\$142)	(\$69)	(\$41)	\$5	\$0	(\$93)	(\$17)	(\$102)	(\$10)	\$158	(\$35)	\$119
HCA	\$378	\$506	\$376	\$670	\$440	(\$166)	(\$9)	\$67	(\$89)	\$600	\$915	\$657	\$857	\$610	\$350	\$476	\$510	\$764	\$731	\$654	\$931	\$778	\$878	\$1,198	\$833
Lifepoint	\$29	\$43	\$36	\$40	\$5	(\$1)	\$7	\$3	\$5	\$2	(\$2)	(\$15)	\$45	\$37	\$29	\$38	\$6	(\$2)	(\$4)	(\$23)	NA	NA	NA	NA	NA
THC	\$130	\$196	\$196	\$374	\$174	\$26	(\$63)	(\$88)	(\$59)	\$37	\$200	\$148	\$73	(\$16)	\$15	(\$88)	\$33	\$165	\$43	\$29	\$20	\$6	\$113	\$183	\$174
Average	\$191	\$262	\$221	\$383	\$386	\$161	\$189	\$151	(\$42)	\$243	\$349	\$304	\$356	\$151	\$99	\$116	\$183	\$310	\$227	\$222	\$283	\$258	\$383	\$449	\$375
<b>Cost of uncompensated care</b>																									
CYH	\$4	(\$4)	(\$2)	\$8	\$36	(\$50)	(\$7)	(\$31)	\$11	\$34	\$41	\$36	(\$22)	\$29	(\$13)	(\$3)	(\$17)	\$5	(\$16)	\$15	\$25	\$6	\$4	(\$13)	(\$18)
HCA	\$43	\$38	\$60	\$75	\$29	(\$33)	(\$50)	(\$14)	(\$43)	\$41	(\$54)	\$49	\$70	\$83	\$87	\$34	\$36	\$27	\$129	\$79	\$70	\$82	\$103	\$230	\$289
Lifepoint	\$12	\$10	\$7	\$10	(\$9)	(\$18)	(\$17)	(\$18)	(\$6)	\$9	\$10	\$6	\$13	\$9	\$4	\$7	(\$1)	\$2	\$1	(\$1)	NA	NA	NA	NA	NA
THC	\$4	\$13	\$8	\$97	\$78	\$62	\$92	(\$43)	(\$29)	(\$23)	(\$27)	\$12	\$10	\$20	\$22	\$11	\$2	\$6	(\$23)	\$37	\$33	\$28	\$32	(\$4)	\$1
Average	\$17	\$16	\$22	\$60	\$48	(\$7)	\$12	(\$29)	(\$20)	\$17	(\$13)	\$33	\$19	\$44	\$32	\$14	\$7	\$13	\$30	\$44	\$43	\$38	\$46	\$71	\$91

Incr in uncomp

care/ cost increase 11x 17x 10x 6x 8x -23x 16x -5x 2x 14x -26x 9x 18x 3x 3x 8x 27x 25x 8x 5x 7x 7x 8x 6x 4x

Note: The average excludes Lifepoint.

Source: BofA Merrill Lynch Global Research, Company data.

### Analyzing the actual cost of the uninsured

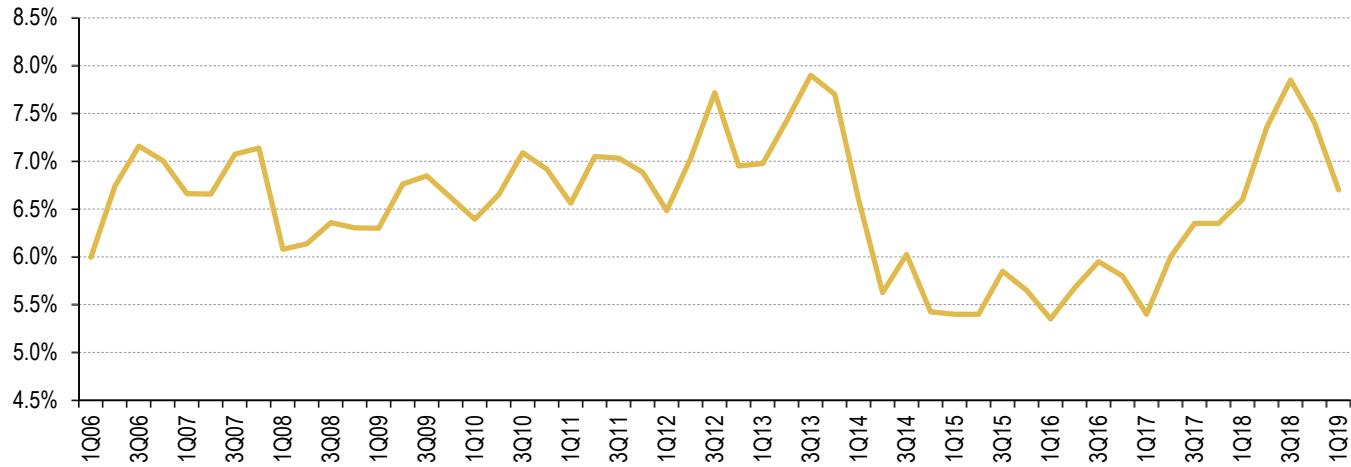
Given the weak economy, the number of uninsured could have risen well above normal volume growth, and all else equal, this should have translated into a real cost headwind. However, one of the underappreciated aspects of the impact of bad debt is that the weak economic trends that cause higher uninsured also allow hospitals to cut expenses. With labor cost growth running below average and increased focus on supply expense savings, the cost growth per adjusted admission tends to run below historical levels.

The average number of uninsured as a percentage of adjusted admissions for hospital companies increased from about 6% in 1Q08 to over 7.5% in 4Q13, a fact that all else equal would pressure earnings growth. Meanwhile, in 1Q14 uninsured admissions

declined to 6.6% as coverage expansion under HC Reform started to show up in the results. This trend continued into 2015 with the average uninsured volumes declining to 5.4% in 4Q14, and stayed in the 5.4-5.8% range through 2016.

Following a consistent decline between 2014 and 2016, the period in which HC Reform was implemented, the uninsured rate actually increased in 2017 and 2018. Several factors contributed to the increase, such as the Administration's efforts to undermine the exchanges which resulted in a lower enrollment, and the decline in Medicaid enrollment. As a result, the average uninsured rate for hospital companies increased 110 bps year over year to 7.4% in 4Q18, and 60 bps year over year to 6.4% in 4Q17 from 5.8% in 4Q16.

**Chart 76: Uninsured as % of adjusted admissions – average for hospital companies**



Note: Average for CYH, HCA, HMA (historically) LPNT, VHS (historically) and THC.

CYH's 4Q17 uninsured as % of admissions uses latest available data point.

Source: BofA Merrill Lynch Global Research, Company data

While uninsured volumes increased prior to 1Q14, cost growth had been moderating. Total cost excluding bad debt increased on average by 4% from 2008 to 2013, but well below the 6-8% increases from 2006-2008. While the number of the uninsured was increasing during that period, the cost of treating them was growing at a much slower rate than historically, and slower than net revenue growth. As a result, the cost of treating the uninsured was a much smaller headwind than the market assumed given the growth in the uninsured.

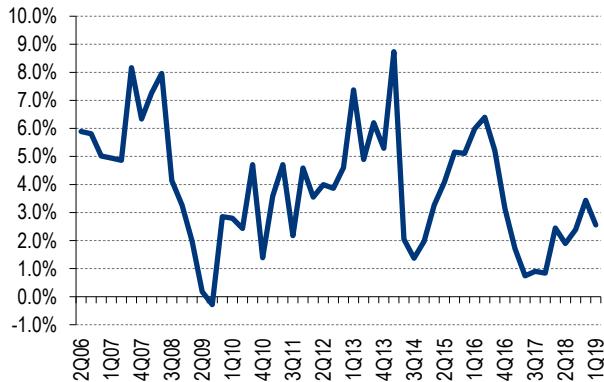
The numbers below include acquisitions, which usually come on board with higher labor and supply expense, so the growth rates on a same store basis are likely even lower. In 2013, the average cost growth accelerated particularly in 1Q13 as it seems hospitals were caught off guard by weak volumes (it wasn't as much that costs grew as it was that fixed costs remained fixed, while volumes dropped, resulting in a higher cost per adjusted admission). The cost growth slowed down in 2Q13, but still ended up being +6% for the full year, above +4% in 2011-2012. We believe that if volumes had been flat for the year, then cost growth per adjusted admission would have looked more similar to previous years.

The cost trends reversed in 2Q14 through 4Q14 as volumes dramatically improved to being positive from being negative in 2013. As a result, hospital companies achieved a better leverage on their fixed costs structure and SWB per adjusted admission was flattish 2Q14 and actually declined in 3Q14 on average. Similarly the companies were able to leverage supply costs which saw the growth slowing down to about 0-2% in 2Q14-4Q14 from +2-5% in 1Q13-1Q14 when volumes were particularly weak.

Meanwhile, in 2015 cost growth accelerated again as volume comps were difficult and flu season was weak. The fixed cost leverage worked the opposite direction – weak

volumes resulted with higher cost growth. On top of this, there have been some concerns that with the improving economy there starts to be some pressure on labor costs. As a result, companies began to talk about labor costs growing 2-2.5% vs 2% previously and in 2016/2017/2018 they talked about labor costs growing 2.5-3%. This underscores the risk that if the labor market improves, even if the uninsured drops, the cost of treating them could rise.

**Chart 77: Total costs/adjusted admission growth (y/y)**



Source: BofA Merrill Lynch Global Research, Company data

**Chart 78: SWB costs/adjusted admission growth (y/y)**



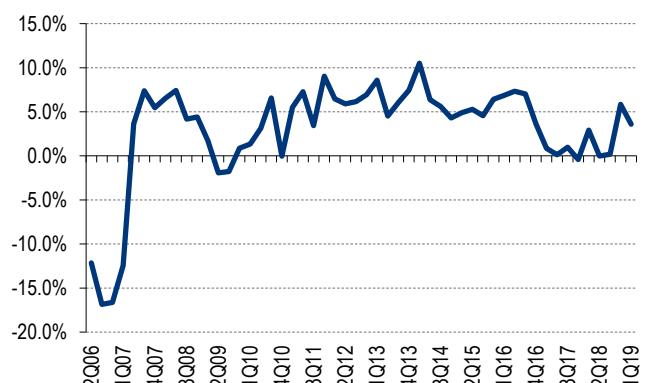
Source: BofA Merrill Lynch Global Research, Company data

**Chart 79: Supply costs/adjusted admission growth (y/y)**



Source: BofA Merrill Lynch Global Research, Company data

**Chart 80: Other opex/adjusted admission growth (y/y)**



Source: BofA Merrill Lynch Global Research, Company data

### Improving the accounting for bad debt

As the number of uninsured increased significantly from 2002 to 2006, companies saw acceleration in uncompensated care. This not only led to an increase in bad debt, but it also caused companies to take large write-offs to their AR balances. These large charge-offs created significant volatility in results and reduced visibility in earnings and created negative sentiment for the group. Companies were particularly prone to taking these charges due to their accounting policies.

### Previous policies

Three factors under the accounting treatment for bad debt before the 2012 change led to large AR write-offs: no discounts to the uninsured, the “look back analysis,” and the cliff methodology.

- **No discounts to the uninsured:** We note that prior to 2005 hospitals generally did not provide any discounts to uninsured patients. As a result, when the number of uninsured increased, the entire gross revenue per admission is booked as bad

debt. With gross revenue per admission 2-3x net revenue, an uninsured admission was disproportionately large as a percentage of net revenue, dramatically overstating the economic impact of bad debt.

- **Look back analysis:** Most hospital companies used a look back analysis to determine the appropriate amount of reserve for self-pay patients. This analysis takes a rolling 12-month average of the average collection rate, but after a three-month waiting period. For example, when analyzing June quarter reserves, the company would use the period from March of the prior year through March of the current year and apply that collection rate to the current revenue.

The companies had to use a three-month delay because it would often take several weeks to determine whether a patient is truly self-pay or whether they would qualify for some government assistance. Although this policy works well in stable environments, during times when collection rates decline rapidly, it can allow several quarters to go by before the 12-month average is actually reflective of current collection rates.

- **Cliff methodology:** We note that the look back analysis is not necessarily a bad policy, except for the fact that companies generally recorded bad debt under a cliff methodology where it would book no bad debt for the first 120, 150 or 180 days and then fully reserve the account when it reaches that threshold. As a result, AR built up on the balance sheet and periodically had to be written off when the look back analysis showed deterioration in trend.

### Current policies

In recent years companies have responded by becoming more conservative in their revenue recognition and bad debt accruals. As a result, current policies should result in significantly fewer write-downs in AR and those that occur should be smaller in nature. In particular, three changes have improved visibility in bad debt accruals: discounts to the uninsured, large up-front reserves, and gradual reserving policies.

- **Discounts to the uninsured:** We note that all companies now provide some amount of discounts to the uninsured. The actual amount varies from hospital to hospital within a given a company, but they are usually based on discounts provided to managed care companies (although usually somewhat less). By providing more discounts, the company books less revenue before bad debt and therefore there is less revenue to write off as uncollectible if the company's collections change. We note that discounts generally range from 20% to 60% of gross charges.
- **Larger up front reserves:** In addition to booking less revenue before bad debt, companies are also reserving a larger portion of self-pay revenue up front. Over the past several years, hospitals' assumptions about the amount of self-pay revenue that they collect have declined and are now generally 10% or less. With 0% as the absolute minimum that companies can collect, further deterioration in collection rates will not be of the same magnitude as in years past. Companies book anywhere from 60% to 100% of the self-pay revenue as bad debt upon the patient's discharge.
- **Gradual reserving policy:** Finally, not only do companies book more reserves at the time of discharge, but most also gradually increase the reserve as the account ages so that there is no longer a cliff where bad debt accruals spike when accounts reach a certain aging. We note that LPNT is the only company that does not gradually raise its accrual over time, because it take a full reserve at the time of service.

Below we provide a summary of key accounting metrics for each company (HCA gave their current accounting practice; UHS gave their accounting practice as of 2018, while CYH and THC did not give an update since 2016). When factoring in discounts provided to the uninsured as well as the immediate reserve, UHS and THC both have the lowest amount of unreserved self-pay revenue as a percentage of gross revenue. Both companies have a 60% discount and 100% reserved on the rest at the time of discharge. THC essentially takes its receivables off its books as Conifer takes over the collection process.

CYH has the highest percentage of unreserved revenue as a percentage of gross self-pay revenue, at 8% given the discounts of 40% and the Immediate Self-Pay Reserve of 86-88%.

We note that the self-pay collection rate has been slowly declining for some of the companies to low- to mid-single digits from high single digits several years ago. In addition, collection rates on copays and deductibles also declined over the last several years to 35-40% from the 50% range due to the continued increase of out-of-pocket expenses for patients through copays/ deductibles.

**Table 66: Summary of Key Bad Debt Accounting Metrics in 2019**

	CYH	HCA	THC	UHS
Self Pay Discount	40%	85%	60%	60%
Immediate Self Pay Reserve Gradual Increase in Accrual?	87% Not Disclosed	94% Yes	100% Yes	100% Yes
Fully Reserved	Not Disclosed	Not Disclosed	N/A	90 days
Fully Reserved on Other Payers	365 days	Not Disclosed	N/A	180 days
% Collected on Self Pay	4-7%	1-2%	Less than 10%	4-5%
% Collected on Copays/Deductibles	40%	55%	55%	35-40%
Unreserved Self Pay as % of Gross Rev	7.8%	0.9%	0.0%	0.0%

Source: BofA Merrill Lynch Global Research, Company data

## Historical drivers of bad debt

We believe that there are numerous causes for the increase in bad debt expense at hospitals, including an increase in the uninsured, change in benefit design, the weak economy, and the rising trend of “underinsured.” In many cases, these issues are interrelated, but below we provide some perspectives on each trend. We also note that despite the rise in the unemployment rate in 2008-2012, hospital companies did not see corresponding increases in bad debt and we provide some thoughts regarding the explanations below. The accounting for bad debt was a driver to the reported increase each year (particularly from 2004-2007), although the changes in accounting in 2012 mentioned above are part of the reason why we expect moderation/stabilization in bad debt growth.

### Increase in the uninsured

The biggest predictor of uninsured historically has been the unemployment rate. However, in recent years as health care premiums have risen, many individuals have forgone insurance in an effort to save money (which works only if they remain healthy). Given that the dollar amount of revenue at risk is higher and the collection rate is lower for an uninsured patient than a patient with third-party insurance, this has been the key driver to the rise in bad debt/uncompensated care expense.

According to the Urban Institute analysis commissioned by the Kaiser Family Foundation, a one percentage point increase in unemployment could result in a 1.1

million increase in uninsured. However, we note that this analysis was before the ACA and the expansion of Medicaid, so the impact is likely to be somewhat less than this.

**Table 67: Impact of 1% Increase in Unemployment on Number of Uninsured**

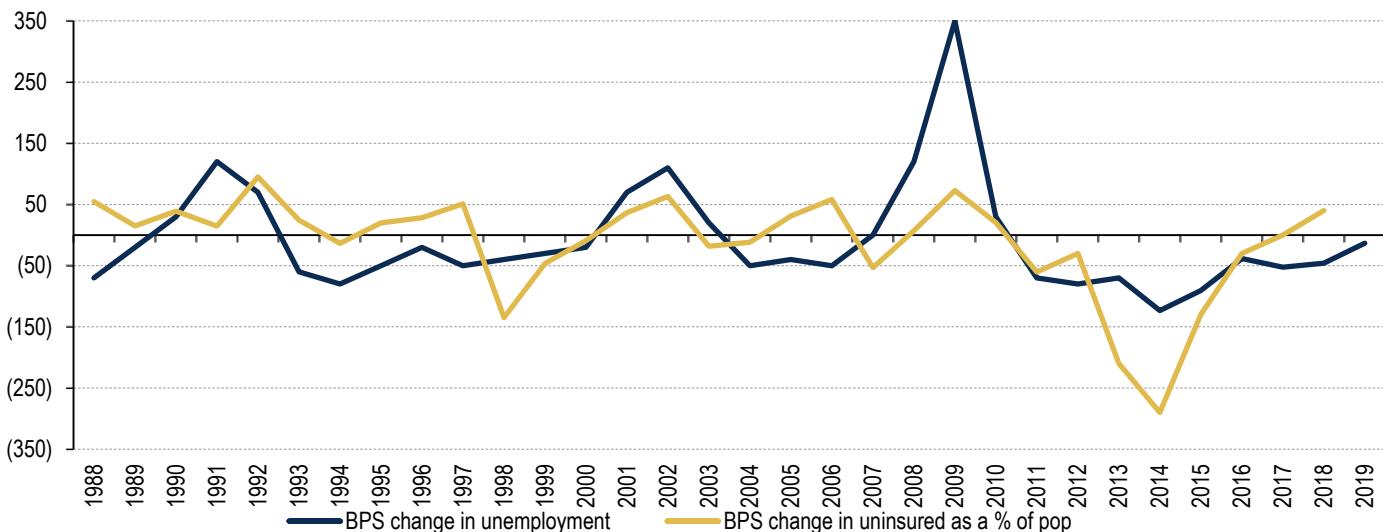
	Children	Non-elderly adults	Total
Employer-Sponsored Health Insurance	-700,000	-1,700,000	-2,500,000
Medicaid/SCHIP	600,000	400,000	1,000,000
<b>Non-group coverage</b>	<b>N/M</b>	<b>300,000</b>	<b>400,000</b>
<b>Uninsured</b>	<b>N/M</b>	<b>1,100,000</b>	<b>1,100,000</b>

Note: Totals may not add because of rounding and changes that, disaggregated, are less than statistically significant.

Source: Keiser Family Foundation, Urban Institute, February 2008.

Below we show the basis point change in the unemployment rate versus the basis point change in the uninsured. We highlight the strong historical correlation and note that when the two lines diverge it is generally due to a change in enrollment in government health insurance programs such as Medicare and Medicaid (eg requirement in 2009 to hold Medicaid eligibility flat, or Reform in 2014).

**Chart 81: Basis Point Change in Unemployment vs Change in Uninsured**

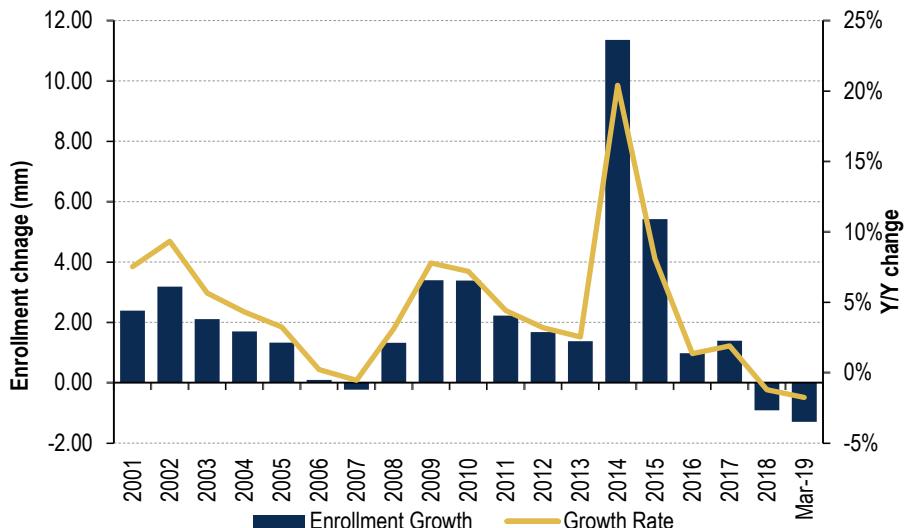


Source: US Department of Labor, US Census Bureau.

A survey by the Kaiser Family Foundation found a then record one-year increase in Medicaid enrollment of 3.4 million (8.4%) between June 2008 and June 2009. Overall, Medicaid enrollment grew by 13 million (32%) since the start of the recession in June 2007 till June 2013, a period when the unemployment rate doubled from 5% to 10% before falling back to 7% in 2013. As people lost jobs, more people qualified for the Medicaid program. We note that the unprecedented increases in Medicaid enrollment were aided by the federal support for the states and maintenance of effort requirements provided through the 2009 fiscal stimulus (see below for more details). Medicaid enrollment increased at a similar rate in 2010 compared to 2009.

The rapid enrollment growth in FY14 and into 2015 was driven by Reform. According to the June 2019 report from CMS, through March 2019, Medicaid enrollment increased almost 17 million from 2013, before Reform was implemented. However, it is down 2% vs year ago.

**Chart 82: Medicaid enrollment in 50 states and DC-annual change (as of June each year, and March 2019)**

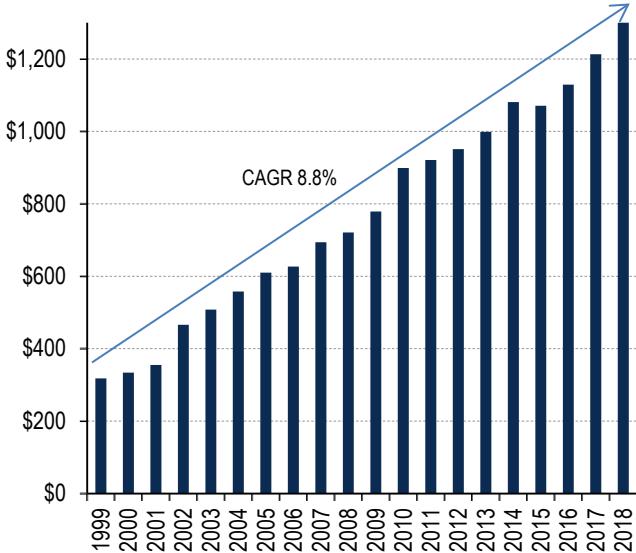


Source: CMS, BofA Merrill Lynch Global Research

### Change in benefit design

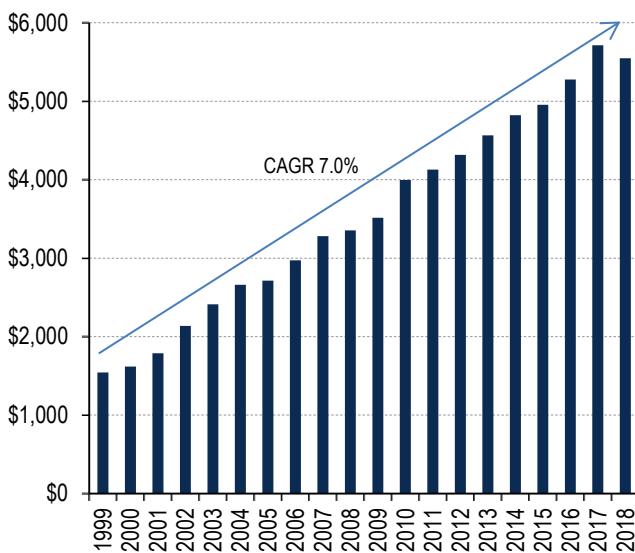
Health care premiums have increased at an average rate of about 7.0% since 1999, causing employers to increasingly shift some of the cost to the consumer in the form of higher deductibles and copays. Not only does this shift some of the financial burden to the consumer, but the goal of this shift is ultimately to make consumers of health care more aware of the actual cost and reduce unnecessary spending. Since hospitals collect 50% of copays and deductibles compared to 98% of managed care payments, any shift in benefit design will result in higher uncollected accounts.

**Chart 83: Average Annual Worker Premium Contributions Paid by Covered Workers for Single Coverage**



Source: Kaiser Family Foundation "Survey of Employer Health Benefits. 2018"

**Chart 84: Average Annual Worker Premium Contributions Paid by Covered Workers for Family Coverage**



Source: Kaiser Family Foundation Survey of Employer Health Benefits. 2018

Meanwhile, it appears that the increased cost sharing of consumers is having some impact on industry volumes. This shift has a secondary impact on the reporting metrics because, uninsured tend to use the system at a steady rate, so as patients with

insurance start restricting utilization, all else equal, this increases the uninsured as a percentage of total and increases the bad debt expense as a percentage of net revenue.

### Weak economy

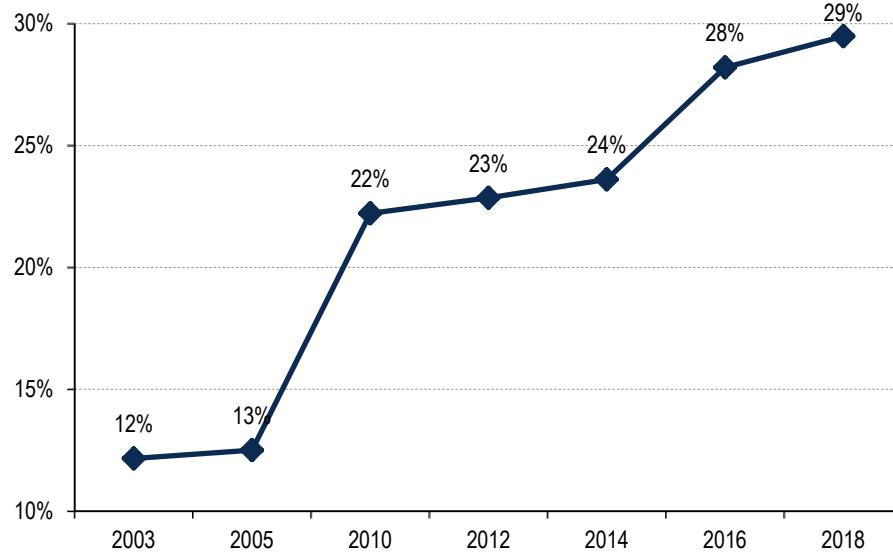
A weakening economy affects bad debt expense in a number of ways. First, as the economy worsens, the unemployment rate generally rises, increasing the number of uninsured. Second, the weak economy means that consumers generally have less disposable income and are less likely to pay their hospital bills, thus lowering the collection rates. Third, employers often become less generous with their health benefits in a weakening economy as their profits come under pressure and the need to use generous benefits to fill hiring requirements dissipates. This accelerates the change in benefit design at a time when employees are less able to afford the increased burden. In sustained economic downturns, there is increasing budgetary pressure on state and federal programs, which rely on income and sales tax revenues to finance spending. This could put pressure on Medicaid to cut enrollment at time when the need for extra spending on low income health care is needed most.

### Increase in "underinsured"

In addition to the uninsured population, there has been increasing focus on the number of "underinsured" people in the country. An underinsured person is a person that has health insurance but whose out-of-pocket expenses represent 10% of family income, 5% of family income for low-income families, or deductibles equaled 5% or more of income. The issue is gaining increasing attention due in part to the significant rise in copays and deductibles.

Coverage expansion under Reform drove the percentage of uninsured lower but according to the 2018 Commonwealth Fund Biennial Health Insurance Survey, 29% of the insured was underinsured in 2016, up from 16% in 2012 and 9% in 2003.

**Chart 85: Underinsured population in the US as a percentage of the insured population**



Source: Commonwealth Fund Biennial Health Insurance Surveys, BofA Merrill Lynch Global Research

Meanwhile, as might be expected, underinsured patients have a significantly harder time paying their medical bills than do insured patients. According to the 2018 study, even though they had insurance, 30% of underinsured people reported having difficulty paying medical bills, compared to 13% of respondents who had insurance but were not underinsured.

**Table 68: Problems with access, preventive care, care coordination, and medical bills, and quality-related concerns, by insurance status, among adults ages 19-64, 2018**

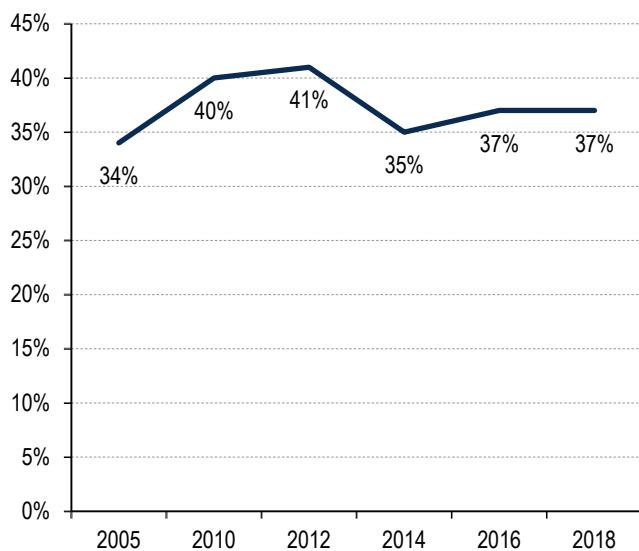
	Insured all year			
	All adults	Insured, not underinsured	Underinsured	Uninsured during year
All adults, millions	193.9	106.8	43.8	43.3
Access problems: went without care because of costs in the past year				
Did not fill prescription	19%	11%	25%	33%
Skipped test, treatment, or follow-up care recommended by doctor	19%	10%	23%	35%
Had a medical problem but did not visit doctor or clinic	21%	11%	24%	43%
Did not get needed specialist care	14%	7%	17%	28%
At least one of four access problems because of cost	35%	23%	41%	58%
Delayed or did not get dental care	33%	23%	41%	53%
Preventive care				
Regular source of care	89%	93%	94%	75%
Blood pressure checked, past 2 years	91%	94%	94%	80%
Dental exam in past year	60%	67%	67%	36%
Received mammogram, past 2 years (female age 40+)	65%	71%	71%	39%
Received Pap test, 3 years ago, ages 21-64	70%	73%	70%	61%
Received colon cancer screening in past 5 years, age 50-64	58%	63%	60%	36%
Cholesterol checked in past 5 years	72%	79%	76%	52%
Seasonal flu shot, past 12 months	42%	48%	44%	24%
Access problems for people with health conditions				
Skipped doses or did not fill a prescription for medications for the health condition because of cost	19%	10%	23%	45%
Medical bill problems in past year				
Had problems paying or unable to pay medical bills	24%	13%	30%	43%
Contacted by collection agency for unpaid medical bills	15%	9%	19%	27%
Had to change way of life to pay bills	13%	6%	19%	24%
Any of above three bill problems	29%	18%	38%	49%
Medical bills/debt being paid off over time	23%	16%	33%	29%
Any bill problem or medical debt	37%	25%	47%	54%

Source: Commonwealth Fund Biennial Health Insurance Surveys, 2018

Reform helped lower the cost barrier as Medicaid coverage comes with little to no cost share. The 2014 Commonwealth Fund survey found that for the first time since 2005, the number of people who report cost-related access problems and medical-related financial difficulties declined in 2014. The number of adults who did not get needed health care because of cost declined from 80 million people, or 43%, in 2012 to 66 million, or 36%, in 2014. The trend continued in 2016 with 63 million or 34% of adults not getting needed care because of cost. The number of adults who reported problems paying their medical bills declined from an estimated 75 million people or 41% in 2012 to 64 million people or 35% in 2014. The number went up in 2016 to 70 million or 37% but it is still below the 2012 levels. Looking at the 2018 survey, there were 67 million people, or 35% of adults, who did not get needed care because of cost. The percentage of adults who reported problems paying their medical bills was flat at 37%, or 72 million people.

**Chart 86: Working-age adults who said they had problems paying their medical bills in the last 12 months**

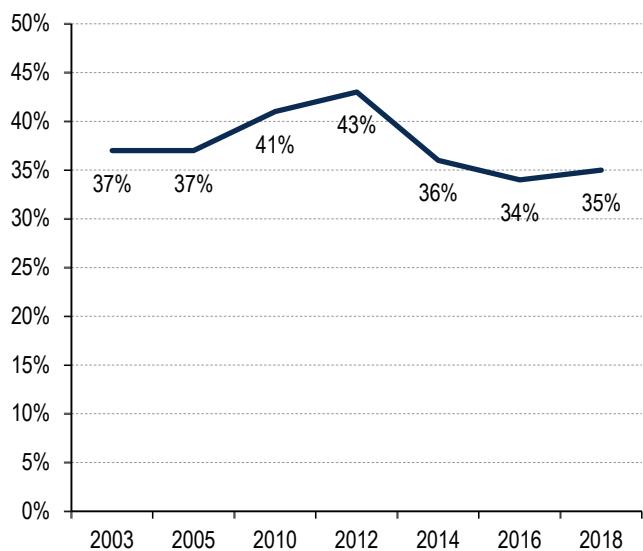
Same amount of adults reported difficulties paying medical bills or had medical debt



Source: Commonwealth Fund Biennial Health Insurance Surveys, 2018

**Chart 87: Working-age adults reporting at least one cost-related problem accessing needed care in the last 12 months**

Slightly more adults delayed care because of the cost

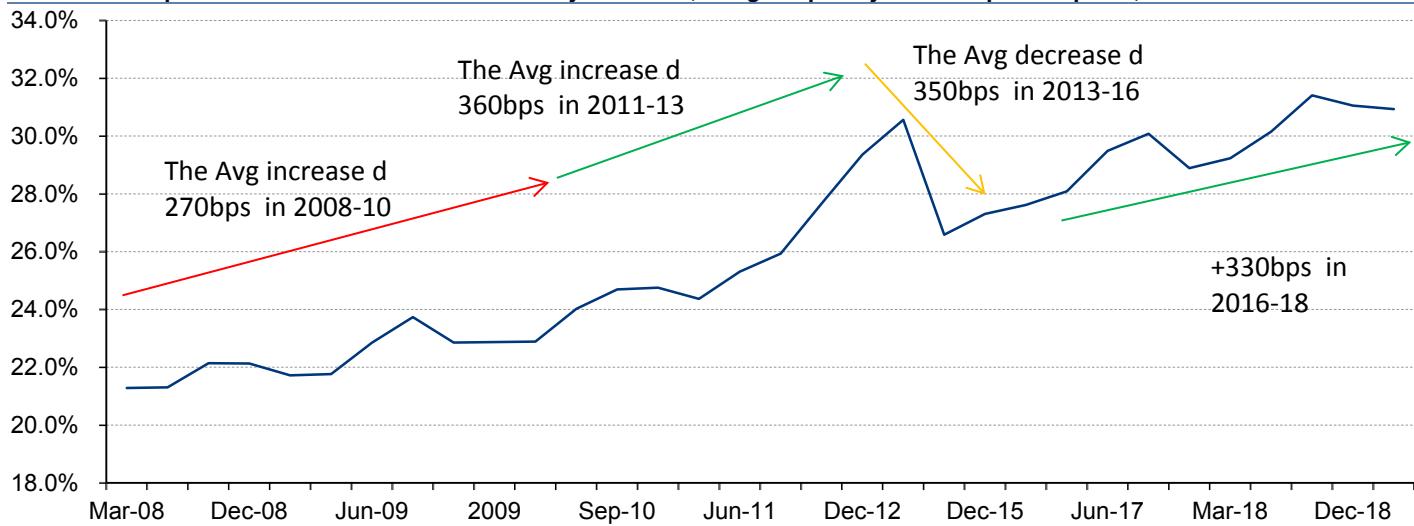


Source: Commonwealth Fund Biennial Health Insurance Surveys, 2018

## Bad debt trends were counterintuitive in last downturn

During the recession in December 2007 to December 2011, about 6 million jobs were lost. However, despite the increased unemployment, hospital companies did not report elevated uncompensated care levels as might be expected. In fact, uncompensated care for the hospital industry rose more during the economic recovery in the 2011-2013 period (the average increased +360 basis points) compared to the 2008-2010 period (up 270 basis points). We identified four main factors behind what appears to be counter intuitive trends in uncompensated care: Medicaid maintenance of eligibility requirements, the types of jobs lost/gained, changes in legislation around COBRA and changes in immigration.

**Chart 88: Uncompensated care as % of Net revenue + Charity + Discount (average for publicly traded hospital companies)**



Source: Company reports, BofA Merrill Lynch Global Research

## FMAP extension/maintenance of eligibility

A 2010 survey by the Kaiser Family Foundation found a then record one-year increase in Medicaid enrollment of 3.4 million between June 2008 and June 2009. Overall, Medicaid enrollment grew by 13 million (32%) since the start of the recession in June 2007 till June 2013, a period when the unemployment rate doubled from 5% to 10% before falling back to 7% in 2013. Total enrollment jumped 7.8%, to 47 million in June 2009 and 14 states had double-digit increases with enrollment growth accelerating in the June 2008 to June 2009 period.

We believe that the single-most underappreciated driver to the better than expected bad debt trends has been the “maintenance of eligibility requirements” tied to the FMAP extension. We note that to qualify for the extra Federal Medicaid matching dollars provided in the stimulus package, states agreed not to tighten eligibility for low-income people. This is important because Medicaid enrollment tends to surge when the economy weakens – just the time that state tax receipts start to drop off. The resulting budget crunch, historically has led many states to tighten eligibility criteria at just the time when recently unemployed need the Medicaid safety net more than ever. This time, the maintenance of eligibility requirements precluded states from making changes to their enrollment criteria, leaving more of the newly uninsured as eligible for Medicaid.

As a reminder, the ARRA funding through the enhanced federal Medicaid matching rates (the Federal Medical Assistance Percentage or FMAP) provided critical help to states in balancing their budgets. States received about \$87 billion through Medicaid over a nine-quarter period ending in December 2009 (since extended through 2010).

## Types of jobs lost and gained

Another dynamic to keep in mind when analyzing the change in bad debt is where job growth/loss is coming from since not all jobs are created equal when it comes to providing health insurance. We note that while job losses were widespread across nearly all major private-sector industries in the 2007-2010 period, construction employment declined the most during this period, down -27% vs -5% for the overall employment. Since construction jobs often do not have health benefits, a decline in construction employment generally does not lead to a commensurate decline in uninsured. Meanwhile, government employment, which often comes with more generous health benefits declined minimally, only 0.5% in the period 2007-2010.

**Table 69: Employees on non-farm payrolls by industry sector (2007-2010)**

(seasonally adjusted; mm)	Dec-07	Mar-08	Jun-08	Sep-08	Dec-08	Mar-09	Jun-09	Sep-09	Dec-09	Mar-10	Jun-10	Sep-10	Dec-10	Dec '07 to Dec '10
<b>Total Employment</b>	<b>138.0</b>	<b>137.9</b>	<b>137.3</b>	<b>136.4</b>	<b>134.4</b>	<b>132.1</b>	<b>130.6</b>	<b>129.8</b>	<b>129.4</b>	<b>129.5</b>	<b>130.1</b>	<b>129.9</b>	<b>130.4</b>	<b>-5.5%</b>
Total private	115.7	115.4	114.8	113.8	111.9	109.5	108.0	107.3	106.9	107.0	107.3	107.7	108.1	-6.5%
Government	22.4	22.4	22.5	22.5	22.6	22.6	22.6	22.5	22.5	22.5	22.8	22.3	22.3	-0.5%
Goods-producing	22.0	21.8	21.5	21.1	20.3	19.2	18.4	18.0	17.8	17.7	17.8	17.8	17.8	-19.0%
Service-providing	93.7	93.6	93.3	92.7	91.5	90.3	89.6	89.3	89.1	89.3	89.6	89.9	90.3	-3.6%
Construction	7.5	7.4	7.2	7.0	6.7	6.3	6.0	5.8	5.7	5.5	5.5	5.5	5.5	-27.0%
Manufacturing	13.7	13.7	13.5	13.3	12.9	12.2	11.7	11.6	11.5	11.5	11.5	11.6	11.6	-15.7%
Trade, transportation & utilities	26.7	26.6	26.4	26.1	25.6	25.2	24.9	24.7	24.5	24.6	24.6	24.7	24.8	-7.3%
Information	3.0	3.0	3.0	3.0	2.9	2.9	2.8	2.8	2.7	2.7	2.7	2.7	2.7	-11.2%
Financial activities	8.3	8.3	8.2	8.2	8.1	7.9	7.8	7.8	7.7	7.7	7.7	7.7	7.7	-7.3%
Professional & business svces	18.1	17.9	17.8	17.7	17.2	16.8	16.4	16.4	16.5	16.5	16.7	16.8	17.0	-5.7%
Education and health services	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.2	19.4	19.5	19.5	19.6	19.7	6.1%
Leisure and hospitality	13.6	13.5	13.5	13.4	13.3	13.1	13.1	13.1	12.9	12.9	13.0	13.1	13.2	-2.9%
Other Services	5.5	5.5	5.5	5.5	5.4	5.4	5.4	5.4	5.3	5.3	5.3	5.3	5.3	-3.3%

Source: US Bureau of Labor Statistics, BofA Merrill Lynch Global Research

Meanwhile, since 2010, construction employment actually increased 36% through March 2019 while government employment was almost flat during this period, underperforming other sectors. Since the government jobs tend to come with robust health care benefits, the decline in this sector from 2010 to 2013 had a negative impact on hospitals uncompensated care, while the pickup in construction employment did not lift insurance coverage to the same degree. Therefore it is important to monitor the types of jobs that are gained and lost coverage to the same degree.

**Table 70: Employees on non-farm payrolls by industry sector (2010-March 2019)**

(seasonally adjusted; mm)	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Dec '10 to Mar '19 Change
<b>Total Employment</b>	<b>130.4</b>	<b>132.5</b>	<b>134.7</b>	<b>137.4</b>	<b>140.6</b>	<b>143.1</b>	<b>145.4</b>	<b>147.6</b>	148.3	149.0	149.6	<b>150.3</b>	150.8	<b>16%</b>
Total private	108.1	110.5	112.8	115.5	118.7	121.1	123.1	125.3	125.9	126.6	127.1	127.8	128.3	19%
Government	22.3	22.0	21.9	21.9	21.9	22.0	22.3	22.3	22.4	22.5	22.5	22.5	22.5	1%
Goods-producing	17.8	18.2	18.5	18.8	19.5	19.7	19.8	20.3	20.5	20.7	20.8	21.0	21.0	18%
Service-providing	90.3	92.3	94.3	118.6	99.2	101.4	103.3	105.0	105.3	105.8	106.2	106.8	107.3	19%
Construction	5.5	5.6	5.7	5.9	6.3	6.6	6.8	7.1	7.2	7.3	7.4	7.4	7.4	36%
Manufacturing	11.6	11.8	12.0	12.1	12.3	12.3	12.4	12.6	12.6	12.7	12.7	12.8	12.8	11%
Trade, transportation & utilities	24.8	25.3	25.8	26.2	26.7	27.1	27.4	27.6	27.6	27.6	27.7	27.8	27.8	12%
Information	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	5%
Financial activities	7.7	7.7	7.8	7.9	8.0	8.2	8.4	8.5	8.5	8.6	8.6	8.6	8.6	12%
Professional & business svces	17.0	17.6	18.2	18.8	19.4	20.0	20.2	20.7	20.8	21.0	21.1	21.3	21.3	25%
Education and health services	19.7	20.1	20.5	21.2	21.7	22.4	22.9	23.4	23.5	23.6	23.8	23.9	24.1	22%
Leisure and hospitality	13.2	13.5	13.9	14.4	14.9	15.3	15.9	16.2	16.2	16.3	16.4	16.6	16.7	27%
Other Services	5.3	5.4	5.5	5.5	5.6	5.7	5.7	5.8	5.8	5.9	5.9	5.9	5.9	11%

Source: US Bureau of Labor Statistics, BofA Merrill Lynch Global Research

Below we show the relative uptake in employer insurance coverage by type of job. About 79% of government employees get insurance through their employer compared to only 62% nationally. As a result, government job growth is more likely to help bad debt (and volumes) than other types of job growth.

**Table 71: Health insurance coverage by industry**

Industry	Covered by Employer
State/Local Government	79%
Finance	78%
Whole	77%
Transportation/Communications/Utilities	76%
Manufacturing	74%
Agriculture/Mining/Construction	62%
Health Care	62%
Service	57%
Retail	34%
All Firms	62%

Source: Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016

### Declining immigration

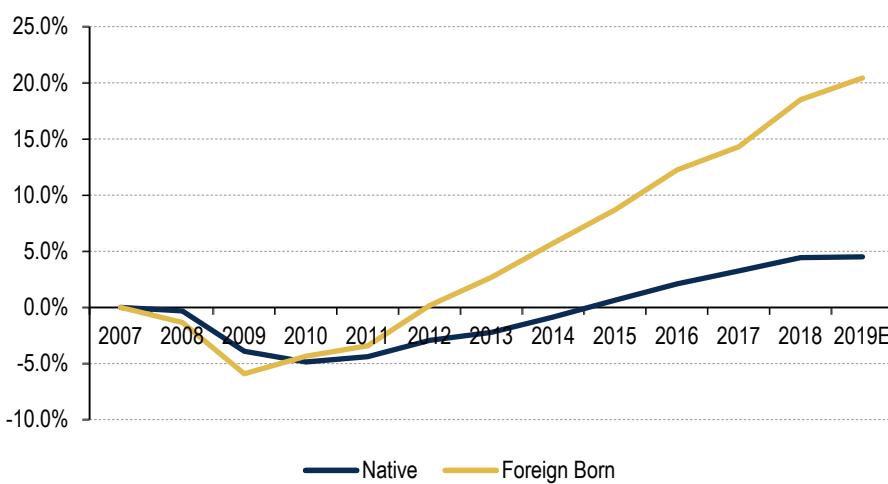
Some health care facilities companies have speculated that illegal workers returned to their native countries during the most recent economic downturn, helping contain increases in uninsured. Construction employment was down 27% from the end of 2007 through 2010, and according to *Builder Magazine*, illegal immigrants made up at least one-third of the residential construction workforce during the housing boom. There is some evidence that supports the theory that these displaced immigrant workers were

leaving the US due to lack of work. In fact, from 2007 through 2010, the immigrant work force declined more rapidly than the US born work force, and likely helped reduce uninsured volumes during that time.

However, according to the Current Population survey data collected by the Census Bureau, in 2011 and 2012 that trend has reversed, and as of 2018 the number of immigrants holding a job in the US is 19% above 2007 levels. The number of US-born citizens employed is 3% above 2007 levels. Given that illegal immigrants are less likely to be insured than legal residents, the decline in immigration from 2007-2010 likely helped keep bad debt in check, but the rise in immigration since then helped explain why bad debt grew more quickly, even during a time of rising employment. This trend is likely magnified for the publicly traded companies who tend to have a significant presence in states with large immigrant populations (TX, FL, CA, etc.).

If this relationship holds steady, the new administration's actions related to immigration may reduce the number of immigrants over time.

**Chart 89: Change in the Number of Workers Since 2007 (native- vs foreign-born)**



Source: Current Population Survey data through Center for Immigration Studies; BofA Merrill Lynch Global Research

#### **COBRA extension helped at the depths of the recession, now expired**

Although currently no longer in effect, during the height of the recession, the administration passed a bill that temporarily expanded the time that people could sign up for COBRA and subsidized its cost. People qualifying for this subsidized coverage began rolling off of this coverage between mid 2010 and August 2011. As a result, it is no longer a sustaining force to lowering bad debt, but once again likely helps explain why bad debt was below what we might have thought initially, and yet grew more quickly than expected during the economic recovery.

When employees lose their jobs, they are able to continue their employer-sponsored coverage for up to 18 months. However, under the original legislation, individuals were required to pay 102% of the premium of the former employer's plan to continue their insurance through COBRA (Consolidated Omnibus Budget Reconciliation Act of 1985), a cost that could easily reach \$1,000 per month and represented a significant barrier for many laid-off workers and their families.

To help people maintain coverage during the recession, the federal government provided temporary COBRA subsidies through the American Recovery and Reinvestment Act of 2009 (ARRA). Under ARRA, many recently laid-off workers were eligible for a 15-month federal subsidy that covered 65% of the cost of COBRA. Unemployed could decide to regain coverage through COBRA during the 60 day period after a layoff. The

COBRA election opportunity relates to an involuntary termination of employment that occurred at some time from September 1, 2008 through May 31, 2010.

In addition to extending the time of the coverage, under ARRA unemployed people were able to retroactively sign up for COBRA if they needed it (60 days after termination). Under the original COBRA, people had 60 days to decide to enroll in the coverage and had to pay the full premiums for the time since they qualified for the coverage. Under ARRA, people who qualified for the COBRA subsidy and had previously chosen to not maintain coverage under COBRA did not need to retroactively pay for COBRA back to the date they lost their jobs. Instead, they simply needed to begin paying their 35% share of the premium for coverage going forward.

Some studies have shown that health care utilization under COBRA is actually over 50% higher than under the original plan as people who fear losing coverage try to get their health care taken care of while it is covered. Meanwhile, managed care companies typically report a medical loss ratio of 2-3x the normal enrollee at its COBRA membership. Since layoffs tend to happen over a several month period, the first people fired in a recession tend to be part time people who may not have health care benefits. Then as full time employees with benefits lose their jobs, there is an 18 month lag before people use all of their COBRA benefits. As a result, there is generally a 1-3 year lag before rising unemployment actually leads to lower utilization or unpaid bills for COBRA members.

In addition to COBRA, the unemployed were also provided with extension of unemployment benefits that could help to pay for health care costs. The unemployment benefits vary by state but a qualified person can receive six months of benefits with an additional 13 to 20 weeks of extension under the American Recovery and Reinstatement Act. We believe that the extension of the benefit period likely contributed to the continued higher COBRA uptake.

Although it is tempting to say that COBRA has had a significant impact on lowering bad debt expense while it was in effect, we believe that the benefit has been modest—somewhere in the 30-60 basis point range. WellPoint (now Anthem), the largest managed care company by membership, only saw a 60 basis point increase in its COBRA membership as a percentage of total during the recession.

Assuming managed care represents about 50% of hospital revenue, the 60 basis point increase in COBRA membership implies a 30 basis point impact on bad debt.

**Table 72: COBRA Subsidy Impact on Bad Debt**

Managed care revenue mix	50%
Increase in COBRA membership (YE 2008 - 1Q10)	0.6%
<b>Impact on bad debt</b>	<b>0.3%</b>

Source: BofA Merrill Lynch Global Research

However, the impact could be closer to 60 basis points given the accounting for bad debt (uninsured revenue and therefore bad debt is higher than what companies would book for managed care revenue) and higher utilization of health care services from people under COBRA. Below we summarize some of the factors in this analysis.

- **Higher utilization:** Managed care companies typically talk about utilization that is twice as high for COBRA members than the typical managed care member, ostensibly since people with outstanding medical issues are more likely to want to maintain coverage, while those in good health may risk going without insurance for some time.
- **Higher charges due to billing policy:** In an ironic twist, the hospital bills the uninsured person a higher rate than the insured person (see discussion of the charge master). This means that when a person moves from COBRA to uninsured

and needs to go to the hospital, the hospital would book more revenue (and almost all of this would be bad debt) than they would if the patient was insured, increasing bad debt both on an absolute basis and as a percentage of revenue.

### **Companies' response to higher unemployment**

In response to higher unemployment and the increasing number of uninsured, hospital companies tried to find ways to mitigate the impact by improving upfront collections and helping patients qualify for health insurance.

- **Upfront collections.** One strategy to offset increasing uncompensated care is to focus on upfront collections. It is often easier to collect some amount of money while a patient is still in the hospital than after the patient is discharged and months have passed. For example, on its 4Q09 earnings call Tenet said that while overall collections remained relatively flat at about 30%, its upfront collection rate has improved and has been one of the contributors to accounts receivable improvements. In 3Q09, cash collections at the point of service were 37.3%, an increase of almost 210 basis points from the prior period. In addition, Tenet has been integrating more with its payers by having more electronic exchange of information and quicker adjudication of bills with its managed care payers, which enables the company to collect more timely. In addition, LPNT said it has been focusing on upfront collections, which improved 21% year over year in 1Q10.
- **Qualifying for insurance.** One of the underappreciated problems with the health care system is that of the 50 million uninsured in 2013, at any given time there are about 10-15 million people that qualify for insurance, including Medicaid or a county funded program, but are not enrolled. There are various reasons that these patients are without insurance, including a recent move from one state or county to another, or simply lack of education about health care options. Hospitals proactively set up programs that help the uninsured determine if they qualify for these health insurance programs. Hospitals have noted significant success with these programs, and believe that this will continue to reduce the number of uninsured, especially as the education efforts around Reform should result in previously eligible but not enrolled to also sign up.

Historically, most companies talked about getting 60-70% of Medicaid eligible patients signed up for Medicaid once they enter the hospital. This number has trended upwards in recent years toward 80%+, particularly around those who are newly eligible under Reform.

### **Bad debt seasonality**

Prior to 2014, uncompensated care had been on the rise for the industry. In 2013, every hospital reported total uncompensated care well above pre-2009 levels. As a result of Reform (see section below for details), uncompensated care declined in 2014 with the average for the hospitals down 470 basis points year over year in 4Q14. The declines continued in 2015 with the uncompensated care down 10 basis points year over year in 4Q15. As the incremental new coverage growth slowed down, uncompensated care increased 130 basis points year over year in 4Q16, and was up 130 basis points in 4Q17 and up 300 basis points in 4Q19.

**Chart 90: Uncompensated care as % of Net revenue + Charity + Discount (average for publicly traded hospital companies)**



Source: BofA Merrill Lynch Global Research, Company data

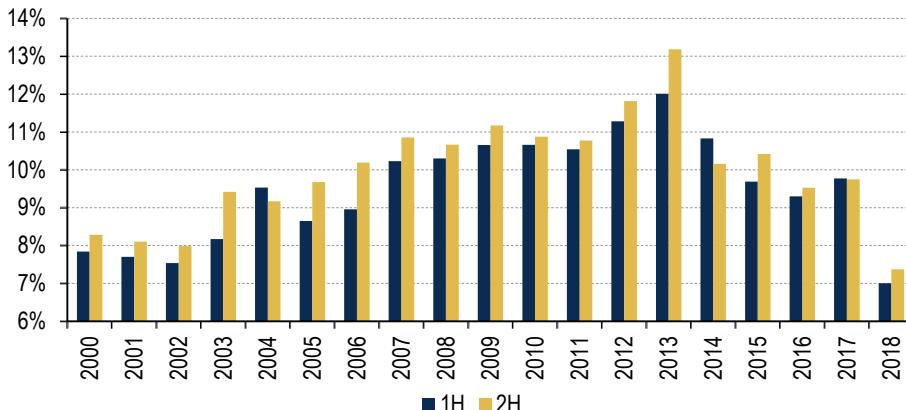
## 2H increase due to seasonality in bad debt

Bad debt does not seem as though it would be seasonally strong or weak, but we found a pattern that bad debt accruals are higher in the second half of the year than the first half of the year. In the chart below, we show that every year from 2000 till 2013 except 2004, bad debt expense was higher in the second half of the year than in the first half of the year. The average increase from the first to the second half of the year was 60 basis points (70 basis points excluding the decline in 2004). The seasonal change was 50 basis points in 2009, 20 basis points in 2010, 20 basis points in 2011, 50 basis points in 2012, and 120 basis points in 2013.

Because of the ramp up in coverage expansion through the year, this dynamic was skewed in 2014 when 2H bad debt was 70 basis points below the 1H level. In 2015, the trend reversed to normal with 2H coming in 70 basis points above 1H, followed by a 20 basis points increase in 2H vs 1H in 2016. However, in 2017, the 2H increase was slightly below the increase in 1H (although this could be due to changes in accounting for bad debt, as total uncompensated care was up in 2H).

We note that because of accounting changes, only THC still provides their exact bad debt amount per quarter. Even still, we still saw the same dynamic, with 2H18 bad debt 40bps above the 1H18 percentage for THC.

**Chart 91: Bad Debt Expense (1H vs 2H Average)**



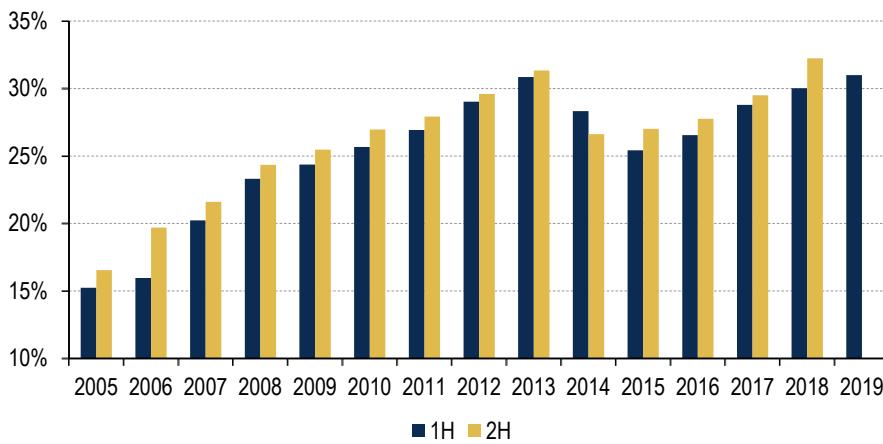
Note: The average for CYH, HCA, LPNT, THC, and UHS.

2018 data is for THC only

Source: Company reports, BofA Merrill Lynch Global Research

We observed a similar pattern in the uncompensated care metric (Bad Debt + Charity Care + Discounts as a percentage of Net Revenue + Charity Care + Discounts). From 2005 to 2013, the uncompensated care for an average hospital company increased 120 basis points in the second half of the year as compared to the first half of the year. In 2014, uncompensated care declined 150 basis points in 2H from 1H due to the continued coverage expansion. Meanwhile, in 2015, the trend returned to normal with the uncompensated care increasing 130 basis points in 2H from 1H, and it was up 100 basis points in 2H from 1H in 2016. The trend continued to increase in 2017 with an increase of 90 basis points in 2H from 1H, as well as in 2018 when there was an increase of 220 basis points in 2H from 1H. The chart below provides the uncompensated care for an average hospital company.

**Chart 92: Uncompensated care as % of Net revenue + Charity + Discounts (1H vs 2H Avg.), 2005-2019**



Note: The average for CYH, HCA, HMA, LPNT, THC, UHS and VHS.

Source: BofA Merrill Lynch Global Research, Company data

It is not readily clear why there should be seasonality to bad debt. It could be argued that bad debt should be higher in 1Q as deductibles reset and self-pay should be higher. However, the most widely accepted rationale is that insured volumes are weakest in 3Q as doctors and patients take vacations; this leaves the uninsured volumes (mostly emergency which do not fluctuate) as a higher percentage of total.

We believe that a portion of the higher accrual could actually be a function of the accounting as companies are more optimistic about trends at the beginning of the year,

but then when trends do not improve or get worse, companies are forced to raise their reserve assumptions. However, none of the companies agree with this theory (although a couple of companies conceded that this could have been the case in 2005 and 2006 when we saw a number of AR writedowns).



## Acquisitions



## Acquisitions

Hospital companies generate consistent cash flow, even after capex, which supports high leverage and M&A activity. For the most part, hospitals are not a scalable business, so unless there is a strategic in-market transaction, benefiting from deals is very much about buying assets with low margins and turning them around over time. As a result, acquisitions often create earnings growth for hospital companies over a multi-year period as the acquirer ramps up below average margins at the target to the acquirer's level over a 3-5 year period.

### Reasons to buy

Acquisitions, in general, can carry substantial risk especially when the target is unprofitable and not immediately accretive to earnings. However, the advantages can outweigh the risks. Below we highlight some reasons why one hospital would acquire another hospital.

- **Negotiating leverage.** Larger portfolios (greater patient volumes) give hospitals more clout when negotiating with managed care companies and suppliers. In negotiating with managed care, it is much more important to have local market share than national market share, so in-market acquisitions can add to negotiating leverage.
- **Diversification.** All markets have different population and employment trends. A potential target may be exposed to a favorable demographic or payer type characteristic or it simply may diversify the company away from reliance on one payer.
- **Added services.** For rural hospitals, acquisition targets may operate in markets that would support high acuity service lines, but the local hospital simply lacks capital or expertise to build out that capability. Buying the asset and making some investments gives the acquirer a way to boost revenue growth in more profitable areas like cardiology or orthopedics.
- **Additive to EPS.** Deals add to revenue and earnings (in theory). Typically, the acquired hospital has margins below the overall company's but is ramped up over time as it is fully integrated, adding to earnings.
- **Valuation.** There is an expression that "everything is for sale for the right price." The increasing complexity of the reimbursement system and the need to deal with health care IT requirements, payment reforms such as BPCI, etc are forcing one-off hospitals to evaluate aligning with larger systems, and can help acquirers get quality, but struggling, assets for a cheap price.

### Reasons to sell

On the other side of the table, we highlight a few reasons why a hospital would sell, particularly in this environment.

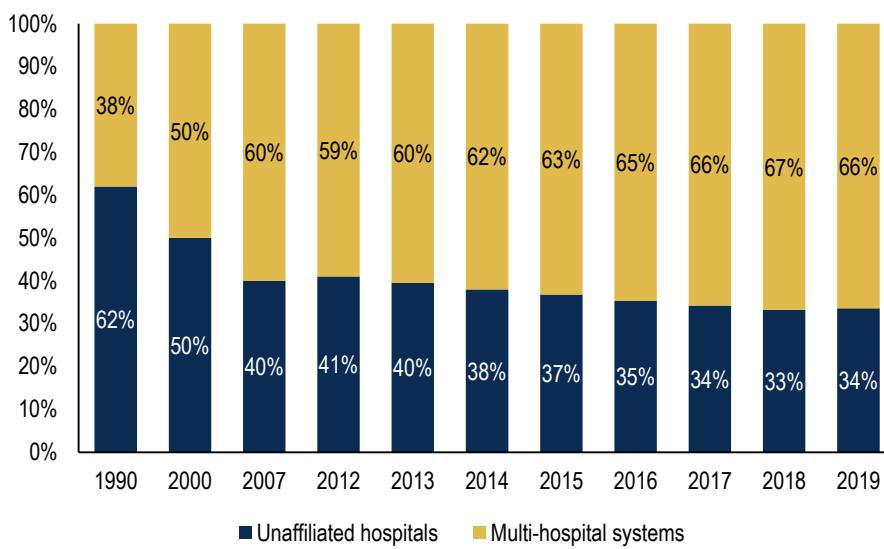
- **Access to capital.** Hospital commentary has cited this as the number one reason for the current state of the attractive deal environment. Struggling non-profit hospitals do not have the funding to continue operating independently.
- **Portfolio pruning.** When a hospital company buys another chain (local, regional or national), there is typically a mix of asset quality throughout the portfolio with a number of tier 1 assets, but a few underperformers as well. To prevent becoming a victim of the 80/20 rule, where 80% of time is spent trying to turn around hospitals generating only 20% of revenue, it can be beneficial for management to sell and focus on the higher performing assets. But one company's underperforming asset may be another's gem, particularly if they own nearby assets.

- **Changing demographics.** Population and payer mix characteristics change over time and can make once profitable markets unprofitable.
- **Leverage.** Often growth in for-profit hospital systems is the result of acquiring other hospitals, so these companies take on leverage to purchase hospitals very frequently, meaning capital structures are always changing. For instance, while many companies aim to keep debt/EBITDA around 3x or 4x, it is not uncommon for a hospital company to sit between 6x and 8x, even though they don't want to stay that levered for too long. Selling hospitals, usually the underperformers, aids in debt paydown, bringing leverage back to a more typical level and allowing them to take on debt again to buy if there is an attractive asset.
- **Increased regulation/payment risk.** For the time being, about 6% of all Medicare inpatient hospital reimbursement is "at risk" if the hospital does not meet certain quality targets. In addition, hospitals are starting to be held responsible for the care that happens after discharge, despite little historical experience managing a patient post discharge. Finally, hospitals were able to qualify for government stimulus to roll out new health care IT systems if they meet the government's meaningful use criteria. However, some local hospitals might have lacked the upfront funds to spend to show the government that they meet this criterion. Starting in FY15, the government started to penalize (cut rates) those hospitals that do not meet the criteria, putting additional financial pressure on poorly capitalized hospitals. Given the complexity of government reimbursement, being part of a larger, well capitalized player can help the hospital navigate many of the pitfalls.

### 66% of hospitals are part of larger systems

Given the combination of various factors pressuring hospitals, it is not surprising to see the continued consolidation of the industry. As of 2019, 66% of hospitals are part of major hospital systems, up from only 38% in 1990.

**Chart 93: US Hospital market consolidation over time**



Source: AHA

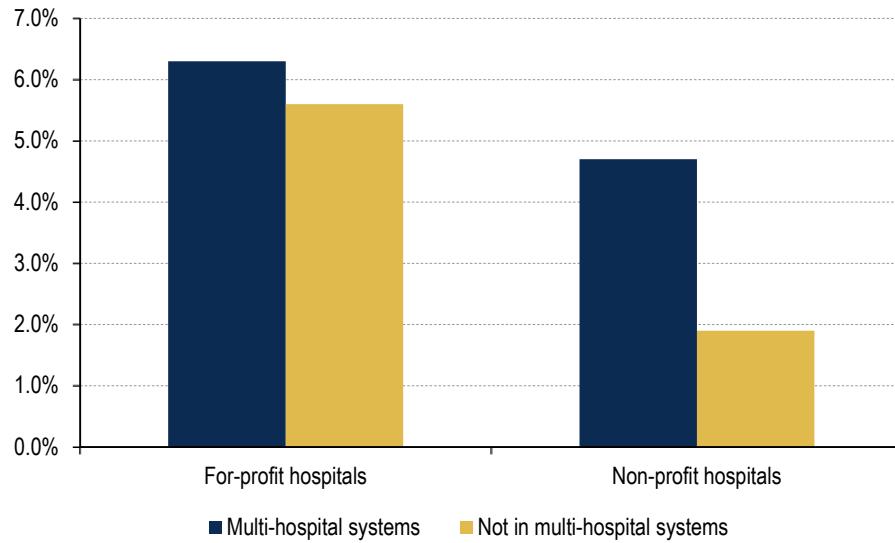
### Consolidated hospitals have higher net margins

There is some value in multi-facility affiliations where system affiliation appears to contribute to greater total margin. As per the Journal of Health Care Finance's analysis of hospital cost reports, acute-care hospitals showed a median total margin of 3.2% in 2011. For-profit hospitals performed better, almost twice as well, with a median of

6.3% for multi-hospital system facilities and 5.6% for non-system facilities. Nonprofit organizations demonstrated significantly lower margins at 4.7% for system affiliated and 1.9% for non-system affiliated organizations, but note that in both cases, hospitals within a larger system performed better than those on their own.

#### **Chart 94: Net income hospital margin in 2011**

Consolidated hospitals have stronger margins



Source: Journal of Health Care Finance

### **Key acquisition considerations**

While each company has its own unique acquisition strategy, there are many common elements that are considered. We outline some of these elements below.

#### **Urban versus non-urban**

Perhaps the most important consideration a hospital acquirer has to make is to target urban or non-urban markets. While definitions vary, a non-urban market is generally classified as having a population of 20,000 to 400,000 people and typically only one to three hospitals in the area. CYH (which bought HMA, another non-urban operator), Quorum (which was recently spun out of CYH) are considered rural or non-urban hospital companies. Non-urban markets tend to see lower volumes and less competition. They also tend to see less medically complex patients. Since these hospitals are usually the only providers in a given area, they normally are able to contract favorable rates from managed care companies as well.

Urban markets, on the other hand, have populations in excess of 400,000 people and typically have multiple hospital systems. These markets have much higher volumes and see the more medically complex patients. Hospitals in these markets are normally "complete" hospitals, meaning they have all specialty and sub-specialty departments. A non-urban hospital, for example, might not have a cardiac cath lab. Overall, these markets have a broader services offering, but much more competition. HCA, THC (which bought VHS, also an urban operator) and UHS consider themselves urban hospital companies.

Hospitals tend to focus their acquisitions on the types of markets that they understand best. However, that is not to say that a hospital may not move up or down market for the right group of assets at the right price (eg, CYH's failed bid to acquire THC).

## **Certificate of Need (CON)**

The vast majority of states have laws requiring state and local agencies to determine if there is a public need for a hospital. The laws require these agencies to approve the construction of new hospitals, making expansion into that market through new construction quite difficult. However, for those hospital companies already established in a CON state, it provides a barrier to entry for new competitors to enter the market, so if a hospital company wants to enter a CON state, it is often easier to buy its way in. As a result, many companies prefer to operate in these types of markets.

## **Other factors: size, location, payer mix**

Hospital acquirers also look at a facility's size and location. Understanding the area's population characteristics is important for a facility's volumes (older population translates into more admissions). Payer mix is also a consideration. Typically, managed care represents more than 40% of revenues with Medicare (30%), Medicaid (10%) and Self-pay (10%) rounding out the payer mix. Publicly traded hospital companies are unlikely to buy a hospital in a market with high uninsured and Medicaid exposure.

## **Population growth**

As stated in the volume section, no hospital should show volume growth above population growth plus demographics over the long-term. As a result, if a company wants to show consistent strong volume growth, it should focus on targeting assets in the parts of the country showing the best population growth, which is why so many of the public companies are predominantly in the South and Southwest.

## **Economics of a roll-up**

Although hospital companies are active acquirers, we hesitate to call them typical roll-up companies. In our view, roll-up companies are those that trade at 9x EBITDA and buy companies at 6x EBITDA in deals that are accretive purely because of financial arbitrage. Meanwhile, they provide little value add to the acquired company's operations post transaction. Acute care hospital companies are somewhat different, in that they create significant value at the target post the deal. Below we provide an example of when rollups worked, when they do not and why one-off hospital acquisitions may be different than the typical rollup.

## **When rollups work and when they do not**

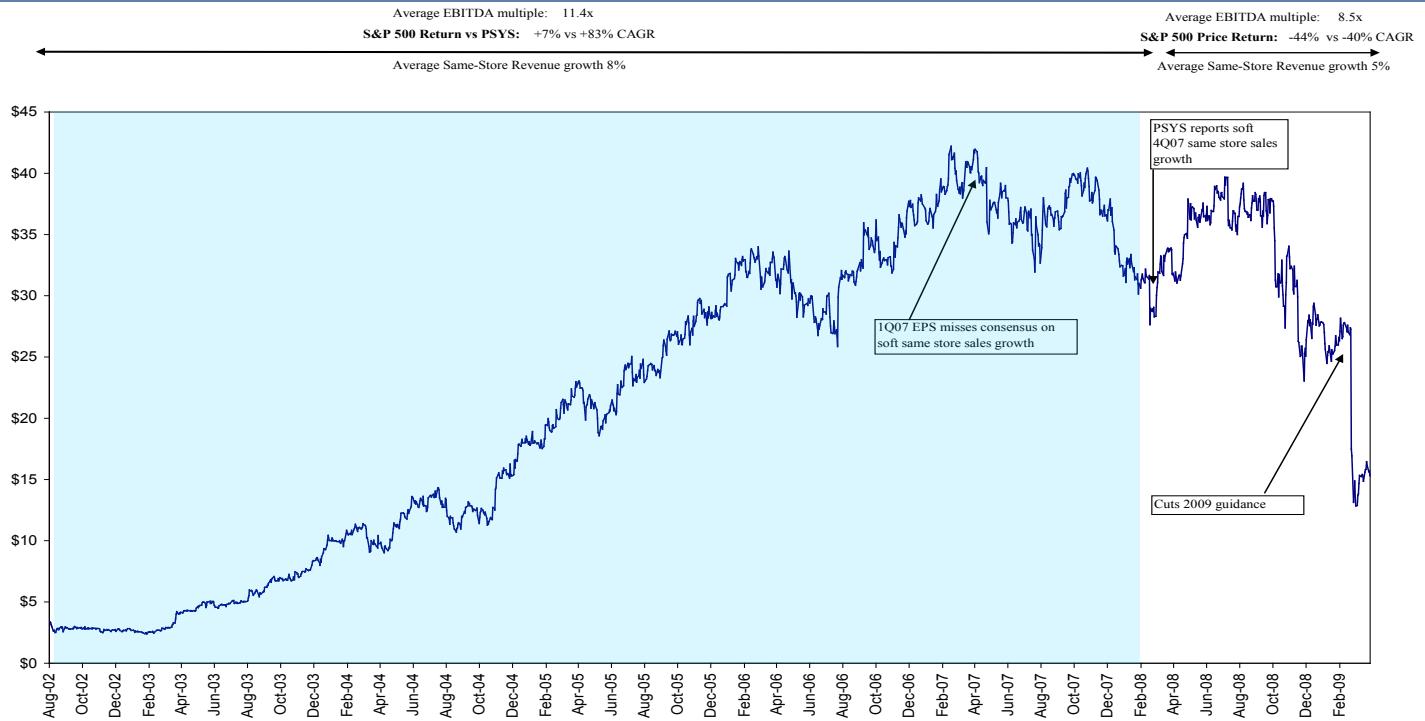
Rollups get a bad reputation. The stocks tend to work well for long periods of time. However, when core growth slows down, it is time to get out. Although a behavioral health hospital and not an acute care hospital, Psychiatric Solutions (PSYS) is an example of a roll-up story that worked while underlying volume growth was good.

PSYS was a high flying stock for much of its time as a public company, trading above 20x earnings and 10x EBITDA. The company benefited from strong underlying organic growth as volumes grew due to a supply/demand imbalance and pricing was boosted by a favorable change in Medicare reimbursement. The company then augmented this growth by doing a number of deals each year that were immediately accretive because the company was trading at 10x EBITDA and buying at 7x.

From 2004 to 2009, same-store revenue at PSYS increased at an annual rate of 8%, driven by a 4% annual increase in patient days and a 4% increase in revenue per patient day. Going into 2009, there were concerns that the company would not be able to match these lofty historical trends now that the transition to Medicare Psych PPS is complete, but the company had held firm to its guidance of 7-9% same store growth. However, when the company reported 4Q08 results in February 2009, it realized that growth would slow and lowered its guidance to the mid-single digits. Volumes were affected by the economy and state budget pressures while pricing had returned to normal after annualizing the Medicare rate change.

With the growth rate falling, so did the company's EBITDA multiple. With the company trading at 7x EBITDA, acquisitions made sense, but they were no longer immediately accretive and the company had to really execute on cost savings and revenue growth to make them work. As a result, stock performance suffered, which started when the core organic growth rate slowed.

#### Chart 95:PSYS Case Study



Source: BofA Merrill Lynch Global Research

#### Why hospital deals may be different

There are few economies of scale with Health Care Facilities. There are usually some savings to be gained on supply purchasing, but it is not like some other sectors where you can buy an asset, shut it down and then run that revenue through some centrally located fixed cost structure. As a result, it is tempting to say that acute care hospitals are roll-ups in a typical sense.

However, there are a couple of reasons that we do not believe this is the case. First, given that hospitals tend to buy assets that are making little, if any, profits at the time of the deal, transactions are not accretive in year 1 (hardly the profile of a typical roll-up). Second, upside is usually driven by operational execution over a number of years as operators reduce costs and jumpstart growth with capex/physician recruiting. As a result, acquisitions often create earnings growth over a multi-year period as the acquirer ramps up below average margins at the target to the acquirer's level over 3-5 years. Companies achieve margin improvement by applying sophisticated cost control and revenue cycle management strategies at targets.

Below we provide an example of how a stand-alone hospital acquisition might progress over time. In year 1, when margins are at the lowest, the company begins renegotiating MCO contracts, initiating purchasing saves and installing IT systems. In year 2, doctor recruiting begins and staffing levels are adjusted. Margins begin to expand as purchasing saves begin to filter through and revenue grows. In year 3, doctor recruiting ramps up and specialty departments are added. Capex spending also begins to ramp up. Margins continue to expand as the company grows higher margin businesses and gains

leverage on its fixed costs. This continues into years 4 and 5 and until year 6, when revenue growth and capex spending typically normalize.

Based on hospital commentary, it typically takes about five years for the acquirer to ramp EBITDA margins up to the overall company average (15%). Return on capital for these projects can be compelling. In this example we assume that a hospital is acquired at 80% of revenue and has initial EBITDA margins of 5%. ROI expands from 6% in year 1 to 24% by year 5, although it is somewhat simplistic since it does not include incremental capex.

**Chart 96: Economics of a Roll-up**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6+</b>
Revenue:	-Begin renegotiating MCO contracts	-Begin recruiting docs	-Recruit docs -Add specialties -Spend capex			-Normalized rev growth -Normal capex
Rev growth rate		6%	7%	6%	6%	5%
Revenue (\$mm)	\$100	\$106	\$113	\$120	\$127	
Costs:	-Purchasing Saves -Put in IT systems	-Full yr of purchasing -Begin to adjust staffing -Leverage above-avg rev growth	-Normalized staffing -Leverage vol growth			
EBITDA margin	5%	8%	11%	13%	15%	15%
EBITDA (\$mm)	\$5	\$8	\$12	\$16	\$19	
ROI*	6%	11%	16%	20%	24%	

Source: BofA Merrill Lynch Global Research

### National chains more successful at integrating acquisitions

A Deloitte Center for Health Solutions report in 2013 found that national chains do a much better job with acquisitions and integrating hospitals. Deloitte's analysis of hospital performance up to three years after being acquired in 2007 or 2008 suggests that the financial and operational performance for recently acquired hospitals improved post-deal more than non-acquired peers during the same period. However, most acquired hospitals' performance stayed below their peers', which is not surprising in year 3 since the publicly traded hospital companies tend to achieve stabilized margins by year 5.

The analysis also concluded that national chains appear to be more successful at achieving financial value from acquisitions compared to local/regional chains. The quantifiable value from local/regional deals varies widely; data suggest lower performers that acquired in-market hospitals demonstrate improved performance but remain lower performers compared to peer groups.

The analysis found that hospitals acquired by national chains in 2007 saw less erosion in operating performance through the downturn and by 2010 had halved the gap with peer group performance. National systems have been more successful in flattening increases in total operating expenses per adjusted day for acquired facilities studied post-deal. In addition, for deals in 2008, EBITDA margin for national acquired hospitals displayed net improvements greater than those for regional/local hospitals and the median was the same as the peer group in 2010.

At the same time, volume trends for targets acquired by national systems saw volume increases above the trend for the regional/local cohort and peer group hospitals from one-year post-deal onward. This confirms what we discussed above, that the acquirers focus on recruiting doctors and adding specialties, which should drive volumes and help leverage costs over time.

## Acquisitions the prime use of capital, share repo lower

Historically, hospitals have generated \$5 billion to \$9.8 billion in operating cash flow and \$2 billion to \$4.0 billion in free cash flow per year in 2009-2018. A significant portion of this FCF has been spent on acquisitions, with hospitals spending over \$7 billion in 2007. During this period, companies also added leverage to enhance returns. As the economy worsened in 2008, companies became far more conservative, spending \$3.7 billion total on acquisitions in the following three years (2008-2010). With investor focus on credit quality, companies turned to deleveraging in 2008 and 2009.

However, with a strong cash flow position and a somewhat improving outlook for the economy, investor attention turned to capital deployment. Acquisitions were the main use of capital in 2011 and the second largest use in 2012 (special dividends were No. 1 with the increase in special dividends due to changing tax laws). In 2013, acquisitions returned to the No. 1 position, although companies also increased share repurchases.

2014 turned out to be the biggest year for acquisitions with two large transactions in the space driving total spending of about \$5 billion. Share repurchases also accelerated from 2013 with hospitals spending over \$2 billion in 2014. In 2015, share repo accelerated to \$2.9 billion while deals dropped back to \$2.5 billion. This trend flattened in 2016 when hospitals spent \$2.9 billion to buy back stock while spending on acquisitions was moderated to \$2 billion. Trends worsened in both share repo and acquisitions in 2017, down to \$2.5 billion in share repo and \$1.3 billion in acquisitions. These downward trends reversed for acquisition spend in 2018, with hospital companies spending \$1.5 billion on acquisitions. However, share repurchases were once again lower, coming in at \$1.9 billion, which still would have been down if we were to include share repurchases by LifePoint.

**Table 73: Hospitals – Historical Use of Capital**

Hospital Industry	2010	2011	2012	2013	2014	2015	2016	2017	2018
Operating Cash Flow	\$5,393,164	\$6,433,659	\$6,819,191	\$6,595,960	\$8,188,176	\$8,222,998	\$8,875,674	\$8,826,181	\$9,753,814
Capex	\$2,863,352	\$3,436,295	\$3,723,382	\$3,791,685	\$4,560,250	\$4,824,021	\$5,298,439	\$5,317,706	\$5,795,162
FCF	\$2,508,001	\$2,997,364	\$3,095,809	\$2,804,275	\$3,627,926	\$3,398,977	\$3,577,235	\$3,508,475	\$3,958,652
Acquisitions	\$2,689,449	\$2,331,826	\$1,518,862	\$2,240,479	\$4,981,986	\$2,501,055	\$1,968,903	\$1,296,678	\$1,502,464
Share repurchase	\$125,489	\$2,023,272	\$145,154	\$954,334	\$1,850,749	\$2,805,782	\$3,104,380	\$2,415,401	\$1,927,425
Dividends	\$4,300,422	\$74,466	\$3,220,395	\$19,621	\$29,665	\$39,532	\$38,875	\$38,211	\$524,342
Change in Debt	\$4,205,384	(\$1,808,814)	\$1,995,416	\$834,427	\$3,873,014	\$2,497,041	\$677,317	(\$299,506)	(\$883,019)

Source: Company Reports, BofA Merrill Lynch Global Research

**Table 74: Historical Capital Allocation by Company**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average 2011-2018
<b>CYH</b>										
Operating Cash Flow	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Capex	56%	62%	60%	56%	53%	103%	65%	73%	192%	83%
FCF	42%	38%	40%	44%	47%	-3%	35%	27%	-92%	17%
Acquisitions	21%	33%	25%	4%	191%	6%	11%	1%	9%	35%
Share repurchase	10%	7%	0%	2%	0%	17%	0%	0%	0%	3%
Change in Debt	-5%	-6%	21%	-39%	195%	8%	-152%	-174%	-64%	-26%
<b>HCA</b>										
Operating Cash Flow	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Capex	46%	47%	49%	53%	49%	50%	49%	56%	53%	51%
FCF	54%	53%	51%	47%	51%	50%	51%	44%	47%	49%
Acquisitions	8%	47%	7%	13%	17%	7%	10%	22%	19%	18%
Share repurchase	0%	42%	0%	14%	39%	51%	49%	38%	23%	32%
Dividends	149%	1%	83%	0%	0%	0%	0%	0%	7%	11%
Change in Debt	89%	-45%	46%	-19%	17%	16%	16%	28%	-5%	7%
<b>THC</b>										
Operating Cash Flow	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Capex	98%	96%	86%	117%	138%	92%	242%	73%	79%	115%
FCF	2%	4%	14%	-17%	-38%	8%	-142%	27%	21%	-15%
Acquisitions	14%	17%	36%	257%	63%	102%	32%	5%	14%	66%

**Table 74: Historical Capital Allocation by Company**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average 2011-2018
Share repurchase	0%	75%	21%	68%	0%	4%	0%	0%	0%	21%
Dividends	5%	5%	2%	0%	0%	0%	0%	0%	0%	1%
Change in Debt	-60%	28%	129%	302%	109%	97%	167%	-35%	-37%	95%
<b>UHS</b>										
Operating Cash Flow	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Capex	48%	40%	45%	41%	38%	37%	40%	47%	49%	42%
FCF	52%	60%	55%	59%	62%	63%	60%	53%	51%	58%
Acquisitions	391%	4%	65%	1%	42%	52%	80%	2%	8%	32%
Share repurchase	2%	8%	2%	3%	10%	21%	27%	31%	30%	16%
Dividends	4%	3%	7%	2%	3%	4%	3%	3%	3%	3%
Change in Debt	374%	-39%	-104%	-48%	-60%	26%	55%	-9%	-3%	-23%
<b>Hospital Average:</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Average 2010-2018</b>
Operating Cash Flow	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Capex	53%	53%	55%	57%	56%	59%	60%	60%	59%	57%
FCF	47%	47%	45%	43%	44%	41%	40%	40%	41%	43%
Acquisitions	50%	36%	22%	34%	61%	30%	22%	15%	15%	32%
Share repurchase	2%	31%	2%	14%	23%	34%	35%	27%	20%	21%
Dividends	80%	1%	47%	0%	0%	0%	0%	0%	5%	15%
Change in Debt	78%	-28%	29%	13%	47%	30%	8%	-3%	-9%	18%

Source: Company Reports, BofA Merrill Lynch Global Research

**Hospital leverage could decline 0.2x in 2019E on debt paydown, EBITDA growth**

We believe that hospital companies are in some ways balance sheet driven, as in a low asset turnover business, companies use leverage to generate the return on equity that investors demand. This leverage, in turn, is supported by the consistent cash flow that the assets generate. We believe that companies with lower leverage could continue to do deals to supplement organic growth, and once leverage ratios return to normal, we would expect another consolidation wave.

We often talk about target leverage ratios for hospitals in the 3-4x range, which is where most hospitals operated prior to 2007. However, hospitals have shown that they can comfortably operate in the 4-5x range since then. Given the core growth in the business, we think the leverage of all companies should be coming down naturally. As of year-end 2013, the average leverage for the hospital companies was 4.8x, meaningfully above the higher end of the historical target of 3-4x leverage for these companies, but that leverage fell to 4.4x in 2014 despite a pickup in share repo and deal activity. The leverage remained unchanged in 2015. The leverage increased 0.3x turn in 2016 as CYH leverage was up 0.9x turn on lower EBITDA and UHS leverage increased 0.3x turn as the company raised debt to fund a deal in the UK. LPNT leverage ticked up slightly, while leverage actually declined for HCA and THC. Due to the high leverage of CYH (8.3x at year end 2018), moderately high leverage of THC (5.8x) and HCA (3.8x), and low leverage of UHS (2.2x), the average leverage for the group has been around 5x for the past few years.

We forecast that leverage will be flat at 4.9x in 2019E not assuming any debt paydown between now and 2019 year-end, only taking into consideration the growth in EBITDA while the debt level stays at the current level.

**Table 75: Hospital leverage – current vs 2019E assuming no debt paydown**

	At 3/31/19		Current Debt/ 2019E EBITDA
	Current Debt/ EBITDA		
CYH	8.5x		8.3x
THC	6.0x		5.6x
HCA	3.7x		3.6x
UHS	2.2x		2.1x
Hospital Average	5.1x		4.9x
Hospital Median	4.8x		4.6x

Source: Company Reports, BofA Merrill Lynch Global Research estimates

The high leverage for the group is driven by two major transactions in the space: CYH's

\$7.5 billion acquisition of HMA in 2014, and THC's \$4 billion acquisition of VHS in 2013 (and to a lesser degree, the formation of the THC JV with USPI in 2015). Leverage for these two companies following the deals increased to over 6x. We project leverage to start to come down for CYH ending 2019 at around 8.3x, down from 8.5x now, while it should decline to about 7.4x by 2021. For THC, assuming the entire FCF is used for debt paydown we project leverage to decrease to 5.1x.

Of note, HCA leverage remains manageable, below 4x, and if the company uses its entire FCF on debt paydown, its leverage would decline to 2.8x in 2021. As such we see a lot of upside from utilizing this cash flow at HCA.

UHS remains the hospital company with the lowest leverage. However, the management remains the most conservative on actually using its balance sheet flexibility.

**Table 76: Projected leverage assuming entire FCF used on debt paydown**

	2018	2019E	2020E	2021E
CYH	8.3x	7.7x	7.6x	7.4x
THC	5.8x	5.5x	5.3x	5.1x
HCA	3.7x	3.4x	3.0x	2.8x
UHS	2.2x	1.9x	1.5x	1.4x
Average	5.0x	4.6x	4.3x	4.2x
Median	4.8x	4.4x	4.1x	3.9x

Source: Company Reports, BofA Merrill Lynch Global Research estimates

### Leverage increased for major transactions

Large deals in the space come as no surprise. In 2005, LPNT acquired Province HealthCare in a \$1.7 billion deal, adding 21 facilities and over 2,500 beds to its portfolio. In 2007, CYH acquired Triad Hospitals in a \$6.8 billion deal, adding 50 hospitals and over 9,500 beds to its portfolio. In November 2010, UHS closed on its \$3.1 billion deal with Psychiatric Solutions, which added 94 behavioral facilities and over 10,000 beds to its portfolio. Then in December 2010, CYH made a hostile bid to acquire THC in a deal valued at \$7.3 billion, although this deal ultimately fell apart. In 2013, THC bought VHS and CYH bought HMA in February 2014. In both of these transactions, the leverage went up to over 6x.

In general, leverage was added or would have been added in all of these deals, but companies moved quickly to return leverage back to the target range of 3-4x. Strong cash flow in the hospital industry, even after capital expenditures, supports high leverage and M&A activity. The table below shows hospital companies are comfortable with adding leverage to complete a larger transaction. We note that the THC and CYH deals have been less successful in deleveraging, although the THC leverage was impacted by the acquisition of USPI.

**Table 77: Hospital leverage on larger transactions**

Company	Date Completed	Target	Pre-deal Leverage	Post-deal Leverage	3 Years Post-deal Close Leverage
LPNT	April 2005	Province HealthCare	1.0x	4.0x	3.5x
CYH	July 2007	Triad Hospitals	2.9x	6.7x	5.1x
UHS	November 2010	Psychiatric Solutions	1.1x	3.8x	2.9x
CYH	Offer made in Dec 2010	Tenet HealthCare	5.1x	5.7x	5.1x
THC	November 2013	Vanguard Health Systems	4.7x	6.1x	6.0x
CYH	February 2014	Health Management Associates	5.1x	6.5x	6.9x
Average			3.3x	5.5x	4.9x

Source: BofA Merrill Lynch Global Research, Company data

### Deal multiples have dropped from 1.0x revenues to about 0.8x

Historically, hospital companies acquire stand-alone hospitals for roughly 1x revenue, but before this year that multiple trended closer to 0.8x, which is above what multiples were in 2018 (0.6x) but about in line with deals done in 2019 so far (0.9x). Price/revenue

multiples (which we use in this case because most acquired hospitals are losing money), have typically trended in the 0.8x to 1.2x range but have dipped below that in eight of the past 10 years (Chart 99). This is primarily the result of the economic recession and lack of access to capital. Stand-alone hospital companies that rely on investment portfolios to supplement income were also affected by low interest rates. This resulted in many willing sellers at very attractive valuations. Normally, stand-alone hospitals are acquired using cash, given the strong cash flow profiles and access to capital of the public hospital companies. The recent uptick in 2017 is the result of an uncommon sale of assets between for-profit hospital companies, with THC selling 7 solidly performing hospitals to HCA to contribute towards deleveraging. A similar dynamic occurred in 2019, with HCA buying Mission at a decent multiple (0.9x) due to the quality of the asset.

**Chart 97: Multiples for Stand-Alone Hospital Deals**



Source: Company reports, BofA Merrill Lynch Global Research

#### Major deals occur at premium valuations

Major hospital transactions have been done at 1.0x revenue and 7.7x EBITDA on average over the past 20 years. If we exclude two smaller deals (Cerberus buying Caritas and VHS buying DMC), the average EBITDA multiple for the major transactions for 1995-2010 was 8.1x, much higher than the average 7.0x multiple the hospital group has been trading over that period. Similarly, the multiples for deals announced in 2013 (8.0x) were significantly above the 6.4x average multiple in 2012-2013. In addition, private equity has gotten involved in the space with transactions valuing the companies at 1.1x revenue and 8.5x EBITDA, with the most recent deal being Apollo's acquisition of LifePoint taking place 2H18 at 0.9x revenues and 7.2x EBITDA.

**Table 78: Major Hospital Transactions**

Acquiror	Target	Announced	Purchase			Multiples	
			Price	Revenues	EBITDA	Revenue	EBITDA
HCA	Mission Health	8/31/2018	\$1,500	\$1,467		1.0x	
Apollo	LPNT	7/23/2018	\$5,485	\$6,318	\$735	0.9x	7.5x
HCA	3 TX hospitals from THC	5/1/2017	\$725	\$575	\$80	1.3x	9.1x
Steward Health Care (private)	IASIS Healthcare	5/19/2017	\$1,900	\$2,370	\$221	0.80x	8.6x
CYH	HMA	7/30/2013	\$7,600	\$6,900	\$900	1.10x	8.4x
THC	VHS	6/24/2013	\$4,300	\$6,080	\$556	0.71x	7.7x
CYH-did not close	THC	12/10/2010	\$7,465	\$9,800	\$1,200	0.76x	6.2x

**Table 78: Major Hospital Transactions**

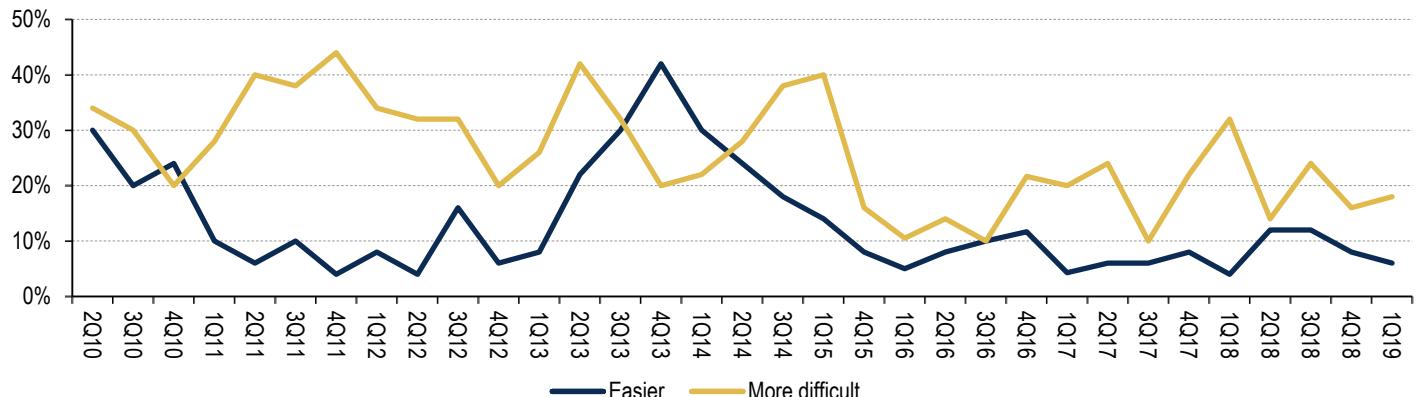
Acquiror	Target	Announced	Purchase	Multiples		
			Price	Revenues	EBITDA	Revenue
Health Management Associates	Catholic Health Partners	7/1/2011	\$532	\$20	\$242	1.66x
HCA	HealthONE	6/15/2011	\$1,450	\$1,823	\$97	0.80x
Cerberus	Caritas Christi	3/25/2010	\$830	\$1,500	\$97	0.55x
Vanguard	Detroit Medical Center	3/19/2010	\$597	\$2,090	\$117	0.29x
Community Health Systems	Triad Hospitals	3/19/2007	\$6,800	\$6,093	\$755	1.12x
Bain, KKR, Merrill Lynch	HCA	7/24/2006	\$32,696	\$26,480	\$4,400	1.23x
LifePoint	Province	8/16/2004	\$1,700	\$835	\$154	2.04x
Triad Hospitals	Quorum	10/19/2001	\$2,400	\$1,811	\$320	1.33x
Tenet	Healthcare OrNda	6/18/1995	\$3,091	\$2,147	\$342	1.44x
<b>Average</b>						<b>1.0x</b>
<b>LBOs</b>						
Apollo	LPNT	7/23/2018	\$5,485	\$6,318	\$767	0.87x
Bain, KKR, Merrill Lynch	HCA	7/24/2006	\$32,696	\$26,480	\$4,400	1.23x
Blackstone	Vanguard	7/23/2004	\$1,750	\$1,717	\$161	1.02x
TPG	IASIS	5/5/2004	\$1,400	\$1,236	\$163	1.13x
<b>Average</b>						<b>1.1x</b>
Source: BofA Merrill Lynch Global Research, Company data						

### Non-publics' access to capital steady, but at a low level

Access to capital for smaller hospital companies has been largely constrained with the exception of early 2016. According to our quarterly BofA Merrill Lynch survey of local hospital CFOs conducted in Q1 2019, access to capital remains at a stable, albeit low, level. Only 6% of respondents from the most recent survey expect access to capital to improve, in line with the 6% from the last survey. 18% of respondents expect access to capital to worsen, slightly above the 16% previously. The majority of respondents (76%) expect stable access to capital.

The more difficult financing environment for the non-profit hospitals is positive for the public hospital companies, which have enjoyed the advantage of easier access to financing.

**Chart 98: BofA Merrill Lynch Global Research hospital survey: Access to Financing over time (% of survey respondents)**



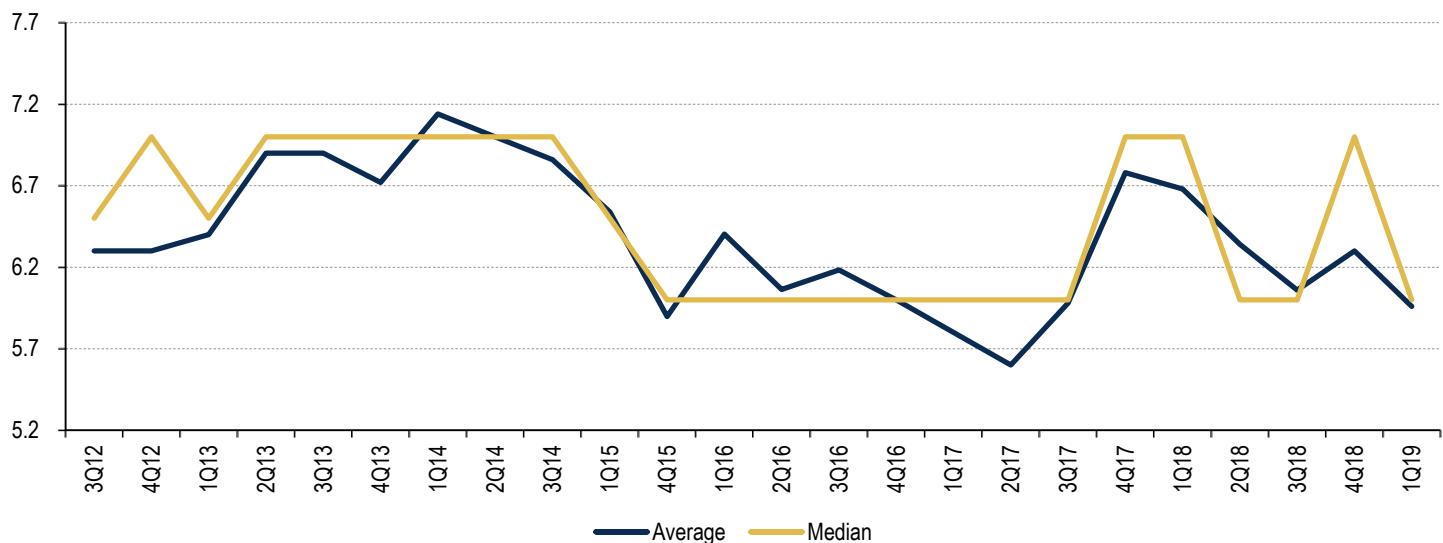
Source: BofA Merrill Lynch Global Research

Given that there has been a flurry of deals done by hospitals over the last several years, we asked respondents about their outlook for industry consolidation. We asked them to rate this on the scale of 1 to 10, with 1 being "minimal consolidation activity" and 10 being "very robust consolidation activity."

On average, hospitals expect the activity at 6.0 (6.0 median), implying above average consolidation activity will continue. We note that this score is slightly down from 6.3 in

the prior survey and at the low end of trends in the recent years. It's worth noting that the median stayed decreased 100bps from the last survey to 6.0.

**Chart 99: BofA Merrill Lynch Hospital Survey Results – Outlook for Industry Consolidation (Scale 1 to 10)**



Source: BofA Merrill Lynch Global Research

### Publicly traded hospitals took advantage

Given the pressures on the entire industry (weak volumes, reimbursement pressures, Health Care IT requirements, etc) and the relatively unfavorable capital markets environment for non-profit hospitals in 2013-2014, it is not surprising to see many non-profits looked to sell or partner with larger systems. Generally, M&A activity has been higher in non-urban (CYH, LPNT, HMA) than urban. This is likely because companies want local market scale, and while almost all non-urban deals have significant local scale by definition, as there tends to be little local market competition, gaining scale in urban markets is more difficult. That being said, HCA has been the only company acquiring hospitals over the last few years.

**Table 79: Hospital M&A Activity**

Date	Acquiror	Target	# Hospitals	Revenue	Beds	Location
4/1/2016	CYH	Physician Specialty Hospital/AK	1	NA	20	AK
4/1/2016	CYH	Physicians' Specialty Hospital	1	NA	20	AR
3/1/2016	CYH	JV with Indiana University Health	2	NA	287	IN
12/29/2015	CYH	IU Health La Porte & Starke hospitals	2	NA	277	IN
3/2/2015	CYH	Five-Hospital JV buyout in Oklahoma	5	NA	218	OK
1/23/2015	CYH	Metro Health	1	\$215	208	WY
11/3/2014	CYH	Gaffney Medical Center	1	\$47	125	SC
7/11/2014	CYH	Natchez Regional Medical Center	1	\$48	179	MS
4/1/2014	CYH	Sharon Regional Medical Center	1	\$163	251	PA
3/19/2014	CYH	Munroe Regional Medical Center	1	\$295	421	FL
1/27/2014	CYH	Health Management Associates, Inc.	71	\$5,867	10,782	AR, FL, GA, KY, MS, MO, NC, OK, PA, SC, TN, TX, WA, WV
1/25/2012	CYH	Memorial Health Systems	1	\$97	100	PA
12/12/2011	CYH	MetroSouth Medical Center	1	\$150	244	IL
11/16/2011	CYH	Roswell Regional Hospital	1	\$42	26	NM
10/4/2011	CYH	Tomball Regional Center	1	\$151	358	TX
7/19/2011	CYH	Moses Taylor Health Care,	2	\$160	242	PA
5/2/2011	CYH	Mercy Health Partners	3	\$200	313	PA
10/1/2010	CYH	Bluefield Regional Medical Center	1	\$95	265	WV
10/1/2010	CYH	Forum Health Systems	3	\$370	813	OH, WV
7/7/2010	CYH	Marion Regional Healthcare System	2	\$60	216	SC

**Table 79: Hospital M&A Activity**

Date	Acquiror	Target	# Hospitals	Revenue	Beds	Location
3/21/2019	HCA	Mission Health	7	\$1,800	1,032	NC
5/1/2017	HCA	Satilla Regional Medical Center	1	\$150	231	GA
5/1/2017	HCA	Park Plaza Hospital	1	\$87	444	TX
5/1/2017	HCA	Cypress Fairbanks Medical Center Hospital	1	\$191	181	TX
5/1/2017	HCA	Houston Northwest Medical Center	1	\$279	423	TX
5/1/2017	HCA	South Texas Regional Medical Center	1	\$43	67	TX
5/1/2017	HCA	Tomball Regional Medical Center	1	\$142	350	TX
4/19/2017	HCA	Memorial Health University Medical Center	1	\$466	604	GA
9/6/2016	HCA	Mobile Heartbeat LLC	NA	NA	NA	MA
5/11/2016	HCA	Washington Radiology Associates PC	NA	NA	NA	DC
5/31/2016	HCA	Medical City Frisco (formerly "Forest Park Medical Center Dallas")	1	NA	84	TX
2/11/2016	HCA	Forest Park Medical Center Frisco	1	NA	54	TX
1/14/2014	HCA	Grandview Medical Center	1	\$20	70	TN
7/19/2013	HCA	Iasis	3	\$225	691	FL
2/1/2012	HCA	Galichia Heart Hospital	1	\$15	82	KS
5/2/2011	HCA	Mercy Hospital	1	\$226	473	FL
1/4/2016	THC	CareSpot Express Healthcare	5			TX
10/2/2015	THC	Baptist Health System JV	4	\$476	1,086	AL
9/1/2015	THC	Carondelet JV	3	\$409		AZ
7/15/2015	THC	Hi-Desert Medical Center	1	\$63	55	CA
3/23/2015	THC	JV with Baylor Scott & White Health	1	\$190	243	TX
8/1/2014	THC	Emanuel Medical Center	1	\$225	209	CA
6/3/2014	THC	Texas Regional Medical Center	1	\$74	70	TX
10/1/2013	THC	Vanguard Health Systems Inc	28	\$5,936	7,081	AZ, IL, MA, MI, TX
8/16/2016	UHS	Desert View Regional Medical Center	1	\$36	25	TX
5/2/2016	UHS	Minority stake of acute-care hospitals	6	\$1,400	1,696	TX

Source: BofA Merrill Lynch Global Research, Company data

### Companies with lower leverage could continue to do deals

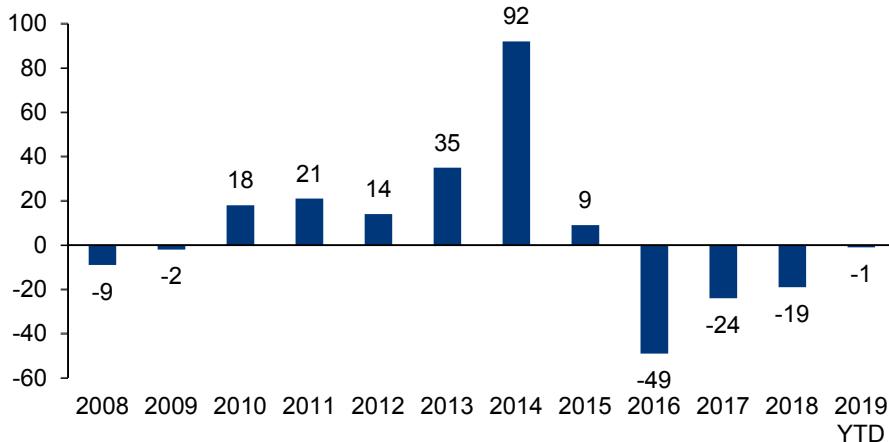
We believe that companies with lower leverage could continue to do deals to supplement organic growth, and once leverage ratios return to normal, we would expect another consolidation wave.

### Hospitals have been net sellers of assets for the past few years

After a spate of larger deals, hospital companies have been net sellers of hospital assets since 2016, driven by CYH and THC dispositions as the companies are pruning the portfolio with the goal of reducing leverage. CYH divested 40 hospitals in 2016, with 38 of those spun off into Quorum (it has since sold three of those hospitals in the year since going public and announced a definitive agreement to sell five more assets with other divestiture discussions ongoing). In 2017, CYH divested an additional 30 hospitals in a series of transactions. In 2018, CYH divested 12 hospitals and so far in 2019 they have divested 4 hospitals, with more to go before they complete their planned divestiture program. THC divested 11 hospitals in 2016 and sold 3 Houston-area hospitals in 2017. They completed 8 hospital sales in 2018 and have already sold 3 hospitals so far in 2019.

In addition to hospital assets, both CYH and THC sold/plan to sell additional non-hospital assets. Both companies sold their home health/hospice agencies (Lifepoint also sold a majority stake in its home health assets) in 2016. THC also announced plans to exit its health plan business (sold its plan in Michigan in 1Q17 and its plan in Arizona and Texas in 2Q17, and sold its Southern California MA plan and Chicago Preferred Provider network in 2018), noting it is pursuing the sale of hospitals in non-core markets and sub-scale businesses to improve margins in its hospital business and increase the mix of business coming from USPI (which they upped their stake in to 95% in 2018). In addition, THC also announced they are evaluating a sale/spin of their Conifer revenue cycle management business.

**Chart 100: Public hospital industry net hospitals acquired**



Source: Company reports, BofA Merrill Lynch Global Research

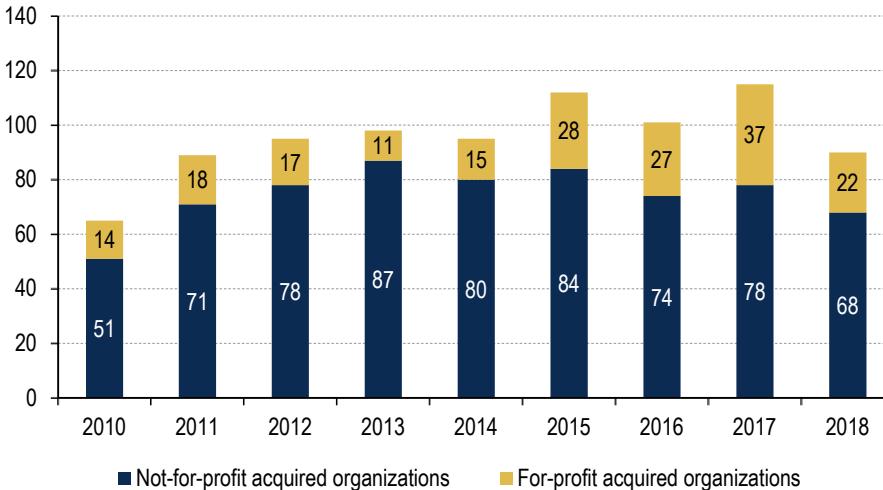
## Deal activity down slightly from the all-time high in 2017

A Kaufman-Hall analysis found that hospitals announced 90 deals in 2018, which is down from the all-time high of 115 in 2017, 102 in 2016, and 112 in 2015. Of the 90 transactions in 2018, 68 had the acquiring entity being not-for-profit.

While the overall number of transactions decreased, the size of the deals remained relatively large, as 7 of the 90 deals involved sellers with net revenues of at least \$1 billion (vs 11 in 2017) and 10 more involved sellers with net revenues between \$500 million and \$1 billion (vs 16 in 2017). The overall revenues transacted dropped in 2018, coming in at \$36.8 billion, below the \$63.2 billion in 2017. Big deals announced in 2018 included the Apollo (through their RCCH HealthCare Partners asset) acquisition of LPNT (more than \$8bn combined rev), as well Bon Secours and Mercy (\$8bn combined rev) and Atrium Health and Navicent Health (over \$10bn combined rev).

The second most active year for transactions in this data set was 2015. Operating revenue of acquired organizations in 2015 was greater than \$33 billion. The largest deal announced that year was the merger of two not-for-profit, Catholic health care systems, Providence Health & Services (\$12 billion in revenue) in Renton, WA, and St. Joseph Health System (\$5.6 billion in revenue) in Irvine, CA. The merger formed one of the largest not-for-profit healthcare systems in the country.

**Chart 101: Number of Hospital/Health System Consolidations 2010-2018**



Source: Kaufman-Hall, BofA Merrill Lynch Global Research

## Not-for-profit acquisitions continue to lead in 2018

As noted prior, the publicly traded hospital companies were overall sellers in 2018, led by CYH and THC who wanted to prune their assets in order to delever. What is notable about these sales is that not-for-profit organizations purchased more for-profit assets than for-profit organizations buying for-profit assets, which had been the case for the past couple years even though it used to be a rarity.

Not-for-profit interest in these assets is likely a function of them seeing the same industry pressures (moderating volumes, payer mix, rising labor costs, etc.) and reacting by attempting to get local scale. Meanwhile, non-profits also continue to look to invest in outpatient services. Taking language from the merger of Dignity and Catholic Health Initiatives, the combined company plans to use the merger to amplify their investments in “community-based care” and “a variety of outpatient and virtual care settings closer to home”, looking towards close to home care especially for people with chronic health conditions.

## High volumes of transactions continue into 2019

According to Kaufman-Hall, 27 transactions have already been announced in the first quarter of 2019, down from a very high 30 in 1Q18. While volume was strong, the size of the deals was also down, with the average revenue of the seller coming in at \$196 million for 1Q19, which is down from an all-time high of \$409 million for all of 2018. The aggregate revenue of the sellers in 1Q19 was \$4.9 billion, which is also down from very high levels in 1Q18, but still in line with the levels prior.

The trend seen in 2017 and 2018 of not-for-profit systems being the buyer more often than for-profit systems has continued thus far in 2019, with 74% of acquirers being not-for-profit. With many of the for-profit hospitals still highly levered, this is likely to continue. One of the significant deals announced in 1Q19 was UPMC’s expansion into Maryland with the purchase of Western Maryland Regional Medical Center. There was also a merger of equals between Dartmouth-Hitchcock Health and GraniteOne Health, with the combined entity having annual revenues of approximately \$2.7 billion.



## Hospital financials

### Balance sheet metrics by company



## Hospital financials

Once past the revenue line, the income statement of a hospital company is rather straightforward. Below we explain the structure of a typical hospital company P&L, go over key line items and explain key metrics that are unique to the industry. We also discuss long-term growth rates for hospitals' top and bottom lines.

### Gross vs net revenue

Every hospital has a charge master that outlines the list price for providing every service the hospital offers. However, similar to a sticker price for a car, few people actually pay the list price on the charge master and depending on the payer some receive dramatic discounts to the list price. In 2017, net revenue represented only 27% of industry gross revenue (down from 42.4% in 2002). The number that investors see on the income statement is "net revenue", but there are a large number of above the line items in order to go from gross revenue to net revenue, including contractual allowances, charity care, uninsured discounts and bad debt (see Bad debt section above).

**Table 80: Gross vs Net Revenue**

Gross revenue
- contractual allowances
- charity care
- uninsured discounts
- bad debt
= Net revenue

Source: BofA Merrill Lynch Global Research

### Admissions vs adjusted admissions

**Table 81: Revenue Calculation**

Net revenue	=	adjusted admissions	x	revenue/adjusted admission
Inpatient revenue	=	admissions	x	avg. inpatient revenue/admission
Outpatient revenue	=	visits	x	avg. rate/visit

Source: BofA Merrill Lynch Global Research

In general, hospital revenue comes from inpatient admissions and outpatient visits, and most companies report inpatient and outpatient revenue. There are two key volume metrics used to analyze performance, admissions and adjusted admissions.

- Admissions represent the number of patients admitted to a hospital over the reporting period. An admission requires an overnight stay.
- Adjusted admissions represent actual patient admissions adjusted to include outpatient services on a revenue weighted basis. Companies calculate adjusted admissions by multiplying actual admissions by the sum of gross inpatient revenues and outpatient revenues and dividing the results by gross inpatient revenues.

**Table 82: Adjusted Admissions Calculation**

$$[\text{Actual Admissions} \quad x \quad (\text{Inpatient Revs} + \text{Outpatient Revs})] \quad \div \quad (\text{Inpatient Revs})$$

Source: BofA Merrill Lynch Global Research

With about half of all hospital revenue coming from outpatient procedures, we generally focus on adjusted admissions as the preferred metric since it takes a more holistic view of hospital volumes.

### Patient days, occupancy and length of stay

- **Patient days** is another volume metric reported by the companies. It represents the total number of days of care provided to inpatients. Similar to the admissions metric, patient days can be adjusted to reflect outpatient services yielding adjusted patient days. However, since most reimbursement is

tied to admissions rather than days, admissions and adjusted admissions are the main focus for investors.

- **Occupancy** is calculated by dividing the average daily number of patient days by the weighted average of beds in service in the period. This is purely an inpatient only metric, and hospitals tend to operate near 50%-60% inpatient occupancy because outpatient procedures also utilize some hospital capacity. However, this varies largely between Urban and Rural hospitals, with Urban occupancy at around 64%, while Rural is at 43%.
- Average length of stay (LOS) represents the average number of days patients stay in a hospital (on the inpatient side). For the publicly traded companies, the average length of stay is 4-5 days. Watching LOS can be useful to track changes in acuity and overall hospital efficiency. Since hospitals generally are paid on a per discharge rate from Medicare, they have an incentive to keep LOS down to reduce costs. If LOS increases, it could reflect that they are treating higher acuity patients who need more time in the hospital to recuperate.

**Table 83: Revenue Calculation**

Cost item	% of revenue
Salaries, wages, and benefits	46-48%
Other operating expenses	22-24%
Supply costs	16-17%
Rent expense	1-2%

Source: Company reports, BofA Merrill Lynch Global Research

#### Labor costs are the biggest cost item

- **Salaries, wages and benefits** represent the biggest cost item for hospitals, accounting for about 47% of net revenue. For the most part, hospital companies include only employed workers in this line, while contract labor usually is reported in other operating expense. Historically, hospitals did not employ physicians, so this line was largely nurses, followed by therapists, techs, etc. However, increasingly, hospitals are employing doctors, who are putting some upward pressure on the percent of revenue.
- **Other operating expenses** are the second biggest cost item for hospitals, representing about 22-24% of net revenue. These costs include, among other items, corporate G&A, hospital malpractice expense, consulting costs, utility costs, repairs/maintenance, recruiting-related costs, information systems and business office costs. It also includes outsourced services (food, linen and contract labor). Provider taxes/fees that hospitals may be required to pay to states are also included in other operating expenses. This number has been on the rise as of late as companies use more contract labor.
- **Supply costs**, which represent about 16-17% of net revenue, include pharmaceuticals, cardiac stents, pacemakers, orthopedics and implants, among others. It also includes general medical supplies such as syringes, latex gloves and bandages. Some companies include the cost of food in supplies (less than 1% of revenues).
- **Rent expense** accounts for only 1-2% of net revenue because hospital companies tend to own the hospitals they operate.

#### EBITDA is the key industry profitability metric

EBITDA is the most common profitability measure used in the hospital industry. Given relatively high leverage and high capex, EBITDA is used as a measure to compare

hospital companies' operations and cash flow generation ability, independent of capital structure.

Below we show EBITDA margins for publicly traded hospital companies in 2000-2018. The companies reported elevated margins in the 15-20% range from 2000 to 2002, which subsequently came down as each company wrote off a significant portion of accounts receivable and started to book revenue more conservatively. As the number of uninsured increased significantly from 2002 to 2006, companies saw acceleration in uncompensated care. Given the coverage expansion under Reform, the margins improved for some of the companies in 2014. The average EBITDA margin has begun to climb as the remaining public hospital companies continue to prune their portfolios, with the average margin at 15.3% for 2018.

**Table 84: Historical EBITDA Cash Margins**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
CYH	20.8%	17.9%	18.1%	17.1%	16.6%	17.0%	15.0%	14.3%	15.9%	15.7%	15.5%	15.5%	15.4%	14.2%	14.9%	14.5%	12.1%	10.7%	11.6%
HCA	20.6%	20.3%	21.5%	20.0%	18.8%	19.1%	18.4%	19.3%	18.3%	20.4%	20.9%	20.4%	19.8%	19.2%	20.1%	19.9%	19.8%	18.9%	19.2%
HMA	25.9%	25.8%	24.5%	24.6%	23.1%	21.1%	15.3%	16.3%	16.1%	16.8%	16.3%	16.7%	16.4%	16.5%	NA	NA	NA	NA	NA
IAS	NA	NA	NA	NA	NA	NA	14.6%	14.1%	13.6%	13.6%	13.7%	12.1%	11.9%	11.3%	10.4%	9.9%	7.9%	4.9%	NA
LPNT	NA	22.9%	23.4%	21.2%	22.9%	22.3%	20.9%	19.0%	18.6%	18.1%	17.7%	17.6%	15.5%	14.7%	14.1%	13.5%	11.7%	11.7%	NA
THC	19.2%	20.8%	22.1%	9.2%	4.1%	6.2%	8.2%	8.1%	9.1%	11.8%	12.4%	12.9%	13.2%	12.1%	11.7%	12.2%	12.3%	12.7%	14.0%
UHS	15.1%	14.9%	15.0%	15.2%	12.9%	12.6%	12.7%	12.7%	13.4%	15.5%	16.0%	17.3%	17.8%	18.6%	18.5%	18.3%	17.4%	16.6%	16.5%
VHS	NA	NA	8.4%	9.2%	11.3%	11.0%	9.7%	10.2%	10.2%	10.3%	9.8%	8.9%	9.5%	NA	NA	NA	NA	NA	
<b>Average</b>	<b>20.3%</b>	<b>20.4%</b>	<b>19.0%</b>	<b>16.6%</b>	<b>15.7%</b>	<b>15.5%</b>	<b>14.3%</b>	<b>14.2%</b>	<b>14.4%</b>	<b>15.3%</b>	<b>15.1%</b>	<b>15.1%</b>	<b>14.9%</b>	<b>15.1%</b>	<b>14.9%</b>	<b>14.4%</b>	<b>13.0%</b>	<b>14.1%</b>	<b>15.3%</b>

Source: Company Reports, BofA Merrill Lynch Global Research

## Depreciation and amortization

Depreciation and amortization is a meaningful expense line given the significant amount of money spent on capital expenditures and deals. Depreciation and amortization expense represents about 4-5% of net revenue. In general, buildings and building improvements are depreciated over 20 to 40 years and equipment for three to 15 years.

## Balance sheet and cash flow

### Debt to EBITDA the key leverage metric

Hospital companies tend to be highly levered. Two common leverage metrics are gross (total) and net leverage ratios.

- **Total leverage.** Defined as total debt divided by EBITDA.
- **Net leverage.** Defined as net debt (total debt less cash on the balance sheet) divided by EBITDA.

These measurements are also the most commonly found credit covenant metrics in most bank credit facility agreements or bond indentures. The typical hospital company targets leverage of 3-4x EBITDA or debt to cap of 40-60%. As of December 31, 2018, CYH had the highest leverage in the hospital group at 8.3x. THC operates at 5.8x debt/EBITDA, the second highest leverage in the group, due to its large deal (Joint venture to own USPI, an operator of ambulatory surgery centers). We believe that hospitals, a low asset turnover sector with positive fundamentals, should have some leverage to boost returns to equity holders.

**Table 85: Hospital Company Balance Sheet Summary, 3/31/2019**

(\$ in millions) Company	Current Leverage	% floating-rate debt		Next Maturity		Available funds under revolver	Excess Cash Balance	Total Liquidity
		As reported	Adj. for swaps	Date	Amount			
CYH	8.3x	5%	0%	2019	\$155	\$812	\$0	\$812
HCA	3.7x	20%	13%	2019	\$600	\$2,693	\$0	\$2,693
THC	5.8x	0%	0%	2020	\$2,300	\$998	\$0	\$998
UHS	2.2x	62%	37%	2021	\$390	\$960	\$55	\$1,075
<b>Average</b>	<b>5.0x</b>	<b>22%</b>	<b>12%</b>	<b>2020</b>	<b>\$861</b>	<b>\$1,366</b>	<b>\$14</b>	<b>\$1,394</b>

Source: Company reports, BofA Merrill Lynch Global Research

As of the end of 2018, the average leverage ratio for the group was 5.0x, above the historical facility average range of 3-4x due to two large transactions (CYH bought HMA in 2013 and THC bought VHS in 2013 and in 2014 it formed a JV to own USPI). Given the cash flow dynamics of hospitals, as well as their intensive acquisition strategies, the high end of the range is warranted. The table below shows that hospitals have operated comfortably with leverage near 5x. However, the market generally prefers that companies operate at 4x or lower and companies with lower leverage tend to be valued at a premium, all else equal. Meanwhile, leverage above 5x generally is viewed negatively and leads to a discounted valuation.

**Table 86: Hospital Leverage**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
CYH	5.7x	5.3x	5.0x	4.8x	4.8x	6.5x	6.1x	6.0x	6.9x	8.2x	8.3x
HCA	5.9x	4.7x	4.8x	4.5x	4.4x	4.3x	4.0x	3.9x	3.8x	4.0x	3.7x
Lifepoint	3.4x	3.0x	3.1x	3.0x	3.4x	4.5x	3.5x	3.8x	3.9x	3.9x	3.9x
THC	6.4x	4.4x	3.9x	3.8x	4.3x	5.5x	6.3x	6.4x	6.3x	6.1x	5.8x
UHS	1.6x	1.5x	3.8x	3.1x	3.0x	2.4x	2.2x	2.1x	2.4x	2.3x	2.2x
<b>Hospital Average</b>	<b>4.9x</b>	<b>4.0x</b>	<b>4.4x</b>	<b>4.0x</b>	<b>4.1x</b>	<b>4.7x</b>	<b>4.7x</b>	<b>4.6x</b>	<b>4.9x</b>	<b>5.2x</b>	<b>5.0x</b>
<b>Hospital Median</b>	<b>5.7x</b>	<b>4.4x</b>	<b>3.9x</b>	<b>3.8x</b>	<b>4.3x</b>	<b>4.5x</b>	<b>4.0x</b>	<b>3.9x</b>	<b>4.0x</b>	<b>4.0x</b>	<b>4.7x</b>

\*\*2013 leverage for CYH is pro forma HMA deal. THC is pro forma deals.

Source: BofA Merrill Lynch Global Research, Company data

### Free cash flow

Hospitals tend to generate healthy operating cash flows. When analyzing companies' cash flow generation abilities we look at free cash flow and FCF yield. Free cash flow takes into account a firm's operating cash flow after subtracting capital expenditures, the remainder of which can be deployed on acquisitions, share repurchase or debt paydown. For companies that have a meaningful minority interest cash distribution, we measure FCF after payments to minority partners (e.g. THC and HCA). Free cash flow yield is defined as free cash flow per share divided by the share price. We note that leverage tends to skew this metric, and all else equal, a company with higher leverage will have a higher FCF yield, so a high FCF yield to the equity is not always a good thing.

**Table 87: FCF Yields and Cash on Balance Sheet**

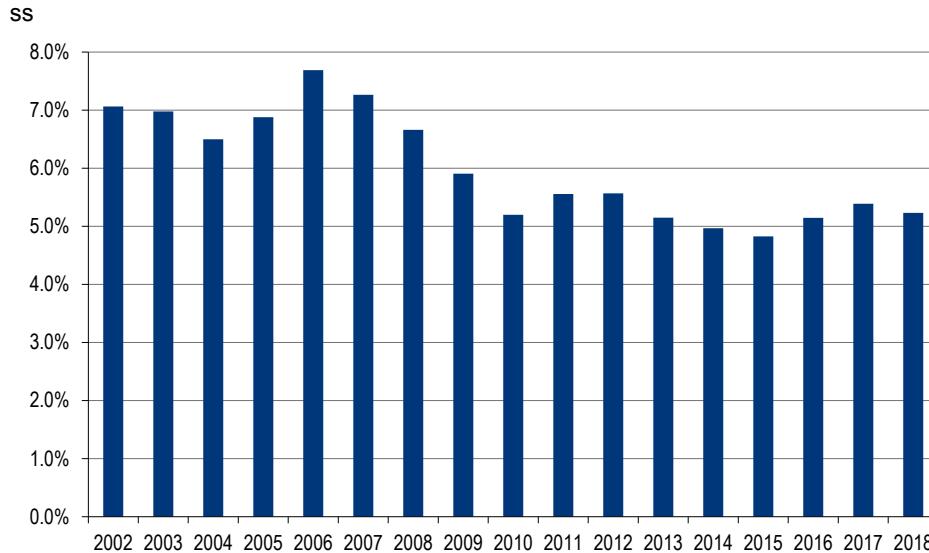
Company	FCF Yield (2019E)	Cash % of MC	FCF + Cash % of Market
			Cap
CYH	25.4%	66.3%	92%
HCA	7.0%	1.1%	8%
THC	7.7%	12.9%	21%
UHS	5.2%	0.5%	6%
<b>Average</b>	<b>11%</b>	<b>20%</b>	<b>32%</b>
<b>Median</b>	<b>7%</b>	<b>7%</b>	<b>14%</b>

Source: BofA Merrill Lynch Global Research

### Capital expenditures

Historically, hospitals have spent 4-7% of revenue on capital expenditures. Similar to other industries, capital expenditures can be broken down into growth (or discretionary) capex and maintenance capex. Maintenance capex generally represents 2-3% of revenue, while EBITDA enhancing capex might represent another 1-2% and bed growth capex might represent another 1-2% of revenue. The average hospital company has spent roughly 52% of operating cash flow on capital expenditures over the last 20 years.

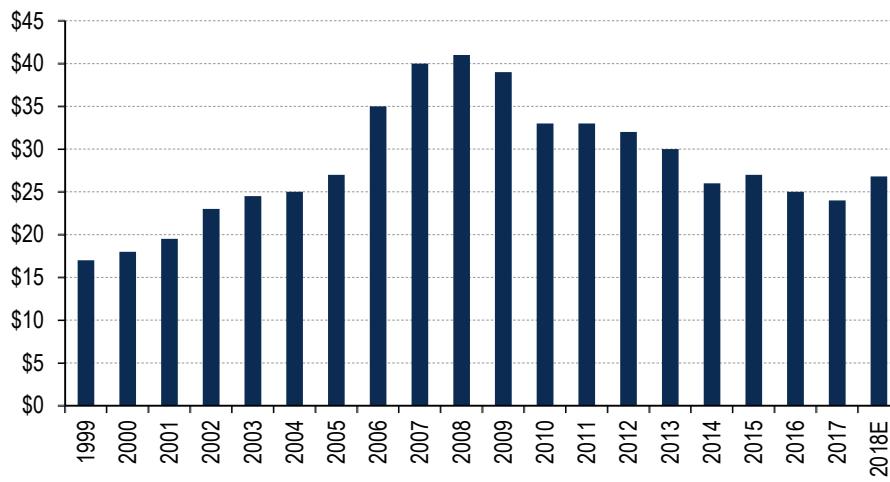
### **Chart 102: Capex as % of Revenues – Average for Publicly Traded Hospital Companies**



Source: Company reports, BofA Merrill Lynch Global Research

According to the MedPAC Reports, after reaching a peak of \$41 billion in 2008, spending on hospital construction for the entire industry (for-profits and non-profits) was \$24 billion in 2017, a \$1 billion decrease from 2016 and \$3 billion decrease from 2015. Spending is so low because projects have focused on less expensive outpatient services, such as emergency departments, imaging centers and cancer centers. It is not surprising to see such a change, as after the financial difficulties of 2008 hospitals began controlling costs in 2009, in part by reducing their capital expenditure plans. Meanwhile, as volumes have shifted to the lower cost outpatient centers, hospitals have responded by repositioning their capex budgets to capture that volume. Based on the US Census Bureau data on total healthcare construction spending in 2018, we estimate hospital construction ticked up to \$27 billion in 2018.

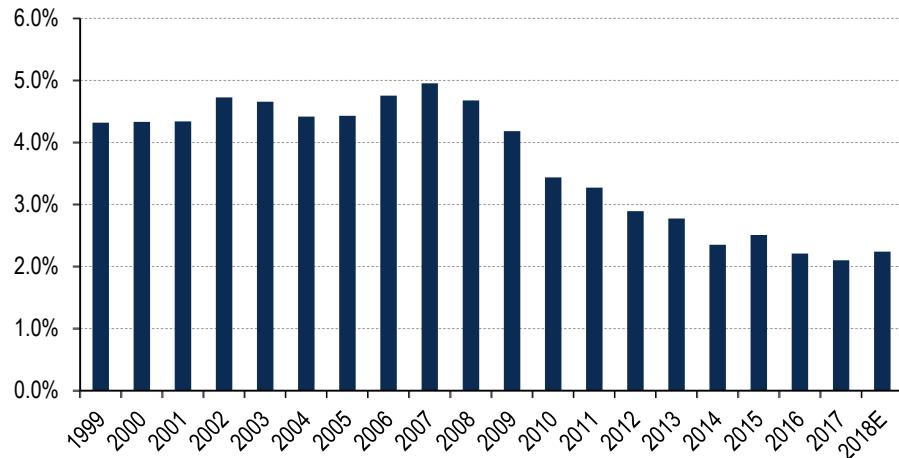
### **Chart 103: Spending on Hospital Construction (\$ billions)**



Source: US Census Bureau

Meanwhile, as a percentage of industry revenues, capex has recently been drifting lower to about 2.1% of revenues in 2017 from 4-5% in the early 2000s. We estimate that 2018 will be roughly in line with 2017, coming in at 2.2% of industry net revenues.

**Chart 104: Spending on Hospital Construction as % of industry net revenues**



Source: US Census Bureau, CMS

During the previous years, we noted that the capex spending by the for-profit companies has dropped down in lock step with the overall industry, which proves one of the truisms in hospital capex: "The right amount for a company to spend on capex, is \$1 more than the hospital across the street." If the competitor is pulling back on investments, then the publicly traded companies can as well without hurting their relative competitive positioning.

# Balance sheet metrics by company

Below we analyze each hospital's balance sheet in our coverage universe as of December 31, 2018. The company outlines below are summaries from our annual balance sheet report. The full balance sheet report can be found here ([Tale of 2 Cities: Best balance sheets to aid growth; worst forced to delever](#)).

## Community Health Systems (CYH)

At 8.3x EBITDA, CYH has one of the highest leverage ratios in our coverage. We see the company's balance sheet as a source of pressure given the weak industry fundamentals. While the cushion under its covenants is 21% at the end of 2019, it drops to 5% by 2021, and we estimate that CYH would be at risk of breaking covenants at the end of 2020 without the proceeds from asset sales. Even if the expected asset sale proceeds, leverage would be high. CYH's guidance assumes meaningful margin improvement, potentially implying an inflection point where the company will again be able to lower its leverage ratio through EBITDA growth. Organic growth will be necessary given the steep maturities starting in 2021. Finally, we expect CYH to refi upcoming maturities in a dilutive transaction, pressuring its weak/negative FCF.

### Cash on balance sheet

As of March 31, 2019 CYH had \$424 million of cash on balance sheet, representing almost 100% of its market cap. This is above the company's average \$300 million cash balance in 2008-2016.

### Free cash flow estimates

We forecast that CYH will generate approximately \$107 million of free cash flow in 2019, \$30 million in 2020 and \$58 million in 2021 after factoring in capex spending which is set to rise in 2020/21 as the company builds out replacement hospitals. We note CYH reports Other investments separately (investments in IT Systems and physician recruiting costs) which other companies include in capex. Adjusting for that expense, we project negative FCF for CYH, implying negative FCF yield.

**Table 88: CYH - Cash Flow Analysis**

	2011	2012	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E
Operating Cash Flow	\$1,262	\$1,280	\$1,089	\$1,615	\$921	\$1,137	\$773	\$274	\$607	\$630	\$662
Capex	\$777	\$769	\$614	\$853	\$953	\$744	\$564	\$527	\$500	\$600	\$604
<b>Free Cash Flow (FCF)</b>	<b>\$485</b>	<b>\$511</b>	<b>\$475</b>	<b>\$762</b>	<b>(\$32)</b>	<b>\$393</b>	<b>\$209</b>	<b>(\$253)</b>	<b>\$107</b>	<b>\$30</b>	<b>\$58</b>
FCF per share	\$5.35	\$5.69	\$5.06	\$6.79	(\$0.28)	\$3.55	\$1.87	(\$2.24)	\$0.94	\$0.26	\$0.50
Increase in Other investments	(\$188)	(\$298)	(\$340)	(\$511)	(\$205)	(\$242)	(\$143)	(\$141)	(\$130)	(\$131)	(\$135)
<b>FCF less Other investments</b>	<b>\$297</b>	<b>\$213</b>	<b>\$135</b>	<b>\$251</b>	<b>(\$237)</b>	<b>\$151</b>	<b>\$66</b>	<b>(\$394)</b>	<b>(\$23)</b>	<b>(\$102)</b>	<b>(\$77)</b>
EBITDA	\$1,855	\$2,007	\$1,840	\$2,776	\$2,842	\$2,225	\$1,702	\$1,642	\$1,644	\$1,665	\$1,706
Cash flow / EBITDA	0.7x	0.6x	0.6x	0.6x	0.3x	0.5x	0.5x	0.2x	0.4x	0.4x	0.4x
Net income	\$202	\$266	\$141	\$92	\$159	(\$248)	(\$133)	(\$219)	(\$149)	(\$35)	(\$26)
Cash flow / Net Income	6.3x	4.8x	7.7x	17.6x	5.8x	-4.6x	-5.8x	-1.3x	-4.1x	-18.1x	-25.1x
"Free Cash Flow"/Net Income	2.4x	1.9x	3.4x	8.3x	-0.2x	-1.6x	-1.6x	1.2x	-0.7x	-0.9x	-2.2x

Source: Company reports, BofA Merrill Lynch Global Research

### Capital structure

The biggest items in the capital structure as of 12/31/2018 are: \$2.6bn of 6.875% senior notes due 2022 (19% of total debt), and \$3.1bn of 6.25% senior notes due 2023 (23%).

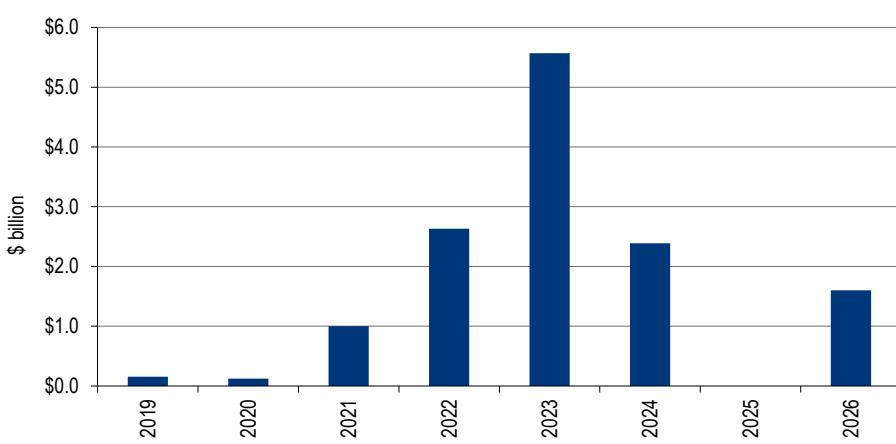
**Table 89: CYH – Capitalization as of 12/31/018 and PF February Refi**

	12/31/2018		12/31/2018 PF Feb Refi	
	Amount (\$mm)	% of Debt	Amount (\$mm)	% of Debt
<b>Cash</b>	<b>\$196</b>		<b>\$196</b>	
Receivables Facility (\$600m, due Nov 2019)	\$0	0%	\$0	0%
Asset-based loan revolving credit facility (\$1bn due 2023, L+225)	\$698	5%	\$698	5%
Other Long Term Debt:				
Term loan H (\$2,944m due 2021; L +3.25%, 1% floor)	\$1,622	12%		
8.000% Senior Notes due Nov 2019	\$155	1%	\$155	1%
7 .125 % Senior Notes due 2020	\$121	1%	\$121	1%
5.125% Senior Secured Notes due 2021	\$1,000	7%	\$1,000	7%
6.875% Senior Notes due 2022	\$2,632	19%	\$2,632	19%
6.25% senior secured notes due 2023	\$3,100	23%	\$3,100	23%
8.625% secured notes due 2024	\$1,033	8%	\$1,033	8%
8.00% senior secured notes due 2026			\$1,601	12%
Junior-Priority Secured Notes due 2023, 11% in yr1, 9.875% after that	\$1,770	13%	\$1,770	13%
8.125% Junior-Priority Secured notes due 2024	\$1,355	10%	\$1,355	10%
Capital lease obligations	\$231	2%	\$231	2%
Other	\$43	0%	\$43	0%
Unamortized deferred debt issuance costs and note premium	\$164		\$164	
<b>Total Debt</b>	<b>\$13,596</b>	100%	<b>\$13,574</b>	100%

Source: Company filings, BofA Merrill Lynch Global Research

## Maturities

**Chart 105: CYH - Debt Due Schedule as of 12/31/18**



Source: Company reports, BofA Merrill Lynch Global Research

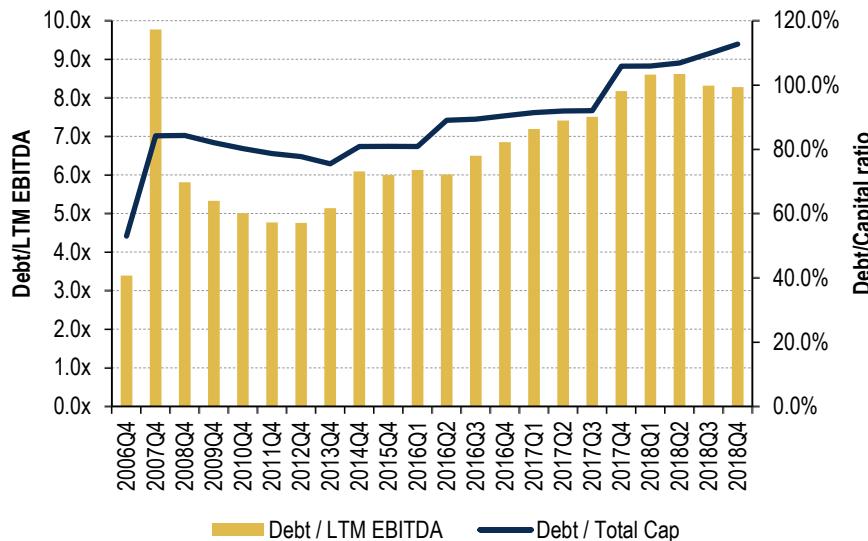
## Current leverage

At year end, the company's Debt/Cap ratio was 112.7%, up from 105.8% at the end of 2017. The Debt/LTM EBITDA was 8.3x, up from 8.2x due to decrease in EBITDA and

delay of the company's divestiture program. EBITDA declined -3.5% y/y in 2018.

The company still has just under \$0.9bn in estimated proceeds from pending asset sales. We estimate CYH PF leverage would be 8.1x with these divestitures completed (adjusting EBITDA for the \$70m associated with the sales).

**Chart 106: CYH - Leverage Statistics**



Source: Company filings, BofA Merrill Lynch Global Research

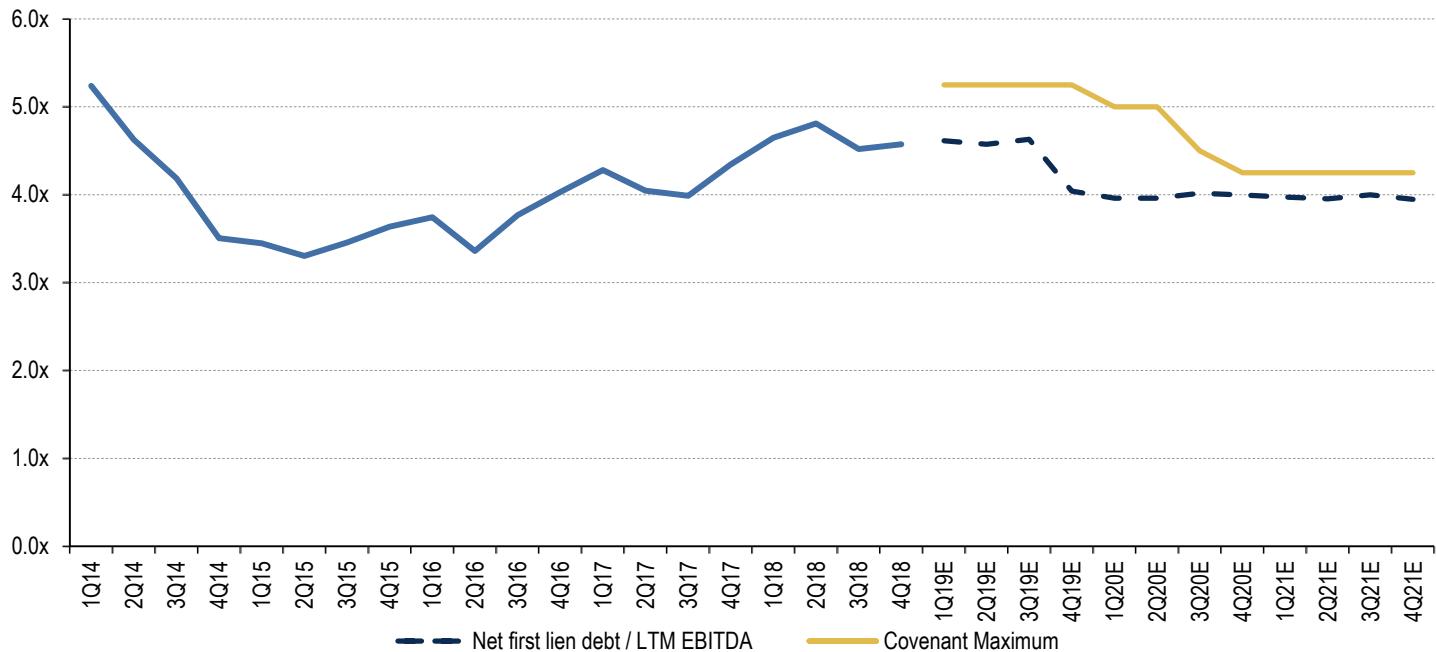
CYH has a unique debt covenant where they are measured on a maximum first lien net debt to EBITDA ratio. With CYH's refinancing in February 2019, their first lien net debt to EBITDA covenant was updated, giving them 50bps of relief in 2019 and 1H2020, as well as 25bps in Q3 2020. By the company calculation, as of 12/31/18 first lien net debt to EBITDA was 4.84x (after adjustments to EBITDA for stock comp, divestitures, non-controlling interests, restructuring costs, and non-recurring items). This implies that the company is using EBITDA of about \$1,555m, between \$80m and \$90m less than the EBITDA of \$1,642m that was reported for 2018, which is surprising given that we usually expect the credit definition of EBITDA to be more lenient than the reported definition (using reported EBITDA, first lien net debt / EBITDA was 4.6x). While the 4.84x is close to the covenant maximum, CYH still has about \$900m of proceeds from their divestiture program, which along with the 50bps of covenant relief for 2019 should leave them at a comfortable leverage for the year.

Below we show an analysis of projected first lien ratio. Since the covenants are calculated on net basis, there is only one scenario. We assume CYH receives \$900m of asset sale proceeds at the end of 2019 (expects to sell assets with annual revs of \$900m). We also assume FCF is reduced by the estimated Other investments as discussed above.

EBITDA in 2019 would have to be 20% (\$329 million) below our estimate in order for CYH to break its first lien net leverage covenant at the end of 2019 assuming it pays down debt with FCF.

However, we estimate that the company would be at risk of breaking the current covenants at the end of 2020 even with the proceeds from asset sales – the EBITDA cushion under the covenant drops to only 5%. CYH will likely need to get a relief on the covenants, especially if the asset proceeds do not materialize as expected.

**Chart 107: CYH - Projected secured net first lien debt / EBITDA – assumes \$900m of divestiture proceeds in 2019**



Source: Company filings, BofA Merrill Lynch Global Research

## Floating vs fixed rate

Pro forma the Feb refi, 5% of CYH debt was floating.

**Table 90: CYH – Floating vs Fixed rate debt as of 12/31/18 and PF Feb Refi**

	12/31/2018		12/31/2018 PF Feb Refi	
	Amount	% of total	% of total	
			Amount	% of total
<i>As reported:</i>				
Fixed rate debt	\$11,209	82%	\$12,809	94%
Floating rate debt	\$2,320	17%	\$698	5%
<b>Total</b>	<b>\$13,596</b>		<b>\$13,574</b>	
Amount covered by swaps	\$1,500			
<i>Adjusted for swaps:</i>				
Fixed rate debt	\$12,709	94%	\$12,809	94%
Floating rate debt	\$820	6%	\$698	5%
<b>Total</b>	<b>\$13,529</b>		<b>\$13,507</b>	

Source: Company Filings, BofA Merrill Lynch Global Research

## Sensitivity to interest rate changes

Post the refi of the term loan H with fixed rate bonds, we estimate every 1% change in interest rates would be a 5c/share hit to CYH, or 4% to FCF/share (EPS is negative)

**Table 91: CYH – sensitivity to interest rate changes PF recent refi**

	Change in Interest Rate							
	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%
EPS Impact	\$0.01	\$0.02	\$0.03	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09
% of 2019 FCF	0.8%	1.6%	2.4%	3.2%	4.0%	4.8%	5.6%	6.4%

Source: BofA Merrill Lynch Global Research estimates

## Availability under credit facilities and total liquidity

CYH has \$302 million revolver capacity due in 2023. Net of \$90 million of outstanding letters of credit, net available amount is \$212m. CYH also has a \$600 million Receivables facility with nothing outstanding as of 12/31/18. The company doesn't have any excess cash on the balance sheet (typically \$320m), but still has \$812m of liquidity. This wasn't impacted by the February refi.

**Table 92: CYH availability under credit facilities and total liquidity as of 12/31/18**

Availability	12/31/2018	
	Amount (\$mm)	
Available under revolvers	\$1,600	
amounts drawn	(\$698)	
Outstanding letters of credit	(\$90)	
<b>Net available</b>	<b>\$812</b>	
<i>Other lines of credit:</i>		
Receivable transactions (including securitizations)	\$0	
amounts drawn	\$0	
<b>Availability including other lines of credit</b>	<b>\$812</b>	
Cash	\$196	
Typical Cash level	\$320	
Excess Cash	\$0	
<b>Total Liquidity</b>	<b>\$812</b>	
Liquidity as % of market cap	155%	

Source: Company Filings, BofA Merrill Lynch Global Research

## Refinancing opportunity – moderate – likely dilutive

Because of CYH's difficult credit situation, they often find themselves forced to issue debt in dilutive deals such as the above in order to push out their most immediate maturities. For example, in order to push out their maturities, CYH issued exchange offers for their outstanding 2019 and 2020 notes in June 2018. This refi increased annual interest expense by roughly \$41 million (\$61 million in year 1), or roughly \$0.28 per share dilutive beyond year 1.

**Table 93: CYH June 2018 refi**

Notes	Amt. (\$m)	Interest rate	Interest expense (\$m)
Senior Unsecured Notes due 2019	\$1,770.3	8.000%	\$141.6
Senior Unsecured Notes due 2020	\$1,078.7	7.125%	\$76.9
Senior Unsecured Notes due 2022	\$368.1	6.875%	\$25.3
<b>Total:</b>			<b>\$243.8</b>
<b>Notes</b>	<b>Amt. (\$m)</b>	<b>Interest rate</b>	<b>Interest expense (\$m)</b>
Junior-Priority Secured Notes due 2023	\$1,770.3	9.875%	\$174.8
Junior-Priority Secured Notes due 2024	\$1,354.8	8.125%	\$110.1
<b>Total:</b>			<b>\$284.9</b>

Source: Company filings, BofA Merrill Lynch Global Research

CYH also refinanced their outstanding Term loan H in February 2019, which increased annual interest expense by \$36 million, or was roughly \$0.24 per share dilutive.

**Table 94: CYH February 2019 refi**

Notes	Amt. (\$m)	Interest rate	Interest expense (\$m)
Term loan H	\$1,557.0	L + 325	\$91.9
Senior Secured Notes due 2026	\$1,601.0	8.000%	\$128.1
<b>Difference:</b>			<b>\$36.2</b>

Source: BofA Merrill Lynch Global Research

While dilutive, these refinances served the purpose of successfully pushing out CYH's obligations and significantly reducing their exposure to interest rate increases (5% floating rate debt vs 17% prior to the February refi). Because of this, CYH isn't pressed to refinance again in the coming months, with \$155 million due in 2019 and \$121 million in 2020. CYH is likely to use the expected asset sale proceeds to repay 2019 and 2020 bonds. That said, the company still faces some significant maturities in 2021 (\$1bn), 2022 (\$2.6bn), 2023 (\$5.6bn), and 2024 (\$2.4bn), and therefore we expect them to always be watching the market for a good opportunity to refinance/push out the maturities. We expect that any refinancing that CYH does will be dilutive to EPS. If CYH were to refinance \$1bn of its 5.125% Senior Secured Notes due 2021 with new debt at 8%, it would increase interest expense by \$29m annually, further pressuring a negative FCF outlook (netting asset sale debt paydown against higher rates on a refi, we would expect interest expense to increase by \$7.7m).

## HCA Inc. (HCA)

HCA currently has a net debt/EBITDA leverage ratio of 3.8x PF the Mission acquisition, but could end the year at 3.3x leverage if it uses FCF to pay down debt. HCA generates a significant amount of FCF and has been the most consistent hospital company to deploy capital - over the last eight years, the company spent \$3.5 billion on dividends, \$12.5 billion on share buybacks, and \$6.6 billion on acquisitions. Given the company history as well as the guidance outlined for 2019, we expect HCA will again aggressively deploy capital in 2019 with \$2bn of stock repurchases authorized (vs. \$1.5bn in 2018) and management highlighting an appetite for more deals like Mission. With HCA raising \$1.5bn of debt to fund the Mission deal, they have shown that they are not afraid to

lever up a bit to acquire a strong asset. However, given the fact that HCA's secured debt was upgraded to investment grade, we would not expect the company to lever above 4x as it would likely try to keep the investment grade rating. HCA also upped their quarterly dividend 14% to \$0.40 from \$0.35 (still a 1% yield).

### Cash on balance sheet

As of March 31, 2019, HCA had \$531 million of cash on the balance sheet, representing 1% of its market cap. The company has maintained an average cash balance of \$541 million in 2005-2018.

### Free cash flow estimates

We forecast that HCA will generate approximately \$2.6 billion, \$2.8 billion and \$2.9 billion of free cash flow in 2019, 2020, and 2021, respectively, after adjusting for net non-controlling interest distributions. HCA is currently trading at a 7% 2019E FCF yield, above the median for the HC Facility group.

**Table 95: HCA - Cash Flow Analysis (\$m)**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E
Operating Cash Flow	\$3,199	\$3,933	\$4,175	\$3,680	\$4,448	\$4,734	\$5,653	\$5,426	\$6,761	\$6,904	\$7,208	\$7,509
Change in noncontrolling interests	(\$342)	(\$378)	(\$401)	(\$435)	(\$442)	(\$495)	(\$434)	(\$448)	(\$441)	(\$633)	(\$663)	(\$687)
<b>Underlying Operating Cash Flow</b>	<b>\$2,857</b>	<b>\$3,555</b>	<b>\$3,774</b>	<b>\$3,245</b>	<b>\$4,006</b>	<b>\$4,239</b>	<b>\$5,219</b>	<b>\$4,978</b>	<b>\$6,320</b>	<b>\$6,271</b>	<b>\$6,545</b>	<b>\$6,822</b>
Capex	\$1,325	\$1,679	\$1,862	\$1,943	\$2,176	\$2,375	\$2,760	\$3,015	\$3,573	\$3,673	\$3,773	\$3,873
<b>Free Cash Flow (FCF)</b>	<b>\$1,532</b>	<b>\$1,876</b>	<b>\$1,912</b>	<b>\$1,302</b>	<b>\$1,830</b>	<b>\$1,864</b>	<b>\$2,459</b>	<b>\$1,963</b>	<b>\$2,747</b>	<b>\$2,598</b>	<b>\$2,772</b>	<b>\$2,949</b>
FCF per share	\$3.50	\$3.78	\$4.16	\$2.82	\$4.06	\$4.37	\$6.21	\$5.27	\$7.73	\$7.41	\$7.88	\$8.35
EBITDA	\$5,868	\$6,061	\$6,531	\$6,574	\$7,428	\$7,915	\$8,218	\$8,233	\$8,949	\$9,705	\$10,192	\$10,649
Cash flow / EBITDA	0.5x	0.6x	0.6x	0.5x	0.5x	0.5x	0.6x	0.6x	0.7x	0.6x	0.6x	0.6x
Net income	\$1,207	\$2,465	\$1,605	\$1,556	\$1,875	\$2,129	\$2,890	\$2,216	\$3,787	\$3,602	\$3,839	\$4,156
Cash flow / Net Income	2.4x	1.4x	2.4x	2.1x	2.1x	2.0x	1.8x	2.2x	1.7x	1.7x	1.7x	1.6x
"Free Cash Flow"/Net Income	1.3x	0.8x	1.2x	0.8x	1.0x	0.9x	0.9x	0.9x	0.7x	0.7x	0.7x	0.7x

Source: Company reports, BofA Merrill Lynch Global Research

### Capital structure

Below we outline the main components of HCA's capital structure. The company has \$34.3 billion of debt outstanding PF the Mission acquisition debt. The debt includes approximately \$12 billion of senior unsecured notes, which represent about 36% of total debt. About \$14 billion of senior secured first lien notes represent 42% and \$4 billion of senior secured term loan facilities represents 12% of total debt. In addition, HCA has \$3.0 billion outstanding on its senior secured asset-based revolving credit facility maturing in 2022. The company also has a \$2 billion revolving facility (no balance at 12/31/18). On 1/18/19, HCA priced \$1.5bn of senior notes in order to pay for the Mission acquisition.

**Table 96: HCA Capitalization as of 12/31/2018 and PF Mission debt**

	12/31/2018		12/31/2018 PF Mission	
	Amount (\$mm)	% of Debt	Amount (\$mm)	% of Debt
<b>Cash</b>	<b>\$502</b>		<b>\$502</b>	
Senior secured asset-based revolving credit facility (\$3.75bn due June 2022)	\$3,040	9%	\$3,040	9%
Senior secured revolving credit facility (\$2.0bn due June 28, 2022)	\$0	0%	\$0	0%
Total Senior secured term loan facilities:	\$3,801	12%	\$3,801	11%
Term loan A5 due 2020, L+150	\$1,155	4%	\$1,155	3%
Term loan B11 due 2023 L+175	\$1,157	4%	\$1,157	3%

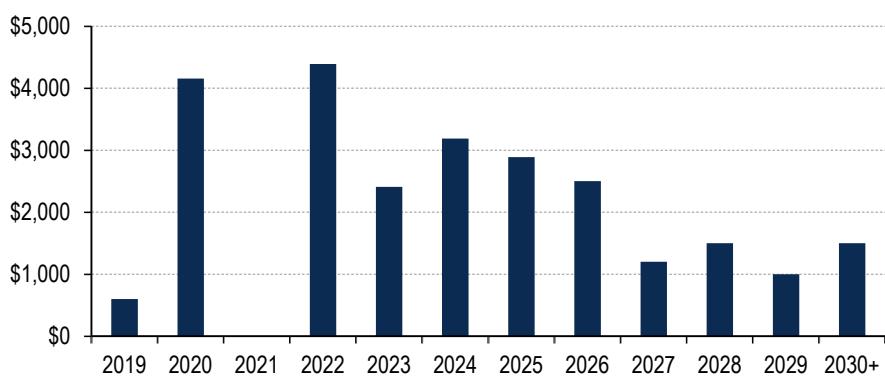
**Table 96: HCA Capitalization as of 12/31/2018 and PF Mission debt**

	12/31/2018		12/31/2018 PF Mission	
Term loan B10 due 2025 L+200	\$1,489	5%	\$1,489	4%
Senior secured first lien notes:				
4.25% 1st lien notes due 2019	\$600	2%	\$600	2%
6.50% notes due 2020	\$3,000	9%	\$3,000	9%
5.875% notes due 2022	\$1,350	4%	\$1,350	4%
4.75% notes due 2023	\$1,250	4%	\$1,250	4%
5% notes due 2024	\$2,000	6%	\$2,000	6%
5.25% 1st lien notes due 2025	\$1,400	4%	\$1,400	4%
5.25% 1st lien notes due 2026	\$1,500	5%	\$1,500	4%
4.5% notes due 2027	\$1,200	4%	\$1,200	3%
5.5% notes due 2047	\$1,500	5%	\$1,500	4%
Other senior secured debt	\$585	2%	\$585	2%
<b>First lien debt</b>	<b>\$21,226</b>	<b>72%</b>	<b>\$21,226</b>	<b>72%</b>
Senior unsecured notes	\$11,752	36%	\$13,252	39%
5.375% OpCo Senior Notes due 2026	\$1,000		\$1,000	
5.625% OpCo Senior Notes due 2028	\$1,000		\$1,500	
5.875% OpCo Senior Notes due 2029	\$0		\$1,000	
Debt issuance costs	-\$157		-\$157	
<b>Total Debt</b>	<b>\$32,821</b>	<b>100%</b>	<b>\$34,321</b>	<b>100%</b>

Source: Company filings, BofA Merrill Lynch Global Research

**Maturities**

HCA has \$0.6bn of debt maturing in 2019 (2% of debt) and \$4.2bn of debt maturing in 2020 (12% of debt). After that, HCA has no debt maturing in 2021, \$4.4bn in 2022 (13% of debt, mostly from the ABL revolver), and \$2.4bn in 2023 (7% of debt). From 2024 to 2027 the company has \$1.2bn to \$3.2bn maturing each year. It has \$4bn total maturing after 2027.

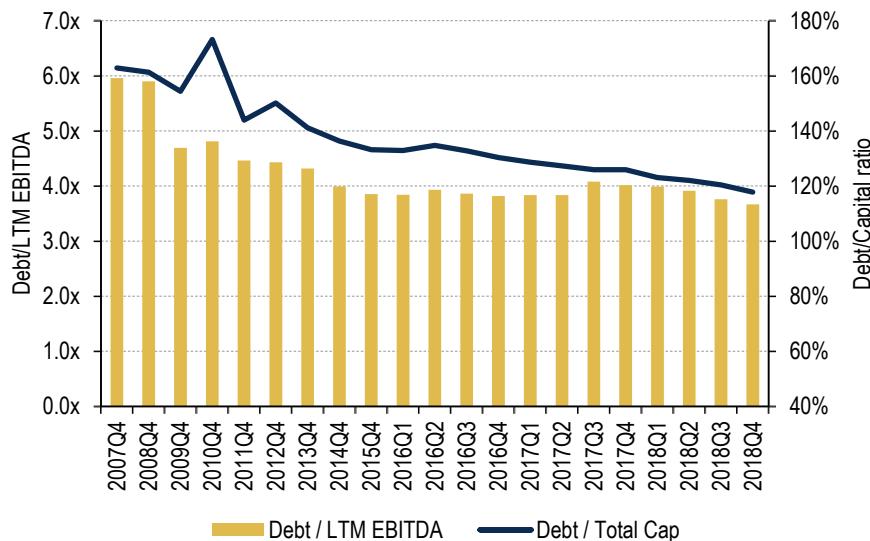
**Chart 108: HCA - debt due schedule as of 12/31/2018 (\$m)**

Source: Company reports, BofA Merrill Lynch Global Research

## Current leverage

The company's Debt/LTM EBITDA as of 12/31/2018 was 3.7x, but is 3.8x PF the Mission deal (added \$1.5bn debt and \$100m EBITDA), down slightly from 4.0x a year ago (net debt to LTM EBITDA PF Mission is 3.7x). The typical health care facility company can operate with leverage of 3-4x EBITDA so HCA is at the higher end of this range. We note the company reduced its leverage meaningfully from 5.0x post the LBO in 2006. HCA targets leverage in the 3.5-4.5x range and historically, the company would lever back up if the leverage went down below 4.0x.

**Chart 109: HCA - Leverage Statistics**



Source: Company filings, BofA Merrill Lynch Global Research

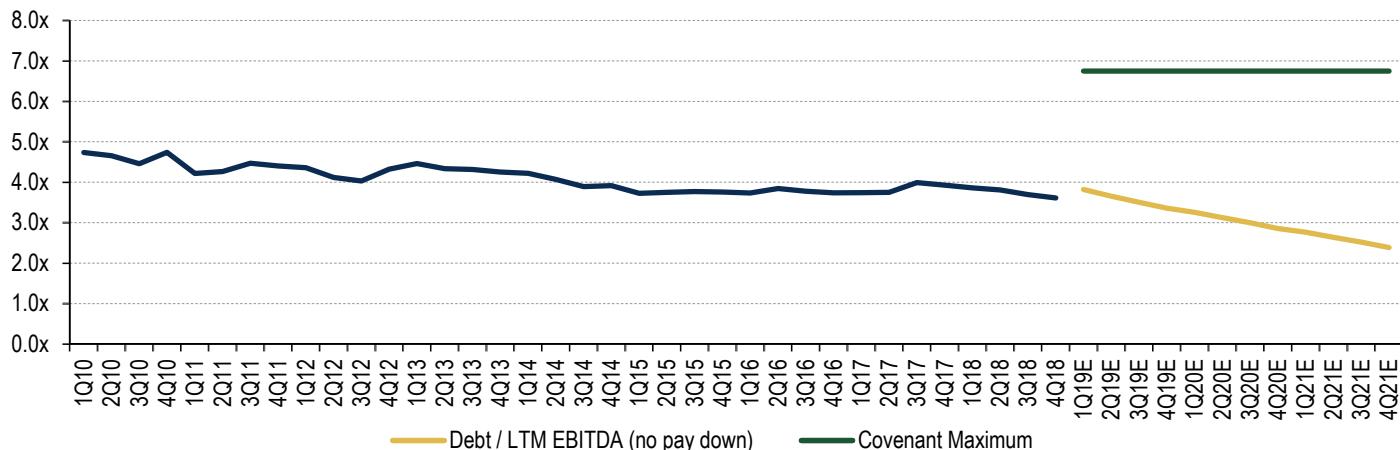
## Covenants

HCA's credit agreement requires the company to maintain total debt to consolidated EBITDA ratio below 6.75x – HCA is comfortably within its covenant.

Since the covenant calculation is on net debt basis, below we show an analysis of projected leverage ratios for only one scenario. We added \$1.5bn new debt in 1Q19 to reflect the debt raised after 12/31/18. The analysis shows that HCA does not need to use FCF to pay down debt in order to stay within its covenant leverage limits.

EBITDA in 2019 would have to be 46.5% (\$4.4 billion) below our estimate in order for HCA to break its covenant leverage requirement at the end of 2019. The covenants are more generous in their calculation of EBITDA, implying that the company would have to miss our EBITDA estimate by closer to \$4.8 billion (50%) if we include stock based compensation (\$330 million in 2019).

**Chart 110: HCA – Projected Leverage Ratio**



Source: BofA Merrill Lynch Global Research.

### Floating vs fixed rate

At 2018 year end and PF the Mission acquisition, 20% of HCA debt was floating. However, adjusting for its \$2.5 billion of interest rate swaps, the effective exposure to floating rate debt was 13%.

**Table 97: HCA fixed versus floating debt as of 12/31/18 (\$m)**

	12/31/2018		12/31/2018 PF Mission	
	Amount	% of total	Amount	% of total
<i>As reported:</i>				
Fixed rate debt	\$26,137	79%	\$27,637	80%
Floating rate debt	\$6,841	21%	\$6,841	20%
Total	\$32,978		\$34,478	
Amount covered by swaps	\$2,500		\$2,500	
<i>Adjusted for swaps:</i>				
Fixed rate debt	\$28,637	87%	\$30,137	87%
Floating rate debt	\$4,341	13%	\$4,341	13%
Total	\$32,978		\$34,478	

Source: Company filings, BofA Merrill Lynch Global Research

### Sensitivity to interest rate changes

Based on the company's outstanding variable rate debt and after adjusting for the \$2.5bn swaps, we estimate a 1% change in interest rates will affect net income by approximately \$34 million or EPS by \$0.10 (1% of 2019E EPS).

**Table 98: HCA - Interest Rate Sensitivity**

	Change in Interest Rate							
	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%
EPS Impact	\$0.02	\$0.05	\$0.07	\$0.10	\$0.12	\$0.14	\$0.17	\$0.19
% of 2019 EPS	0.2%	0.5%	0.7%	0.9%	1.2%	1.4%	1.6%	1.9%

Source: BofA Merrill Lynch Global Research

### Availability under credit facilities and total liquidity

As of December 31, 2018 and PF Mission, the company had about \$2.7 billion of availability under its credit facilities after adjusting for \$17 million of outstanding letters of credit. Total liquidity is \$2.7 billion (cash is below the typical cash balance).

**Table 99: HCA Availability under credit facilities and total liquidity (\$m)**

Availability	12/31/2018	12/31/2018 PF Mission
Senior secured asset-based revolving credit facility (due 2022)	\$3,750	\$3,750
Outstanding under revolver	-\$3,040	-\$3,040
Senior secured revolving credit facility (due 2022)	\$2,000	\$2,000
Outstanding under revolver	\$0	\$0
Outstanding letters of credit	-\$17	-\$17
<b>Net available</b>	<b>\$2,693</b>	<b>\$2,693</b>
Cash	\$502	\$502
Typical Cash level	\$541	\$541
Excess Cash	\$0	\$0
<b>Total Liquidity</b>	<b>\$2,693</b>	<b>\$2,693</b>
Liquidity as % of market cap	6%	6%

Source: Company filings, BofA Merrill Lynch Global Research

**Refinancing opportunity – medium**

The \$3.0bn of 6.50% notes and \$1.1bn of term loan A5, which represent roughly 12% of debt PF Mission, are the likely targets for refinancing. Of note, in Jan 2019, HCA senior secured debt was upgraded to investment grade which would likely allow the company to refinance existing debt at lower rates. If we assume HCA is able to refi the \$1.1bn of their term loan A5 at a 25bps better rate, HCA would lower their interest expense by about \$3m. Meanwhile, the company would likely be able to refinance its \$3.0bn 6.50% Notes at much lower rates given that its other secured notes trade in the 4.24-5.25% range depending on the duration. Assuming, the company can refi the 6.50% notes at 5%, it would lower annual interest expense by about \$45mn. Together, interest expense would be lowered by about \$48mn, and would be about 10c accretive to annual EPS.

**Tenet Healthcare (THC)**

THC is highly levered with leverage of 5.8x at 12/31/2018 or 6.7x based on EBITDA less NCI. While the company hasn't generated much FCF over the past few years, we project that the company can turn FCF positive after increasing ownership of USPI as well as divesting underperforming hospitals. We would expect THC to spend FCF on expanding the ASC business through acquisitions and de novos. THC remains committed to reducing leverage below 5x, primarily through EBITDA growth, but guidance implies it won't happen in 2019 (we estimate in 2020). Based on our model, THC would have to sell Conifer for at least \$2.66 billion in net proceeds to get to 5x EBITDA in 2019, although an asset spin (with little benefit to leverage) seems more likely.

**Cash on balance sheet**

As of March 31, 2019, THC had \$252 million of cash on the balance sheet, down from \$411m at the end of 2018.

**Free cash flow estimates**

We forecast THC will generate FCF after distributions to minority interests of \$249 million in 2019, \$295 million in 2020 and \$387 million in 2021.

Historically, THC has not generated much FCF, with only 1 year of positive FCF since 2013 which was in 2015 when the USPI acquisition significantly improved the FCF for the company.

THC is currently trading at 8% 2019E FCF yield. However, we note that adjusting for the \$175m of deals in our model the yield is only 2%.

**Table 100: THC - Cash Flow Analysis**

	2011	2012	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E
Operating Cash Flow	\$497	\$593	\$589	\$687	\$1,026	\$558	\$816	\$694	\$1,273	\$1,366	\$1,479
Distribution to minority partners	\$0	\$0	\$0	(\$10)	(\$106)	(\$196)	(\$227)	(\$268)	(\$349)	(\$396)	(\$417)
<b>Underlying Operating Cash Flow</b>	<b>\$497</b>	<b>\$593</b>	<b>\$589</b>	<b>\$677</b>	<b>\$920</b>	<b>\$362</b>	<b>\$589</b>	<b>\$426</b>	<b>\$924</b>	<b>\$970</b>	<b>\$1,062</b>

**Table 100: THC - Cash Flow Analysis**

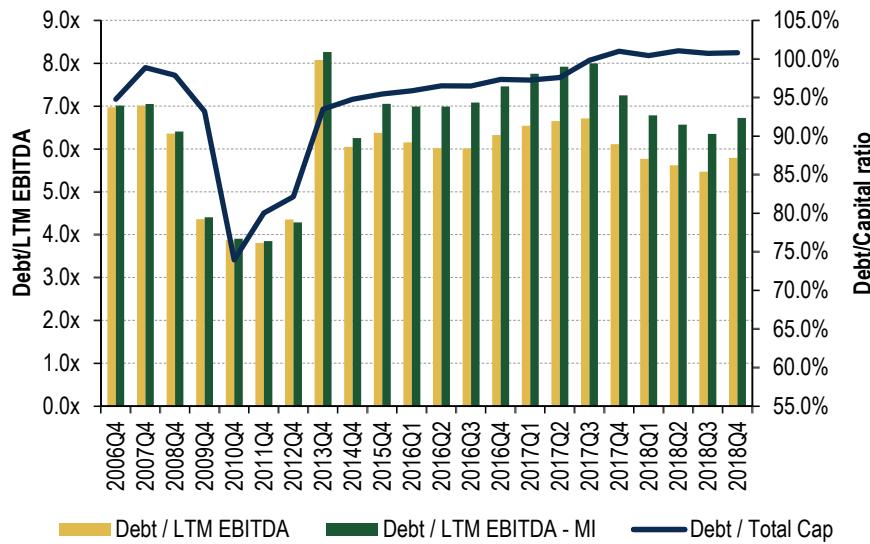
	2011	2012	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E
Capex	\$475	\$508	\$691	\$933	\$842	\$875	\$707	\$617	\$675	\$675	\$675
<b>Free Cash Flow (FCF)</b>	<b>\$22</b>	<b>\$85</b>	<b>(\$102)</b>	<b>(\$256)</b>	<b>\$78</b>	<b>(\$513)</b>	<b>(\$118)</b>	<b>(\$191)</b>	<b>\$249</b>	<b>\$295</b>	<b>\$387</b>
FCF per share	\$0.18	\$0.77	(\$1.00)	(\$2.58)	\$0.78	(\$5.11)	(\$1.17)	(\$1.84)	\$2.36	\$2.77	\$3.61
EBITDA											
Cash flow / EBITDA	\$1,145	\$1,207	\$1,342	\$1,952	\$2,276	\$2,413	\$2,444	\$2,560	\$2,699	\$2,808	\$2,881
Net income											
Cash flow / Net Income	0.4x	0.5x	0.4x	0.3x	0.4x	0.2x	0.2x	0.2x	0.3x	0.3x	0.4x
"Free Cash Flow"/Net Income	8.6x	4.2x	-4.4x	56.4x	-6.6x	-1.9x	7.2x	2.2x	3.8x	3.4x	3.5x
	0.4x	0.6x	0.8x	-21.3x	-0.6x	2.7x	-1.4x	-1.0x	1.0x	1.0x	1.3x

Source: Company reports, BofA Merrill Lynch Global Research

### Current leverage

As of December 31, 2018, debt was \$14.8 billion, essentially flat from a year ago (\$110 million down). The company's Debt/Cap ratio stayed at 101.0%, and Debt/LTM EBITDA decreased to 5.8x from 6.1x at the end of 2017. The typical health care facility company can operate with leverage of 3-4x EBITDA or debt to cap of 40-60%, so THC is highly levered versus historical standards. THC's Debt/Cap ratio is above historical average of 91%, and its leverage ratio is at its historical average of 5.8x Debt/LTM EBITDA since 2005. Meanwhile, given the growing Non-Controlling Interests (NCI) line, based on EBITDA less NCI, leverage was 6.7x at the end of 2018, down from 7.3x a year ago.

THC is targeting net debt-to-adjusted EBITDA of 5x or less. The company set the same goal for the end of 2018 and fell short. The company expects the leverage improvement to be primarily through EBITDA growth. Based on our model, THC would have to sell Conifer for at least \$2.66 billion in net proceeds to get to 5x EBITDA in 2019 although an asset spin (with little benefit to leverage) seems more likely.

**Chart 111: THC – leverage statistics**

Source: Company filings, BofA Merrill Lynch Global Research

### Capital structure

THC has a \$1 billion revolver with a \$300 million subfacility for standby letters of credit maturing in Dec 2020 with nothing outstanding as of 12/31/18. The rest of the debt consists of fixed rate notes, which in total account for 98% of total debt, with the unsecured notes representing 42% and secured notes 55% of debt.

In October 2013, THC issued \$2.8 billion of 8 1/8% senior notes and \$1.8 billion of 6%

senior secured notes with maturities in 2022 and 2020 respectively, and to finance the acquisition of VHS. These two notes combined account for 31% of THC's Total Debt.

In June 2015, THC issued \$1.9 billion of 6 3/4% senior notes with maturity in 2023 to finance the acquisition of USPI - accounting for 13% of THC's Total Debt.

**Table 101: THC Capitalization as of 12/31/18 and PF the Jan 2019 Refi**

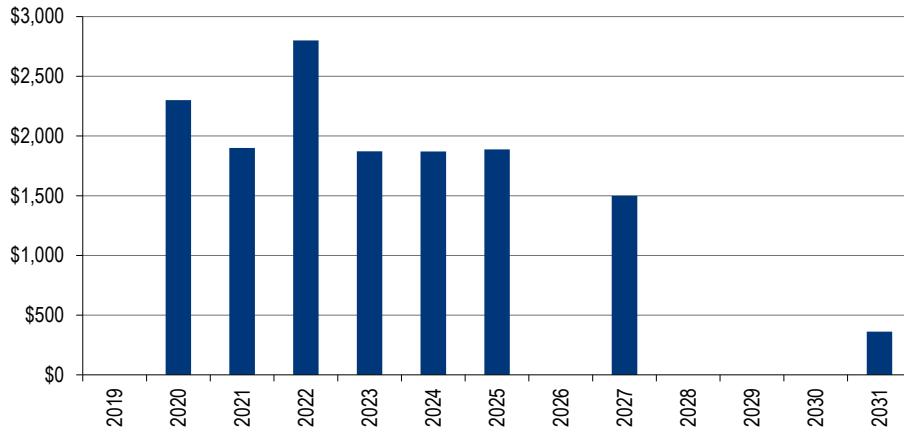
	12/31/2018 Amount (\$mm)	12/31/2018 PF January Refi Amount (\$mm)	12/31/2018 % of debt	12/31/2018 PF January Refi % of debt
<b>Cash</b>	<b>\$411</b>	<b>\$393</b>		
<b>Revolving Credit Facility:</b>				
Revolver (A/R) (\$1,000 mm due 2020; L+1.5%)	\$0	0%	\$0	0%
<b>Senior unsecured notes:</b>				
5 1/2%, due 2019	\$468	3%		
6.75% Due 2020	\$300	2%		
8 1/8%, due 2022	\$2,800	19%	\$2,800	19%
6 3/4%, due 2023	\$1,872	13%	\$1,872	13%
6 7/8%, due 2031	\$362	2%	\$362	2%
7.0% due 2025	\$478	3%	\$478	3%
<b>Senior secured notes:</b>				
4 3/4% due 2020	\$500	3%	\$500	3%
6% due 2020	\$1,800	12%	\$1,800	12%
4 1/2%, due 2021	\$850	6%	\$850	6%
4 3/8%, due 2021	\$1,050	7%	\$1,050	7%
7 1/2% second lien, due 2022	\$750	5%		
4.625% first lien due 2024	\$1,870	13%	\$1,870	13%
5.125% second lien due 2025	\$1,410	10%	\$1,410	10%
6.25% second lien due 2027			\$1,500	10%
Capital leases and mortgage notes	\$506	3%	\$506	3%
Unamortized note discounts	-\$184	-1%	-\$184	-1%
<b>Total Debt</b>	<b>\$14,832</b>	100%	<b>\$14,814</b>	100%

Source: Company Filings, BofA Merrill Lynch Global Research

## Maturities

The first maturity is in 2020 when \$1.3bn of THC notes mature. THC's largest maturity isn't until 2022 when they have \$2.8 billion of Senior notes due, but they have some pretty large maturities in every year after 2019; \$2.3 billion in 2020, \$1.9 billion in 2021, and \$1.9 billion in each year from 2023-2025.

**Chart 112: THC – Debt Due Schedule (\$m) as of 12/31/18 PF January Refi**



Source: Company reports, BofA Merrill Lynch Global Research

## Covenants

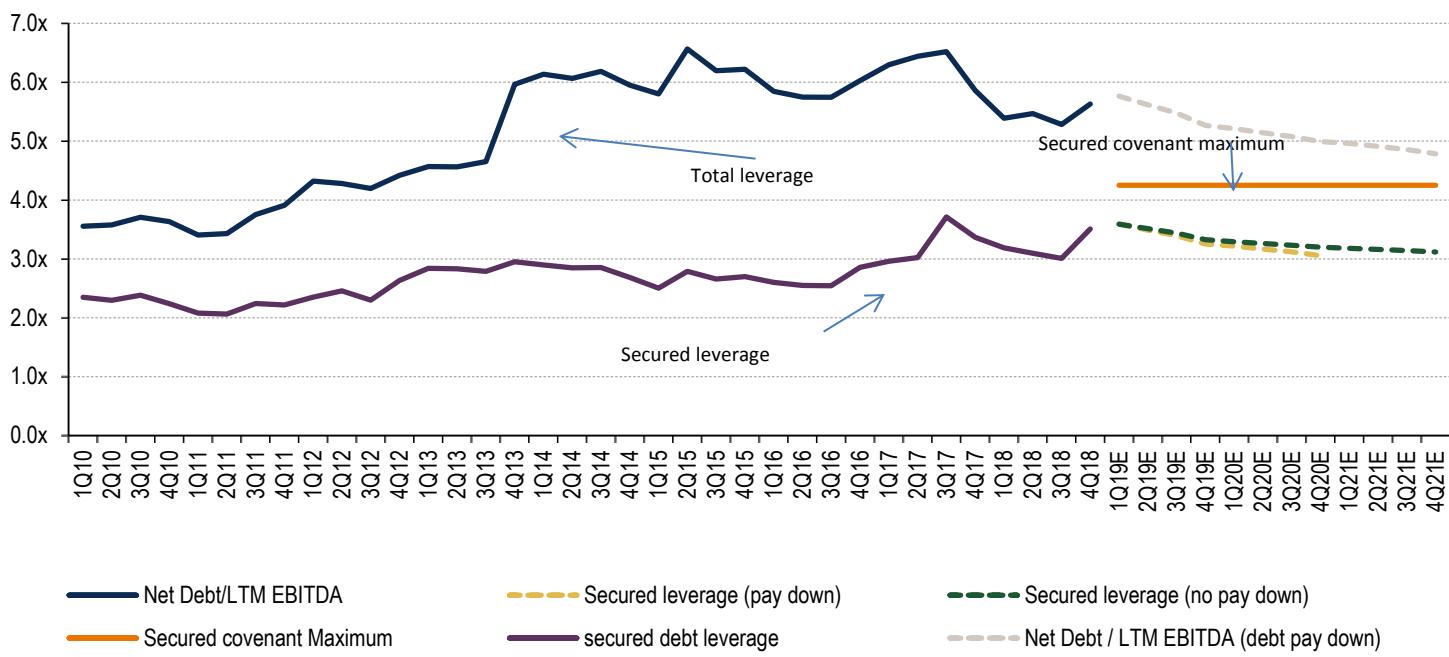
In this section, we analyze the company's credit statistics. However, the covenants are usually more generous in their calculation of EBITDA than our methodology and add back non-cash items such as stock based compensation (2019E is \$50 million). As a result, the company's financial position versus its covenants is actually somewhat better than our analysis implies.

The company's credit agreement includes fixed charge coverage covenant of 1.5x and certain covenants associated with senior secured notes, which put restrictions on secured debt (rather than total debt). The indenture for the senior secured notes include a limitation on liens covenant that restricts secured debt at the greater of a) \$3.2 billion and b) 4.0x secured leverage with a sublimit for first lien debt of greater of a) \$2.6 billion and b) 3.0x secured leverage. The covenant carves out \$1.0 billion for a credit facility liens basket, as it reflects the \$1.0 billion credit facility.

However, these are incurrence tests, not maintenance tests, meaning that secured debt to EBITDA ratios must be met only when incurring additional secured debt or refinancing existing secured debt. Ratios do not need to be maintained at all times and do not impact Tenet's ability to raise additional unsecured debt.

After the January 2019 refi, the secured debt totaled \$8.980 billion (capital leases and mortgage notes are not considered secured debt for the covenant ratio calculations) implying secured debt leverage of 3.3x, which in turn implies THC has a \$1.8bn capacity to borrow additional senior secured debt under its 4.0x incurrence test. We note covenant ratio calculations are based on TTM EBITDA, not EBITDA less NCI, and allow for many adjustments, including the exclusion of non-recurring items and the addition of historical pro forma results for acquisitions.

**Chart 113: THC – Projected leverage ratio**



Source: Company reports, BofA Merrill Lynch Global Research

## Floating vs fixed rate

100% of THC's debt is fixed rate debt.

**Table 102: THC Fixed vs Variable debt as of 12/31/18 and the January 2019 refi**

	12/31/2018 Amount (\$mm)	% of total	12/31/2018 PF January Refi Amount (\$mm)	% of total
Fixed rate debt	\$14,832	100%	\$14,814	100%
Floating rate debt	\$0	0%	\$0	0%
Total	\$14,832	100%	\$14,814	100%

Source: Company filings, BofA Merrill Lynch Global Research

## Sensitivity to interest rate changes

Since 100% of THC debt is fixed rate, it has no direct exposure to interest rate changes.

## Availability under credit facilities and total liquidity

THC has a \$1 billion senior secured revolving credit facility that is collateralized by patient accounts receivable at THC's acute care and specialty hospitals. At December 31, 2018, there was nothing outstanding under the revolving credit facility, and THC had \$2 million of letters of credit outstanding.

Based on eligible receivables, approximately \$998 million was available for borrowing under the revolving credit facility at December 31, 2018. THC also has a letter of credit facility of \$180m (subject to increase to up to \$200 million). At December 31, 2018, THC had approximately \$93 million of standby letters of credit outstanding under the LC Facility.

THC has no excess cash on the balance sheet, but does expect \$70m in proceeds from the sale of the 3 Chicago hospitals that closed in 1Q19, giving them a total liquidity of \$1.1bn after expected proceeds.

**Table 103: THC – Available credit as of December 31, 2018 and PF the January 2019 Refi**

	12/31/2018 Amount (\$mm)	12/31/2018 PF January Refi Amount (\$mm)
Available Credit		
Revolving Credit facility	\$1,000	\$1,000
Outstanding under revolver	\$0	\$0
Letters of Intent	(\$2)	(\$2)
Availability under revolver	\$998	\$998
Cash	\$411	\$393
Typical Cash Level	\$400	\$400
Excess Cash	\$11	\$0
<b>Total Liquidity</b>	<b>\$1,009</b>	<b>\$998</b>
Liquidity as % of market cap	32%	31%
Pending proceeds	\$70	\$70
<b>Total liquidity PF pending proceeds</b>	<b>\$1,079</b>	<b>\$1,068</b>
Liquidity as % of market cap	34%	34%

Source: BofA Merrill Lynch Global Research

## Refinancing opportunity – high

In January, THC addressed its 2019 maturities and now has no debt due until June 2020. The company does, however, still have some very large sums due between 2020 and 2025, with a minimum of \$1.9bn due each year, \$2.3bn in 2020 and peaking at \$2.8bn in 2022.

With the most recent refi, THC began addressing some of their higher interest rate notes, getting rid of all \$750m of their 7.500% second lien 2020 notes. The company also paid down the outstanding balance of their 2 most immediate maturities, their 5.500% senior unsecured notes due 2019 and 6.750% senior unsecured notes due 2020.

With the \$1.5 billion 2027 notes in the refi priced at 6.250%, the company reduced their annual interest payments by \$5.4 million.

**Table 104: THC – January 2019 refinance**

Notes	Amt. (\$m)	Interest rate	Interest expense (\$m)
Senior Unsecured Notes due 2019	\$468.0	5.500%	\$25.7
Senior Unsecured Notes due 2020	\$300.0	5.750%	\$17.3
Senior Secured Second Lien Notes due 2022	\$750.0	7.500%	\$56.3
<b>Total:</b>			<b>\$99.2</b>
Notes	Amt. (\$m)	Interest rate	Interest expense (\$m)
Senior Secured Second Lien Notes due 2027	\$1,500.0	6.250%	\$93.8
<b>Total:</b>			<b>\$93.8</b>

Source: Company filings, BofA Merrill Lynch Global Research

However, THC still has \$2.8bn of 8.125% senior unsecured notes due 2022, their largest sum outstanding for a single issuance, making this likely a high priority to refinance.

Along with the higher interest rate debt the company will likely target the more immediate notes due, the \$500m of 4.750% 2020 notes and \$1.8bn of 6.00% 2020 notes. If THC was to refinance these notes at 6.0% it would be dilutive, increasing annual interest expense by \$6 million.

If the company is able to sell Conifer for \$2 billion (no estimate has been given by the company), to pay off most of the 2020 debt (\$2.3 billion in total), interest expense would decrease by another \$118 million, or another \$0.67 to EPS. This transaction would be net dilutive to EPS, however, since Conifer pre-tax earnings in 2018 were greater than the \$118m it would save in interest expense (as well as the \$160m if it were used for the most expensive debt). However, we would still view this as a net positive for THC as it would lower the PF leverage by about 0.3x. Nevertheless, at this point the outright sale of the asset seems less likely as THC is also considering a spin off, and the impact on leverage of a spin is less clear.

## Universal Health Services (UHS)

UHS currently trades at a 5% FCF yield, in line with the median for the health care facilities group. In addition, it operates at the lowest leverage (2.2x) among the acute care hospital companies, so should have the most balance sheet flexibility in the sector. However, the company also has the most restrictive covenants of the sector with max leverage at 3.5x, implying that the company does not plan to operate with leverage similar to its peers and somewhat limiting upside potential from capital deployment (although there is still significant room to borrow and stay below the covenants). Given that management is unwilling to use its balance sheet as aggressively as its peers, we would not expect the company to lever up. Instead, we highlight the upside from deploying FCF given the solid FCF yield and the low leverage.

### Cash on balance sheet

As of March 31, 2019, UHS had \$63 million of cash on the balance sheet, representing less than 1% of its market cap. The company has maintained an average cash balance on the books of \$50 million since 2000.

### Free cash flow estimates

We forecast that UHS will generate approximately \$645 million of free cash flow in 2019, with roughly \$400m used on share repo. UHS is currently trading at a 5% 2019E FCF yield, in line with the median for the group, despite the lowest leverage (2.2x) of its peers (higher leverage at the peers all else equal skews up FCF yields).

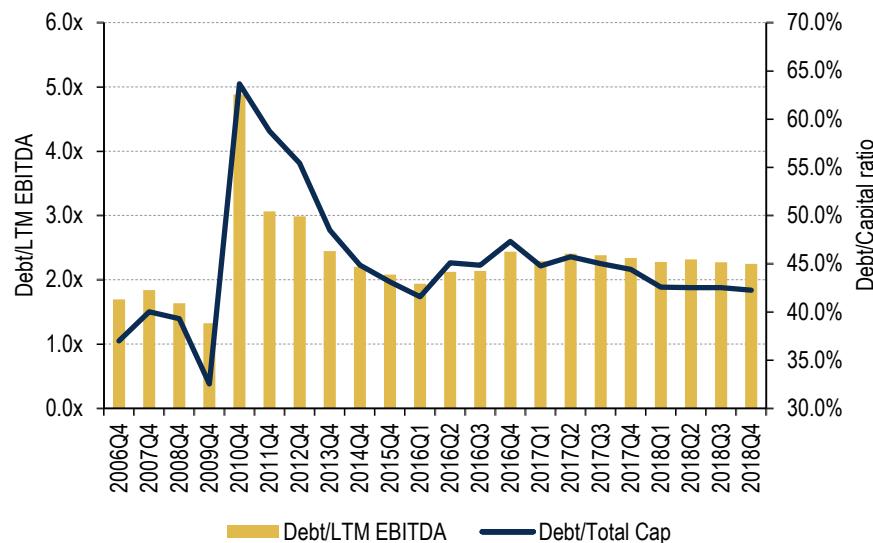
**Table 105: UHS - Cash Flow Analysis**

	2011	2012	2013	2014	2015	2016	2017	2018	2019E	2020E	2021E
Operating Cash Flow	\$718	\$815	\$884	\$1,036	\$1,021	\$1,288	\$1,183	\$1,341	\$1,340	\$1,371	\$1,464
Capex	\$286	\$363	\$358	\$391	\$379	\$520	\$558	\$665	\$695	\$700	\$700
<b>Free Cash Flow (FCF)</b>	<b>\$433</b>	<b>\$452</b>	<b>\$526</b>	<b>\$645</b>	<b>\$642</b>	<b>\$769</b>	<b>\$625</b>	<b>\$676</b>	<b>\$645</b>	<b>\$671</b>	<b>\$764</b>
FCF per share	\$4.39	\$4.63	\$5.29	\$6.41	\$6.37	\$7.81	\$6.49	\$7.21	\$7.17	\$7.55	\$8.59
EBITDA	\$1,192	\$1,249	\$1,353	\$1,490	\$1,658	\$1,698	\$1,728	\$1,780	\$1,877	\$1,967	\$2,065
Cash flow / EBITDA	0.6x	0.7x	0.7x	0.7x	0.6x	0.8x	0.7x	0.8x	0.7x	0.7x	0.7x
Net income	\$398	\$441	\$511	\$545	\$680	\$702	\$733	\$894	\$894	\$944	\$1,014
Cash flow / Net Income	1.8x	1.8x	1.7x	1.9x	1.5x	1.8x	1.6x	1.5x	1.5x	1.5x	1.4x
"Free Cash Flow"/Net Income	1.1x	1.0x	1.0x	1.2x	0.9x	1.1x	0.9x	0.8x	0.7x	0.7x	0.8x

Source: Company reports, BofA Merrill Lynch Global Research

**Current leverage**

UHS is now levered at 2.2x, down slightly from 2.3x a year ago and slightly below the company's historical leverage. Debt/Total Cap currently stands at 42.2%, down from 44.4% a year ago. The typical hospital company generally operates with leverage of 3-4x EBITDA or debt to cap of 40-60%, so UHS is below the low end of the historical range for the sector. UHS' Debt/Cap is below its average since 2005 (43%) and Debt/LTM EBITDA is also below its average since 2004 (2.3x).

**Chart 114: UHS - Leverage Statistics**

Source: Company filings, BofA Merrill Lynch Global Research

**Capital structure**

UHS made many amendments to its credit facilities in 2018 in order to push out the company's 2019 maturities. On 10/23/2018, the company increased the aggregate amount of the senior revolving credit facility to \$1 billion (from \$800 million), increased term loan A commitments to \$2 billion, and extended the maturity of the revolver and term loan A to October 2023 from August 2019. On 10/31/2018, the company added a term loan B facility of \$500 million, using the proceeds to repay borrowings under the revolver and redeem \$300m of senior notes due in 2019.

**Table 106: UHS – Capitalization as of 12/31/18**

	12/31/2018	
	Amount (\$mm)	% of Debt
Cash	\$105	

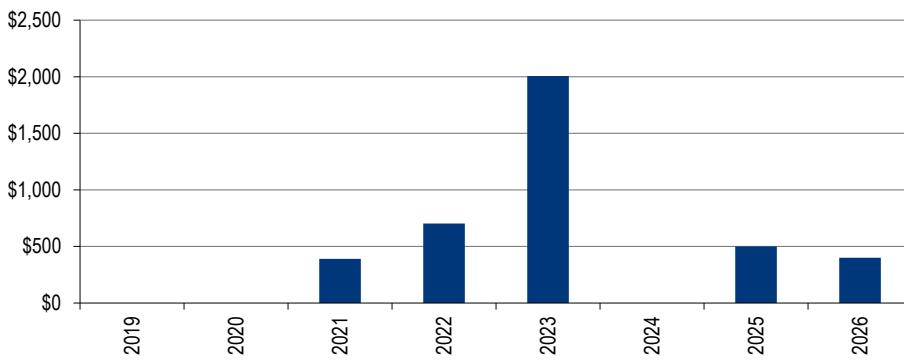
**Table 106: UHS – Capitalization as of 12/31/18**

	12/31/2018	
<b>Revolving Credit Facility:</b>		
Revolving credit and demand notes (\$1b; due 10/2023; L+137.5-162.5)	\$6	0%
<b>Other Long Term Debt:</b>		
Accounts receivable securitization program (\$450m, due 2021)	\$390	10%
4.750% Senior Notes due 2022	\$703	18%
5.000% Senior Notes due 2026	\$400	10%
Notes payable and Mortgages payable	\$20	1%
Term Loan A (\$2bn; due 10/2023, L+137.5-162.5)	\$2,000	50%
Term Loan B (\$500m; due 10/2025, L + 175)	\$500	13%
Less-Unamortized financing costs	-\$21	-1%
<b>Total Debt</b>	<b>\$3,998.6</b>	<b>100%</b>

Source: Company filings, BofA Merrill Lynch Global Research

## Maturities

UHS has \$390 million under its AR securitization due in 2021, while the biggest portion of the debt structure is due in 2023 when \$2 billion of Term A and the revolver (\$6.3 million outstanding) come due.

**Chart 115: UHS – Debt Due Schedule (\$m)**

Source: Company filings

## Covenants

In this section, we analyze the company's credit statistics using our estimates for future EBITDA and cash flow. However, the covenants are usually more generous in their calculation of EBITDA than our methodology and add back non-cash items such as stock based compensation (\$67 million in 2018). As a result, the company's financial position versus its covenants is actually somewhat better than our analysis implies.

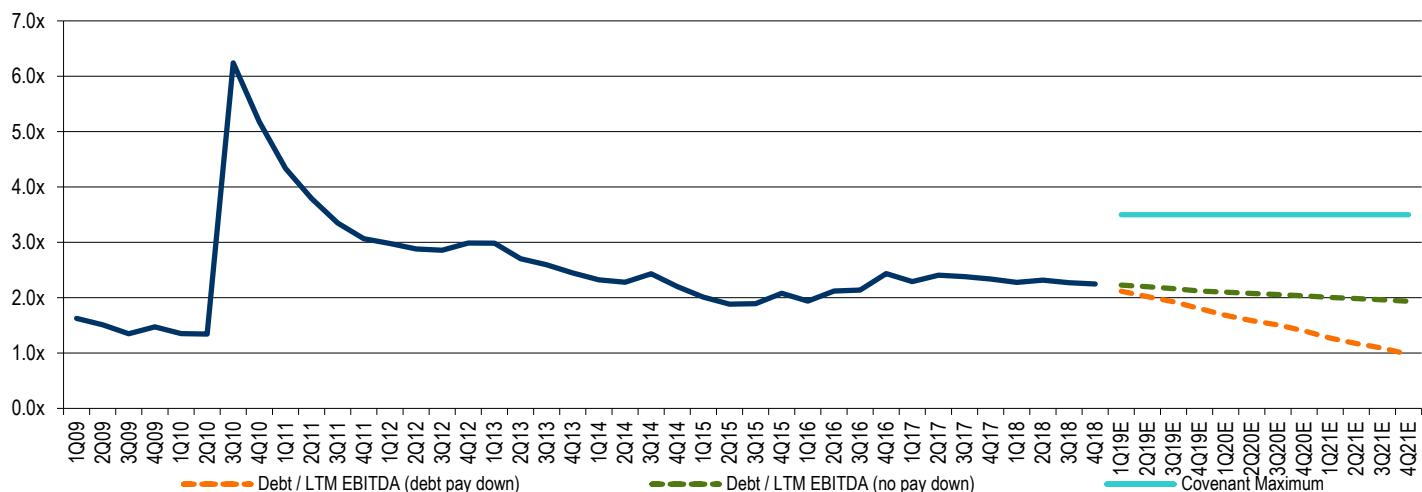
Under the credit agreement, the maximum leverage ratio is 3.5x giving UHS significant cushion versus its covenants. The minimum interest coverage is 3.25x. The company also cannot spend more than 7% of revenues on capital expenditures.

Below we show an analysis of projected leverage ratios for two scenarios: one where UHS allows FCF to build on the balance sheet, and the other where the company maintains its current level of cash (\$105 million) and uses FCF minus payments of dividends (\$37m annually) to pay down debt. The analysis shows that UHS does not need to use FCF to pay down debt in order to stay within its covenant leverage limits.

EBITDA in 2019 would have to be 32% (\$610 million) below our estimate in order for UHS to break its covenant leverage requirement at the end of 2019 assuming it pays down debt with FCF. This analysis assumes that UHS maintains its current cash level (\$105 million). In addition, as stated above, the covenants are more generous in their calculation of EBITDA, implying that the company would have to miss our EBITDA

estimate by closer to \$677 million (36%) if we include stock based compensation.

#### Chart 116: UHS – projected leverage ratio



Source: Company reports, BofA Merrill Lynch Global Research

#### Floating vs fixed rate debt

62% of the company's debt is floating rate. However, after adjusting for \$1bn of swaps, which the company entered into during 2015, 37% of the company's debt is floating.

Table 107: UHS – Fixed vs floating rate debt as of 12/31/18

	12/31/2018	
	Amount (\$m)	% of total
<i>As reported:</i>		
Fixed rate debt	\$1,514	38%
Floating rate debt	\$2,485	62%
Total	\$3,998.6	100%
Swaps	\$1,000	
<i>Adjusted for swap</i>		
Fixed rate debt	\$2,514	63%
Floating rate debt	\$1,485	37%
Total	\$3,998.6	100%

Source: Company filings, BofA Merrill Lynch Global Research

#### Sensitivity to interest rate changes

Based upon the company's variable rate debt as of December 31, 2018, adjusted for swaps, we estimate that every 1% change in interest rates would reduce 2019 pre-tax income by \$11 million or EPS by \$0.13 (1%).

Table 108: UHS – interest rate sensitivity

	Change in Interest Rate							
	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%
EPS Impact	\$0.03	\$0.06	\$0.09	\$0.13	\$0.16	\$0.19	\$0.22	\$0.25
% of 2019 EPS	0.3%	0.6%	1.0%	1.3%	1.6%	1.9%	2.2%	2.5%

Source: BofA Merrill Lynch Global Research

#### Availability under credit facilities and total liquidity

UHS has an \$1 billion revolving credit agreement with \$6.3 million outstanding. Given there was \$34 million used for letters of credit, UHS has \$960 million available. There's \$60 million available under its \$450 million Commercial paper program. Since the cash balance at 12/31/18 is above historical levels, total availability stands at \$1.075 billion

including the excess cash.

**Table 109: UHS – Available credit as of December 31, 2018**

	12/31/2018 Amount (\$m)
<b>Available Credit</b>	
Revolving Credit Facility	\$1,000
Borrowing outstanding under revolver	(\$6)
Letters of credit	(\$34)
<b>Availability</b>	<b>\$960</b>
 Cash	 \$105
<u>Typical Cash Level</u>	<u>\$50</u>
Excess Cash	\$55
 <b>Total</b>	 <b>\$1,015</b>
 <b>Other lines of credit:</b>	
Accounts receivable securitization program availability	\$450
Amt outstanding	\$390
Net available on Commercial paper program	\$60
<b>Total Liquidity</b>	<b>\$1,075</b>
Liquidity as % of market cap	8.5%

Source: Company filings, BofA Merrill Lynch Global Research

### **Refinancing opportunity – low**

Given the fact that UHS already restructured its debt (in October 2018) to push out maturities, we don't think that there is a need for UHS to refinance again this year. The company may want to refinance its 2022 notes to push out maturities, which would likely be neutral to EPS.

## Valuation



## Valuation

There are various ways that investors analyze valuations for the group. EV/EBITDA is the most common, followed by P/E. However, some look at FCF yields, DCF valuations or even per bed valuations.

### Metrics: EV/EBITDA vs P/E

We prefer EV/EBITDA multiples to P/E as the group tends to trade in a tighter band on this metric. P/E can be skewed by different leverage profiles and D&A across companies. EV/EBITDA automatically adjusts for this. However, P/E cannot be ignored, since it is the most easily accessible valuation metric and many investors perform initial screens on this basis.

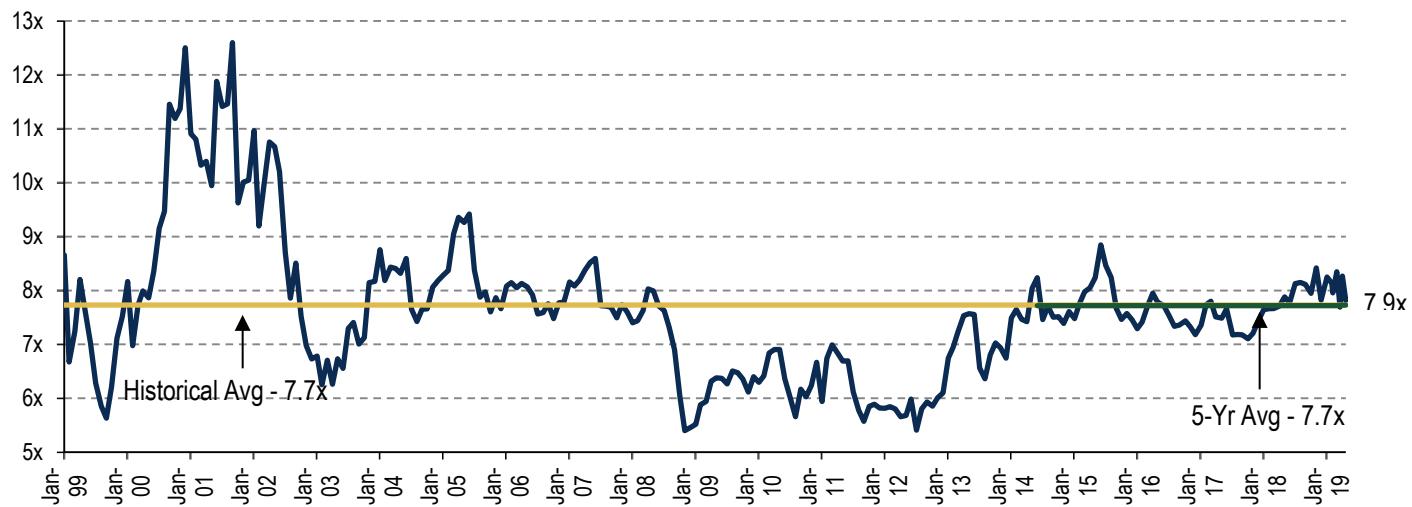
#### EBITDA valuations: 5.5x to 9x

Historically, hospitals have traded in the 5.5-9x EBITDA range, with an overall average of 7.7x and a five-year average of 7.5x. Hospitals have traded near trough multiples from 2009 to 2013 due to the economic recession, which caused the increase in uninsured and decline in the overall utilization of health care services, combined with elevated leverage after a few companies levered up in 2007. In addition, government reimbursement uncertainty related to balanced budget discussions pressured the stocks.

Hospitals broke above the five-year average in January 2013, and trended back to the long-term average as the benefits of Health Care Reform became clearer. Then as the year went on, the multiple expanded as companies beat and raised on better volumes and better Reform benefits. Late 2015 into 2016 the group has been under pressure due to the increased political risk around the 2016 elections, an outlook for tougher comps and concerns around labor cost pressure combined with the volatility in the high yield markets. In 2016, the group traded down on expectations of weak volumes. Then the multiples had another leg down post the elections on the Reform uncertainty, which it recovered in early 2017. Then the group traded lower on the increased risk around Reform being repealed/replaced, and a generally weaker Q1 volume backdrop. Towards the end of 2017, the group multiple started to improve as it became clear that hospitals would be major beneficiary of tax reform.

The group is currently trading at 7.9x 2019E EBITDA, slightly above with the historical average of 7.7x after multiples contracted at the beginning of 2019 as discussions around Medicare for All became louder.

**Chart 117: Historical Hospital Forward EV/EBITDA Valuation**



Note: Industry comprised of CYH, HCA, HMA LPNT, PRV, QHGI, TRI, THC, and UHS.

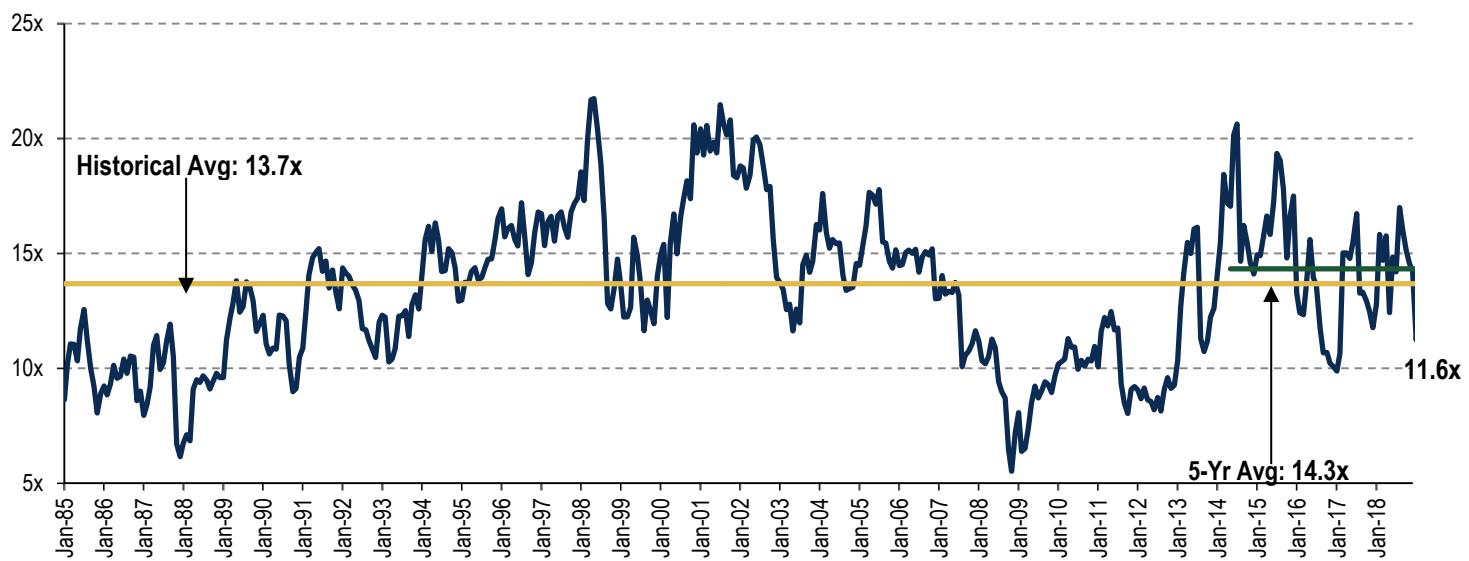
Source: FactSet, BofA Merrill Lynch Global Research, FactSet data for all non-covered companies

## P/E valuations: 10x to 20x

On a P/E basis, hospitals historically have traded in the 10-20x P/E range with an overall average of 13.7x and a five-year average of 14.4x. Similar to the EBITDA metric, hospitals broke above the five-year average in January 2013 and trended back to the long-term average as the benefits of Health Care Reform became clearer. Then in late 2015 and into 2016, the group multiple reversed, troughing around the 2016 elections before rallying off of that base in early 2017. P/E multiples rallied in 2018, getting as high as 17x earnings in July, before declining with the rest of the market into the end of 2018 and then declining further on Medicare for All commentary in 1Q19.

The group is currently trading at 11.6x 2019E earnings, below the historical average.

**Chart 118: Hospital Industry Historical Forward P/E Valuation**



Note: Industry comprised of CYH, HCA, HMA, LPNT, PRV, QHGI, TRI, THC, and UHS.

Source: FactSet, BofA Merrill Lynch Global Research, FactSet data for all non-covered companies

Below we show the two metrics move together but are at different levels. We also want to highlight the volatility of the P/E ratio, reiterating that EV/EBITDA is the preferred valuation metric.

**Chart 119: Historical Hospital Forward EV/EBITDA vs P/E**



Note: Industry comprised of CYH, HCA, HMA, LPNT, PRV, QHGI, TRI, THC, and UHS.

Source: FactSet, BofA Merrill Lynch Global Research, FactSet data for all non-covered companies

Hospitals have traded at an average 10% discount to the S&P500 since 1995 and at an average 12% discount over the last five years.

**Chart 120: PE Hospitals/ SPX Index ratio**



Note: Industry comprised of CYH, HCA, HMA, LPNT, PRV, QHGI, TRI, THC, and UHS.

Source: FactSet, BofA Merrill Lynch Global Research, FactSet data for all non-covered companies

### **Historically hospitals trough at 5.5-6x EBITDA**

Over the last 14 years, the average hospital multiple has ranged from 5.5x to 12.6x, with an average of 7.7x forward EBITDA. Below we highlight four instances during this period when group traded at/below the trough levels of about 6x:

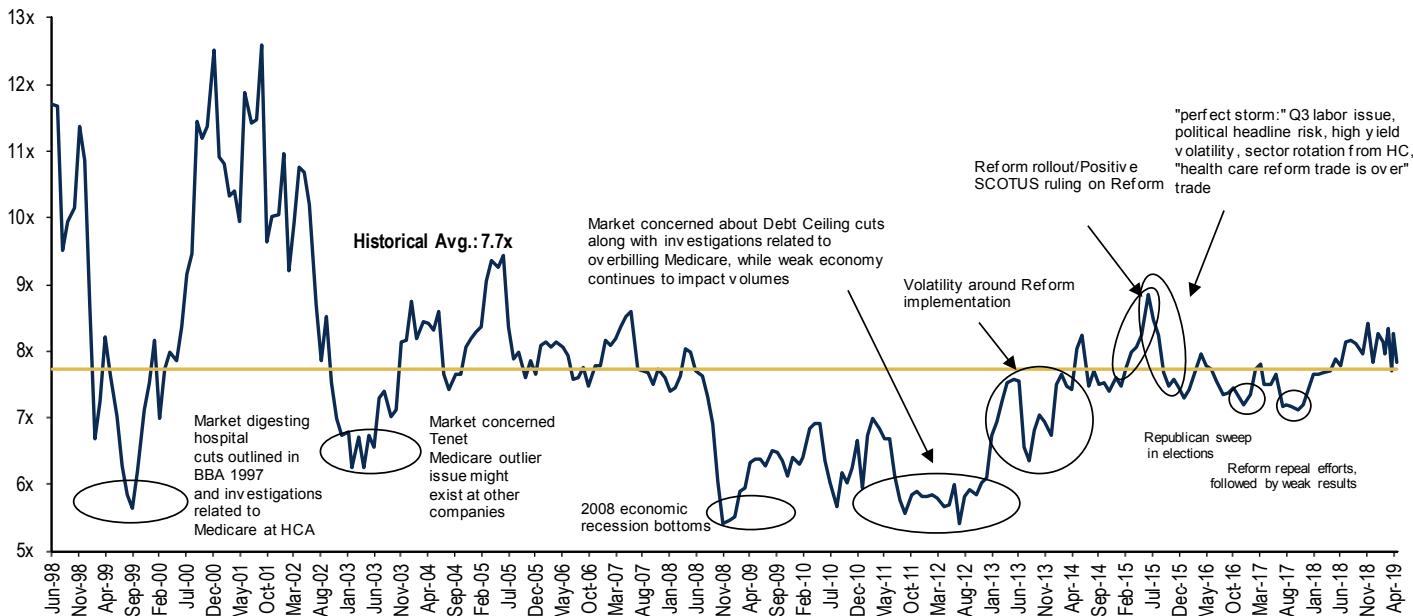
- **The aftermath of the Balanced Budget Act (BBA) of 1997.** The legislation made sweeping Medicare payment reforms for certain sectors, including hospitals. The sudden and major changes to the reimbursement system pressured the hospitals in 1999 and for most of 2000, and the group significantly underperformed

the S&P500 index during this time. The stocks were trading at depressed levels, at around 6.0x forward EBITDA, for four months from July 1999 to October 1999. With the signing of BBRA into law in November 1999, which restored some of the cuts to hospitals from BBA, the group subsequently rebounded.

- Medicare overbilling issues in 2002/2003.** The group average multiple stayed in the 6.6x forward EBITDA range for about six months from December 2002 to June 2003 as the market was digesting the Medicare overbilling issues discovered at Tenet. The pressures on THC spilled over to the entire industry on the concerns that the other companies could be facing increased scrutiny over outlier payments.
- Recession and credit crisis of 2008.** The economic recession slowed volume growth and caused concerns over bad debt, the most volatile and unpredictable item on hospital companies' P&Ls. Meanwhile, hospitals entered the period with above average leverage and the credit crisis drove concerns about hospital liquidity, their exposure to raising interest rates and the ability to refinance. Hospital stocks traded at depressed levels (below 6.0x) for six months from October 2008 to March 2009 and the group troughed at 5.5x EBITDA at the end of November 2008.
- Fiscal austerity/government investigations of 2010-2012.** Although Health Care Reform should have provided a significant boost to hospital valuations, the Supreme Court challenge to the law left the market unwilling to give the group credit for this potential outcome. Instead, it focused on more near-term issues like the government focus on balancing the budget (and cutting Medicare rates), as well as investigations into hospital admission/billing practices, which kicked off in April 2011 when Tenet filed a lawsuit accusing CYH of overbilling Medicare.

The group finally rebounded above 6.0x in October 2012 as the market became more focused on the upside of Health Care Reform.

#### Exhibit 5: Hospital Trough Valuation Periods



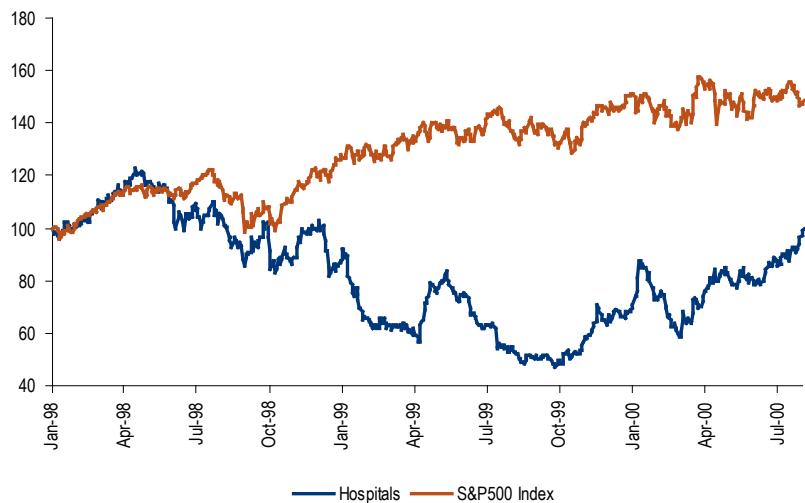
Note: Industry comprised of CYH, HCA, HMA, LPNT, PRV, QHGI, TRI, THC, and UHS.

Source: FactSet, BofA Merrill Lynch Global Research, FactSet data for all non-covered companies

## 1999 – the aftermath of BBA

In the late 1990s, the president and Congress were focused on budgetary discipline with a goal of balancing the budget. Given that Medicare represents 17% of government spending, realistically no efforts to balance the budget can be accomplished without some cuts to the Medicare program. BBA outlined a number of changes across almost every provider class, expected to save \$115 billion over five years, \$50 billion of which was to come from hospitals, causing the group to significantly underperformed the S&P500 index during this time.

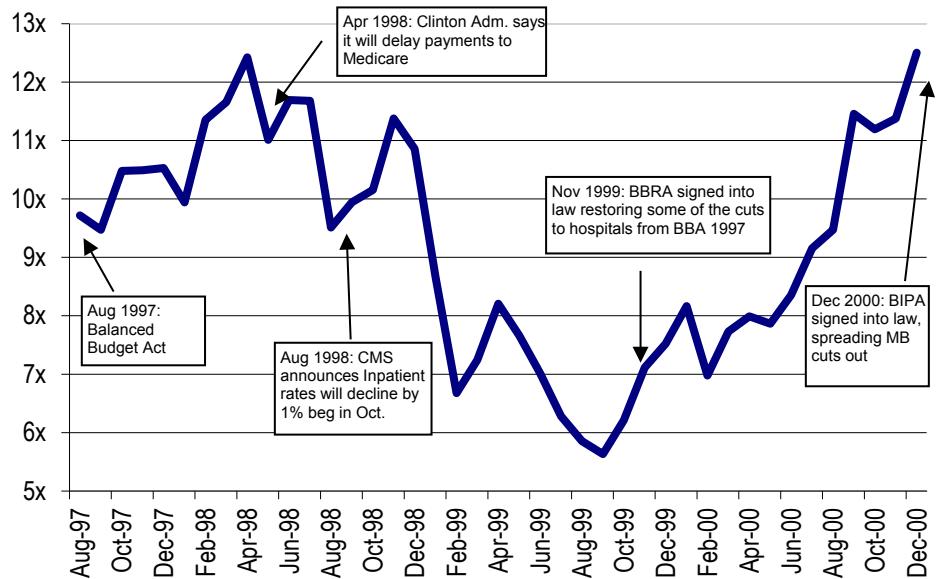
**Chart 121: Hospital Industry Price Performance vs S&P 500 (January 1998-July 2000)**



Source: Factset

The stocks traded at depressed levels, around 6.0x forward EBITDA, for four months from July 1999 to October 1999. Industry pressure to ease the impact from BBA led to the passage of the Balanced Budget Refinement Act of 1999 (BBRA) which returned \$17 billion to providers and the group rebounded.

**Chart 122: Hospital Multiples, 1997-2000**



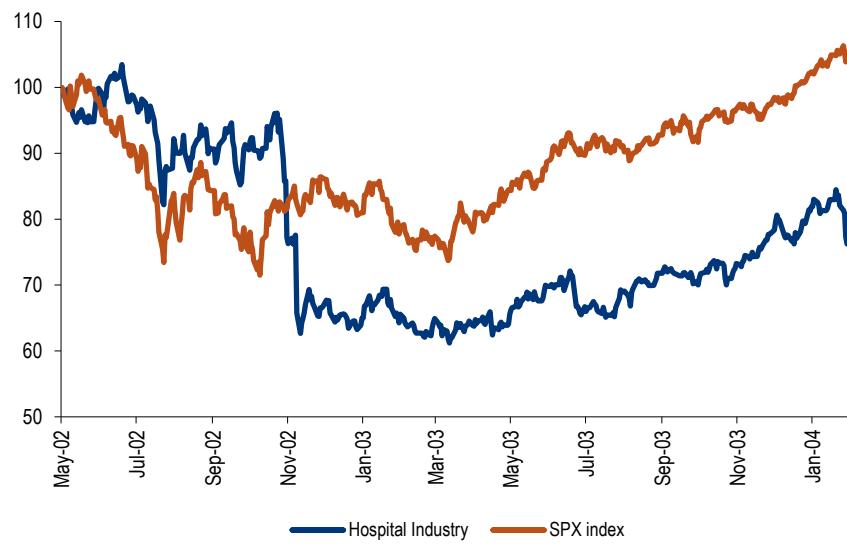
Source: FactSet, BofA Merrill Lynch Global Research

## 2002/2003 Medicare overbilling

From 2000 through October 2002, Tenet was one of the best performing hospital companies. However, in 4Q02, it came to light that the company was receiving a disproportionately large amount of revenue through a Medicare reimbursement loophole and qualifying for extra outlier payments. Specifically, Tenet brought the group down at the end of October/beginning of November 2002, as its stock fell 14% on October 28, 2002 and lost 70% of its value over the next two weeks. The group declined 30% during the same period. The market grew concerned about the company's higher than average revenue contribution from Medicare outlier payments. In addition, news came out that the US government raided Tenet's California hospital in connection with an investigation into billing practices.

The group average multiple stayed in the 6.6x area for about six months from December 2002 to June 2003 as the market digested the Medicare overbilling issues discovered at Tenet. The pressures on THC spilled over to the entire industry on concerns that other companies could be facing increased scrutiny over outlier payments. The markets were concerned that the stepped-up oversight of hospitals could lead companies to pull back on pricing, which in turn would hurt profits. Meanwhile, the economy stalled and eventually hit hospital results.

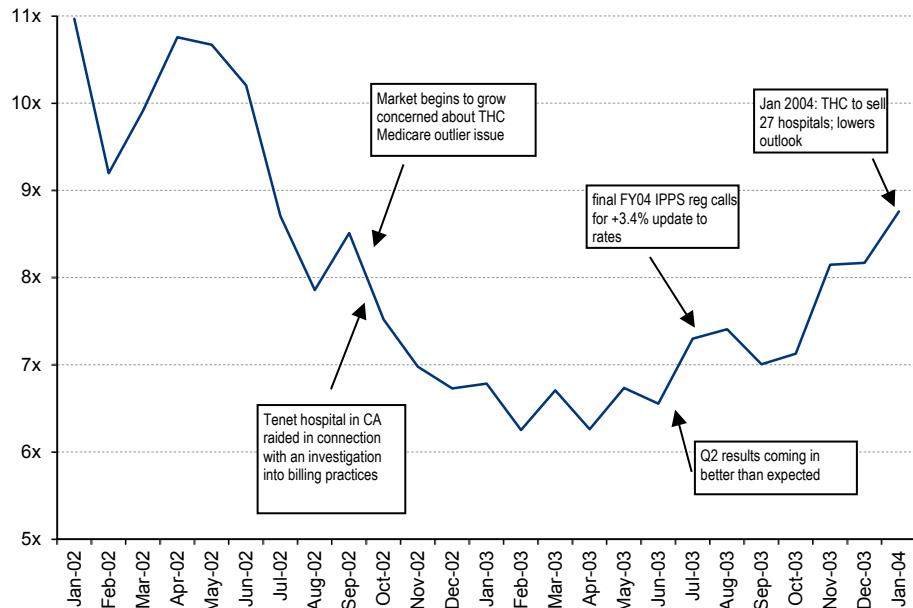
**Chart 123: Hospital Industry Price Performance vs S&P 500 (May 2002-January 2004)**



Source: FactSet

The group stayed under pressure for an extended period until June 2003, as the Tenet case brought concerns that the group's fundamentals could turn worse very quickly and unexpectedly. The group was also pressured by the macroeconomic outlook. Hospitals found some footing when companies reported better than expected 4Q02 results, suggesting that the group fundamentals remained strong, with same store revenue growth accelerating sequentially from 3Q on pricing. As the year went on, there were a series of positive data points, including continued earnings momentum. The Medicare outlook was getting positive during this time, with the final IPPS rule providing for a 3.4% increase in Medicare rates in FY2004, only the second full market basket update in nearly two decades.

**Chart 124: Hospital Multiples, 2002-2004**



Source: FactSet, BofA Merrill Lynch Global Research

### 2008-2009: recession and credit crisis

The group came under pressure around mid-2008 when the risks to the economy started to come into focus. Even though hospitals are often viewed as a defensive sector, the industry is exposed to economic fluctuations through bad debt and lower volumes. Hospitals are providers of emergency care and under federal Emergency Medical Treatment and Active Labor Act (EMTALA) laws they cannot turn away emergency care patients who cannot pay. As a result, this is the only sector within the health care facilities space that has to deal with high uncompensated care, as the industry collects significantly less revenue from its admissions. Meanwhile, people restrict use of health care during economic downturns, similar to how they restrict use of other goods and services.

Historically, we have found that the industry trades around the outlooks for bad debt and volumes. In mid-2008, the outlook for the economy was getting worse and the decline in the broader stock markets brought down the hospital industry's valuation.

Compounding the negative impact of the weak economy on results was the credit crisis. Given that hospitals tend to be relatively highly levered, investors started to become concerned about potential liquidity problems at these companies. Historically, the strong free cash flow of the hospital sector has allowed companies to use debt financing to grow. Although the typical sweet spot for facilities tends to be in the 3-4x Debt/EBITDA range, companies have routinely exceeded 6x leverage, especially during leveraged buyouts. Many companies used the attractive credit environment in 2005 and 2006 to exceed the historical leverage range, and in the restrictive credit markets at the end of 2008 such leverage created significant concern for equity investors.

In addition, given the significant dislocation in the high yield and leveraged loan market, there was a view that the hospital companies would have a hard time refinancing as the cost of new debt increased. Also, the access to capital had been somewhat limited, leading the companies to rely on their existing balance sheets. Hospital companies historically have been very acquisitive, so the concern was that they would have to pull back on their growth plans.

At the end of November 2008, the group was down 66% from levels in April 2008. After rebounding in February 2009, the group declined again in March 2009 before coming back close to the April 2008 levels in October 2009 (Chart below).

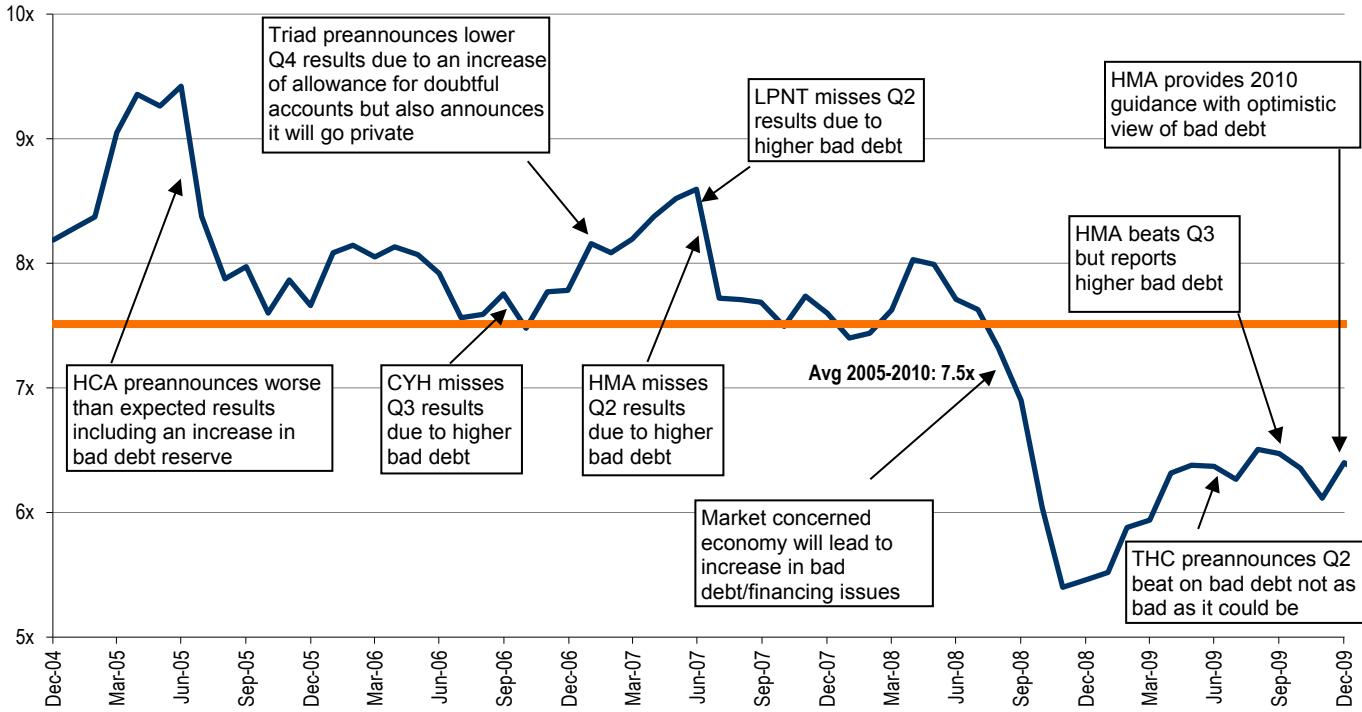
**Chart 125: Hospital Industry Price performance vs S&P 500 (April 2008-October 2009)**



Source: FactSet

Hospital stocks traded at depressed levels (below 6.0x) for six months from October 2008 to March 2009, and the group troughed at 5.5x forward EBITDA at the end of November 2008. The rebound came with the stock market jumping 7% on March 11, 2009, which marked the turning point for the markets and gained momentum when companies started to report better than expected bad debt results for 2Q09. At the end of July 2009, Tenet pre-announced 2Q with volumes improving marginally, bad debt not as bad as it could be and labor cost management leading to most of the upside.

**Chart 126: Hospital Industry Historical EV/EBITDA Multiple vs Bad Debt**



Source: FactSet, BofA Merrill Lynch Global Research

### 2010-2012: deal, then no deal

Hospitals started off 2010 on a good note, as there were indications that volumes were starting to rebound. However, that thesis came to an end with 2Q results when providers across the board saw utilization fall. The group rebounded on December 10, 2010 when CYH offered to acquire THC for \$6.00 per share, a 40% premium to THC's stock price at the time. The purchase price implied a valuation of 6.7x EBITDA (5.3x after synergies and NOL). Following the announcement, the group saw a half-turn increase to 6.7x through December.

On March 10, 2011, the group got a further boost as HCA, after being private for four years, went public at an offer price of \$30 per share, or 7.0x EBITDA. The group peaked at a 7.0x multiple in late March/early April.

However, the stocks took a turn for the worse on April 11, 2011 when THC, as part of its defense against a hostile bid for the company, accused CYH of overbilling the government by admitting patients for short stays instead of holding them for observation visits. Despite the overhang this created for the group, on June 22, 2011 Vanguard Health System (VHS) went public at 6.5x EBITDA.

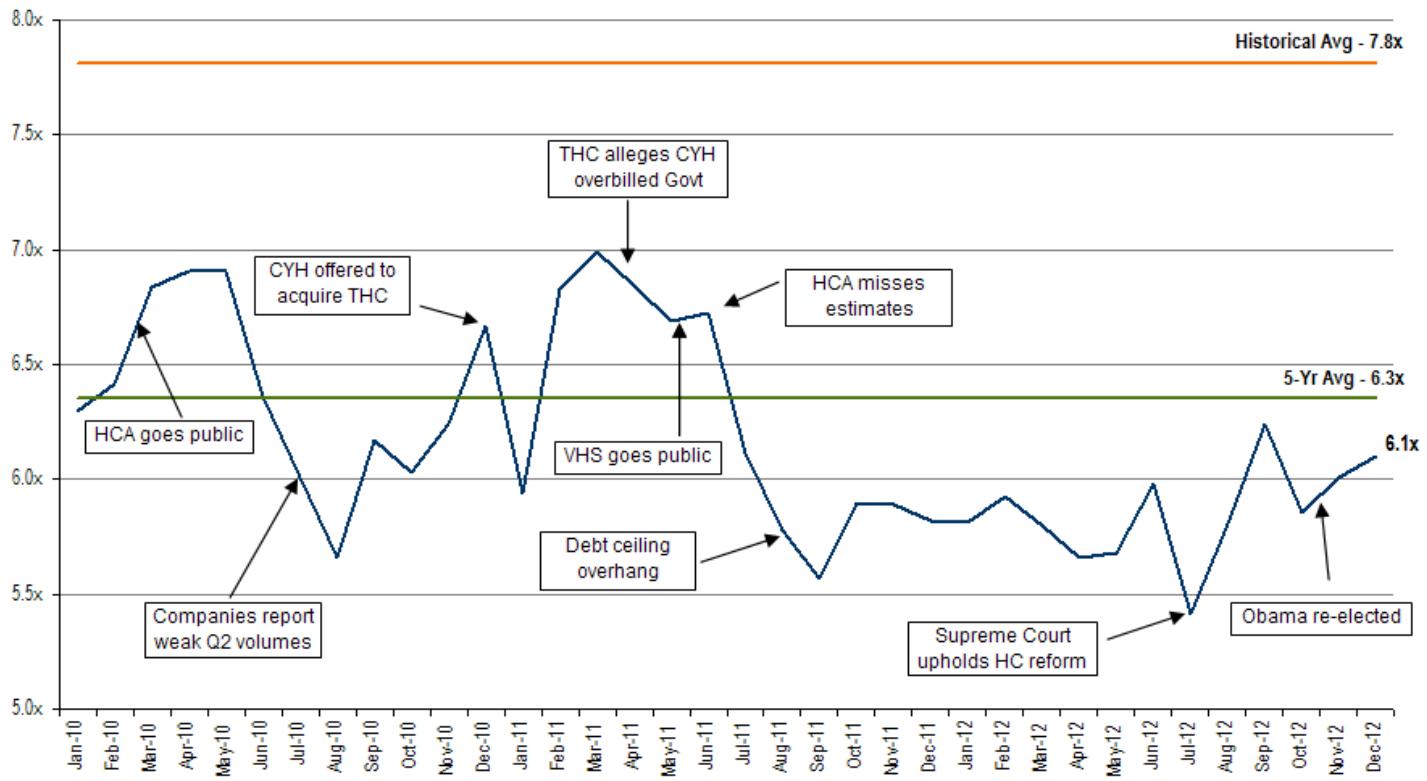
The window for the group closed soon thereafter, however, when HCA reported earnings on July 29, missing estimates during its second earnings report as a public company. HCA was hit by a sudden decline in cardio revenues after government scrutiny heated up on the overuse of certain devices. Although the company was able to quickly cut costs and put 3Q and 4Q back on solid footing, the damage was done to investor sentiment for the group. Meanwhile, in August debt ceiling negotiations heated up and investor concerns regarding a large Medicare cut increased. This was only compounded by global macroeconomic concerns, which pressured market multiples broadly.

The group was stuck in the 5.5-6x range through most of 2012, rallying briefly in June/July when the Supreme Court upheld the constitutionality of Health Care Reform, although with the caveat that the federal government could not mandate the Medicaid

expansion, instead leaving it up to the states to decide whether to expand the Medicaid program. However, the rally was short-lived, as investors realized that although Reform was constitutional, President Obama needed to be re-elected in order for it to be implemented. A tight presidential race left that outcome in doubt and put pressure on multiples.

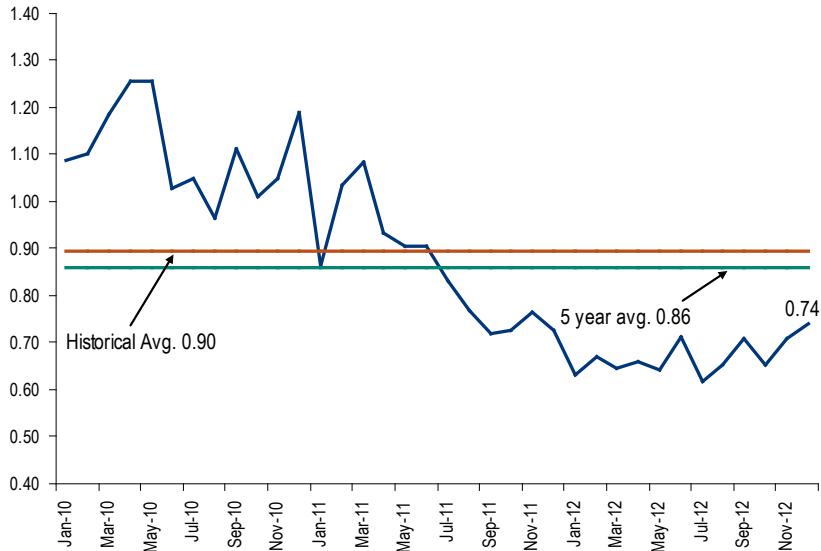
When President Obama was re-elected, the sentiment for the group steadily improved. Investors increasingly grew optimistic that Reform would be implemented and the 2014 tailwinds would outweigh the headwinds from sequestration cuts.

**Chart 127: Hospital Industry Historical EV/EBITDA Multiple 2010-2012**



Source: FactSet, BofA Merrill Lynch Global Research

**Chart 128: PE Hospitals/SPX Index Ratio 2010-2012**



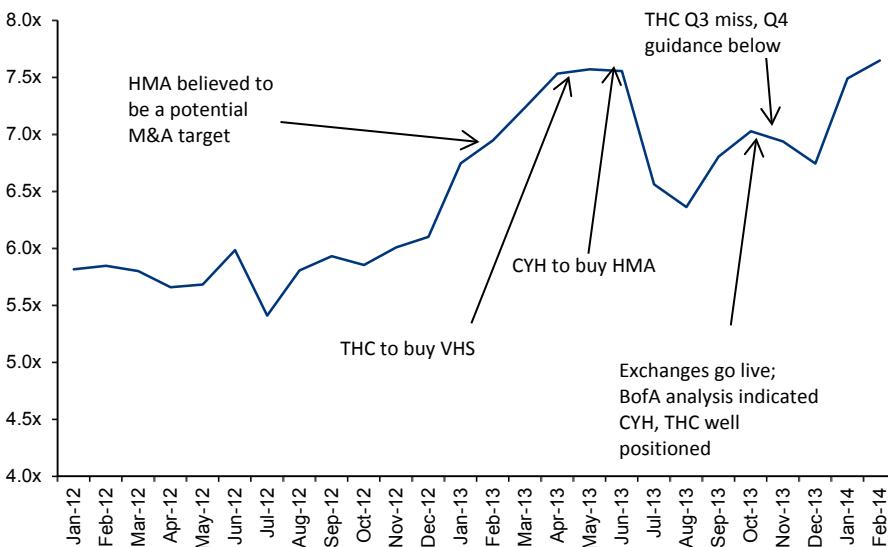
Source: Factset

### 2013: large deals but weak results

Hospital multiples increased in the first half of 2013 due to deal activity. Hospitals were trading at 6.9x EBITDA in February 2013. The group saw a 0.7x turn increase to 7.6x through June, as HMA was believed to be in play and that CYH or THC might be potential buyers. This was followed by the THC-VHS deal and then the CYH-HMA announcement.

The group multiples subsequently came down as investors focused on weak results at CYH and HMA and lowered guidance. 2013 ended up to be the worst year for hospital volumes in the 20 years we have been covering the sector, with the average same store adjusted admissions down 1.4% for the year, troughing at -3.2% in 1Q13 (leap year comp, severe weather and flu).

**Chart 129: Valuation January 2012 to February 2014**



Source: Bloomberg, BofA Merrill Lynch Global Research

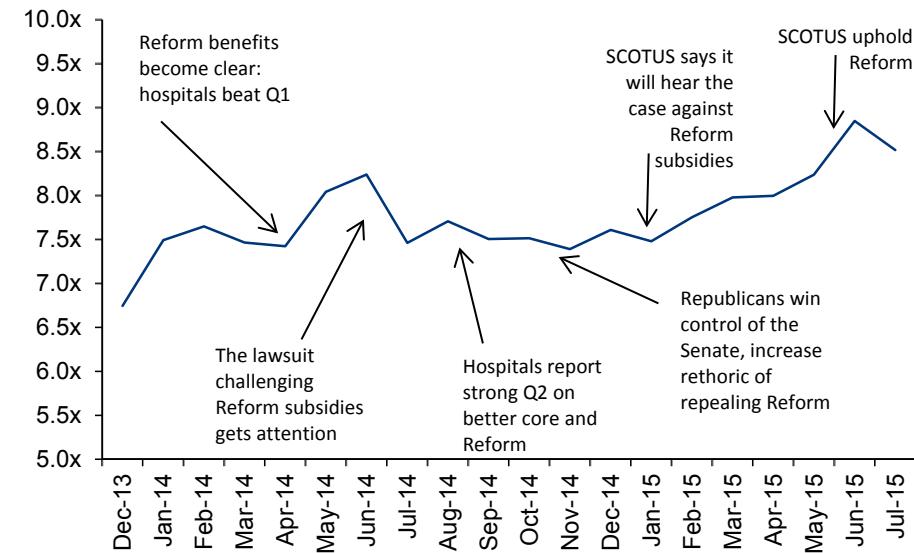
## 2014-2015: strong results but SCOTUS overhang

The core trends improved through 2014 with volumes up 2.2% for the year, peaking at +4.7% in 4Q14. This combined with Reform benefits coming in better than expected drove the stocks up 37% for the year, outperforming the S&P 500 Index, which was up 13%. We discuss how Reform came in much better than expected below.

However, starting in mid-2014, the positive fundamentals were overshadowed by the worry around the Reform sustainability, given the Republicans' victory in elections and the US Supreme Court decision to hear the case challenging the exchange subsidies. As a result, multiples pulled back in 2H 2014.

Nevertheless, the group started to trade up in the months heading into the SCOTUS decision as states began to disclose that they would find work-arounds in the event of a negative ruling. Then on Jun 25, 2015, SCOTUS upheld Reform and the group peaked by July 6, 2016.

**Chart 130: Valuation December 2013 to July 2015**



Source: Bloomberg, BofA Merrill Lynch Global Research

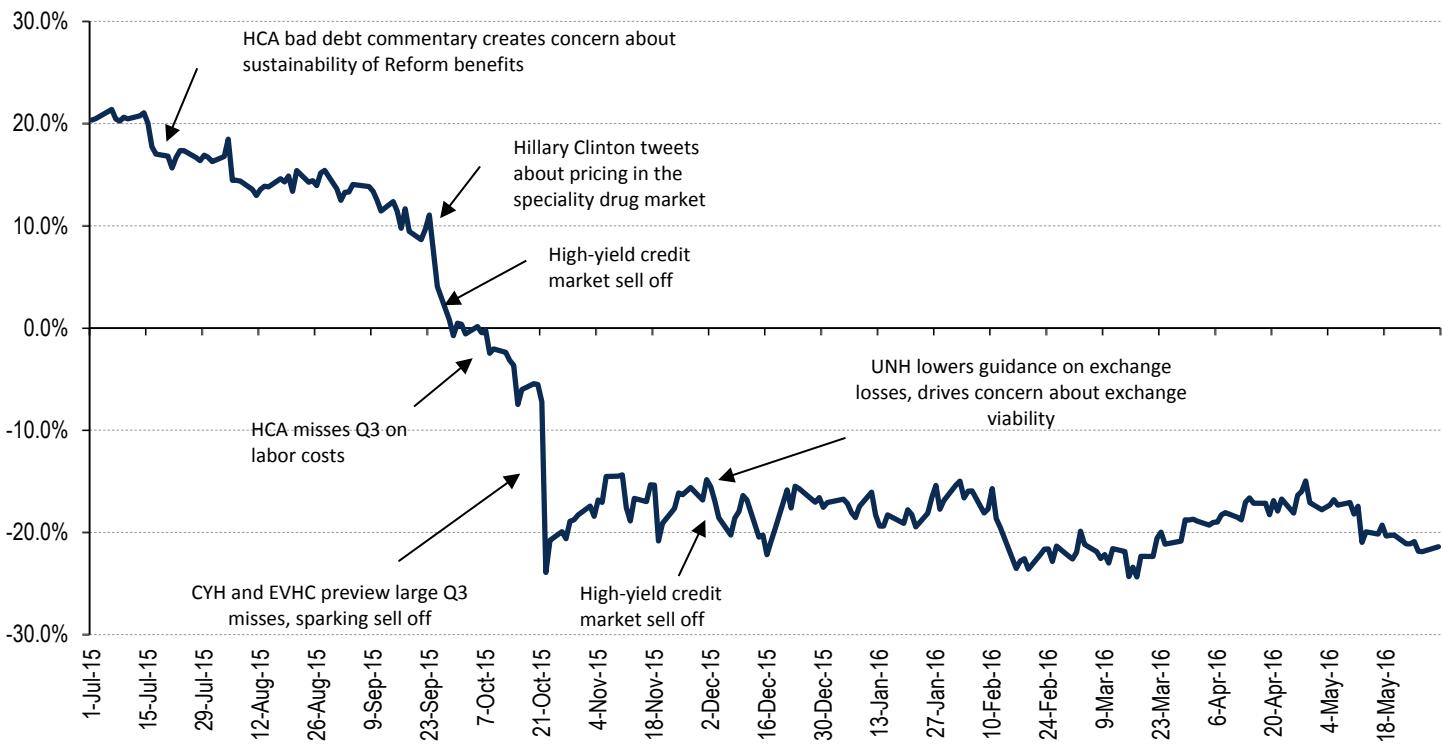
## Late 2015-2016: perfect storm

- The market reached its peak excitement for the group heading into 2Q15 results, which were generally strong but didn't have the same dramatic upside seen in the previous four quarters. When HCA saw some pressure on bad debt, investors started to wonder if the benefits of Reform were fully in the numbers and if there were any catalysts left.
- This was compounded by political noise in September 2015 as presidential candidates started to rally against the high cost of health care and drugs, in particular. Although this didn't impact hospitals directly, it started a sector rotation out of health care, and without the Reform catalyst, the group was hit.
- Turmoil in the high yield market at the end of 2015 and into 2016 further pressured the entire health care facility group. Companies with leverage greater than 7x (BKD and CSU) were sold off first and most dramatically, followed by a drop in prices of companies levered 6-7x, including hospital companies.
- THC and CYH are the most highly levered hospital company and their leverage has been a concern for investors. It is no surprise that in this high yield market sell-off environment THC (6.3x, was at 6.4x at the end of 2015, the highest of the group)

and CYH (levered at 6.0x at 2015 year end, and 6.9x at the end of 2016), were the first and hardest hit of all our hospital names. Both stocks rebounded into year-end but generally experienced higher price volatility.

- With this backdrop, the group couldn't afford a misstep, but 3Q15 caught many companies flat footed as volume growth decelerated faster than they expected, leaving companies overstaffed. With two-thirds of our facilities coverage missing our labor cost estimates at a time when the labor market was improving broadly, a new concern (margin compression from labor) hit the group. With all of these factors, the "Health Care Reform trade is over" trade was in full effect. Although 4Q15 and 1Q16 results were generally better than expected, it wasn't until the credit markets started to stabilize in March 2016 that the sector started to perform better.

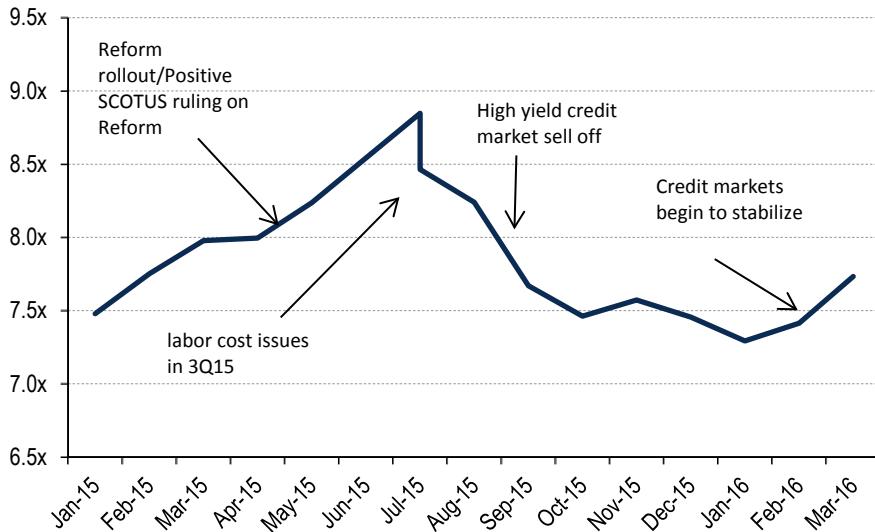
**Chart 131: Hospital group performance relative to the S&P July 2015-May 2016**



Source: Bloomberg, BofA Merrill Lynch Global Research

During the 2015-April 2016 period, the average EBITDA multiple for the hospital group peaked at 8.8x in July 2015 on the strong results driven by the Reform benefits and improving economy combined with the positive SCOTUS ruling on Reform. In 2H15, multiples contracted on the concerns around growth post Reform. This was combined with the increased political risks around elections and the potential pressure on labor costs in the improving economy. Finally, the high yield credit market essentially shut down creating pressure for the hospital group which is viewed as highly levered. The group started to rebound in February and March as the credit markets stabilized.

**Chart 132: Valuation Jan 2015 to April 2016**



Source: Bloomberg, BofA Merrill Lynch Global Research

### 2016-April 2017: election uncertainty

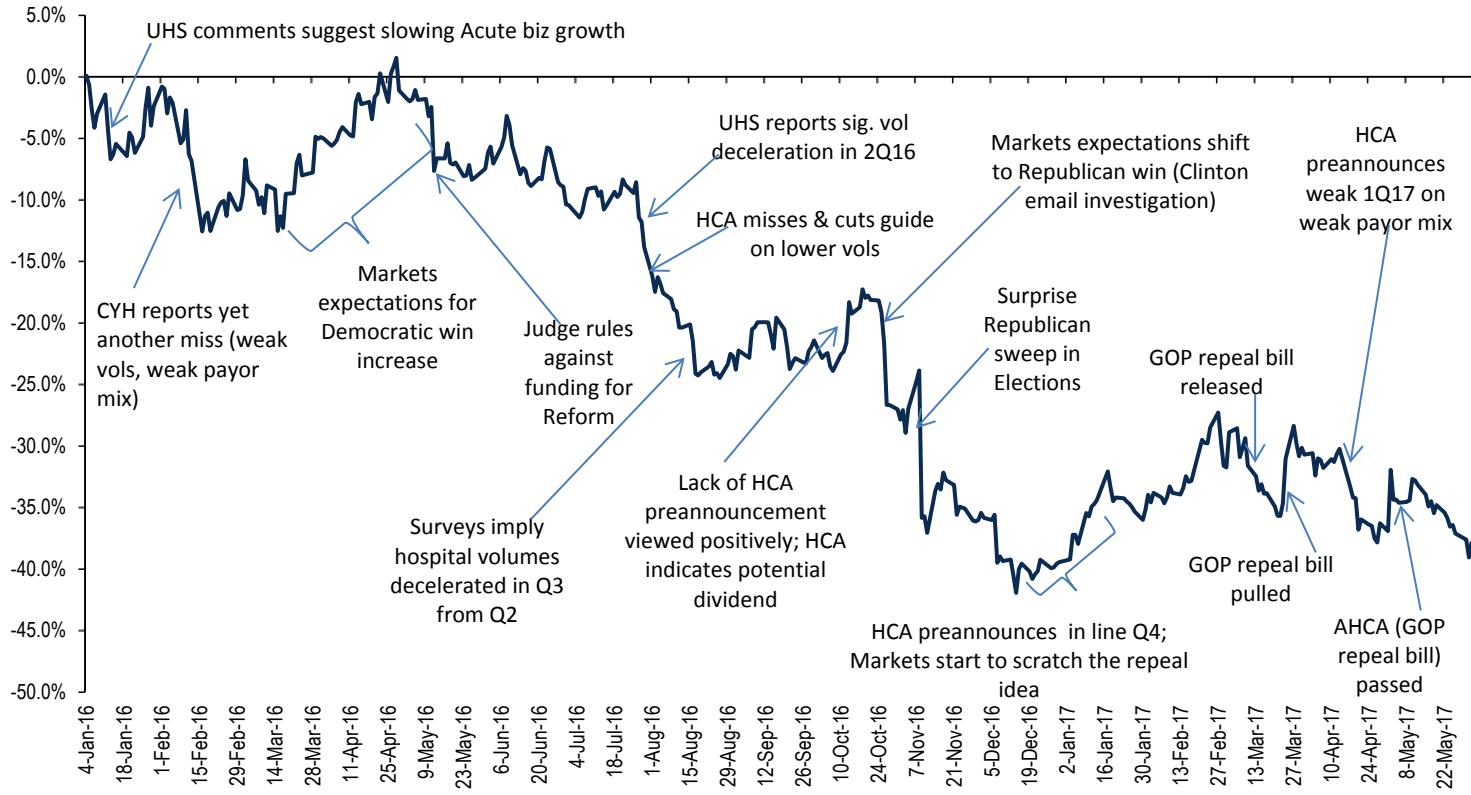
2016 turned out to be a bad year for hospital stocks. The hospital group was down -23% for the year, underperforming the S&P 500 Index (+9.5% in 2016). HCA was the only hospital stock with positive returns (+9%).

2Q16 results came in weak on weaker volumes. What followed was the downward move in the hospital group on the surprise Republican sweep in elections in November 2016. On 11/9/16, the group was down 13% on the worries that Republicans would try to repeal Health Care Reform. The pressure continued through the end of 2016 as Republicans worked on the repeal and replacement bill. However, in early 2017 the group moved higher on the view that Republicans would not make dramatic changes, and by the end of February 2017, the group was back to pre-elections level.

The group sold off on 2/28/16 driven by THC down 15% on weak Q4 results, weak guidance and lack of deleveraging. In March 2017, hospitals were under pressure after Republicans released their Reform repeal proposal which if passed would significantly reduce coverage as later proved by the CBO score of the bill released two weeks later.

When the CBO score was released, the group actually rallied on the expectations that given the projected significant reductions to insurance coverage, Republicans would not be able to secure votes to move forward with the repeal bill. On 3/26/17, Republicans pulled the repeal bill.

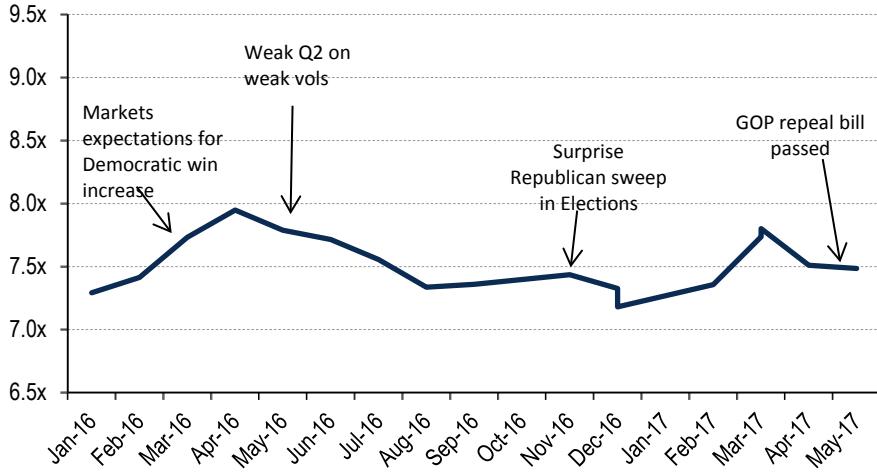
**Chart 133: Hospital group performance relative to the S&P Jan 2016-May 2017**



Source: Bloomberg, BofA Merrill Lynch Global Research

The EV/EBITDA oscillated around 7.5x during 2016, peaking at 8x in April 2016 on the expectations of a Democratic win in elections. The group troughed at 7.2x in December 2016 post the surprise Republican win. The multiples expanded to 7.7x in early 2017 after Republican's abandoned their repeal efforts, but came down to 7.5x after the repeal bill was passed in the House on 5/4/17.

**Chart 134: Valuation Jan 2016 to May 2017 (forward EV/EBITDA multiple)**



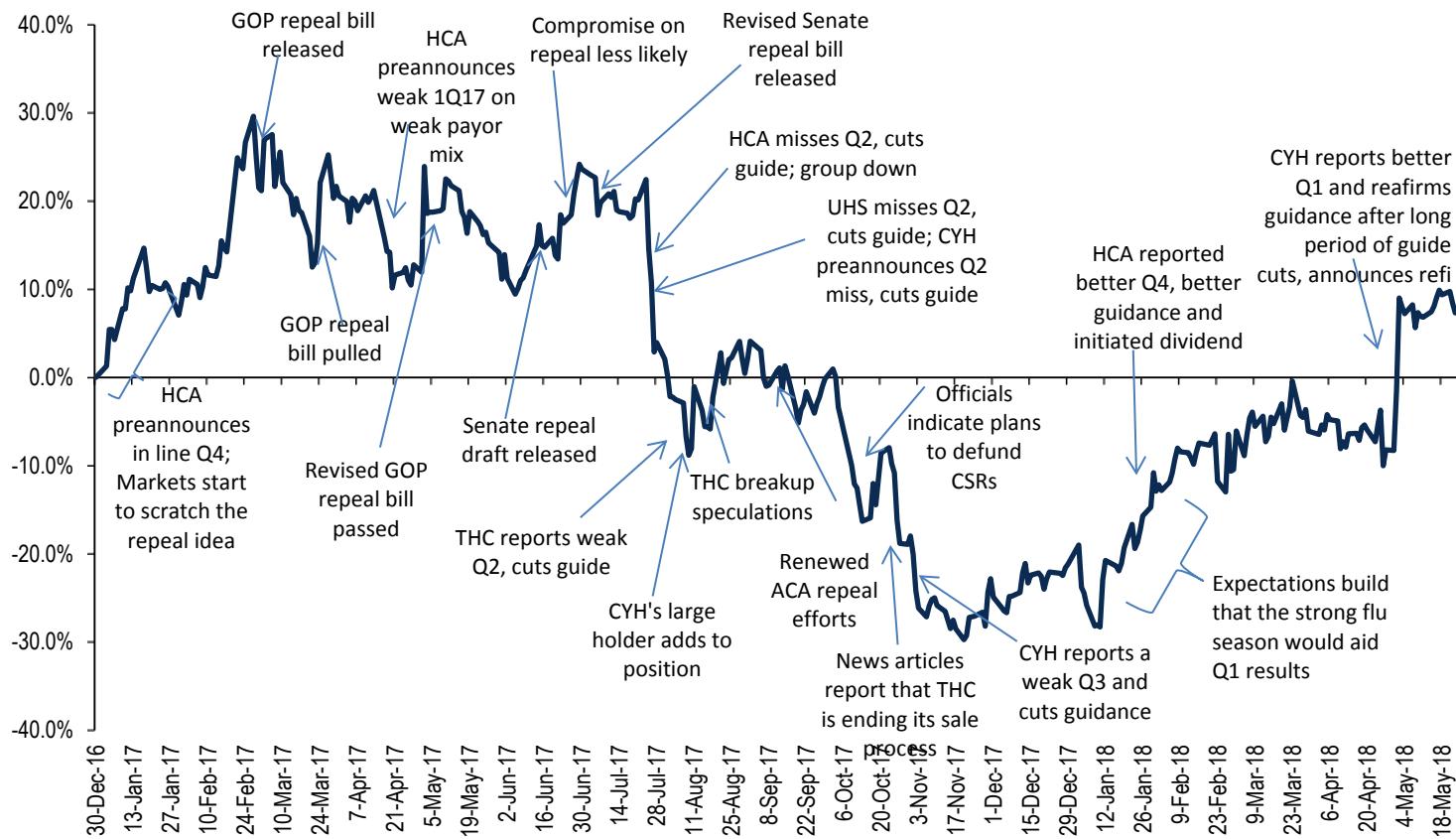
Source: Bloomberg, BofA Merrill Lynch Global Research

## 2017: repeal, no repeal

Hospitals were up +2% in 2017, underperforming the S&P 500 Index. HCA (+19%), UHS (+7%) and THC's (+2%) positive returns were offset by the negative returns for CYH (-24%) and LPNT (-12%).

After the hospital group had a strong start of 2017, stock performance became very volatile in 1H17 as Republicans accelerated efforts to repeal HC Reform. The group sold off in 2H17 after 2Q17 and 3Q17 results came in worse than expected and Republicans continued their repeal efforts. Late in the year, as it became clearer that Republicans abandoned the repealed efforts and turned their attention to tax reform, the stock performance started to improve as hospitals were viewed as a clear beneficiary from tax reform as domestic only companies with high tax rates.

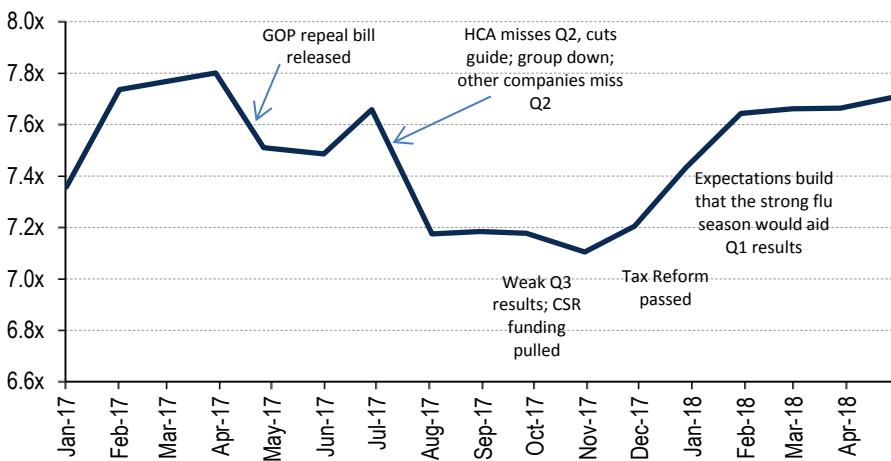
**Chart 135: Hospital group performance relative to the S&P 2017-May 2018**



Source: Bloomberg, BofA Merrill Lynch Global Research

During 2017, hospital EV/EBITDA multiple moved around 7.5x, peaking at 7.8x in March 2017 as the Market was scratching the HC Reform repeal idea. The group troughed at 7.1x in November 2017 due to a perfect storm: throughout 2017 Republicans made efforts to repeal HC Reform, and at the same time, 2Q17 results were weak and were followed by weak Q3. The multiples expanded to 7.7x in early 2018 after it was clear Republicans abandoned HC Reform repeal and passed Tax Reform (a clear positive for for-profit hospitals) while at the same time the expectations were building that the strong flu season will help 1Q18 results.

**Chart 136: Valuation Jan 2017 to May 2018 (forward EV/EBITDA multiple)**



Source: Bloomberg, BofA Merrill Lynch Global Research

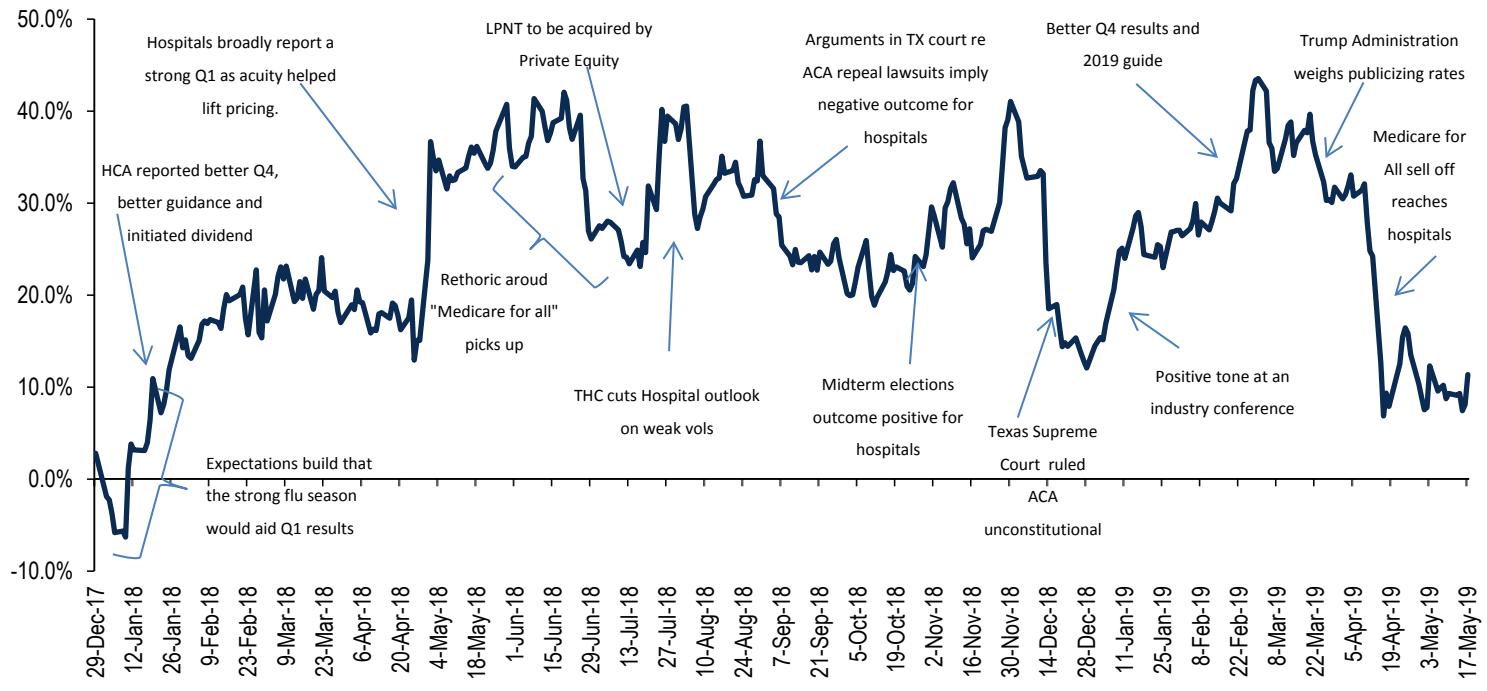
### 2018 through May 2019: strong start to 2018, but negative headlines settle in

The hospital group got a lift early in 2018 and the group was up +8% for the year, outperforming the S&P500 (which ended down -2.6%). Of note, the positive returns for HCA (+42%), THC (+13%), and UHS (+3%), were partially offset by CYH being down 34%.

Early in 2018, the expectations started to build that the strong flu season (which started earlier than usual and was more acute than usual) would aid 4Q17 and 1Q18 results. On 5/2/18, CYH reported better 1Q18 results, reaffirmed guidance and announced plans to refinance its near term maturities which was very well received by the market. Through May 2018, the group was aided by the expected boost to results from the proposed FY19 Medicare DSH payments (released in late April 2018).

The group sold off in July-July as the rhetoric around Medicare-for-All heated up. After getting a lift in late July with a private equity deal in the space as LPNT went private, the group sold off again on the weak THC print. In the late summer, the group sold off during the TX court trial arguing that the ACA should be repealed, a negative for the industry. The sentiment improved temporarily with the Democratic victory in the midterm elections, which ensured that there would be no more attempts to repeal the ACA. However, the Texas court ruled the ACA unconstitutional, sending the group down 26% in the month of December (S&P500 declined 9% during this period).

**Chart 137: Hospital group performance relative to the S&P 2018-May 2019**



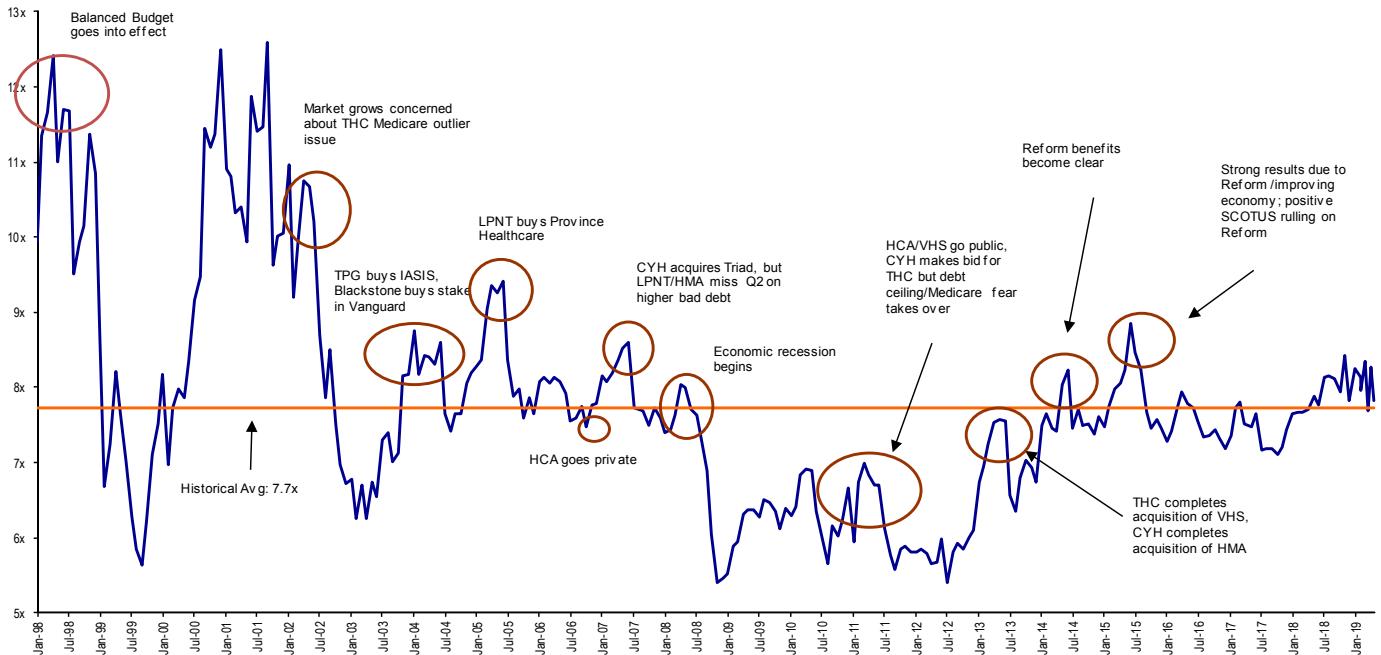
Source: Bloomberg, BofA Merrill Lynch Global Research

## M&A and LBOs provide valuation support

Strong cash flow in the hospital industry, even after capital expenditures, supports high leverage and M&A activity. Two things are clear from the Chart 143: 1) hospital valuations tend to react favorably to major M&A activity and 2) private equity interest in the space helps support a higher multiple for the group.

The chart shows private equity bought interests in IASIS Healthcare and Vanguard Health Systems in 2004 when valuations were in the 7.5x-8.0x EBITDA range and then again at 7.4x in 2006 when a group of private equity firms took HCA private. Although public companies tend to target leverage in the 3.0-4.0x Debt to EBITDA ranges, private companies often operate in the 5.0-6.5x range. With leverage that high, private equity companies are able to pay large multiples and only put in a turn or two of equity, juicing their returns.

## Exhibit 6: Peak Hospital Valuation (forward EV/EBITDA multiple)



Note: Industry comprised of CYH, HCA, HMA, LPNT, PRV, QHGI, TRI, THC, and UHS.

Source: FactSet, BofA Merrill Lynch Global Research, FactSet data for all non-covered companies

### May 1999: LPNT, Triad spun out of HCA

Columbia/HCA spun off a number of hospitals in May 1999, including 23 rural hospitals in the Southeast, which came to be called LifePoint. An additional 34 suburban hospitals were spun off, which came to be called Triad Hospitals. Columbia/HCA was divesting non-core facilities to focus on urban markets as it coped with investigations over improperly billing Medicare. This move unwound the previous management team's view that owning rural hospitals surrounding the core urban markets would allow the company to direct medically complex patients who needed care that could not be provided in the rural market to the core urban facilities (this never turned out to add much value).

When LifePoint and Triad Hospitals were spun off into separate companies, the hospital group was trading at approximately 7.5x EBITDA. Post the spin-off, LPNT was trading at 7.0x EV/EBITDA in September 1999 and Triad at 7.4x EBITDA in November 1999 (Triad was bought by CYH at 9.0x EBITDA in 2007).

The spin-offs were a success, as the assets were able to gain management focus as separate companies and their low margins following the spin moved back up to industry averages. Triad's EBITDA margins improved from 12.0% in 1999 to 14.3% in 2005 (11.8% in 2006, or 12.3% adjusted for stock comp, which the company started recognizing in 2006) before the company was bought by CYH in March 2007. LPNT's EBITDA margins improved from 15.1% in 1999 to 20.0% in 2005 and 18.6% in 2006.

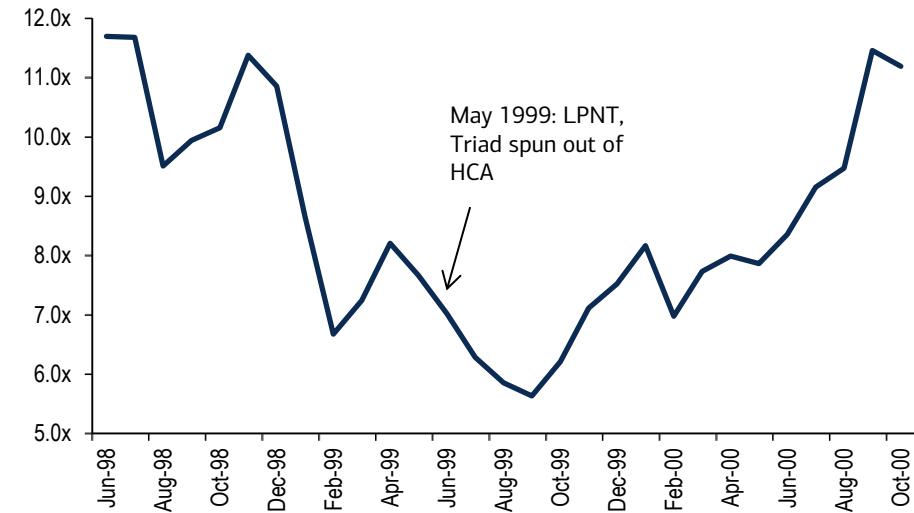
Same store revenue growth rates got better as assets improved. Triad same store revenue growth improved from +6.6% in 1999 to +7.7% in 2007 and +9.2% in 2006, right before the acquisition by CYH. LPNT's performance improved dramatically in the first year post spin-off with same store revenue growth improving from +3.4% in 1999 to +8.8% in 2000 before returning to more normalized rates of +6.0% in 2005 and +6.6% in 2006, still an improvement from 1999.

**Table 110: Triad And LifePoint Performance Post Spin-off**

	1999	2000	2005	2006
<b>Triad</b>				
EBITDA margin	12.0%	14.1%	14.3%	11.8%
ss rev growth	6.6%	7.7%	6.5%	9.2%
PE multiple-Dec	116.3x	67.8x	12.5x	15.6x
EV/EBITDA multiple-Dec	8.0x	9.9x	6.9x	7.8x
<b>LPNT</b>				
EBITDA margin	15.1%	19.0%	20.0%	18.6%
ss rev growth	3.4%	8.8%	6.0%	6.6%
PE multiple-Dec	27.5x	74.8x	13.1x	12.8x
EV/EBITDA multiple-Dec	8.5x	16.7x	7.2x	7.4x

Source: BofA Merrill Lynch Global Research, Company data

When LifePoint and Triad Hospitals were spun off into separate companies, the hospital group was trading at approximately 7.5x EBITDA, having been as high as 10.9x just six months earlier. Valuations dipped to 5.6x EBITDA by September 1999 due to cuts from the Balanced Budget Act, but rebounded to 8.2x by January 2000, as legislation was signed into law in November 1999 that restored some of the cuts to hospitals from the BBA Act of 1997.

**Chart 138: Valuation, June 1998 to October 2000 (forward EV/EBITDA multiple)**

Source: BofA Merrill Lynch Global Research, Bloomberg

**May 2004: IASIS Healthcare bought by TPG**

In May 2004, privately held IASIS Healthcare was acquired by a private equity firm, Texas Pacific Group, in a transaction valued at approximately \$1.4 billion. TPG paid approximately 8.6x EBITDA for the company. At that time, IASIS operated 15 urban hospitals.

**July 2004: Blackstone buys stake in Vanguard Health System**

In July 2004, the Blackstone Group, a large private equity firm, agreed to buy a 70% stake in Vanguard Health System, a privately held hospital operator at the time, valuing the company at \$1.75 billion or 10.9x EBITDA. The firm bought a 70% stake with Morgan Stanley Capital Partners and Vanguard executives retaining the remaining 30%. At that time Vanguard operated 16 urban hospitals.

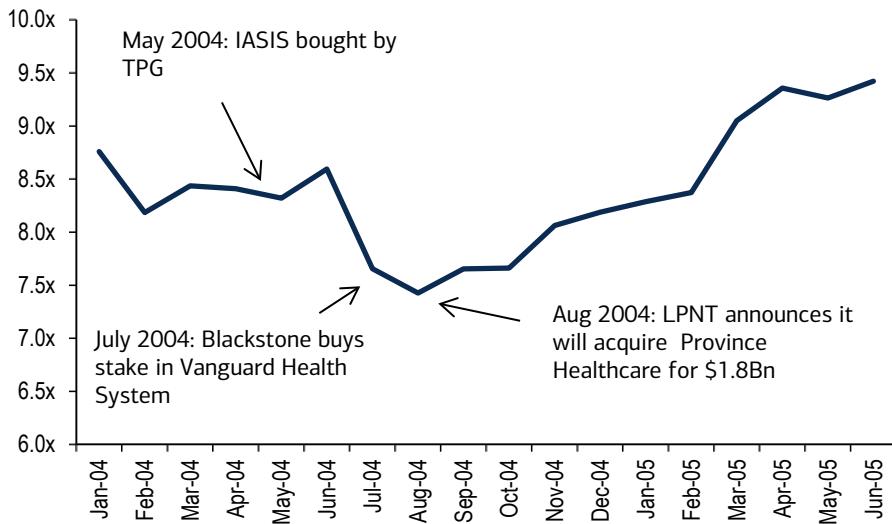
**August 2004: LPNT acquires Province Healthcare**

On August 16, 2004, LPNT announced it would acquire Province Healthcare in a \$1.7 billion transaction, adding 21 facilities and over 2,500 beds to its portfolio, effectively

doubling the size of the company. Province had revenues of approximately \$2 billion, making the deal valued at slightly more than 2x revenue. The transaction was done at 11x EBITDA, the peak for major transactions we have seen, and helped move the group higher from a 7.4x multiple to 9.4x in April 2005.

In May 2004, the hospital group was trading at 8.3x EBITDA when TPG bought IASIS Healthcare. Valuation subsequently dipped into June and July to 7.4x EBITDA when Blackstone bought a 70% stake in Vanguard. When LPNT finally announced in August 2004 the previously speculated deal to buy its competitor Province, hospital group valuations went from 7.4x to 9.0x EBITDA in March 2005.

**Chart 139: Hospital Industry Valuation, January 2004 to June 2005 (forward EV/EBITDA multiple)**



Source: BofA Merrill Lynch Global Research, Bloomberg

#### **July 2006: HCA goes private**

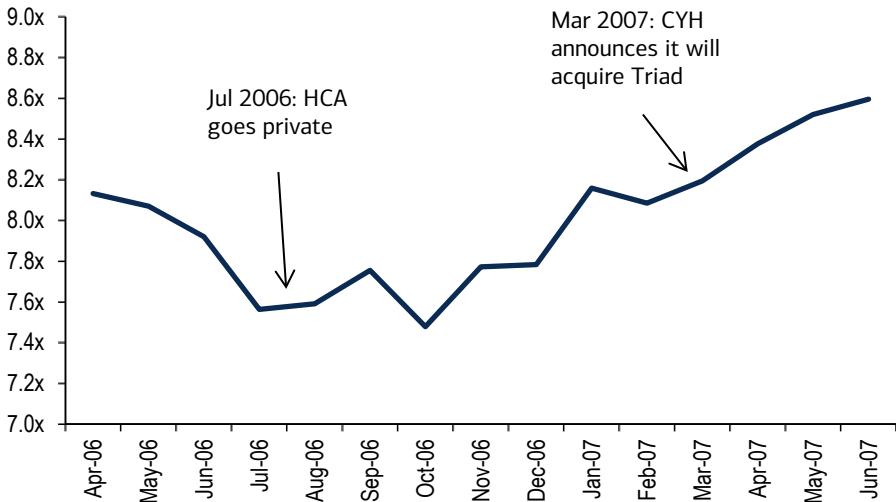
On July 24, 2006, HCA agreed to be bought by a slew of private equity firms and the company's founder Dr. Thomas Frist Jr. in a deal valued at \$33 billion, including \$11.7 billion of debt. The buyers offered \$51 per share in cash, an 18% premium to the company's closing price the week before. At the time, the deal was the largest transaction ever done by private equity.

#### **March 2007: CYH acquires Triad Hospitals**

On March 19, 2007, CYH announced the acquisition of Triad Hospitals for \$54 per share in cash, which included existing debt of \$1.7 billion, valuing the company at \$6.8 billion (CYH's bid was a hostile bid after Triad's management team attempted to take the company private). At the time, the combined company was the largest publicly traded hospital company in the US. Triad owned and managed 54 hospitals.

In July 2006, HCA was taken private with the hospital group trading at 7.6x EBITDA. Valuations hovered in the 7.6x-8.0x range for the next several months. When CYH acquired Triad Hospitals in March 2007, the group was at 8.1x EBITDA and saw a half turn increase to 8.6x over the next four months.

**Chart 140: Valuation, April 2006 to June 2007 (forward EV/EBITDA multiple)**



Source: BofA Merrill Lynch Global Research, Bloomberg

#### **December 2010: CYH offers to acquire THC**

On December 10, 2010, CYH offered to acquire THC for \$6.00 per share, a 40% premium to THC's stock price at the time. The purchase price implied a valuation of 6.7x EBITDA (5.3x after synergies and NOL). The offer was structured so that each Tenet shareholder would receive \$5.00 per share in cash and \$1.00 per share in CYH stock. Following the announcement, the group saw a half-turn increase to 6.7x through December. THC rejected the offer. CYH raised its offer to \$7.25 (all cash) on May 2, 2011 before pulling the deal amid government scrutiny after THC, in a bid to sabotage the hostile deal, accused it of inappropriately admitting patients who should have been held for observation.

#### **March 2011: HCA goes public again**

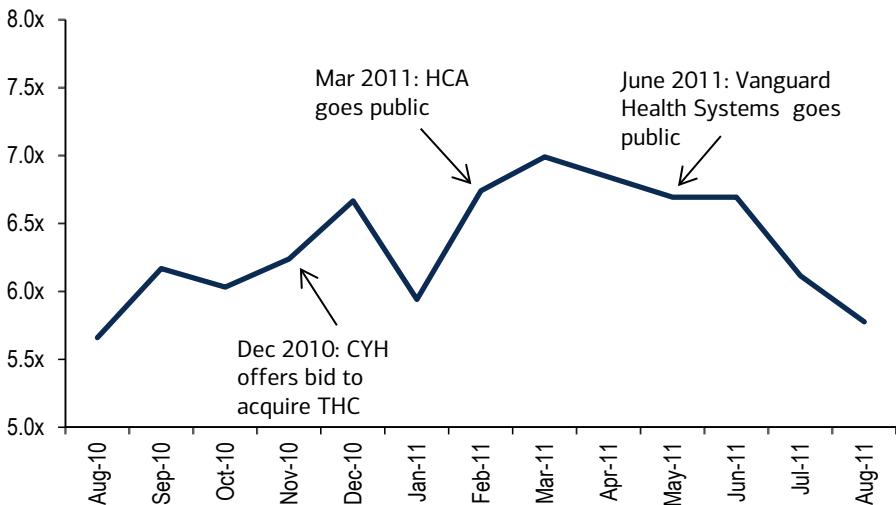
On March 10, 2011, after being private for four years, HCA went public at an offer price of \$30 per share, or 7.0x EBITDA. The transaction valued HCA at \$43 billion versus the LBO valuation of \$33 billion, even though HCA paid out \$4.3 billion of dividends to its private equity holders while private.

#### **June 2011: Vanguard Health System goes public**

On June 22, 2011 Vanguard Health System (VHS) went public and raised over \$400 million in proceeds. VHS went public at an offer price of \$18 per share or 6.5x EBITDA. The transaction valued VHS at \$3.3 billion versus the LBO valuation of \$1.75 billion, even though VHS paid out \$0.7 billion of dividends to its private equity holders while private.

Hospitals were trading at 6.2x EBITDA in November 2010. The group saw a half turn increase to 6.7x through December as CYH made an offer to acquire THC. Valuation fell to 5.9x after THC sued CYH alleging that it overbilled Medicare and creating a concern of government investigations broadly for the sector. The group valuation improved to 7.0x in March 2011 with the initial public offering of HCA. Valuations held steady at 6.7x for the next several months and through Vanguard's initial public offering, only to fall below 6.0x in August 2011 amid debt ceiling and macroeconomic concerns after HCA missed 2Q.

**Chart 141: Valuation, August 2010 to August 2011 (forward EV/EBITDA multiple)**



Source: BofA Merrill Lynch Global Research, Bloomberg

### 2013: CYH buys HMA

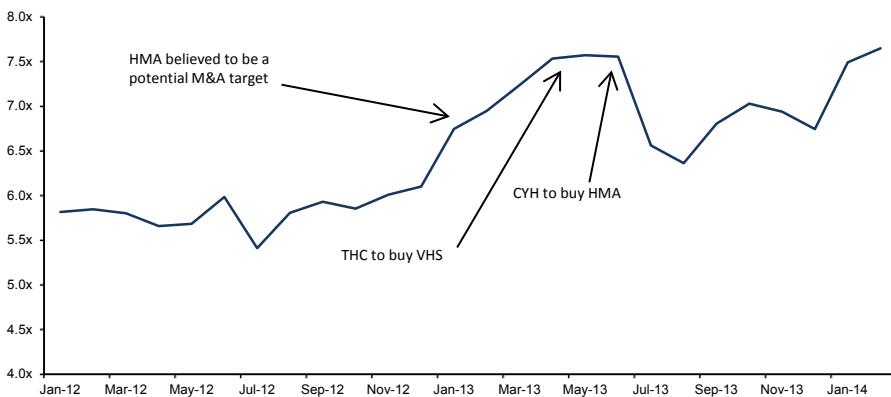
On July 30, 2013, CYH announced it would acquire HMA for \$13.78 in cash and stock, an 8% discount to HMA's 7/29 share price, as HMA's stock had run up in anticipation of a transaction (up 54% from 5/24/13 to 7/10/13). There would also be a contingent value right (CVR) of up to \$270 million. The \$7.6 billion value of the transaction, before the CVR, implies 8.2x HMA LTM EBITDA before any synergies. Including \$80 million of synergies CYH expected to achieve in year 1, the multiple would be 7.6x. The deal closed on February 1, 2014.

### THC buys VHS

On June 24, 2013, Tenet announced it would acquire Vanguard Health Systems for \$21/share in cash in a \$4.3 billion deal, representing 7.2x consensus CY14 EBITDA, or 5.8x, including \$150 million of synergies. The price paid was at a 70% premium to VHS closing price on June 21, 2013 of \$12.37.

Hospitals were trading at 6.9x EBITDA in February 2013. The group saw a 0.7x turn increase to 7.6x through June, as HMA was believed to be in play and that CYH was the potential buyer, which was followed by the THC-VHS deal. After the HMA deal was announced, the group multiple fell, as the purchase price was 8% below where HMA was trading at the time.

**Chart 142: Valuation, January 2012 to February 2014 (forward EV/EBITDA multiple)**



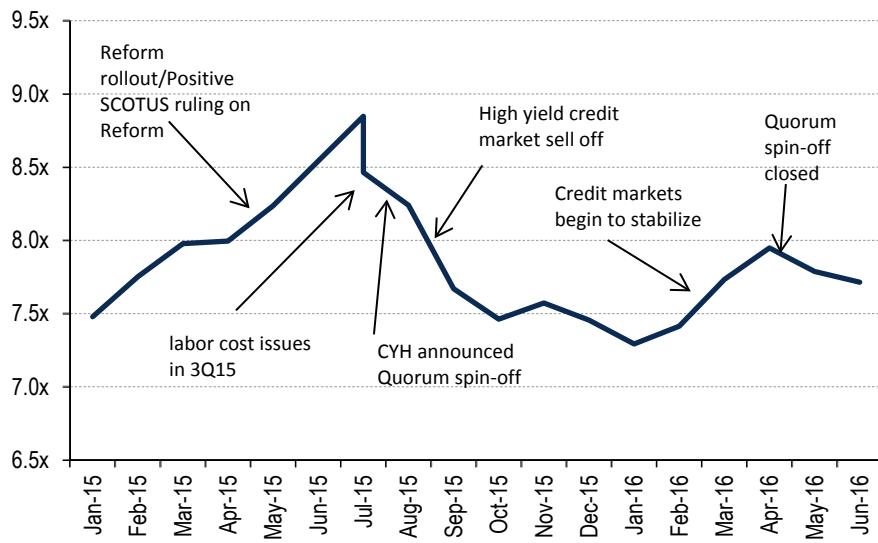
Source: BofA Merrill Lynch Global Research, Bloomberg

## 2015-2016: CYH spins off Quorum

On 8/3/15, CYH announced a spinoff of 38 smaller hospitals and its Quorum hospital management and consulting business, into a new publicly traded company named Quorum (ticker QHC). The spin off closed on April 29, 2016. With the spin-off CYH received a \$1.23bn distribution from QHC which it used to pay down some of its debt. In addition, the spin-off improved both CYH margins (by 40bps in 2015) and free cash flow, allowing CYH's management to focus on the core strategy.

The stock did not react well post the news and was down 10% over the next month and 50% over the next three months. The moves were likely driven by Q3 miss (on 10/21/15, CYH preannounced Q3 EBITDA 13% below consensus) and industry-wide pressure due to high yield credit market sell-off, rather than reaction to the deal.

**Chart 143: Hospital group valuation Jan 2015-June 2016 (forward EV/EBITDA multiple)**



Source: BofA Merrill Lynch Global Research, Bloomberg

## Deals occur at premium valuations

Major hospital transactions have been done at 1.0x revenue and 7.6x EBITDA on average over the past 19 years. If we exclude two smaller deals (Cerberus buying Caritas and VHS buying DMC), the average EBITDA multiple for the major transactions for 1995-2010 was 8.1x, much higher than the average 7.0x multiple the hospital group has been trading over that period. Similarly, the multiples for deals announced in 2013 were significantly higher than the 6.4x average multiple in 2012-2013.

In addition, private equity has gotten involved in the space with transactions valuing the companies at 1.1x revenue and 9.0x EBITDA.

**Table 111: Major Hospital Transactions**

Acquiror	Target	Announced	Purchase		Multiples	
			Price	LTM Revenues	LTM EBITDA	Revenue
HCA	3 TX hospitals from THC	5/1/2017	\$725	\$575	\$80	1.3x
Steward Health Care (private)	IASIS Healthcare	5/19/2017	\$1,900	\$2,370	\$221	0.80x
CYH	HMA	7/30/2013	\$7,600	\$6,900	\$900	1.10x
THC	VHS	6/24/2013	\$4,300	\$6,080	\$556	0.71x
CYH-did not close	THC	12/10/2010	\$7,465	\$9,800	\$1,200	0.76x
Health Management Associates	Catholic Health Partners	7/1/2011	\$532	320		1.66x
HCA	HealthONE	6/15/2011	\$1,450	\$1,823	\$242	0.80x
Cerberus	Caritas Christi	3/25/2010	\$830	\$1,500	\$97	0.55x
Vanguard	Detroit Medical Center	3/19/2010	\$597	\$2,090	\$117	0.29x
Community Health Systems	Triad Hospitals	3/19/2007	\$6,800	\$6,093	\$755	1.12x
						9.0x

**Table 111: Major Hospital Transactions**

Acquiror	Target	Announced	Purchase			Multiples	
			Price	LTM Revenues	LTM EBITDA	Revenue	EBITDA
Bain, KKR, Merrill Lynch	HCA	7/24/2006	\$32,696	\$26,480	\$4,400	1.23x	7.4x
LifePoint	Province	8/16/2004	\$1,700	\$835	\$154	2.04x	11.0x
Triad Hospitals	Quorum	10/19/2001	\$2,400	\$1,811	\$320	1.33x	7.5x
Tenet	Healthcare OrNda	6/18/1995	\$3,091	\$2,147	\$342	1.44x	9.0x
<b>Average</b>						<b>1.0x</b>	<b>7.7x</b>
<b>LBOs</b>							
Bain, KKR, Merrill Lynch	HCA	7/24/2006	\$32,696	\$26,480	\$4,400	1.23x	7.4x
Blackstone	Vanguard	7/23/2004	\$1,750	\$1,717	\$161	1.02x	10.9x
TPG	IASIS	5/5/2004	\$1,400	\$1,236	\$163	1.13x	8.6x
<b>Average</b>						<b>1.1x</b>	<b>9.0x</b>

Source: BofA Merrill Lynch Global Research, Bloomberg

## Leverage is the key to high returns on LBOs

Private equity stepped in several times when the group reached through multiples. It is not surprising to see private equity's interest given the characteristics of the business and the rate of return that could be achieved. In general, hospitals generate strong free cash flow, which supports high debt levels. For example, in the leveraged buyout of Vanguard in 2004, the company's leverage increased from 3.6x to 6.2x. However, five years later, the leverage was reduced to 4.8x given the company's growth. Similarly, in the HCA LBO, the company's leverage increased to 6.8x from 2.8x prior to the LBO, but was down to 4.5x in five years. In both cases, the companies were able to delever while paying a dividend to their private equity sponsors.

**Table 112: Leverage in hospital LBOs**

leverage:	pre LBO	post LBO	Year 1	Year 2	Year 3	Year 4	Year 5
HCA	2.8x	6.8x	6.0x	5.9x	4.7x	4.8x	4.5x
VHS	3.6x	6.2x	5.9x	6.2x	6.3x	5.7x	4.8x
IASIS	NA	5.1x	4.2x	4.5x	4.4x	4.2x	3.5x

Source: BofA Merrill Lynch Global Research, Company data

Returns on the investment for private equity could be quite meaningful. We estimate that a private equity firm can easily get a 15% IRR assuming an LBO multiple of 7.4x EBITDA and that the target company can be taken public in year six after the LBO at 6.5x EBITDA.

In a hypothetical LBO, we assume a hospital company with \$1 billion revenue and 14.5% EBITDA margin grows revenue 4% and EBITDA 5% annually. We then assume that a private equity invests 1.9x EBITDA while adding 5.5x to the leverage, with debt increasing from \$290 million to \$798 million. Our model assumes the existing debt is refinanced at LIBOR + 600 basis points and the new subordinated debt is priced at 8.5%.

Given the EBITDA growth and the strong FCF (net income is turned into FCF at about 1x), which we assume is used for debt paydown, the leverage is reduced to 3.2x in year 6 post the LBO from the initial 5.5x at the time of the LBO.

**Table 113: Hypothetical LBO Model**

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Revenue	\$1,000	\$1,040	\$1,082	\$1,125	\$1,170	\$1,217	\$1,265
y/y change		4%	4%	4%	4%	4%	4%
EBITDA	\$145	\$153	\$161	\$170	\$179	\$189	\$199
y/y change		5%	5%	5%	5%	5%	5%
EBITDA margin	14.5%	14.7%	14.9%	15.1%	15.3%	15.5%	15.7%
D&A	\$50	\$52	\$54	\$56	\$58	\$61	\$63
EBIT	\$95	\$101	\$107	\$114	\$120	\$128	\$135
interest expense	\$19	\$62	\$61	\$59	\$57	\$54	\$52

**Table 113: Hypothetical LBO Model**

	<b>Year 0</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
y/y change		229%	-2%	-3%	-3%	-4%	-5%
minority interest	\$2	\$2	\$2	\$2	\$2	\$2	\$3
pre tax income	\$74	\$37	\$44	\$53	\$61	\$71	\$81
Net income	\$44	\$22	\$27	\$32	\$37	\$43	\$49
y/y change		-50%	21%	18%	17%	16%	15%
Operating CF	\$94	\$74	\$81	\$88	\$95	\$103	\$112
Capex	\$50	\$52	\$54	\$56	\$58	\$61	\$63
FCF	\$44	\$22	\$27	\$32	\$37	\$43	\$49
y/y change		-50%	21%	18%	17%	16%	15%
Op. cash flow/EBITDA	0.7x	0.5x	0.5x	0.5x	0.5x	0.5x	0.6x
FCF/Net income	1.0x						
initial debt	\$290						
new debt		\$798					
FCF used for debt paydown		-\$22	-\$27	-\$32	-\$37	-\$43	-\$49
Senior Debt		\$290	\$268	\$241	\$210	\$173	\$130
Sub Debt		\$508	\$508	\$508	\$508	\$508	\$508
Total Debt		\$290	\$798	\$775	\$749	\$717	\$680
<b>leverage</b>	<b>2.0x</b>	<b>5.2x</b>	<b>4.8x</b>	<b>4.4x</b>	<b>4.0x</b>	<b>3.6x</b>	<b>3.2x</b>
interest coverage	5.0x	1.6x	1.8x	1.9x	2.1x	2.3x	2.6x

Source: BofA Merrill Lynch Global Research

We estimate ROE of 7% in year 1 and 10% in year 6. In addition, assuming that the private equity takes the company public at 6.5x EBITDA in year 6, the implied equity value would be \$653 million, as by then the debt would be reduced to \$0.6 billion from the initial \$0.8 billion. This in turn implies an internal rate of return of 15%. The company could boost this return by following the playbooks from other hospital LBOs and paying out dividends while private. Meanwhile, we only assume 5.5x leverage in this analysis. The returns to equity would be much higher if the LBO levered up to 6.5x.

**Table 114: Hypothetical LBO Returns**

	<b>Year 0</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
Net income	\$44	\$22	\$27	\$32	\$37	\$43	\$49
y/y change		-50%	21%	18%	17%	16%	15%
initial equity		\$276					
equity		\$298	\$324	\$356	\$393	\$435	\$484
ROE		7%	8%	9%	9%	10%	10%
IPO multiple						6.5x	
EBITDA						\$199	
EV						\$1,291	
debt						\$638	
implied equity						\$653	
equity flows	-\$276	\$0	\$0	\$0	\$0	\$0	\$653
<b>IRR</b>	<b>15%</b>						

Source: BofA Merrill Lynch Global Research

## **Health Care Reform and the impact on hospitals**



## Reform a boon to hospitals

The passage of Health Care Reform marked the biggest expansion of health care since the creation of Medicare and Medicaid in 1965.

Health Care Reform was passed in March 2010, with some provisions implemented starting in 2010-2011. However, the majority of elements of Reform were not effective until 2014. We have found that the Reform benefits have been more front-end loaded than many expected, as we believe that sick people have the most incentives to buy insurance, and they represent the majority of hospitals' uncompensated care – the sickest 5% of uninsured represent 67% of uninsured spending.

Meanwhile, the November 2016 elections brought some risk to the ACA as Republicans attempted to repeal/replace Reform but ultimately failed to garner enough support. With the Reform bill remaining the law, the administration has tried to make changes which would effectively reduce enrollment, reversing some of the gains made under the ACA.

Despite an immediate boost in earnings in 2014-2016, overall, we would expect only a modest long-term benefit to hospital earnings from Health Care Reform, as the margin benefits in 2014-2015 are offset over time by the Medicare rate cuts implemented to fund Reform. Instead, the real benefit to the group would be a sustained revenue increase as volumes and cash collections improve, improved perception as bad debt becomes a smaller portion of costs and volumes become less volatile.

In this section we provide details of the elements of the Reform and how it has impacted hospitals. Based on the company's disclosures, Reform benefits added about 7% to the public companies' annual EBITDA with about half of the benefit coming from the Medicaid expansion.

**Table 115: Reform benefit as percentage of EBITDA as per company disclosures**

	CYH	HCA	LifePoint	THC	UHS	Average
<b>Reform benefit % EBITDA</b>	11%	7%	7%	9%	3%	7.4%
% beds exposure to Medicaid expansion states	30.0%	17.0%	40.0%	45.0%	49.0%	36.2%
% of benefit due to Medicaid expansion	41%	23%	54%	61%	67%	49.2%
<b>Medicaid expansion benefit as % of EBITDA</b>	<b>4%</b>	<b>2%</b>	<b>4%</b>	<b>6%</b>	<b>2%</b>	<b>3.5%</b>

Source: BofA Merrill Lynch Global Research estimates, company reports

## Key elements of Health Care Reform

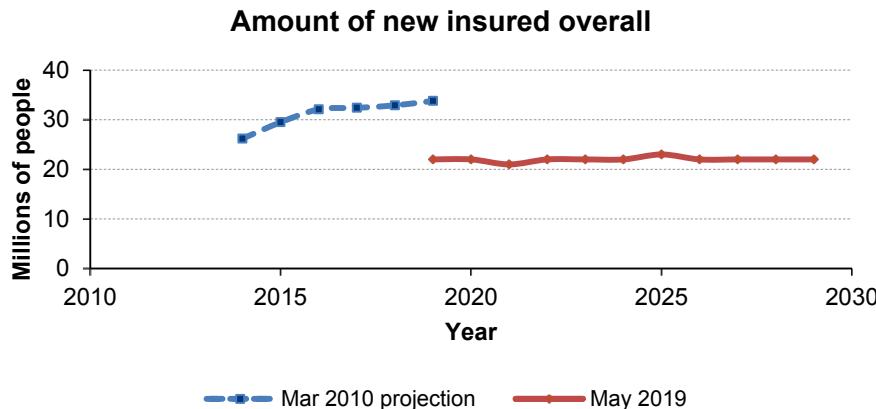
On March 23, 2010, President Obama signed into law the Health Care Reform bill (otherwise known as Patient Protection and Affordable Care Act or PPACA or simply ACA). The legislation includes major changes for the health care industry and the key provisions impacting hospitals are:

### Coverage Expansion

Hospitals are providers of emergency care, and under federal EMTALA laws must not turn away emergent care patients who cannot pay. As a result, they currently treat uninsured patients, incur costs and don't book any net revenue for these patients. As coverage is expanded under Reform, hospital were able to collect significantly more revenue from patients that they were previously treating.

The Health Reform bill is estimated to cover 22 million people by 2029 (according to CBO estimates from May 2019). In total, Reform would increase coverage to 89% of the population. The coverage to the uninsured was achieved through an individual mandate, the employer mandate, a small business tax credit, subsidies to individuals to buy insurance on exchanges, and the expansion of Medicaid. Coverage projections are below original forecasts largely due to the fact that not all states expanded Medicaid, and a slower uptake in exchange participation, with the most recent CBO projections also reflecting the fact that the individual mandate was eliminated starting in 2019.

**Chart 144: CBO Projection of amount of new insured per year**

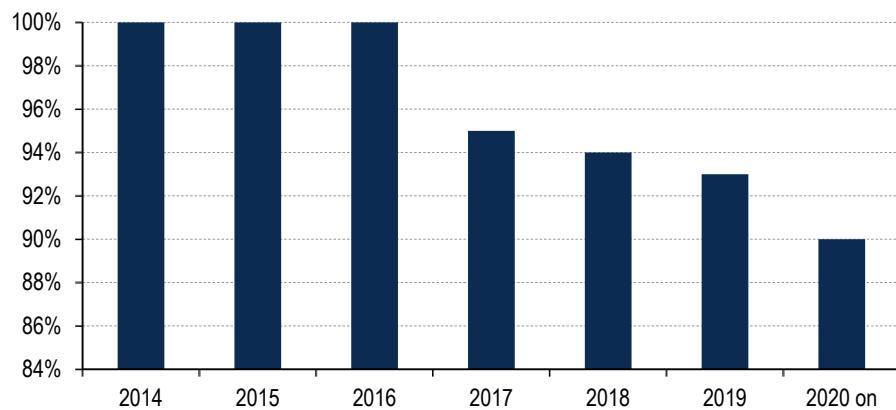


Source: CBO, BofA Merrill Lynch Global Research

### **Expanded Medicaid program**

Health Care Reform called for increasing Medicaid eligibility to 133% of poverty for all states as of 2014, resulting in 14 million new Medicaid enrollees in 2028 as per CBO's May 2018 projections (down from 19m as of 2026 per CBO's March 2016 projections). The Reform bill provides that the Federal government would pay 100% of all costs related to the expansion population through 2016, and then phases down its share of payments to a maximum of 90% by 2020. As a result, the federal government will pay the vast majority of the cost of expansion.

**Chart 145: Amount of Medicaid expansion funded by the Federal government**



Source: BofA Merrill Lynch Global Research

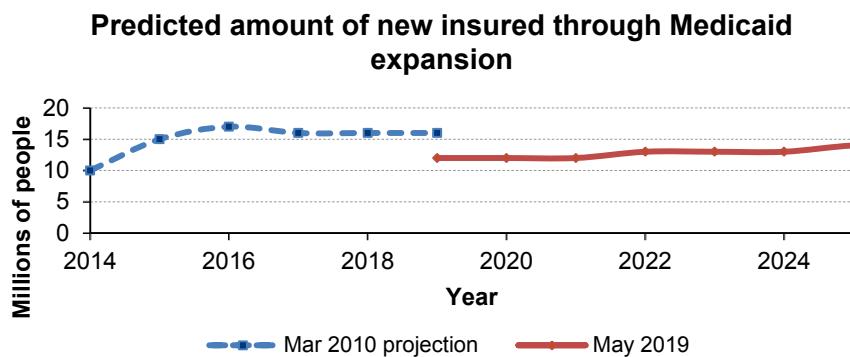
### **Supreme Court ruled that expansion is optional**

On June 28, 2012, the Supreme Court ruled that requiring the states to opt into the Medicaid expansion or lose the federal funding on the core Medicaid program was too coercive and therefore unconstitutional. As a result, states have the option of whether to opt into the Medicaid expansion or not. This change has reduced the CBO projection of the Medicaid coverage benefit to 14 million by 2019 versus its original estimate that 16 million people would be covered. As of May 2018, the CBO estimated that there would be 14 million newly insured by Medicaid in 2028.

It appears that we already exceeded the revised enrollment target of 14 million - as of March 2018, there were 16.3 million more people enrolled in Medicaid since fall of 2013, prior to the expansion implementation, an improvement that happened during an economic/jobs recovery which all else equal tends to put downward pressure on

Medicaid enrollment. Of note, as of February 2019, the incremental Medicaid enrollment was 14.6m, a decline over 1m over a one year period, in part due to an improving economy (moving coverage to commercial) but in part due to Administration policies to roll back Medicaid coverage.

**Chart 146: Projection of newly insured through Medicaid expansion**



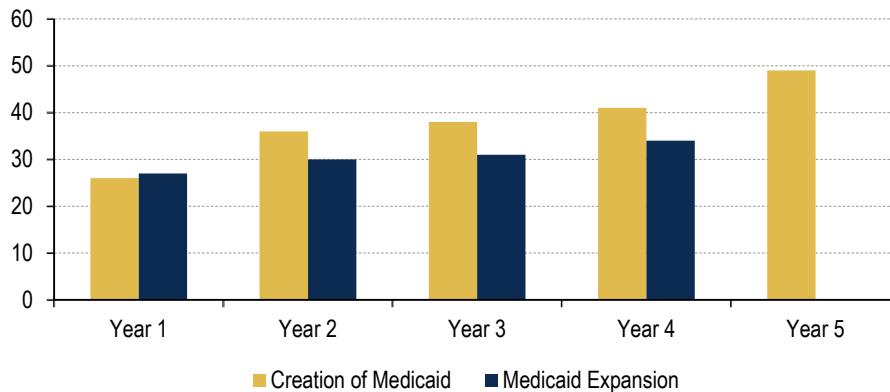
Source: CBO, BofA Merrill Lynch Global Research

- During FY 2014, 26 states (including DC) implemented the Medicaid expansion. In FY 2015, four additional states (New Hampshire, Pennsylvania, Indiana and Alaska) implemented Medicaid expansion. Louisiana expanded Medicaid in July 2016. Maine adopted Medicaid expansion in November 2017. Virginia approved expansion in 2018.

In addition, three more states adopted but not yet implemented Medicaid expansion. Idaho, Nebraska, and Utah all passed ballot initiatives in late 2018 to expand Medicaid. The timing of implementation is uncertain in these states, but we would expect the earliest implementation to be in 2020. If Reform is not repealed/replaced, there is the potential that more states would expand over time.

- In total, 33 states and DC expanded Medicaid, and if past is prologue, we may see additional states expand. We highlight that during the creation of the original Medicaid program in 1965, only half the states adopted the Medicaid program in Year 1, but within 5 years, 49 states had signed up (AZ was the last state to sign up, finally adopting Medicaid in 1982, 17 years after the program was created). Below we compare state adoption of the original Medicaid program to adoption of Medicaid expansion. 34 states (including DC) have effective expansion coverage by year 4.

**Chart 147: Number of States Adopting Medicaid by Year**



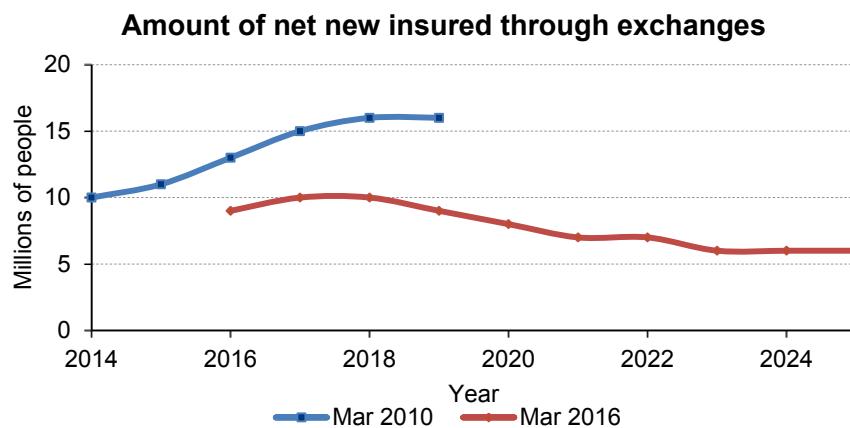
Source: BofA Merrill Lynch Global Research

## Health Care Exchange

The Reform bill also created a health care exchange – a marketplace where consumers can purchase commercial insurance. To encourage people to buy insurance, the government will provide a sliding scale subsidy to people making between 100-400% of the poverty level. Originally, those that did not buy insurance had to pay a tax, which started at \$95 in 2014, but rose rapidly over the next several years. As of May 2019, the CBO estimates that 7 million people will move from uninsured to the exchange by 2029 compared to the March 2010 estimate of 16 million people by 2019 (and also lower than 11 million estimated in 2025 as of March 2015).

In its May 2019 report, the CBO estimates that only about 9 million people will have coverage on exchanges in 2019. This is down from its estimates of 19 million in the March 2016 Baseline. It appears that the biggest delta vs initial expectations is that fewer employers dropped coverage and moved people to the exchanges than the CBO originally projected as employer coverage has generally exceeded initial CBO projections. Also, the Tax Reform signed in early 2018 included a provision calling for the elimination of the individual mandate, which CBO believes reduced enrollment on the exchanges (CBO projects that in 2029, there would be 7 million fewer people on the exchanges, due to elimination of the individual mandate).

**Chart 148: Projection of enrollment on exchanges + coverage through the Basic Health Program**



Source: CBO

## Rate cuts to fund Reform

The benefits to hospitals are clear, but there are also some offsets. The hospital industry is facing \$80 billion in overall payment reductions over 10 years to help fund Reform.

- **Market basket reductions.** Medicare payments are reduced for productivity factor improvements beginning in 2012 for inpatient and outpatient (each year CMS will calculate the rolling 10-year economy-wide improvement in productivity and reduce provider rates by that amount – somewhere in the 0.4%-1% range). There are additional MB reductions beginning in 2010 through 2019. Of note, productivity cuts are permanent, but the additional cuts are no longer in place for FY20 rate updates, lifting the rates somewhat.
- **Medicare and Medicaid DSH payments will be cut.** These extra payments to hospitals that treat a disproportionately high number of low income and uninsured are reduced over time, starting in FY14 (October 2013). In its final rule for FY2014, CMS estimated that the decline in uninsured would be 5.6%, resulting in a DSH cut of 6%, which was estimated to reduce overall payments to hospitals by 0.4% in FY14. In the final FY15 reg, CMS estimated that the reduction to DSH would be a

1.3% cut for the industry spending in FY15, but we believe it actually represents a \$1,232m or 1.1% reduction to spending if the increasing pool is taken into account. In the final FY16 reg, CMS estimated that the reduction to DSH would be a 1.0% cut for the industry spending in FY16. In the final FY17 reg, the reduction in DSH is estimated to reduce overall industry spending by 0.1% in FY17. In FY18, DSH payments actually increased adding 1.0% to the overall industry spending as CMS changed its methodology. For FY19, CMS proposed another increase which is estimated to add 1.3% to the industry. The FY20 proposal includes a 3% increase to DSH, below the prior years but still an increase.

- Medicaid DSH cuts were originally set to start in 2014 but were delayed twice and now are scheduled to start in FY2020. If Congress does not act, those cuts would take effect Oct 1, 2019.
- **Reductions for certain hospital readmissions** beginning in FY13 for hospitals with readmissions rates above certain thresholds for certain conditions with cuts of 1% in FY13, 2% in FY14, and 3% for FY15 and beyond.
- **Reductions for hospitals in the top 25% of Hospital Acquired Conditions.** A reduction of 1% in payments beginning in FY2015 for the worst 25% of hospitals for Hospital Acquired Conditions.
- **Value based purchasing.** The reform bill includes a value based purchasing program that began in FY2013 for hospitals and is being implemented on a budget neutral basis. This means that hospitals that fail to meet certain criteria will see rate cuts, while top performing hospitals can actually see a rate increase. It replaced the previous reporting or quality measures with a pay-for-performance program based on the hospital's actual performance on certain quality measures. The aggregate VBP payments across all hospitals will be funded through a reduction in base operating DRG payments for each discharge, which will be 1% in FY2013, rising to 2% by FY2017 (increasing by 0.25% starting in FY2014).
- **Bundled payments.** The Reform bill includes a post-acute national bundled payment pilot program to include physicians, hospitals and post-acute providers. The program began in 2013. The bill also calls for a Medicaid bundled payment demonstration project that was scheduled to begin in 2012, which was never implemented.
- **Accountable Care Organizations.** The Reform bill includes efforts to provide incentives for coordinated care through Medicare Shared Savings program (MSSP). The CBO estimates that the shared savings provisions for ACOs would reduce Medicare spending by \$4.9 billion over 10 years, beginning in 2013. In the final ACO regulation, CMS estimated the median net federal savings for 2012-2015 would be ~\$470 million. However, in extreme scenarios, CMS noted savings could be \$2 billion over this time horizon.

As of January 2019, there is a total of 586, 506 established through MSSP (down from 561 in 2018), 44 Next Generation ACO (down from 51 in 2018), and 36 Comprehensive ESRD (down from 37 in 2018) programs. Although this is down from 649 as of Jan 2018, it is up slightly from 572 as of Jan 2017. About 10.5 million beneficiaries are assigned to a MSSP ACO. About 378,000 physicians are participating in an ACO in 2018, significantly higher than 15,000 in 2016 due to the new reimbursement for physicians, which incentivizes participation in value based care programs.

## Net impact for the entire industry

We believe that the true benefit of Reform for hospitals is that it will lower bad debt volatility and create a more stable volume pattern, which in turn could lead to improved perception and a higher multiple for the group. The coverage of the uninsured was a positive to earnings in 2014-2015, but this positive will be eroded slowly by the rate cuts to fund Reform, resulting in a modest change in the long-term earnings power of the group (on higher cash collections and volumes). Below we provide an analysis of the hospital industry benefits and cuts under the Reform.

### Benefits from expansion of coverage=\$124bn over 10 years

In this analysis, we use the 2013 data provided by the AHA regarding the cost of treating the uninsured (actual cost of labor, drugs, devices, etc. not gross charges). AHA reported that the uncompensated costs were \$42.8 billion in 2014, but this would reflect the benefits of the Reform. As such we used 2013 as a starting point and assumed the uncompensated care would increase 5% per year without the Reform. We assume different payer rates to reflect that Medicaid rates cover about 80% of costs; exchanges cover 120% of costs, and employer, non-group insurance cover 125% of costs.

The coverage expansion did not start until January 1, 2014 when the Medicaid expansion began and the exchange insurance took effect (enrollment started October 1, 2013). It is also important to remember that the coverage of the currently uninsured will be spread out over several years, and even in 2019, there still will be an estimated 30 million of uninsured.

Based on the May 2019 CBO Report on Health Insurance Coverage, we estimate that increasing the percent of insured from the 80% in 2013 to an estimated 89% in 2019, would result in about \$124 billion reduction in uncompensated care costs over 10 years for the industry.

**Table 116: Reduction in uncompensated care costs from Health Care Reform**

Year	Uncompensated care cost (\$bn)	% Uninsured Covered	Uncompensated care benefit (\$bn)
2010A	(\$39)	0%	\$0
2011A	(\$41)	4%	\$2
2012A	(\$46)	2%	\$1
2013A	(\$46)	4%	\$2
2014E	(\$49)	24%	\$11
2015E	(\$51)	28%	\$13
2016E	(\$54)	45%	\$23
2017E	(\$56)	46%	\$25
2018E	(\$59)	42%	\$24
2019E	(\$62)	40%	\$23
Cumulative 2010-2019E	(\$504)		\$124

Source: AHA, CBO, BofA Merrill Lynch Global Research

### Medicare rate cuts to fund Reform

In order to fund the expansion, hospitals will see rate cuts in several forms: 1) productivity adjustment to market basket updates, 2) additional market basket cuts, 3) reduction in disproportionate share hospital (DSH) payments, 4) Medicare payment reductions for certain hospital readmissions, and 5) cuts for hospital acquired infections. The Reform Bill outlined a total of \$80 billion of cuts to the hospital industry.

### Market basket update reductions

Each year, rates are updated for inflation, but providers continually work to improve their efficiency. For years, MedPAC has proposed reducing the inflationary update for providers to reflect this improvement in productivity, and the Reform bill would cut rate increases by the expected productivity gains starting in 2012. At the time the Reform

bill was signed, MedPAC estimated that the 10-year average productivity factor is 1.3%. The actual productivity adjustments since implementation has been below that since the bill passed and was 0.7% in FY2013, 0.5% in FY2014, 0.5% in FY2015, 0.5% in FY2016, 0.3% in FY17 and 0.6% in FY18, and 0.8% in FY19 (-0.5% proposed for FY20).

Under Reform, inpatient Medicare rates for hospitals were cut by 25bp in FY2010 (effective 4/1/2010) and 2011 (effective 10/1/2010). Starting in FY2012, a productivity adjustment was introduced, ranging from 30bps cut in FY to 100bps cut in FY12. The estimated cuts for future years are detailed in the table below. On top of the productivity cut, there is an additional cut to hospitals of 10 basis points cut in 2012 and 2013, a 30 basis points cut in 2014, a 20 basis points cut in 2015 and 2016, and a 75 basis points cut in 2017-2019. Of note, FY20 rate update no longer includes the additional rate cut.

**Table 117: Hospitals' Medicare Market Basket Update Reductions - Inpatient**

	Productivity adj.	Add'l cut	Total cut
FY 2010 effective 4/1/10		0.25%	0.25%
FY 2011 effective 10/1/10		0.25%	0.25%
FY 2012 effective 10/1/11	1.00%	0.10%	1.10%
FY 2013 effective 10/1/12	0.70%	0.10%	0.80%
FY 2014 effective 10/1/13	0.50%	0.30%	0.80%
FY 2015 effective 10/1/14	0.50%	0.20%	0.70%
FY 2016 effective 10/1/15	0.50%	0.20%	0.70%
FY 2017 effective 10/1/16	0.30%	0.75%	1.05%
FY 2018 effective 10/1/17	0.60%	0.75%	1.35%
FY 2019 effective 10/1/18	0.80%	0.75%	1.55%

Source: CMS

In addition, outpatient rates are reduced as well. Outpatient hospital rates are updated on a calendar year basis. Medicare rates for outpatient hospital services were cut by 25 basis points in 2010 (effective 1/1/2010 although CMS delayed it until 4/1/10) and 2011 (effective 1/1/2011) and then will be reduced by the full productivity adjustment every year starting in 2012. On top of the productivity cut, there is an additional cut to hospitals of 10 basis points cut in 2012 and 2013, a 30 basis points cut in 2014, a 20 basis points cut in 2015 and 2016, and a 75 basis points cut in 2017-2019. Similar to the inpatient rule, the productivity adjustment for outpatient hospitals has been 1% or less since implementation.

**Table 118: Hospitals Medicare Market Basket Update Reductions under Reform-Outpatient**

	Productivity adj.	Add'l cut	Total cut
2010 effective 4/1/10		0.25%	0.25%
2011 effective 1/1/11		0.25%	0.25%
2012 effective 1/1/12	1.00%	0.10%	1.10%
2013 effective 1/1/13	0.70%	0.10%	0.80%
2014 effective 1/1/14	0.50%	0.30%	0.80%
2015 effective 1/1/15	0.50%	0.20%	0.70%
2016 effective 1/1/16	0.50%	0.20%	0.70%
2017 effective 1/1/17	0.30%	0.75%	1.05%
2018 effective 1/1/18	0.60%	0.75%	1.35%
2019 effective 1/1/19	0.60%	0.75%	1.35%

Source: CMS

We note that rate cuts (i.e. less than inflationary increases) started to be implemented before 2014 and the rollout of health care coverage, creating an up-front drag on earnings. The cuts are estimated to provide \$80 billion of savings to the budget.

### Disproportionate Share Payments (DSH)

DSH payments are extra payments to hospitals that treat a disproportionately high number of low income and uninsured. The thought process is that uncompensated care for these providers would be higher than average and since they act as a safety net for care, they need extra payments to subsidize these losses. However, as the uninsured

gain coverage these hospitals no longer need such large subsidies. Most hospital companies get between 2-4% of their revenue from DSH payments.

The Reform bill calls for reducing Medicare and Medicaid DSH payments, which would ultimately result in \$36 billion of savings to the federal government from 2010 to 2019 as per the original score of the bill by the CBO in March 2010.

The provision in the Reform bill called for the following reductions in the aggregate Medicaid DSH: \$0.5 billion in 2014, \$0.6 billion in 2015, \$0.6 billion in 2016, \$1.8 billion in 2017, \$5 billion in 2018, \$5.6 billion in 2019, and \$4 billion in 2020. Congress has delayed Medicaid DSH payment cuts until 2020.

Using the actual Medicare DSH changes in FY14-FY19, and assuming Medicare DSH pool stays roughly unchanged, we estimate the net Medicare DSH cuts of \$11 billion during the 2010-2019 period. Of note, there are no Medicaid DSH cuts during this period as they were delayed to 2020.

**Table 119: Changes in DSH payments (\$B)**

Year	Medicare DSH Baseline	Estimated Cut each year	% Reduction	Medicaid DSH Baseline	Estimated Cut	% Reduction
2010	\$10.5			\$9.4		
2011	\$11.2			\$9.5		
2012	\$11.7			\$9.6		
2013	\$12.1			\$9.8		
2014	\$12.6	\$0.5	4.3%	\$9.9	\$0.0	0.0%
2015	\$13.4	\$1.8	13.3%	\$10.1	\$0.0	0.0%
2016	\$13.4	\$3.0	22.4%	\$10.3	\$0.0	0.0%
2017	\$14.2	\$3.2	22.5%	\$10.5	\$0.0	0.0%
2018	\$15.8	\$2.1	13.4%	\$10.7	\$0.0	0.0%
2019	\$16.3	\$0.4	2.5%	\$11.0	\$0.0	0.0%
<b>2010-2019</b>					<b>\$0.0</b>	

Source: HHS, CBO, BofA Merrill Lynch Global Research estimates.

#### Background on Disproportionate Share Payments (DSH)

The Reform bill calls for reducing Medicare and Medicaid DSH payments, and according to the original score of the bill, it would ultimately result in \$36 billion of savings to the federal government. However, we note these cuts would likely be accompanied by a cut to the state portion of Medicaid DSH payments (states also make DSH payments to compensate providers for the cost of treating low income and uninsured). We estimate the cut to Medicare DSH payments in 2010-2019 would be \$11 billion.

In the context of Medicare spending on hospitals, the \$36 billion cut would be equivalent to about a 2.5% cut to overall Medicare spending, so it would be quite manageable for the group during a period of coverage expansion. As noted above, some of the cuts have been delayed, so the actual cut to hospitals has been less than the original CBO score. The \$11m Medicare DSH cuts represent less than 1% of the hospital spending.

However, in addition to the cut, the ACA made a significant change to how DSH payments are allocated, which could have modestly negative implications for the publicly traded companies. These changes are summarized below. We will explain the assumptions needed to estimate DSH payments to hospitals in 2020.

DSH payments are based on a complex formula that factors in the hospital's geographic designation, the number of beds, and the hospital's disproportionate patient percentage (DPP). A hospital's DPP is the sum of two fractions: the "Medicare fraction" and the "Medicaid fraction." To determine the Medicare fraction, divide the number of inpatient days treating patients who were entitled to both Medicare Part A and Supplemental Security Income benefits (ie, low income Medicare patients) by the total number of

Medicare patient days. To determine the Medicaid fraction, divide the hospital's number of inpatient days treating Medicaid patients who were not also entitled to Medicare Part A, by the hospital's total number of inpatient days.

As part of Reform, the DSH payments are cut into two pools: 25% remain in the base DSH program and is distributed in the same manner as they were previously. The remaining 75% is placed in what is called an uncompensated care pool, to be allocated between uncompensated care payments to hospitals and savings for the Medicare trust fund based on the decline in the number of uninsured.

The formula for the percentage reduction is: change in uninsured +0.2%. In FY19, DSH payments were reduced by 67.51% as it estimated a 67.71% reduction in uninsured minus 0.2% as per the ACA bill. In the FY20 reg, CMS proposed to reduce the payments by 67.14%, in line with the estimated reduction in uninsured as there is no longer the 0.2% adjustment in FY20 and beyond.

The remaining funds in the uncompensated care pool would be distributed to hospitals based on their level of uncompensated care, expected to be defined as non-Medicare bad debts, non-reimbursed Medicare bad debt and charity care. It is this change in allocation (from percentage of days treating low income people to cost of uncompensated care) that may negatively redistribute the funds away from the publicly traded hospitals. CMS delayed using this definition for a few years but begin incorporating the new methodology for allocating money in the uncompensated care pool in 2018.

In the FY18 proposal, CMS proposed to incorporate data from its National Health Expenditure Accounts into estimate the percent change in the rate of uninsurance, which is used in calculating the total amount of uncompensated care payments available to be distributed. Also, CMS proposed to begin incorporating uncompensated care cost data from Worksheet S-10 of the Medicare cost report in the methodology for distributing these funds. This was finalized and had redistributive effects.

The change in the methodology resulted in an improvement in DSH payments after decreases in payments every year since FY14. In FY18, DSH payments actually increased 11% year over year adding 1.0% to the overall industry spending as CMS changed its methodology. For FY19, DSH payments increased another 16% which was estimated to add 1.3% to the industry spending. For FY20, CMS proposed a 3% increase.

**Table 120: Illustration of Proposed 2020 DSH Payments**

New DSH 25% of new pool 25% x \$16.857 billion \$4.214 billion	DSH/uncompensated care pool \$16.857 billion	Uncompensated care pool 75% of new pool (75% x \$16.857 billion) \$12.643 billion	Uncompensated care payments \$12.643 billion x (1-67.14% decline in uninsured) \$8.489 billion	Savings for the Medicare trust fund \$12.642 x (67.14% decline in uninsured) \$4.154 billion

**Table 120: Illustration of Proposed 2020 DSH Payments**

DSH/uncompensated care payments to hospitals	DSH/uncompensated care pool \$16.857 billion
\$12.703 billion	
<b>Net effects on hospitals</b>	
<ul style="list-style-type: none"> <li>- Starting level of DSH payments \$16.857 billion</li> <li>- -\$4.154 billion in payments due to 67.14% reduction in uninsured</li> <li>- Projected \$12.703 billion in DSH/uncompensated care payments to hospitals</li> <li>- If the rate of uninsurance declines further, payments will decline further</li> </ul>	

CMS, BofA Merrill Lynch Global Research

Below we show the CMS estimated cut to DSH payments and the impact to total hospital spending since FY14.

**Table 121: Hospital Medicare DSH payments – a net 4% reduction in FY14-FY20**

	Change to DSH payments	% of total hospital industry spending
FY14	-6.0%	0.0%
FY15	-15.0%	-1.1%
FY16	-11.2%	-1.0%
FY17	-1.9%	-0.1%
FY18	11.0%	1.0%
FY19	16.0%	1.3%
FY20 Proposed	3.0%	0.2%
<b>total DSH payment change FY14-20</b>	<b>-4.1%</b>	<b>0.3%</b>

Source: CMS

#### FY20 DSH payments proposed to increase 3%

According to the FY20 proposal, DSH payments would increase 3%, worse than the double digit increases in FY18 and FY19 but still a solid increase. The increase combined with other changes would add +0.2% to the industry payments.

CMS posts a file which allows us to do a bottoms up, hospital by hospital analysis for each publicly traded company to estimate how much DSH and uncompensated care payments they would receive in FY2020 compared to the amount we estimate the total company will receive in 2019. We caution that we did have to make some assumptions here and Medicare DSH and Uncompensated care have very similar formulas, but are different, which may skew the analysis somewhat.

On average, we expect that the DSH payment increase of 6% for the companies would increase EBITDA 0.2% and would actually be a small reduction to EPS. This is below the average increase of 1.2% to EBITDA in FY19, but better than the average 0.1% reduction to EBITDA in FY18.

**Table 122: Estimated FY20 Medicare DSH Proposed Rule Impact**

2019	Industry	CYH	HCA	THC	UHS	Average
% of DSH/Uncompensated pool		1.37%	6.15%	1.40%	0.70%	
New DSH	\$4,085	\$56	\$251	\$57	\$28	
Uncompensated care pool	\$8,273	\$113	\$509	\$116	\$58	
<b>Total</b>	<b>\$12,358</b>	<b>\$169</b>	<b>\$760</b>	<b>\$173</b>	<b>\$86</b>	
2020	Industry	CYH	HCA	THC	UHS	
% of DSH/Uncompensated pool		1.33%	7.10%	1.24%	0.70%	
New DSH	\$4,214	\$56	\$299	\$52	\$29	
Uncompensated care pool	\$8,489	\$113	\$603	\$106	\$59	
<b>Total</b>	<b>\$12,703</b>	<b>\$169</b>	<b>\$902</b>	<b>\$158</b>	<b>\$89</b>	
Y/Y Change	\$345	(\$1)	\$142	(\$15)	\$2	
Y/Y Change %	2.8%	-0.3%	18.7%	-8.5%	2.9%	6.3%

**Table 122: Estimated FY20 Medicare DSH Proposed Rule Impact**

2019 Proposed FY20 Change, % of 2020E	Industry	CYH	HCA	THC	UHS	Average
EBITDA		0.0%	1.4%	-0.5%	0.1%	0.2%
Proposed FY20 Change, % of 2020E EPS*		-1.4%	2.9%	-3.0%	0.2%	-0.3%
FY19 DSH changes % of 2019E EBITDA		0.0%	3.1%	-1.6%	0.8%	1.2%
FY19 DSH changes, % of 2019E EPS*		1.0%	6.8%	-23.1%	1.1%	-0.7%

\* FCF/share used for CYH

Source: CMS, BofA Merrill Lynch Global Research estimates

**Est DSH changes in FY14-FY20 represent +0.1% of EBITDA on avg**

Based on our estimates, since 2014 hospital companies saw EBITDA increase by an average 0.1% due to net DSH payment changes – cuts in most years are offset by increases in FY19 and FY20. We estimate that DSH payment changes would be a net cut for THC (-6% of EBITDA), CYH (-1.7%) and UHS (-0.7%), while HCA (3.1%) and LifePoint (5.6%) would see net increases due to meaningful increases in FY20 under the proposed reg.

**Table 123: Est DSH cuts in FY14-FY19**

	CYH	HCA	LifePoint	THC	UHS	Average
FY20	(\$1)	\$142	\$17	(\$15)	\$2	
FY19	\$0	\$279	\$28	(\$42)	\$14	
FY18	\$20	(\$20)	\$8	(\$25)	\$0	
FY17	\$9	\$4	\$7	\$1	(\$3)	
FY16	(\$33)	(\$58)	(\$8)	(\$42)	(\$12)	
FY15	(\$55)	(\$36)	(\$11)	(\$40)	(\$13)	
FY14	\$31	(\$39)	\$2	\$20	(\$2)	
total DSH cuts	(\$28)	\$272	\$42	(\$143)	(\$13)	
% of 2019E EBITDA	1.7%	3.1%	5.6%	-5.6%	-0.7%	0.1%

Source: CMS, BofA Merrill Lynch Global Research estimates

**Other Medicare reimbursement cuts**

Additional savings are expected to come from reducing payments to hospitals with high readmission rates (\$7 billion), reductions for hospitals in the top 25% of Hospital Acquired Conditions beginning in FY15 (\$1.5 billion), a moratorium on new physician owned hospitals, and a few other initiatives such as a pilot program around bundling hospital and post-acute care payments.

**Payment reductions for certain hospital readmissions**

Patient readmissions occur when patients who leave the hospital return after a few days or weeks. Although some readmissions are unavoidable, there is a widely held belief that many readmissions could be avoided by better coordinated care. As part of Health Care Reform, the administration and the Congressional committees have been advocating ways to reward quality and emphasize prevention and coordination by reducing payments to hospitals with high readmission rates.

Reform includes payment reductions beginning in FY13 for hospitals with readmissions rates above certain thresholds for certain conditions with cuts of 1% in FY13, 2% in FY14, and 3% for FY15 and beyond.

CMS estimates that 2,599 hospitals will have their base operating DRG payments reduced by their FY2020 hospital specific readmissions adjustment, representing 85% of eligible hospitals (which have 25 or more eligible discharges for at least one measure), with the penalty representing 0.7% of payments. This compares to 2,610 hospitals getting a cut in FY19.

See more details in our [Readmissions](#) Section.

## **Reductions for hospitals in the top 25% of hospital acquired conditions**

A hospital-acquired condition is an undesirable condition affecting a patient that arose during a hospital stay. The provision in Reform builds upon the Deficit Reduction Act of 2005, which required the HHS to identify conditions that:

- are high cost or high volume or both;
- result in the assignment of a case to a DRG that has a higher payment when present as a secondary diagnosis; and
- could reasonably have been prevented through the application of evidence-based guidelines.

As a reminder, starting in FY08, hospitals do not receive additional payment for cases in which one of the selected conditions was not present at admission. That is, the case is paid as though the secondary diagnosis were not present.

Reform includes a reduction of 1% in payments beginning in FY15 for the worst 25% of hospitals for hospital-acquired conditions. CBO estimates that this proposal would reduce payments by \$1.5 billion over 10 years, with the payment changes beginning in FY15.

- In the proposed FY20 reg, CMS estimates that 795 hospitals will be subject to the 1% reduction for HAC penalties in FY2020.

## **Reform cuts of 0.6% in FY19, 2.9% in FY20 as Medicaid DSH cuts return**

In total, under Reform hospital payments are expected to be reduced by 0.6% in FY19 (blended average), and by 2.9% in FY20. The starting point for rate increases is the full market basket which likely would be in the range of 3%, so net, rates could stay roughly as about 2-2.5% through this period.

In order to calculate the impact of rate cuts to hospitals, we first looked at rate cuts to Inpatient Medicare spending. We note that the Medicaid DSH cuts were further delayed to 2020, a relief for the industry. We applied the Medicare DSH cuts to the projected Medicare Inpatient Hospital spending (CBO Medicare base line as of April 2018). The total cuts under Reform are estimated to reduce Medicare inpatient hospital spending by 2.1% in FY15 declining to a 1.6% cut in FY16 and further to 1.2% in 2017. Given the increases on the Medicare DSH payments and the delay on the Medicaid DSH cuts, the cuts further decelerate in 2018 to only 0.35% and 0.25% in 2019.

**Table 124: Reform related cuts to Medicare Inpatient Hospital spending**

Productivity Adj. Add'l MB cut	Other (readmits, HAC)	Medicare DSH cut	Medicaid DSH cut	Total Reform cuts		
FY2010	0.25%			0.25%		
FY2011	0.25%			0.25%		
FY2012	1.0%	0.10%		1.10%		
FY2013	0.7%	0.10%	0.30%	1.10%		
FY2014	0.5%	0.30%	0.20%	0.4%	0.0%	1.40%
FY2015	0.5%	0.20%	0.50%	0.9%	0.0%	2.06%
FY2016	0.5%	0.20%		0.9%	0.0%	1.56%
FY2017	0.3%	0.75%		0.1%	0.0%	1.18%
FY2018	0.6%	0.75%		-1.0%	0.0%	0.35%
FY2019	0.8%	0.75%		-1.3%	0.0%	0.25%
FY2020	0.5%	0.00%		-0.2%	2.6%	2.90%

Source: CMS, BofA Merrill Lynch Global Research

As discussed above, there are rate cuts to Medicare Outpatient Hospital spending, but these only include productivity adjustment and the additional cuts.

**Table 125: Reform related cuts to Medicare Outpatient Hospital spending**

Productivity	Adj. Addt'l MB cut	Other (readmits, HAC)	Medicare DSH cut	Medicaid DSH cut	Total Reform cuts
FY2010		0.25%			0.25%
FY2011		0.25%			0.25%
FY2012	1.0%	0.10%			1.10%
FY2013	0.7%	0.10%			0.80%
FY2014	0.5%	0.30%			0.80%
FY2015	0.5%	0.20%			0.70%
FY2016	0.5%	0.20%			0.70%
FY2017	0.3%	0.75%			1.05%
FY2018	0.6%	0.75%			1.35%
FY2019	0.8%	0.75%			1.55%
FY2020	0.5%	0.0%			0.50%

Source: CMS, BofA Merrill Lynch Global Research

Finally, we arrived at blended rate cuts by weighting the cuts by the projected Medicare Inpatient Hospital and Outpatient Hospital spending. Overall, including both Medicare and Medicaid DHS cuts, the reductions under Reform decelerate from 1.75% in FY15 to 1.35% in FY16 and 1.1% in FY17, 0.6% in FY18 and 0.6% in FY19. However, if the Medicaid DHS payments are not delayed, we project that the cuts would increase in FY20 to 2.9%. Overall, if we assume that the market basket update is 3%, this implies that Medicare rates should be up during this period, although clearly below inflation.

**Table 126: Blended cuts to Hospital reimbursement under Reform**

Productivity	Adj. Addt'l MB cut	Other (readmits, HAC)	Medicare DSH cut	Medicaid DSH cut	Total Reform cuts	
FY2010		0.25%			0.25%	
FY2011		0.25%			0.25%	
FY2012	1.0%	0.10%			1.10%	
FY2013	0.7%	0.10%	0.23%		1.03%	
FY2014	0.5%	0.30%	0.15%	0.31%	0.00%	1.26%
FY2015	0.5%	0.20%	0.38%	0.66%	0.00%	1.75%
FY2016	0.5%	0.20%		0.65%	0.00%	1.35%
FY2017	0.3%	0.75%		0.09%	0.00%	1.14%
FY2018	0.6%	0.75%		-0.73%	0.00%	0.62%
FY2019	0.8%	0.75%		-0.94%	0.00%	0.61%
FY2020	0.5%	0.00%		-0.20%	2.60%	2.90%

Source: CMS, BofA Merrill Lynch Global Research

### Net financial benefit through 2019 is \$41bn

We estimate that the proposed Medicare spending cuts (productivity adjustment and other cuts) and DSH reduction would be more than offset by the benefit from the reduction of the uninsured, but the net impact would be modest. Our analysis shows that hospitals would see a net gain of about \$41 billion from Reform over the 10-year period 2010-2019. However, it is worth noting that the above average growth goes through 2017, but the chart shows that there will be below average growth after that. In 2019, hospitals' losses from rate cuts will almost offset their gains from uncompensated care benefits as rate cuts become increasingly harsh while the rate of people gaining coverage slows.

The analysis below assumes that the reduction in uninsured population causes a one for one reduction in uncompensated care. Therefore, it does not take into account the acuity dynamic that we expect to play out around Reform, where we expect that the population that gains coverage will skew toward a sicker population, resulting in a reduction in uncompensated care well above the reduction in uninsured (see below). In addition, it does not include any benefit from a potential volume increase. As a result, the benefit from Reform will likely be greater and there will likely be some sustained net

positive to earnings post 2019. However this positive would be partially offset by Medicaid DSH cuts that are scheduled to take effect in FY20.

**Table 127: Health Care Reform Impact on Hospitals – Estimated Benefits and Cuts**

Year	% uninsured covered (based on April 2018)		Market basket/Productivity adjustment cost savings		Total DSH payments reduction for hospitals	Savings from reducing readmits	Cuts to hospitals resulting from reduction of readmits	Cuts for health care acquired infections	Net effect on hospitals	
	Uncompensated care cost (\$bn)	CBO estimates)	Uncompensated care benefit							
2010A	(\$39)	0%	\$0	(\$0.4)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.4)	
2011A	(\$41)	4%	\$2	(\$0.8)	\$0.0	\$0.0	\$0.0	\$0.0	\$1.2	
2012A	(\$46)	2%	\$1	(\$2.8)	\$0.0	\$0.0	\$0.0	\$0.0	(\$1.6)	
2013A	(\$46)	4%	\$2	(\$4.2)	\$0.0	(\$0.1)	(\$0.0)	\$0.0	(\$2.2)	
2014E	(\$49)	24%	\$11	(\$5.6)	(\$0.5)	(\$0.3)	(\$0.1)	\$0.0	\$4.9	
2015E	(\$51)	28%	\$13	(\$6.9)	(\$1.8)	(\$1.1)	(\$0.4)	(\$0.3)	\$4.0	
2016E	(\$54)	45%	\$23	(\$8.2)	(\$3.0)	(\$1.3)	(\$0.5)	(\$0.3)	\$11.0	
2017E	(\$56)	46%	\$25	(\$10.3)	(\$3.2)	(\$1.3)	(\$0.5)	(\$0.3)	\$10.9	
2018E	(\$59)	42%	\$24	(\$12.9)	(\$2.1)	(\$1.4)	(\$0.5)	(\$0.3)	\$7.8	
2019E	(\$62)	40%	\$23	(\$16.1)	(\$0.4)	(\$1.5)	(\$0.5)	(\$0.3)	\$5.2	
Cumulative 2010-2019E	(\$504)			\$124	(\$68)	(\$11)	(\$7.0)	(\$2.5)	(\$1.5)	\$40.7

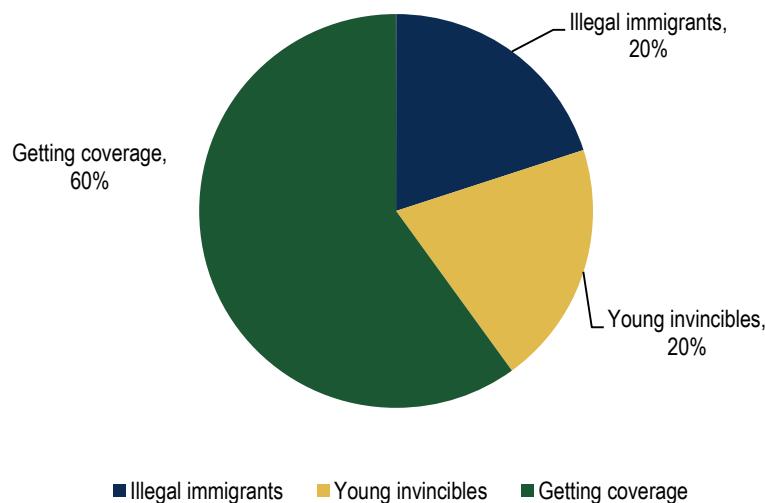
Source: CMS, BofA Merrill Lynch Global Research estimates

## Why it matters who gets coverage

In its original scoring of coverage, the CBO broke the uninsured into three main groups: 1) the 60% who will buy insurance or qualify for the Medicaid expansion, 2) 20% who are illegal immigrants and do not qualify for insurance, and 3) 20% who are the young invincibles who believe they do not need insurance and would rather roll the dice with a penalty than pay for coverage. It is important to understand this breakout when analyzing the impact of covering the uninsured. At its core, investors were excited about the impact of HC Reform for hospitals because hospitals would start to get paid for services that they are already providing, creating a revenue stream that falls straight through to the bottom line. Medicare rates will be cut, offsetting some of the benefit, but in this section, we are focusing on the benefit portion in this part of the analysis.

When we think about the benefits of the coverage expansion in terms of the three groups, however, it appears that an analysis of assuming that 60% of the uninsured will get coverage is somewhat simplistic and may actually underestimate the benefit of coverage. For example, "young invincibles" may be 20% of the uninsured, but they are certainly not 20% of the hospitals' uninsured volumes. In addition, illegal immigrants appear less likely to use the hospital system, for fear of deportation. As a result, the 60% of the uninsured who gain coverage are likely to be a larger percentage of the industry's insured volumes—potentially closer to 70-80%.

**Chart 149: CBO breakout of uninsured**



Source: CBO

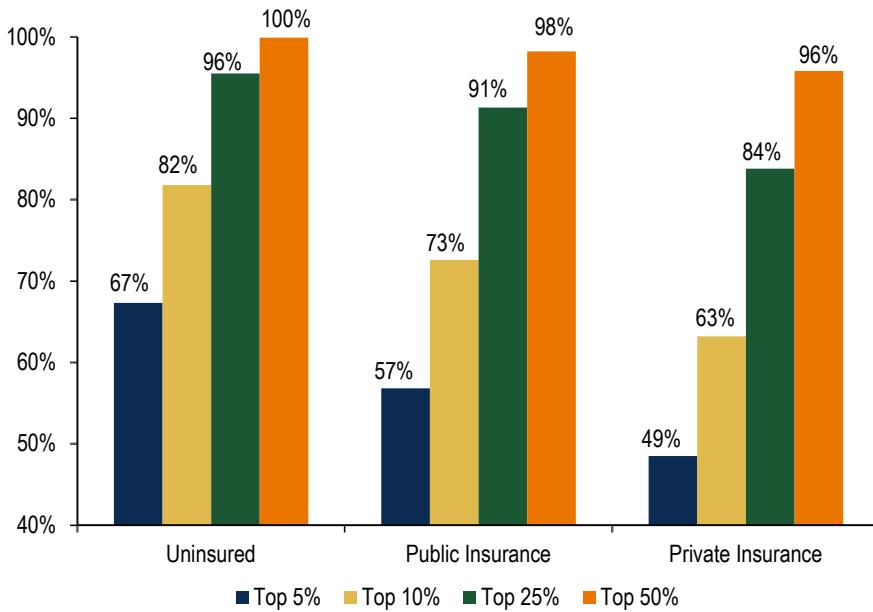
This dynamic gave us some comfort that there could be upside to the Market perception of Reform, but it also argued for some downside protection to our estimates if overall enrollment fell short of the CBO projection. Although the CBO subsequently lowered its enrollment targets after the Supreme Court ruled that mandating Medicaid expansion was unconstitutional, the implications of this theory still hold. For example, we know that about 11 million people have signed up for coverage on the exchanges, but we do not know how many were previously uninsured. If net new enrollment is only 6 million people instead of 8 million, it could be argued that the benefit from the exchanges would be cut by 25%. However, the person who decides not to buy insurance is much less likely to use the hospital system than the person who buys insurance (both because people use the system more when they have insurance and because people who expect to use the system will tend to buy insurance).

As a result, when thinking about the financial impact to hospitals from fewer insured on the exchange, not only is there more cushion since our analysis may be conservative, but those remaining who do buy insurance are likely to be the majority of the uninsured benefit to begin with. If the exchange enrolls 25% fewer members than the CBO is projecting (or if Republicans are able to repeal part of Reform), the cut to the bad debt benefit might only 10-15%. This is meaningful, but likely much less severe than what was feared.

#### **Sickest 5% of uninsured represent 67% of uninsured spending**

Some surveys indicate that health care spending among the uninsured is even more concentrated than it is among the insured. The top 10% sickest patients who have insurance represent over 60% of spending, but the top 10% uninsured represent over 80%. This gives us a high degree of comfort in our estimates, even if enrollment falls short of expectations because the top 5% of uninsured population represents two-thirds of total uninsured healthcare spend. The top quartile of the uninsured population accounts for almost all (96%) of the spend, which means the other 75% is barely using the health care system, and whether or not they buy insurance will have little impact on hospital bad debt. We note that the analysis isn't quite that simple since some people in the high cohort will get into a car accident and have a lot of expense but then no expense the next year, but the vast majority of spending is related to people with consistent, chronic health issues.

**Chart 150: Distribution of Health Care Expenditures by Insurance Coverage Status**

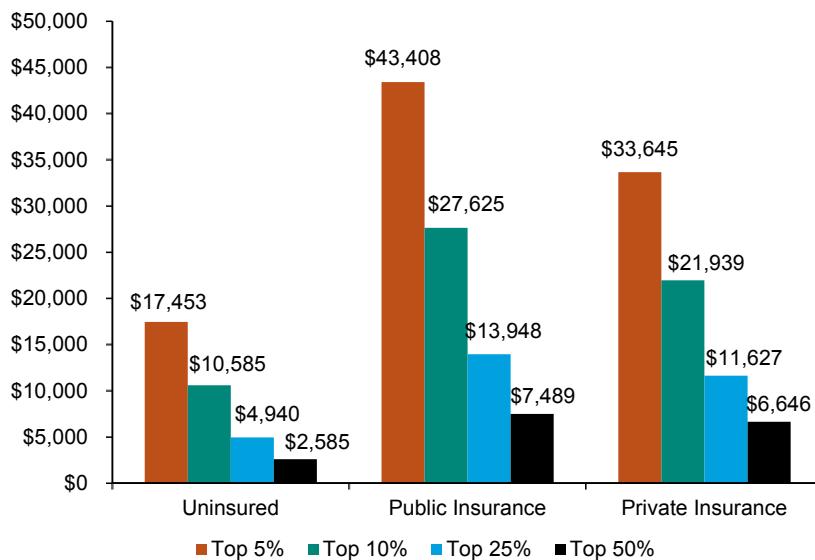


Source: Center for Financing, Access, and Cost Trends, AHRQ, Household Component of the Medical Expenditure Panel Survey, 2010

#### Uninsured also underutilize

Additionally, from a dollar perspective, the top 5% of the uninsured population spends significantly less than the top 5% with public and private insurance (only 40% of public spend and 52% of private spend). The uninsured population currently pays out of pocket and is likely to resort to medical treatment only when absolutely necessary. As the uninsured population begins to receive coverage, there are strong implications that volumes and healthcare spend will increase. The uninsured are generally charged the highest per treatment cost (since HMOs negotiate discounts and the government sets pricing), implying that utilization is even lower on a relative basis than the dollar spending would indicate.

**Chart 151: Distribution of Health Care Annual Mean Expenditures by Insurance Coverage Status**



Source: Center for Financing, Access, and Cost Trends, AHRQ, Household Component of the Medical Expenditure Panel Survey, 2010

## **Navigators/certified application counselors helped the sickest enroll**

We believe that navigators and certified application counselors provided further downside protection since hospitals can sign their uninsured patients up for Medicaid and for the exchanges as they come in for treatment. On July 12, 2013, CMS issued its final rule regarding the introduction of navigators and certified application counselors, in all states. Navigators are in-person assistants or organizations (community health centers, nonprofit agencies, etc.) that will help steer people through the unfamiliar process of enrolling on the exchanges. These counselors will be able to help educate people about the various selections on the exchanges while promoting the online marketplaces.

Hospitals are not allowed to be Navigators, but they may act as certified application counselors (who perform essentially the same role) and help patients who come through the hospital apply for health insurance on the exchange. Chronically ill patients, who represent the majority of health care spending, are likely to be in and out of the hospital multiple times a year, giving the hospital more chances to sign up the highest utilizers.

Hospitals already have the infrastructure in place to help enroll people, since they already have people at the hospital helping the uninsured sign up for Medicaid. The high concentration of spending in a small portion of the uninsured population implies there are a number of chronically ill patients who visit the hospital on a regular basis. According to HCA, half of the uninsured ER visits are repeat visits. This frequent interaction with the hospital will give it multiple chances to help the patient sign up for insurance. However, we note that in contrast with Medicaid, where hospitals can help sign people up at any time, on exchanges, hospitals can only help people buy insurance during the annual open enrollment period (unless that person qualifies for a special election period exemption).

## **Subsidy structure gives higher subsidies to sicker groups**

The subsidies to purchase insurance on the exchanges are based on a sliding scale that caps premiums as a percentage of income depending on income levels. The federal government is responsible for the amount of the premium above the income cap. The amount of the subsidy is based on the premium for the second lowest cost silver plan but can be used to purchase any plan.

Health plans cannot charge one person more than another simply because that person is sick. However, they can vary pricing by age, charging a 64 year old 3x the rate that they charge an 18-year old. Because of the subsidy, the sticker price for a 64-year old may be 3x that of an 18-year old for the second cheapest silver plan, but since the subsidy caps the cost to the consumer based upon their income, each would pay the same net cost (the government would just pay a higher subsidy for the 64-year old to get the net cost to the same rate).

This becomes an important point when the 64-year old decides to purchase a bronze, gold or platinum plan instead. Because the senior subsidy is larger than for the younger person, the senior can get a larger discount to apply to other plans. This is especially compelling for people at 200% or lower of the FPL who want to buy down to a bronze plan.

**Table 128: Exchange subsidies by wage level**

FPL Category	% of income cap
100-133%	2%
133-150%	3.4%
150-200%	4-6.3%
200-250%	6.3-8.05%
250-300%	8.05-9.5%
300-400%	9.5%

Source: ACA

Using actual 2014 exchange plan rates from Oregon, we see that to be the case. In this market, a bronze plan would be free to all enrollees at 133% FPL, since the subsidy amount to buy the second cheapest silver plan is more than the bronze premium. At 200% FPL, buying a bronze plan is nearly free at age 60 (0.2% of after-tax income) but would cost 4% of after-tax income at age 40 and 5% of after-tax income at age 21. At 300% FPL, bronze plans are cheapest at age 21 and most expensive at age 40. At 400% FPL, bronze plans remain cheapest at age 21 and are most expensive at age 60.

This is an under appreciated aspect of how the exchanges impact hospitals. Because hospitals care more about who gets coverage than how many people get coverage, anything that helps the poorest people obtain coverage, particularly the older poor who are more likely to need care, is likely to disproportionately reduce bad debt.

**Table 129: Purchasing Analysis for Portland, OR**

	Age 21	Age 40	Age 60
2nd cheapest silver plan, determines subsidy	\$173	\$221	\$469
<b>133% FPL, \$15,282</b>			
Max PMPM	\$38	\$38	\$38
Subsidy	\$135	\$183	\$431
Cost to buy least expensive bronze plan	\$0	\$0	\$0
Cost to buy second cheapest silver plan	\$38	\$38	\$38
Cost to buy least expensive gold plan	\$57	\$63	\$91
Bronze plan as % of after-tax income	0.0%	0.0%	0.0%
Silver plan as % of after-tax income	3.7%	3.7%	3.7%
Gold plan as % of after-tax income	5.6%	6.2%	8.9%
<b>200% FPL, \$22,980</b>			
Max PMPM	\$121	\$121	\$121
Subsidy	\$52	\$100	\$348
Cost to buy least expensive bronze plan	\$78	\$66	\$4
Cost to buy second cheapest silver plan	\$121	\$121	\$121
Cost to buy least expensive gold plan	\$140	\$146	\$174
Bronze plan as % of after-tax income	5.1%	4.3%	0.2%
Silver plan as % of after-tax income	8.0%	8.0%	8.0%
Gold plan as % of after-tax income	9.2%	9.6%	11.5%
<b>300% FPL, \$34,470</b>			
Max PMPM	\$273	\$273	\$273
Subsidy	\$0	\$0	\$196
Cost to buy least expensive bronze plan	\$130	\$166	\$156
Cost to buy second cheapest silver plan	\$173	\$221	\$273
Cost to buy least expensive gold plan	\$192	\$246	\$326
Bronze plan as % of after-tax income	5.8%	7.4%	7.0%
Silver plan as % of after-tax income	7.7%	9.9%	12.2%
Gold plan as % of after-tax income	8.6%	11.0%	14.6%
<b>400% FPL, \$45,960</b>			
Max PMPM	\$364	\$364	\$364
Subsidy	\$0	\$0	\$105
Cost to buy least expensive bronze plan	\$130	\$166	\$247
Cost to buy second cheapest silver plan	\$173	\$221	\$364
Cost to buy least expensive gold plan	\$192	\$246	\$417
Bronze plan as % of after-tax income	4.4%	5.6%	8.3%
Silver plan as % of after-tax income	5.8%	7.5%	12.3%
Gold plan as % of after-tax income	6.5%	8.3%	14.1%

Source: BofA Merrill Lynch Global Research

### Open enrollment

There is to be an annual open enrollment period for people to buy insurance on the exchange. For 2018 and beyond, the open enrollment period went from November 1

through December 15<sup>th</sup>, although for the first several years it was a longer duration. The purpose of an open enrollment period to avoid the moral hazard where people decide to go without insurance until a serious situation arises, and then buy insurance while in the hospital, only to drop it once they are discharged. With people precluded from buying insurance outside of this window (unless a qualified event happens such as losing employer sponsored coverage), an individual would have to pay their own health care claims through year end before being able to be covered on January 1, the following year.

This policy stops someone from buying insurance in the ambulance on the way to the hospital. Otherwise hospital workers would be able to help them sign up for exchange subsidies if they qualify. Although many incidents are episodic, many more are chronic in nature (kidney failure, cancer, etc.). When presented with the option of paying \$1,000 for insurance after the government subsidy + a \$500 deductible for the hospital stay, or remaining uninsured and being given a \$10,000 hospital bill for treatment over the next several months – most people would choose to have insurance.

### **Accounting for lower bad debt**

As noted above, coverage expansion should lead to lower bad debt, as 22 million people that were uninsured prior to Reform are expected to receive some form of health insurance. Hospitals are providers of emergency care, and under federal EMTALA laws must not turn away emergent care patients who cannot pay. As a result, they will be able to collect significantly more revenue from patients that they are already treating. In this section, we analyze how these changes will flow through the income statement.

Below we provide an analysis of the Health Care Reform impact on bad debt of a hypothetical hospital with \$1 billion of revenue before bad debt and 12% bad debt. Generally, one-third of bad debt is copays/deductibles, leaving two-thirds of bad debt expense (\$80 million) from self-pay revenue. Most companies actually collect some amount of revenue from self-pay in the range of 7-10% of revenue. If we assume that the company collects 8% of self-pay revenue, then \$80 million of bad debt from self-pay implies \$87.0 million of self-pay revenue before the provision of bad debt. If we assume that the company provides a 25% discount to the uninsured, the gross revenue to the uninsured would be \$115.9 million. Under the new payer system, we assume that rates are set at 25% of gross revenue, implying that the company will now book revenue for these patients at \$29.0 million, \$58.0 million less than it previously booked (a much lower number but at least the company will actually collect most of this amount).

We note that with the new accounting rules, these adjustments happen above the net revenue line, and the individual line items would no longer be apparent to investors.

**Table 130: Coverage expansion impact on hospital revenue**

	Amount	% of Net Revenue before bad debt
Bad Debt	\$120.0	12.0%
% related to uninsured	67%	
Revenue (Bad Debt) from Uninsured	\$80.0	8.0%
Net Revenue Actually collected	\$7.0	
<b>Total Net Revenue from Uninsured</b>	<b>\$87.0</b>	
Implied Gross Revenue (25% discount)	\$115.9	11.6%
<b>Implied Net Revenue from new payer</b>	<b>\$29.0</b>	<b>2.9%</b>
Previously booked revenue from uninsured	\$87.0	
Implied Net Revenue from new payer	\$29.0	
<b>Net impact to Net Revenue</b>	<b>(\$58.0)</b>	

Source: BofA Merrill Lynch Global Research estimates

Bad debt for these patients is also down dramatically. For the revenue from the new payer, we assume that copays and deductibles are 20% of revenue before bad debt, and that the company only collects 50% of this amount. Therefore, bad debt on the new revenue is \$2.9 million. This amount, combined with copay/deductible bad debt on the

original business of \$40 million is \$42.9 million, or \$77.1 million less than the company previously booked.

**Table 131: Impact on bad debt**

<b>Previous Total Bad Debt</b>	<b>\$120.0</b>
Previous bad debt as % of revenue	12.0%
Previous Copay/deductible Bad Debt	\$40.0
Bad Debt from New Payer	\$2.9
<b>Pro Forma Bad Debt</b>	<b>\$42.9</b>
<b>% of Pro forma Revenue</b>	<b>4.6%</b>

Source: BofA Merrill Lynch Global Research estimates

As a result of all of these changes, revenue declines by \$58.0 million to reflect the new rates compared to the (inflated) rates that the company booked on the uninsured.

Meanwhile, bad debt drops by \$77.1 million, resulting in bad debt ratio declining to 4.6% of revenue before bad debt from the initial 12.0%. In our example, net revenue after bad debt increases 1.25% as a result of Health Care Reform, as the bad debt decline more than offsets the decline in revenue before bad debt.

**Table 132: Pro Forma Bad Debt**

	<b>Previous</b>	<b>Pro Forma</b>	<b>Change</b>
Revenue	\$1,000.0	\$942.0	-5.8%
Bad Debt	\$120.0	\$42.9	-64.3%
Bad debt as % of revenue	12.0%	4.6%	
Net Revenue (revenue after bad debt)	\$888.0	\$899.1	1.3%

Source: BofA Merrill Lynch Global Research estimates

In addition to lowering bad debt expense, reducing the number of uninsured would also reduce charity care. In this analysis, we take the same hospital in the above example and assume that charity care is 3% of revenue before bad debt, or \$30 million. We assume that the new payer will pay 25% of gross revenue, and given that companies do not book any revenue for charity care patients, providing insurance to these patients results in an increase of revenue of \$7.5 million.

**Table 133: Charity care**

	<b>Amount</b>
Charity Care	\$30.0
Expected Discount Under new Payer	75%
<b>Revenue from Previous Charity Care</b>	<b>\$7.5</b>
Current Net Revenue from Charity Care	\$0.0
<b>Incremental Net Revenue</b>	<b>\$7.5</b>

Source: BofA Merrill Lynch Global Research estimates

We assume that copays and deductibles represent 20% of the new revenue and that the company collects 50% of this amount, implying that bad debt will increase by \$0.8 million.

**Table 134: Pro Forma Bad Debt-Charity Care Impact**

<b>Previous Bad Debt from Charity Care</b>	<b>\$0.0</b>
Bad Debt from New Payer	\$0.8
<b>Pro Forma Bad Debt</b>	<b>\$120.8</b>
<b>% of Pro forma Revenue</b>	<b>12.0%</b>

Source: BofA Merrill Lynch Global Research estimates

Now, if we combine the impact of the changes to both bad debt and charity care, we can see that revenue declines 5.0% and bad debt declines 63.6% resulting in bad debt ratio declining to 4.6% of revenue before bad debt from the initial 12.0%. In addition, net revenue (revenue after bad debt) increases 2.9%. With the new accounting treatment for bad debt in 2018, investors would only see the 2.9% increase in revenue.

**Table 135: Combined Impact**

	<b>Previous</b>	<b>Pro Forma</b>	<b>Change</b>
Revenue	\$1,000.0	\$949.5	-5.0%
<u>Bad Debt</u>	\$120.0	\$43.6	-63.6%
Bad debt as % of revenue	12.0%	4.6%	
Net revenue (revenue after bad debt)	\$888.0	\$905.9	2.9%

Source: BofA Merrill Lynch Global Research estimates

We note that this analysis assumes the entire uninsured population gets coverage. In reality, Health Care Reform is expected to provide coverage to 22 million people that were uninsured prior to Reform, implying that even after reform is implemented, about 10% of the population will not have health insurance (generally either illegal immigrants or young, healthy people who choose to remain uninsured).

There were about 54 million uninsured in 2013, and after Reform, approximately 35 million people would still be without insurance in 2029, implying that companies will continue to book about two-thirds of their 2013 bad debt expense from the uninsured. Although the benefit to hospitals would still be meaningful, we note that adjusting for the estimated uninsured population post Reform, yields a much lower estimated benefit. Bad debt declines to 8.8% of revenue before bad debt, or 320 basis points from the initial 12.0%.

**Table 136: Pro forma bad debt impact reflecting coverage post-reform**

<b>Previous Total Bad Debt</b>	<b>\$120.0</b>
Previous bad debt as % of revenue	12.0%
50% of previous bad debt	\$40.0
Previous Copay/deductible Bad Debt	\$40.0
Bad Debt from New Payer	\$1.4
<b>Pro Forma Bad Debt</b>	<b>\$81.4</b>
<b>% of Pro forma Revenue</b>	<b>8.8%</b>

Source: BofA Merrill Lynch Global Research estimates

If we layer in the impact on charity care, we arrive at essentially the same result – bad debt would decline to 9.4% from the initial 12.0%. At the same time, net revenue after bad debt increases 1.0% driven by the bad debt decline.

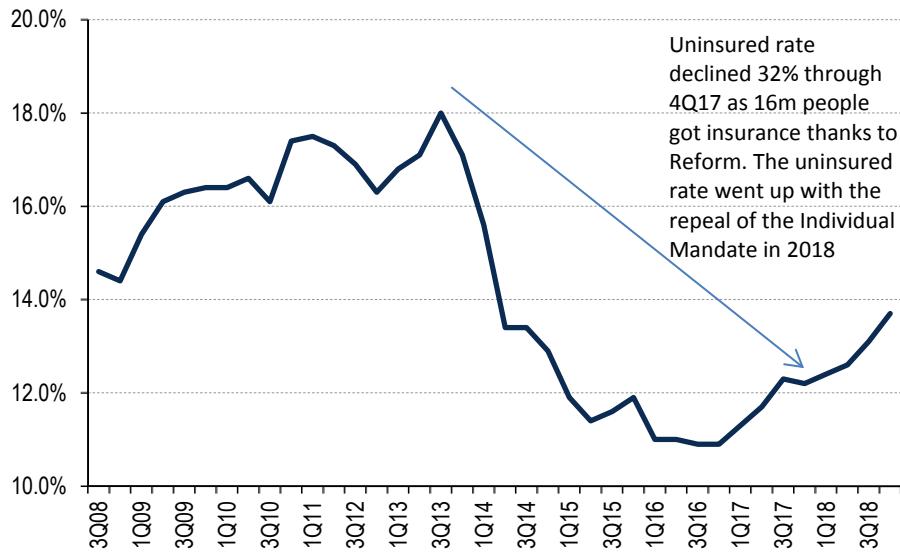
**Table 137: Combined impact reflecting coverage post Reform**

	<b>Previous</b>	<b>Pro Forma</b>	<b>Change</b>
Revenue	\$1,000.0	\$927.5	-7.2%
<u>Bad Debt</u>	\$120.0	\$81.4	-32.1%
Bad debt as % of revenue before bad debt	12.0%	8.8%	
Net revenue (revenue after bad debt)	\$888.0	\$889.2	1.0%

Source: BofA Merrill Lynch Global Research estimates

We note that this is largely how coverage played out. According to the Gallop-Healthways poll, the uninsured rate dropped from 18% in 3Q13 to 10.9% in 4Q16, which is a dramatic improvement but still leaves a large number of uninsured. In 2017, the percentage of uninsured increased slightly to 12.2% in 4Q17. This trend continued into 2018 with the latest read indicating almost the uninsured rate at almost 14%, up 310bps from the trough of 10.9%, but still below the peak.

**Chart 152: Uninsured rate, 2008-4Q18**



Source: Gallup, BofA Merrill Lynch Global Research

Meanwhile, if we look at average hospital bad debt, bad debt dropped from 14.2% in 2013 (before Reform) to 10.4% on average in 2016, ticking up to 11.0% in 2017. We note that with the accounting change, starting in 2018 only THC provides bad debt metric (now called implicit price concessions).

**Table 138: Bad debt as % of Revenues 2013-2017**

	2013	2014	2015	2016	2017
CYH	13.8%	13.6%	13.1%	13.3%	13.3%
HCA	10.1%	7.9%	9.0%	7.3%	8.5%
LifePoint	16.8%	15.4%	13.3%	12.5%	12.4%
THC Acute	8.1%	7.9%	7.6%	8.1%	8.6%
UHS Acute	22.1%	12.6%	12.0%	10.9%	12.1%
<b>Average</b>	<b>14.2%</b>	<b>11.5%</b>	<b>11.0%</b>	<b>10.4%</b>	<b>11.0%</b>

Source: Company filings

#### Net revenue increase, not bad debt decrease the focus

It is somewhat misleading to focus on the reduction in bad debt when judging the benefit of HC Reform. As noted above, bad debt and charity care are both based on list price and grossly overstate the amount of revenue a hospital would expect to collect from a customer with insurance. Instead of focusing on the 320 basis point reduction in bad debt, it makes more sense to focus on the 1% increase in net revenue (which falls through to the bottom line and boosts margins), when analyzing the impact of HC Reform. Below we show the average hospital EBITDA margin from 2013 through 2017. Margins improved in 2014-2015 from the 2013 level, but declined in 2016 and 2017.

**Table 139: Hospital companies EBITDA margin 2013-2018**

	2013	2014	2015	2016	2017	2018
CYH	13.1%	14.7%	14.5%	12.1%	10.7%	11.6%
HCA	17.5%	19.3%	19.9%	19.8%	18.9%	19.2%
LifePoint	14.7%	14.1%	13.5%	11.7%	11.7%	
THC Acute	11.1%	10.5%	9.7%	9.1%	9.5%	9.2%
UHS Acute	16.1%	17.6%	17.1%	16.2%	17.0%	17.2%
<b>Average</b>	<b>14.5%</b>	<b>15.3%</b>	<b>14.9%</b>	<b>13.8%</b>	<b>13.5%</b>	<b>14.3%</b>

Source: Company filings

## Coverage added 2%+ to volumes over time

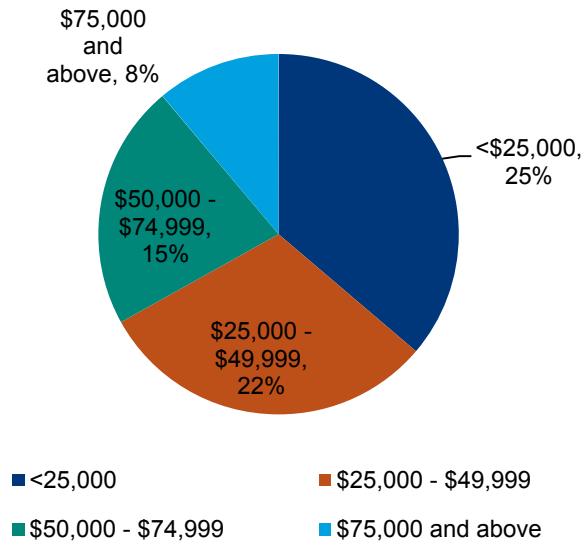
In addition to a decrease in uncompensated care, Health Care Reform resulted in an increase in hospital volumes. Although the administration hoped that expanding insurance coverage can lead to a healthier population and lower utilization over the long term, there was clearly at least a short-term pick-up in health care utilization, which we saw in 2014 and into 2015.

It is our view that no health care facility sector should see volume growth above or below population growth + demographics over the long term, and growth rates should revert to the mean. Hospital volumes have been under pressure for the past few decades as more volumes shift from the inpatient to the outpatient setting, but even within that dynamic, volumes had been unusually weak for the five years heading into Reform. The most common explanation is that the economy has weighed down volumes as people delay care that they cannot afford. To the extent that coverage expands, this implies that 22 million people, who may have been restricting their utilization of the health care system due to an inability to pay, will start to use the system again. If these newly insured patients increased use by 7%, it would add 1% to overall hospital admissions.

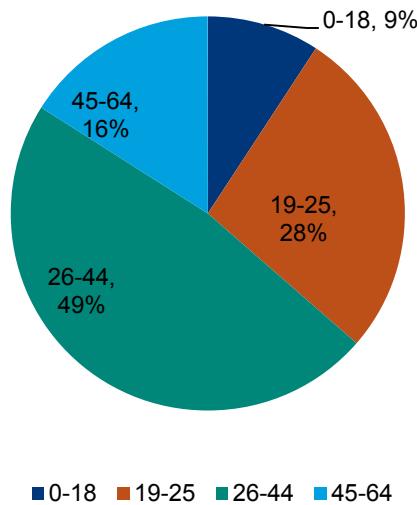
Although a 7% increase in hospital utilization sounds somewhat high, we note that there is a well-documented increase in utilization once people get insurance. Perhaps the best data point is Medicaid HMO new enrollment. These companies often experience a higher Medical Loss Ratio for the first 3-6 months on new members because the uninsured previously underused the health care system, and once insured can access care. Costs for new enrollees are 8-20% higher (these members are typically uninsured previously). Although a good portion of this higher expense is in the form of prescriptions being filled and doctor visits, some portion of the increase relates to hospitals.

The uninsured made up about 18% of the population in 2013 but only 6-7% of total hospital admissions. This makes sense given that the uninsured are predominantly made up of two groups: low income people who want to avoid any additional expenses, and, young, healthy people who do not use as much health care. Estimating the impact on hospital volumes from covering the uninsured through Health Care Reform is complicated for a number of reasons. It is estimated that even under Reform there will still be about 10% of the population uninsured because Reform will not cover illegal immigrants. At least some of the newly insured low income people will still have an undetermined amount of out-of-pocket expense (co-pays and deductibles) to get hospital care, deterring them from seeking care. And, given that about 50% of the uninsured are under 30 years old (a demographic that uses less health care than the rest of the population), it is difficult to argue that simply getting coverage would cause young, healthy people to start visiting the hospital.

**Chart 153: Family Income Characteristics of the Uninsured, 2011**



**Chart 154: Age Characteristics of the Uninsured, 2011**



Source: US Census Bureau

Source: US Census Bureau

Accordingly, we must make a number of assumptions to estimate the impact of covering the uninsured on hospital volumes. If we assume that all of the 18% uninsured get coverage and use a similar level of health care as other people, then we would expect hospital volumes to increase by about 11% (the difference between the 18% of the population that is uninsured and the 6-7% of hospital admissions that the uninsured comprise). Given that the most recent CBO projections show that only half of the uninsured would get coverage, hospital volumes would only increase about 5%.

Of course, this analysis excludes the fact that at least some of the newly insured low income people will still have some out-of-pocket expense (co-pays and deductibles) to get hospital care, deterring the underinsured from seeking care. An underinsured person is a person that has health insurance, but whose medical bills represent 10% of family income (or 5% of family income for low income families). As might be expected, underinsured patients have a significantly harder time paying their medical bills than fully insured patients do.

According to a 2019 study from the Commonwealth Fund Biennial Health Insurance Survey, 24% of the underinsured in 2018 had a medical problem but did not visit a doctor (an improvement from 31% in 2012). We note that this rate is lower than the 49% of the uninsured who delayed care, implying that utilization will rise when coverage expands. However, it is higher than the 11% of insured (not underinsured) population who delayed care due to cost issues, implying that utilization would not increase back to "normal utilization" for the newly under insured. In general, we would view anyone who gets Medicaid expansion to be fully insured (even though they are poor, there are minimal copays) while anyone who gets coverage through the exchanges is more likely to be underinsured.

**Table 140: Insured and uninsured Usage, 2018**

	All adults	Insured all year			
		Insured, not underinsured	Underinsured	Insured now, had a coverage gap	Uninsured now
All adults, millions	194	107	44	19	24
<b>Access problems: went without care because of costs in the past year</b>					
Did not fill prescription	19%	11%	25%	35%	32%
Skipped test, treatment, or follow-up care	19%	10%	23%	34%	36%

**Table 140: Insured and uninsured Usage, 2018**

		Insured all year			
Had a medical problem but did not visit doctor	21%	11%	24%	35%	49%
Did not get needed specialist care	14%	7%	17%	27%	29%
<i>At least one of four access problems because of cost</i>	35%	23%	41%	56%	59%
Delayed or did not get dental care	33%	23%	41%	49%	56%
<b>Preventive care</b>					
Regular source of care	89%	93%	94%	84%	68%
Blood pressure checked in past 2 years	91%	94%	94%	89%	72%
Dental exam in past year	60%	67%	67%	40%	32%
Received mammogram in past 2 years (females age 40+)	65%	71%	71%	48%	32%
Received Pap test in past 3 years (females age 21-64)	70%	73%	70%	72%	53%
Received colon cancer screening in past 5 years (age 50+)	58%	63%	60%	38%	35%
Cholesterol check in past 5 years	72%	79%	76%	63%	44%
Seasonal flu shot in past 12 months	42%	48%	44%	30%	20%
<b>Access problems for people with health conditions</b>					
Skipped doses or not filled a prescription because of the cost of the medicines	19%	10%	23%	NA	45%
<b>Medical bill problems</b>					
Had problems paying medical bills	24%	13%	30%	47%	40%
Contracted by collection agency for bills	15%	9%	19%	29%	26%
Changed way of life to pay medical bills	13%	6%	19%	26%	22%
Any bill problem	29%	18%	38%	52%	47%

Source: Commonwealth Fund Biennial Health Insurance Surveys, 2018

If we assume that the one-third of the uninsured with income over \$44,100 is wealthy enough to afford health care coverage, but choose not to because they are healthy, that would imply that their utilization would not change once they have insurance. This means that the 5.1% increase in utilization estimated above would only be 3.4%.

Then, the remaining two-thirds have income below \$44,100 (200% of the federal poverty level), implying that they will go from being uninsured to underinsured through Health Care Reform. If we assume that their utilization does not return to the average utilization, but rather halfway, then that would reduce the 3.4% estimated increase in utilization by half, or 1.7%.

**Table 141: Steps to Estimate Hospital Volume Increase from Covering the Uninsured**

Increase in volume	Calculation Rationale
A 11%	18% - 7% Difference between % uninsured and admission composition
B 5.1%	A - (A*54%) 54% of uninsured will not get coverage (as per CBO score)
C 3.4%	B - (B*(1/3)) 1/3 of the uninsured can afford coverage, probably healthy
D 1.7%	C - (C*(1/2)) Remainder is underinsured and increase utilization to half of average level

Source: BofA Merrill Lynch Global Research

This analysis, assumes that the people who get coverage through the expansion of the Medicaid program act in a way that is similar to the underinsured. This likely is not technically correct, since the copays and deductibles would be low for this population, and they might use the system the way an “average patient” does. However, Medicaid Managed Care would likely cover the majority of this population, and has had success managing access/utilization of the system, somewhat counteracting this effect. In addition, hospitals do not make much money on Medicaid volumes, so if volumes exceed our estimates on better Medicaid utilization, then the EPS upside would be limited.

### Pent up demand likely aided volumes initially

However, we also note there was likely some amount of pent up demand from the newly insured. Medicaid Managed care companies often talk about higher than average costs for the first nine months of a person who is newly enrolled in the Medicaid program. A portion of this cost is due to the fact that when the person is uninsured, they pull back on utilization, creating pent up demand for services. Once they regain coverage, they catch up on the delayed health care, creating a short term bolus in utilization, before utilization returns to a steady state level.

The analysis above was trying to determine what the amount of sustained volume increase would be from having new coverage but this is likely to be augmented by the dynamic of pent up demand, particularly in 2014 and 2015. We believe that pent up demand was likely at its height in 2014, as the expansion of coverage was well telegraphed and people likely delayed getting service until they were able to get coverage (likely contributing to the 2013 weak volume backdrop). Exactly determining pent up demand is difficult, but we estimate that it could have added 1% to volumes in 2014 and could add something less than but still be meaningful in 2015 (we estimate 50 basis points). Given our view that as Reform goes on, the newly insured will increasingly be a healthier population (why would a sick person wait until Year 3 to buy coverage?), the one-time lift from pent up demand is likely to be smaller in 2016+.

#### **A 1.60% increase in volumes in 2014 when including pent up demand**

The above analysis is based on the assumption that the coverage expansion happens all at once. Meanwhile, the expansion is spread out over multiple years and started in 2014 when about 9 million of people got coverage (Gallup estimates 8m and Urban Institute estimates 10m). This implies that about 36% of the estimated 25 million reduction in uninsured over time occurred in 2014. Following the same steps we discussed above we arrive at an estimated increase of about 60bps in volumes for hospitals in 2014.

We estimate the impact of pent up demand was about 1% in 2014, implying the total impact to volumes of 1.6% for hospitals.

**Table 142: Steps to Estimate Hospital Volume Increase from Covering the Uninsured in 2014**

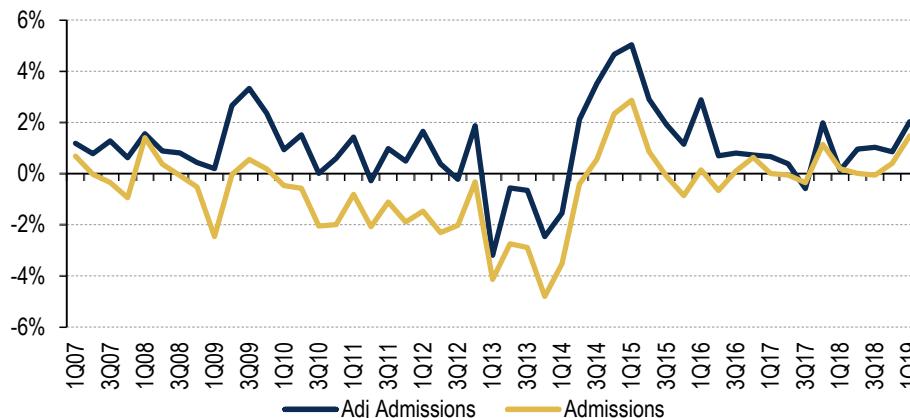
Increase in volume	Calculation	Rationale
A 11%	18% - 7%	Difference between % uninsured and admission composition
B 5.1%	A - (A*54%)	54% of uninsured will not get coverage (as per CBO score)
C 3.4%	B - (B*(1/3))	1/3 of the uninsured can afford coverage, probably healthy
D 1.7%	C - (C*(1/2))	Remainder is underinsured and increase utilization to half of average level
E 0.61%	D - (D*36%)	About 36% of uninsured got covered in 2014
F 1.61%	E + 100bps	Impact of pent up demand

Source: BofA Merrill Lynch Global Research

#### **Hospital volumes were clearly aided by Reform in 2014**

Hospital volumes rebounded sharply in 2014 after several years of declining utilization with 2013 being the worst year for the industry. Of note, same store adjusted admissions increased 4.7% on average in 4Q14, the second best print in our dataset (the following quarter – 1Q15 would end up topping it at +5.0%). Companies attributed the strong volumes partially to Reform and partially to improving economy and company initiatives. Note that volumes were still somewhat weak in Q1 as both exchange coverage and Medicaid coverage was rolling out, but accelerated as the year went on, coverage ramped and people became familiar with their benefits. With volumes returning to the 1% average in 2017/18 that it has operated at for the 10 years prior to Reform (despite a strong economy in 2017/18), the actual boost to volumes could have been closer to 3-4% from Reform.

**Chart 155: Same Store Hospital Volumes**



Source: BofA Merrill Lynch Global Research.

Specifically, THC attributed about 30% of the +4.5% adjusted admission growth in 4Q14 to Reform (40% of +4.9% growth in 3Q14, 33% of +4% in 2Q14 attributed to Reform). The other 70% is believed to be driven by an improving economy and strategic initiatives.

HCA said that it believes about two-thirds of adjusted EBITDA growth in Q3 was due to the improving core business, and one-third due to Reform benefits. We estimate that exchanges added 2.6% to HCA commercial admissions, driving the +3.8% commercial adm growth (which accelerated nicely from +1.6% in Q2). Managed care and exchange deliveries continued to improve, +9.1% vs +7.3% in Q2 and +4% in Q1, an indication that the improving economy is helping volumes. Also, outpatient surgeries turned positive after two quarters of declines. HCA also saw benefits from adding service lines and investing in capex.

Also, CYH said that volume improvement was driven by Reform and the company's initiatives to drive volumes including activities around orthopedics and physician recruiting which have helped surgical volumes. In addition, employment in their markets has improved, driving increases in commercial business.

Surprisingly, LPNT tied most of its volume growth back to specific investments and initiatives at the company level and believes it has not seen a meaningful benefit to volumes from either HC Reform or the improving economy.

If we overall assume that core adjusted admissions should grow 1%, then we would estimate that the entire volume outperformance vs this target was due to Reform. We note that the explanation from management teams that company initiatives drove growth is somewhat unsatisfying, since companies try to drive growth every year and we view that as part of the 1% baseline. In our view, if there was another contributing factor to volume growth, it was more likely the improving economy.

Supporting our view that HC Reform was the biggest driver to volume growth, we have seen volume growth return to approximately 1% over the past couple of years, during a strong economy.

#### **2015 benefit to volumes was estimated to be at least 0.7%**

Based on the Gallup uninsured data as of 4Q15, about 10.4 million of people got coverage in 2014-2015 implying about 2 million newly insured in 2015. Urban Institute estimated 14.3 million people got insurance between September 2013 and September 2015, implying about 4.5 million incremental coverage in 2015. This implies that about 3.3 million or 14% of the estimated 24 million reductions in uninsured over time

occurred in 2015. Following the same steps we discussed above we arrive at an estimated increase of about 20bps in volumes for hospitals in 2015.

As discussed above, we believe there is some pent up demand as previously uninsured get coverage, which we estimate added about 50bps in 2015. Given the initial problems with enrollment during the 2013-14 open enrollment period, there was likely a spillover effect of higher pent up demand in 2014 flowing into the first half of 2015.

We estimate the total impact to hospital volumes in 2015 was 0.7%.

**Table 143: Steps to Estimate Hospital Volume Increase from Covering the Uninsured in 2015**

Increase in volume Calculation Rationale		
A	11%	18% - 7% Difference between % uninsured and admission composition
B	5.1%	A - (A*54%) 54% of uninsured will not get coverage (as per CBO score)
C	3.4%	B - (B*(1/3)) 1/3 of the uninsured can afford coverage, probably healthy
D	1.7%	C - (C*(1/2)) Remainder is underinsured and increase utilization to half of average level
E	0.23%	D - (D*14%) About 14% of uninsured got covered in 2015
F	0.73%	E + 50bps Impact of pent up demand

Source: BofA Merrill Lynch Global Research.

On average adjusted admissions grew 2.8% in 2015. If we assume that overall core adjusted admissions should grow 1%, then it implies that HC Reform and an improving economy drove 1.8% of excess growth.

### 2016 benefit to volumes was 0.2%

Exchange enrollment increased by about 1 million in 2016 vs 2015. If we assume that Medicaid enrollment increases 2 million in 2016 after it increased 3 million in 2015, we estimate about 3 million of incremental coverage in 2016. This in turn implies that about 12% of the estimated 24 million reductions in uninsured over time occurs in 2016. Following the same steps we discussed above we arrive at an estimated increase of about 20bps in volumes for hospitals in 2016. We do not expect much impact from pent up demand.

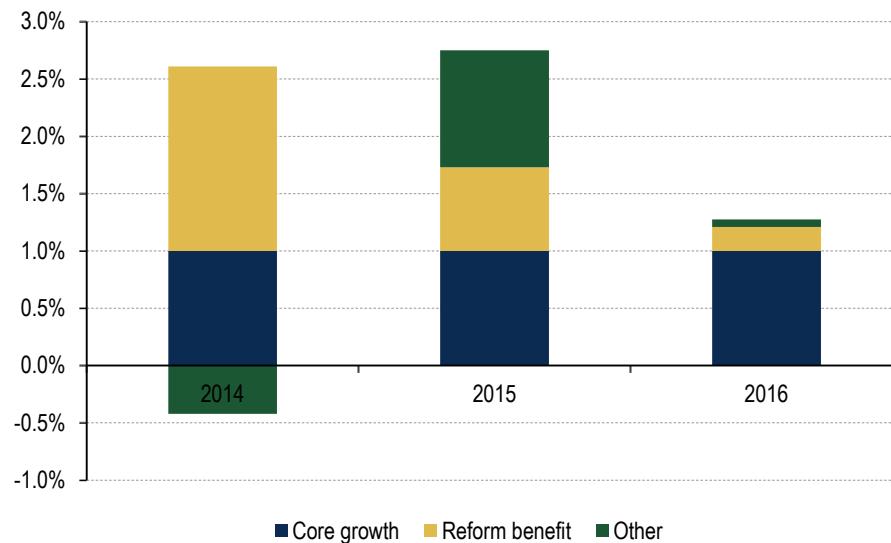
**Table 144: Steps to Estimate Hospital Volume Increase from Covering the Uninsured in 2016**

Increase in volume Calculation		Rationale
A	11%	18% - 7% Difference between % uninsured and admission composition
B	5.1%	A - (A*54%) 54% of uninsured will not get coverage (as per CBO score)
C	3.4%	B - (B*(1/3)) 1/3 of the uninsured can afford coverage, probably healthy
D	1.7%	C - (C*(1/2)) Remainder is underinsured and increase utilization to half of average level
E	0.21%	D - (D*12.5%) About 12.5% of uninsured will get covered in 2016

Source: BofA Merrill Lynch Global Research estimates

On average adjusted admissions grew 1.3% in 2016. If we assume that overall core adjusted admissions should grow 1%, then we would estimate that 76% of the volume outperformance versus this target was due to Reform.

**Chart 156: Same-store adjusted admissions – core vs estimated Reform benefits**



Average for CYH, HCA, LPNT, THC, and UHS

Source: BofA Merrill Lynch Global Research estimates, company reports

### **2017 enrollment declined in both exchanges and Medicaid**

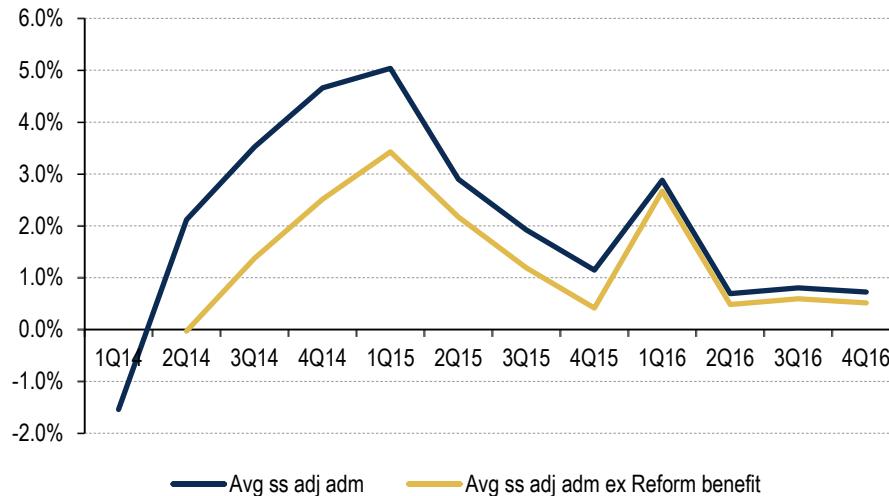
Exchange enrollment actually declined in 2017 by about 0.5 million people or 4% year over year, and Medicaid enrollment was also down about 1 million or 1%. As such there appears to be no incremental reform impact on volumes.

We also note that the April 2018 CBO scores assumes that the number of uninsured increases 3 million in 2019 from 2018 as it assumes there will be fewer people insured by Medicaid, and fewer people on the exchanges given the individual mandate repeal effective Jan 1, 2019.

### **Cumulative benefit 2-3%**

Adding the volumes from 2014-2016 that came from Reform, we estimate that total volumes improved about 2.6% from Reform. Below we show reported Adjusted Admission growth vs our estimate of Adjusted Admission growth excluding the benefit from Reform from 2014-2016. Given the pretty large increase in volumes around Q1 of 2015, it appears that we may be underestimating the benefit that Reform added to volumes early in the rollout (the Q1 2016 spike was due to leap year).

**Chart 157: Same-store adjusted admissions including and excluding estimated Reform benefits**



Average for CYH, HCA, LPNT, THC, and UHS

Source: BofA Merrill Lynch Global Research estimates, company reports

#### Net benefit including acuity and volumes is \$136bn

As discussed above, we believe that the benefit from the coverage expansion would be much higher for the hospital industry than implied by the reduction in the number of people without insurance. Adjusting for the fact that the sickest 5% accounts for 67% of uninsured spending, we estimate that the net benefit for the industry (after rate cuts) would be \$98 billion over 10 years, 2.4x the estimated \$41 billion net benefit based only on the reduction in uninsured (see Table 127).

In addition, we estimate that the expected 2% increase in volumes over time due to the Reform would add another \$36 billion over 10 years for the hospital industry. In total, adjusting for both the acuity and volume benefits, we estimate the industry net benefit from Reform after rate cuts would be \$136 billion over 10 years. In this analysis, the peak benefit is in 2018, declining over time. However, we note that unlike the prior analysis, the net benefit is still meaningfully positive in 2019.

**Table 145: Health Care Reform Impact on Hospitals – Estimated Benefits and Cuts**

Year	Uncompensated care cost (\$bn)	% uninsured covered + acuity	Uncompensated care benefit	Market basket/Productivity adjustment cost savings	Total DSH payments for hospitals	Savings from reducing readmits	Cuts to hospitals resulting from reduction of readmits	Cuts for health care acquired infections	Net effect on hospitals	Volumes increase (\$bn)	Volumes benefit %	Total incl vols
2010A	(\$39)	0%	\$0	(\$0.4)	\$0.0	\$0.0	\$0.00	\$0.0	\$0.0	(\$0.4)		
2011A	(\$41)	5%	\$2	(\$0.8)	\$0.0	\$0.0	\$0.00	\$0.0	\$0.0	\$1.2		
2012A	(\$46)	2%	\$1	(\$2.8)	\$0.0	\$0.0	\$0.00	\$0.0	\$0.0	(\$1.6)		
2013A	(\$46)	4%	\$2	(\$4.2)	\$0.0	(\$0.1)	(\$0.04)	\$0.0	\$0.0	(\$2.2)		
2014E	(\$49)	34%	\$17	(\$5.6)	(\$0.5)	(\$0.3)	(\$0.11)	\$0.0	\$10.4	1.0%	\$3.3	\$13.6
2015E	(\$51)	50%	\$26	(\$6.9)	(\$1.8)	(\$1.1)	(\$0.39)	(\$0.3)	\$16.4	0.5%	\$4.9	\$21.3
2016E	(\$54)	57%	\$31	(\$8.2)	(\$3.0)	(\$1.3)	(\$0.46)	(\$0.3)	\$18.7	0.5%	\$6.6	\$25.3
2017E	(\$56)	58%	\$33	(\$10.3)	(\$3.2)	(\$1.3)	(\$0.46)	(\$0.3)	\$18.5	0%	\$6.8	\$25.3
2018E	(\$59)	59%	\$35	(\$12.9)	(\$2.1)	(\$1.4)	(\$0.49)	(\$0.3)	\$18.8	0%	\$7.0	\$25.8
2019E	(\$62)	57%	\$35	(\$16.1)	(\$0.4)	(\$1.5)	(\$0.53)	(\$0.3)	\$17.8	0%	\$7.2	\$25.0
Cumulative 2010-2019E	(\$504)		\$181	(\$68.3)	(\$11.1)	(\$7.0)	(\$2.5)	(\$1.5)	\$97.6	2.0%	\$35.7	\$136.4

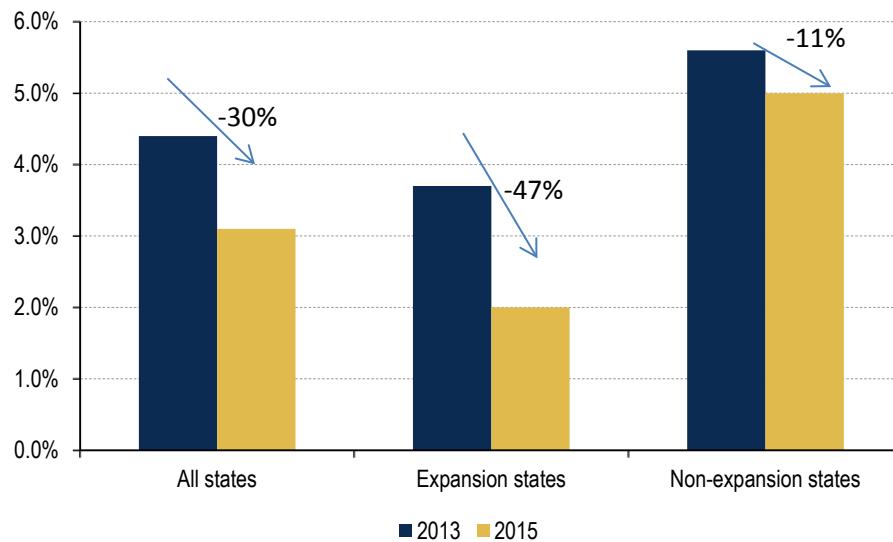
Source: CMS, BofA Merrill Lynch Global Research estimates

## Uncompensated care declined 30% in 2013-2015

According to Center on Budget and Policy Priorities (report published in March 2018), between 2013 and 2015, as the nationwide uninsured rate declined 35% (from 14.5% to 9.4%), uncompensated care costs as a share of hospital operating expenses declined 30%, a \$12 billion drop in 2015 dollars. States that expanded Medicaid saw a 47% decrease in uncompensated care costs on average compared to an 11% decrease in states that did not expand Medicaid. Of note, the uninsured rate declined 43% in the expansion states while it declined 27% in non-expansion states during this period.

The report also noted that from 2013 to 2015, rural hospitals in expansion states increased their operating margins by 4 percentage points more, and their total margins by 2.3 percentage points more, than rural hospitals in non-expansion states.

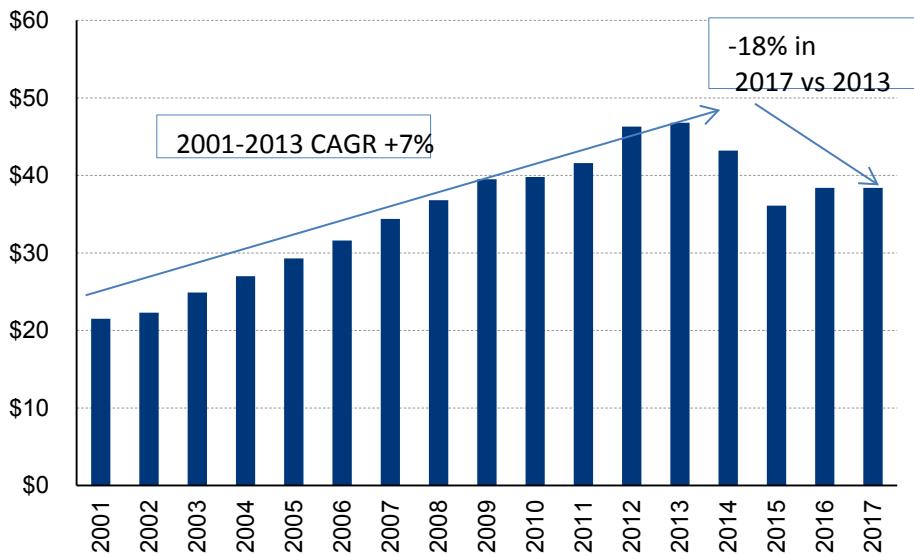
**Chart 158: Uncompensated care costs as share of operating costs; 2015 vs 2013**



Source: CBPP analysis of MACPAC estimates of uncompensated care costs in states

According to AHA, the hospital uncompensated care increased at a 7% CAGR from 2001 to 2013. In this context it is easier to see the magnitude of the benefit in 2014 from coverage expansion for hospitals. In fact, AHA reported total uncompensated care costs for the industry in 2014 were \$43.2bn, down 8% from \$46.8bn in 2013. In 2015, the costs declined another 16% to \$36.1 billion. The uncompensated care costs actually increased in 2016 from the 2015 level (+6%) and stayed flat y/y in 2017 at \$38.4 billion. Nevertheless, the costs are still 18% below the 2013 level and well below the trajectory the industry was previously on.

**Chart 159: Hospital industry uncompensated care (\$bn)**



Source: AHA, HHS, BofA Merrill Lynch Global Research

## Analyzing Reform implementation progress

### Dumping a concern, but not happening (yet)

We believe that the ability of hospitals to obtain rates on exchange products that are near commercial is important not only for earnings, but from a perception/multiple perspective as well. One of the controversial issues surrounding Health Care Reform has been the impact that Reform will have on employer-sponsored coverage. Some have argued that the creation of health insurance exchanges with guaranteed issue coverage and subsidies will lead employers to stop providing coverage and “dump” their employees on the exchanges, a risk to providers given the risk that the rates on exchanges could lower than on commercial plans. [Our analysis of the costs/benefits for employers](#) indicates that exchange dumping will likely be more of a small group phenomenon. At this point, there has been little evidence to suggest dumping is having an impact on the group market.

### Many exchange dropouts enrolled in other coverage

The exchange enrollment figures tend to start high right after the open enrollment is over and then trend lower over the year due to disenrollment. This makes sense because people who are otherwise healthy but have discrete health needs have an incentive to buy insurance, get their health care issues addressed and then drop coverage until next year.

However, this is not always the case. According to Peter Lee, executive director of Covered California, 85% of people who left the California marketplace left for other health coverage. In addition, PerryUndem Research/ Communication's survey found that on a national level, three-quarters of people who had coverage and dropped it have other kinds of insurance.

In another data point, the Covered California executive also noted that about 15% of enrollees do not end up paying their premiums because many enroll “just in case.” He also said roughly one-third of those who are signed up at the beginning of the year will disenroll to get other coverage.

### Exchange rates largely in line with commercial, removing overhang

After initial commentary from managed care payers that they were pushing for rates closer to Medicare and Medicaid, commentary from payers and providers indicated that

pricing is closer to managed care. Not only do the rates on the exchanges have a direct impact on earnings, but if rates are well below commercial, this could create an overhang for the group if employers were to “dump” employees onto the exchange in the out years. This essentially would cause a rate cut as that employee moves from commercial rates to the lower rate on the exchange. With pricing close to commercial (although clearly still below), one of the biggest risks to the hospital sector has been addressed.

## **Evolution of the exchange market**

During 2014, an important issue for managed care was whether the exchange business was priced appropriately in year one and whether there would be wide-spread rate shock in 2015 as MCOs priced to their actual 2014 experience, potentially pressuring the viability of the exchange market. Although rates didn't spike in the first few years, as MCOs got more experience, they realized that they had not priced appropriately, creating some notable exits from the exchange market and caused pricing for 2017 to rise in the 20%+ range and then rise 37% in 2018. The average number of plans available per state declined over last four years to 3.5 in 2018 from 5.9 in 2015.

As of 2018, only four of the original 23 Co-Ops that were participating in health insurance exchanges offered plans in 2018. The rest of them have gone bankrupt. At the same time, most Blue Cross Blue Shield companies have reported significant losses on exchanges, before results started to normalize in 2017.

The industry lost an estimated \$2.7 billion on exchanges (-5% margin) in 2014 and a McKinsey study estimated that the losses tripled in 2015 to \$7.9 billion and it estimates losses for 2016 of about \$8.9 billion. The increasing losses led to the 22% rate increase in 2017 and a number of exits from the market.

2018 was another year of premium increases and plans exiting the marketplaces. However, 2019 turned out to be a year of the marketplace stabilization with plan participation increasing slightly to 4.0 from 3.5 and premiums actually declining 1-2% year over year.

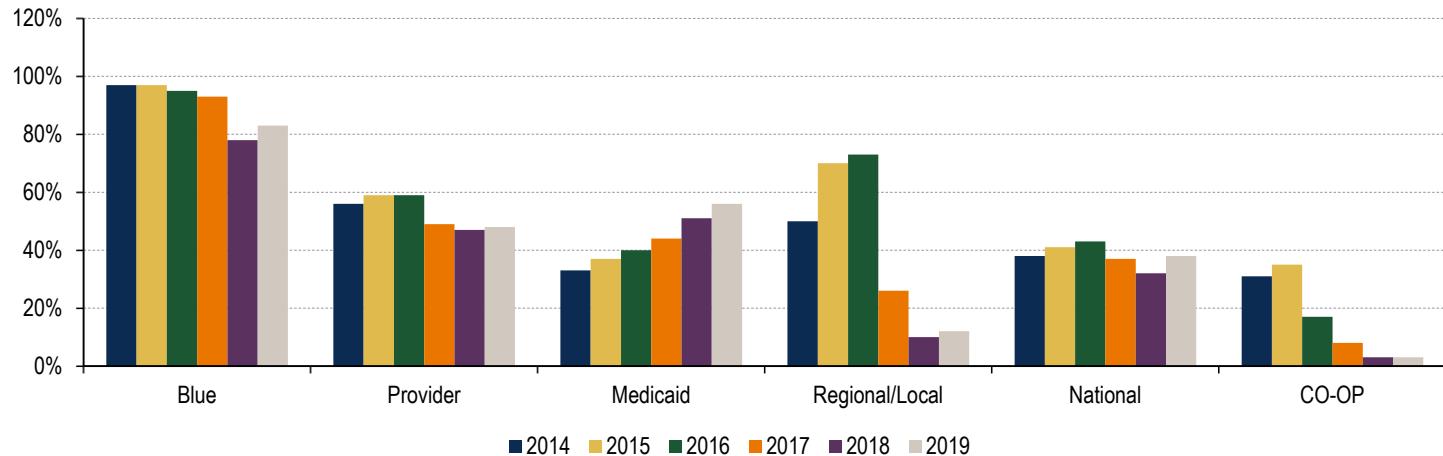
### **Many of the large insurer companies exited**

In April-August 2016, UNH, AET, and HUM announced plans to significantly reduce their exchange exposure in 2017. As of 2018, AET and HUM completely exited their exchange businesses and UNH scaled back its offering significantly to the point that its remaining exchange business is de minimis.

According to McKinsey, national carriers offered plans to only 10% of exchange consumers in 2018, down from 26% in 2017 and down from the peak of 75% in 2016. As some of the national players expanded exchange offerings in 2019, about 12% of customers were served by national carriers. Of note, more Blues plans came back to the exchanges in 2019. Meanwhile, the offering by Medicaid plans, such as Molina and Centene, continued to increase and was at 56% of exchange consumers in 2019, up from 33% in 2014.

### Chart 160: Exchange participation by carrier type, 2014-2019

% of consumers with access to a plan (on any metal tier) of a given carrier type in their county



Source: McKinsey Center for US Health System Reform

Despite some headlines of hefty rate increases, the net cost to the consumer has been more muted. Government subsidies mitigate the cost increase to the consumer since the amount of the subsidy is tied to some degree to the consumer's income level, the rate shock to the 85% of consumers who receive a subsidy would be lower than the reported rate increase.

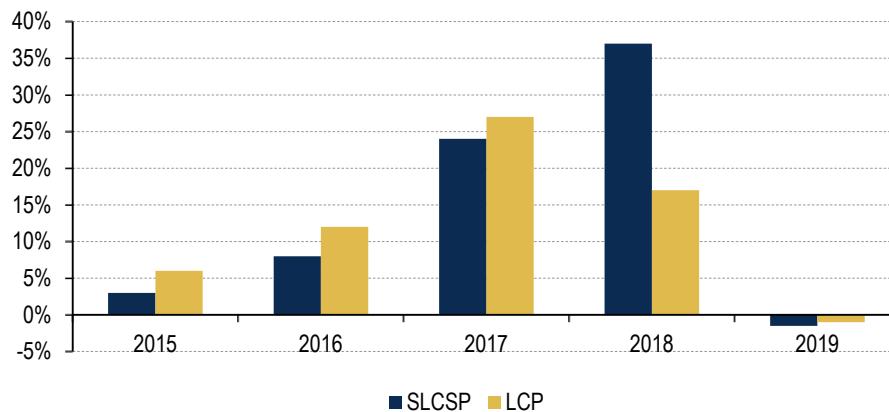
### Premiums declined in 2019, after rising 37% in 2018

In its October 2018 report, HHS said premiums declined 1.5% in 2019 for the Second-Lowest Cost Silver Plan (SLCSP) and were down 1% for the Lowest-Cost Plan. There was a wide variation across states with several states seeing significant increases such as North Dakota (+20%) and Delaware (+16%), but these were more measured increases than those in 2018 (e.g. Kentucky +50%, Iowa +88%, Maine +53%). On the other hand, there were states with meaningful declines such as -26% in Tennessee, -16% in Pennsylvania, and -15% in New Hampshire.

While the +1.5% premium increase was a welcome sight, rates were still on average 600 bps higher than they would have been without the repeal of the individual mandate and the expansion of short-term health plans.

### Chart 161: Premium increases on exchanges, 2015-2019

Second-Lowest Cost Silver Plan (SLCSP) and the Lowest-Cost Plan (LCP)



Source: HHS

## Over 85% of enrollees get tax credits

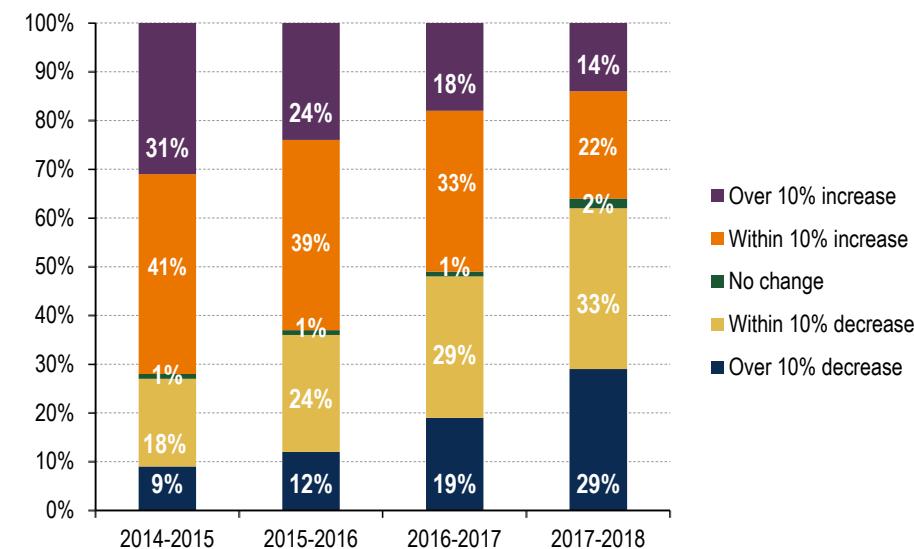
According to Kaiser, in 2018, 87% of marketplace enrollees received premium tax credits. This dynamic helped during the period prior to 2019 when premiums were increasing rapidly. While the average premium for the second-lowest-cost silver plan rose 37% from \$300 to \$411 in 2018, advance premium tax credits also increased, by an estimated 45%.

On October 12, 2017, the administration announced that it would not make cost-sharing reduction (CSR) payments to carriers. Most states instructed carriers to account for the loss of CSR funding in the 2018 plan year. However, the approaches vary. For example, many states required carriers to load additional premium increases onto silver-tier plans, while others asked insurers to spread additional premium increases across all metal tiers. Thus, there is variation in premium trends across states and metal tiers.

According to McKinsey, about 60% of subsidy-eligible consumers may see the net premium of the lowest-price silver plan in their county actually decline in 2018, with 29% to see over 10% decrease in net premium.

**Chart 162: Change in silver net premium for subsidy-eligible consumers, 2014-2018**

% of subsidy-eligible consumers seeing a change in the net premium (after subsidies) of the lowest-price silver plan in their county



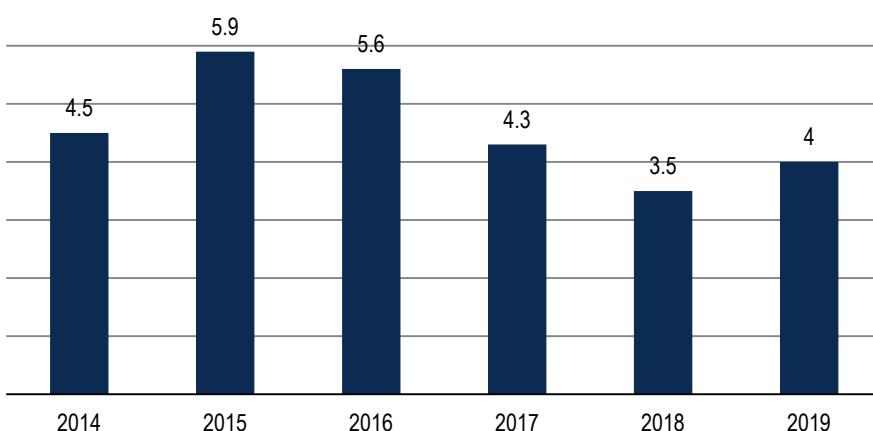
Source: McKinsey Center for US Health System Reform

## Four plans per state, on average

As per the HHS report, the number of plans available increased 17% in 2019 (23 more issuers) after the declines in the prior years (-21% to 132 in 2018 vs 167 in 2017, which declined from 232 in 2016). The number of counties with only one insurer has dropped from 56% in 2018 to 39% in 2019, and only five states will have only one insurer in 2019, compared to ten in 2018 (and in line with 5 in 2017).

The average number of plans available per state improved to 4.0 in 2019 from 3.5 in 2018, an improvement from the declines over prior three years (declined to 3 plans in 2018 from a high of 5.9 plans in 2015).

**Chart 163: Average number of plans available per state**



Source: Kaiser Family Foundation

#### **Early rate requests for 2020 range +1 to +12%**

Health plans have until late June 2019 to decide regarding participation on Federal Exchanges for the upcoming plan year 2020. Five states, Maryland, New Mexico, Oregon, Vermont, Washington, and the District of Columbia (D.C.) publish their proposed premium requests filings in late May or early June, while other states receive rate filings later in June or July. As of mid-June, rate increases range from +1% in WA, +3% in MA, +3% in OR, +8% in NY, +9% in DC and +12.5% in VT.

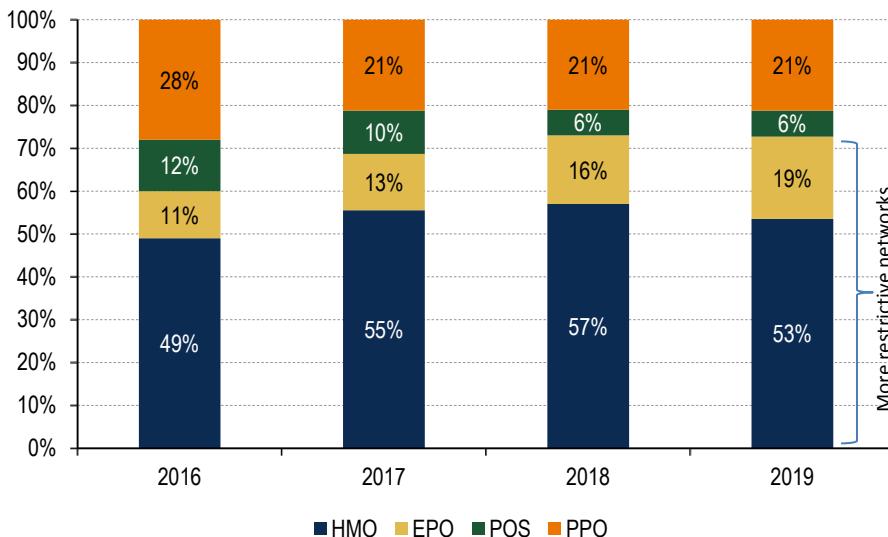
Most insurers in these states predict that, over time, the ACA market will become smaller and sicker, largely due to repeal of the ACA's individual mandate and other Trump administration policy decisions. This is one of the drivers for premium increases. In addition, insurers cite other factors driving higher premiums: 1) prices for specialty pharmaceuticals, 2) the return of the health insurer fee which adds 2-3% to premium costs, 3) the expansion of association health plans, which some predict will result in a 1% increase in market-wide morbidity in 2020.

#### **Narrow networks are standard on exchanges**

According to an Avalere report from Dec 2018, the proportion of narrow networks in exchange product remained relatively stable in 2019 vs 2018, after a rapid shift in those types of offerings growing in 2017-2018. Narrow networks allow plans to manage costs and utilization and often negotiate lower prices with hospitals.

In 2019, of the narrow-network plan offerings, HMOs or health maintenance organizations remain the most common type in HealthCare.gov states, making up 53% of all plans, down from 57% in 2018, according to Avalere. Exclusive provider organizations, or EPOs, which also feature narrow networks, represent 19% of plans on the exchanges, up from 16% in 2018. Combined, these more restrictive networks account for 72% of total, comparable to 72% in 2018. This is up from 60% in 2016.

**Chart 164: Exchange plan network design**



HMO = health maintenance organization. EPO = exclusive provider organization. POS = point of service plan. PPO = preferred provider organizations. Source: Avalere Report (Dec 2018)

## Headwinds to 2019 Enrollment

One of the reasons that enrollment on exchanges was expected to grow is that the penalty for not buying insurance was scheduled to rise. The individual mandate penalty started out at \$95, or 1% of family income, whichever was greater, in 2014. According to the Internal Revenue Service, 7.5 million people paid an average of \$200 in penalties for failing to comply with the individual mandate in 2014. As the penalty for not having insurance started to approach the cost of buying insurance (after subsidy), it would become more and more economical for people to buy insurance.

In 2015, the penalty was \$325 or 2.5% of income. In January 2017, IRS released preliminary data suggesting that about 6.5 million people paid an average penalty of \$470 for not having insurance in 2015.

In 2016, the penalty rose to the higher of these two amounts: \$695 per adult, plus \$347.50 per child, up to a maximum \$2,085 for a family, or 2.5% of family income in excess of 2015 income tax filing thresholds. For tax year 2017 and beyond, the percentage option will remain at 2.5%, but the flat fee will be adjusted for inflation.

In December 2017, President Trump signed the Tax Cuts and Jobs Act of 2017, which repealed the individual mandate beginning in 2019. According to a CBO analysis from November 2017, the individual mandate repeal could have the following effects:

- A reduction in the federal budget deficits by \$338 billion between 2018 and 2027
- A reduction in the insured population by 4 million in 2019 and 13 million in 2027
- Average premium increases in the individual market by approximately 10% in most years over the next decade

**Table 146: Effects of Repealing the Individual Mandate on Health Insurance Coverage for People Under Age 65 (millions)**

Change in Coverage Under the Policy	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Medicaid	0	-1	-2	-4	-4	-4	-4	-5	-5	-5
Nongroup coverage, including marketplaces	0	-3	-4	-5	-5	-5	-5	-5	-5	-5
Employment-based coverage	0	*	-1	-2	-2	-3	-3	-3	-2	-2
Other coverage	0	*	*	*	*	*	*	*	*	*
Uninsured	0	4	7	12	12	12	12	13	13	13

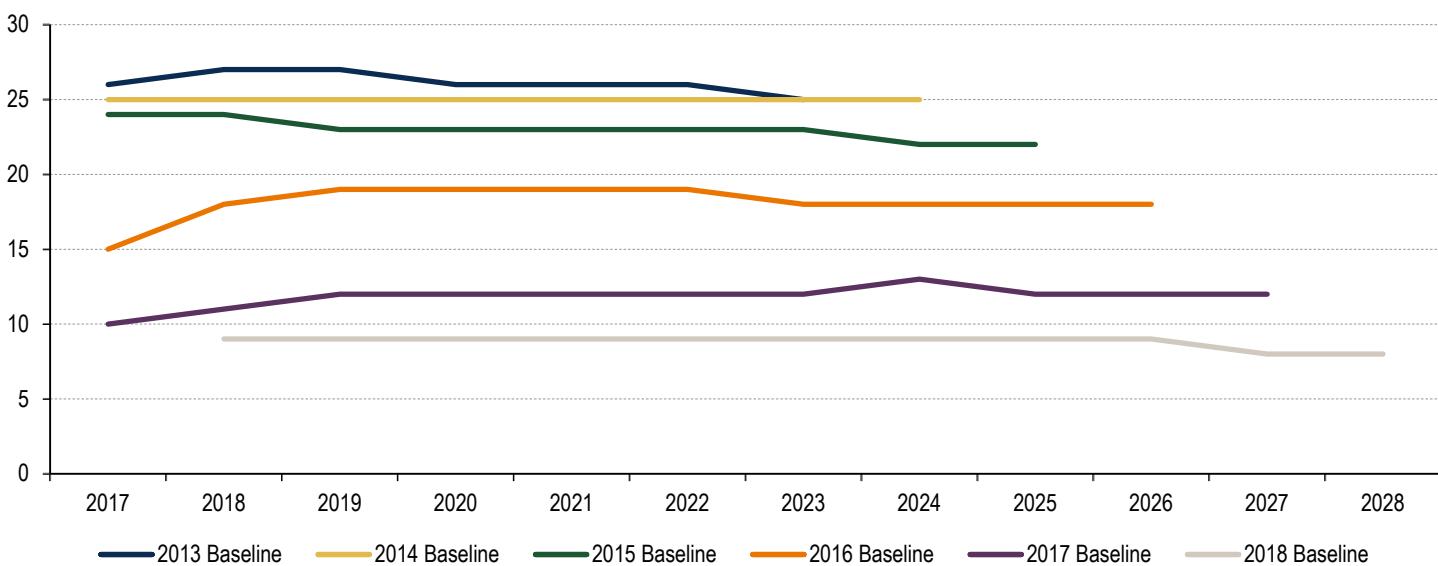
Source: Congressional Budget Office; staff of the Joint Committee on Taxation

\* = between -500,000 and zero

## Exchange enrollment declined over the last 2 years

Heading into 2018 open enrollment, there was concern that enrollment would be down significantly year over year driven by Trump-driven headwinds including a shortened open enrollment period, exchange marketing funding pressure, and CSR defunding. However, exchange plan selections were only down 4% y/y, boding well for exchange margins. In 2019 exchange enrollment continued to decline close to 3% y/y. The fact that nearly 90% of enrollees receive a subsidy, has helped limit the negative impact on enrollment of policies that otherwise would have made plans more expensive.

**Chart 165: CBO projections of exchange enrollment over time**

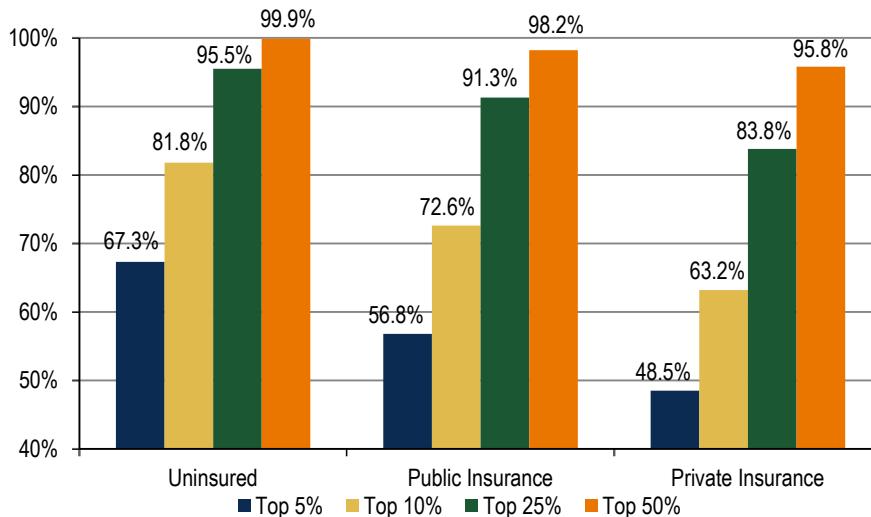


Source: CBO, Milliman, BofA Merrill Lynch Global Research

## The good and the bad of sick people getting insurance

As noted above, who gets coverage matters. Going into the Reform we were expecting that the newly insured would skew sicker, and since sick people cause the majority of bad debt, new enrollment can fall short and still be meaningfully additive to earnings. Based on the AHRQ survey, the sickest 5% of uninsured represent 67% of spending (see graph below).

**Chart 166: Distribution of Health Care Expenditures by Insurance Coverage Status**



Source: Center for Financing, Access, and Cost Trends, AHRQ, Household Component of the Medical Expenditure Panel Survey, 2010

### **Indication that the sick people bought insurance**

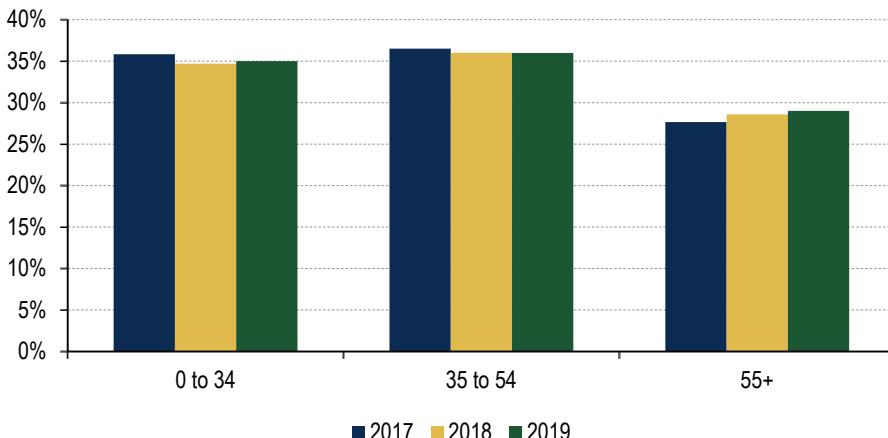
Based on the age and metal tier breakdown of the exchange enrollment and the significant losses by managed care in the early years of the exchanges, it is clear that the exchange enrollment is skewing sicker than average. The good news is that fewer people needed to be covered than the market believed for hospitals to benefit.

Meanwhile, to the extent that coverage becomes more expensive, it is more likely that the healthy people (who don't cause bad debt) will drop out, and the sick people will remain in the risk pool, so any drop in coverage will have a disproportionately smaller impact on bad debt. However, the downside is that if this happens, it will cause MCOs to price higher, making coverage less affordable, which will hurt coverage growth.

However, one of the big differences between this market and other insurance markets that saw this "death spiral" in enrollment, is that the vast majority of exchange enrollment is subsidized and the mechanics of the subsidy calculation generally ensures that the full impact of the price increase is not felt by the exchange enrollee.

In 2019, the enrollment for the 35-54 age group declined 3%, while the signups for the 55+ age cohort was only down -1%. Of note, this follows an increase in the 55+ age cohort in 2018 (which was more positive for hospitals).

**Chart 167: Exchange Membership Age Profile – 2017, 2018, 2019**



Source: HHS

#### **Significant exchange membership leaning toward silver**

According to the HHS exchange enrollment report on 2014 enrollment, 65% of enrollment was in silver plans, which given cost sharing subsidies has some of the most robust coverage of all the plans. Someone at 100% of the federal poverty level would get cost share subsidies that would move the actuarial value of the silver plan from 70% to 94% (ie, the individual would only pay 6% of the costs of care instead of 30%).

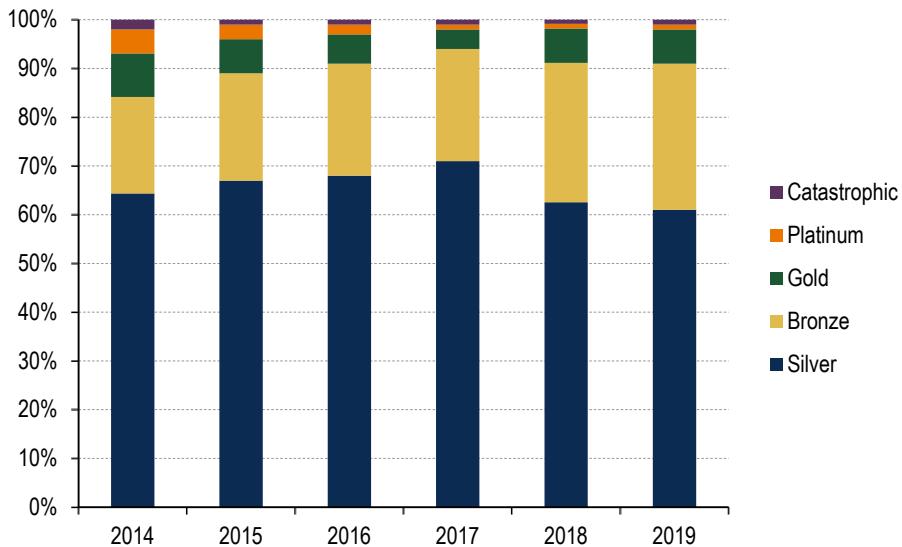
Meanwhile, gold and platinum plans were also chosen at a high rate. Given the high percentage of enrollment in high metal tiers, this implies that sicker people are the ones buying the insurance, since they would be the most likely to pay a higher premium in return for lower copays and deductibles.

Interestingly, enrollment continued to shift towards silver over the next few years until reaching 71% of members in 2017. This is likely a function of consumers getting smarter around the relative value of silver plans on the exchanges after taking into account the cost share subsidies.

Due to the cost share reduction CSR defunding in 2018, premiums increased in 2018 driving a change in enrollment. CSR subsidies were only available to people who bought silver plans and with the government not funding them, health plans had to cover the cost share reductions for silver plans. This means that silver plans would see the highest increase in rates for 2018, and led to what is referred to as “silver loading”. These rate increases made it difficult to afford coverage for the 15% of enrollees who are not subsidized, a negative for enrollment growth and the risk pool.

However, it also had an impact on which types plans were chosen. Since the subsidy is tied to the second lowest cost silver plan in a market, and the rates for silver plans were raised by more than the rates for bronze, gold or platinum plans, enrollees now qualified for a bigger subsidy that they could use to buy down the cost of other level plans. And in many markets, a highly subsidized person could actually buy a bronze plan for free. As a result of these dynamics, in 2018, we actually saw a shift out of silver plans and into bronze and gold plans in 2018. This shift continued into 2019 with fewer enrollees in silver plans (61% vs 63% in 2018 and 71% in 2017).

**Chart 168: Exchange Enrollment by Metal Tier, 2014-2019**



Source: HHS

#### Reduction in uninsured vols was bigger than reduction in uninsured

The biggest datapoint that supports our theory that sick people bought insurance was the fact that the decline in uninsured volumes far outpaced the decline in the number of uninsured. According to The Urban Institute analysis, the uninsured rate declined to 12.8% in 4Q14 from 17.7% in 3Q13, a drop of 27.5%. The un-insurance rate declined even more in the states which expanded Medicaid to 10.0% from 16.2%, a 38% decline. In contrast, the rate for states that did not expand Medicaid declined to 16.3% from 19.6%, a 17% decline.

The 38% reduction in uninsured is lower than an average 68% reduction in uninsured volumes in expansion states reported by companies in 4Q14. This yet again confirms our thesis that sick people have been buying insurance.

**Table 147: Reduction in uninsured volumes in expansion states**

	1Q14	2Q14	3Q14	4Q14	2014
CYH	-28%	-71%	-75%	-73%	<b>-62%</b>
HCA	-29%	-48%	-56%	-65%	<b>-58%</b>
LifePoint	NA	-67%	-69%	-71%	<b>NA</b>
THC	-33%	-54%	-59%	-62%	<b>-52%</b>
<b>Average</b>	<b>-30%</b>	<b>-60%</b>	<b>-63%</b>	<b>-68%</b>	<b>-57%</b>
UHS (all states)	-7-8%	-11-12%	8-10%	8-10%	<b>8-10%</b>

Source: BofA Merrill Lynch Global Research, company reports

The one caveat is that given that we are only analyzing for-profit numbers, it may somewhat overstate the benefit to the industry. There is significant anecdotal evidence that the publicly traded companies are doing a much better job than average in outreach in their markets to get people signed up beforehand (particularly targeting people who have shown up as uninsured in the past), as well as signing up Medicaid eligible people when they walk in the door for treatment. As a result, we would expect them to have seen a more significant reduction in the number of uninsured volumes than average.

#### Hospitals benefit from higher actuarial value enrollment

While higher than expected enrollment in silver plans is a positive as it implies sicker members, it also helped reduce the bad debt related to copays and deductibles. To estimate the benefits from increased exchange coverage for hospitals requires an assumption on the actuarial value of plans, which determines how much of that

incremental revenue comes from the health plan and how much comes from the individual through copays and deductibles. With bad debt at less than 2% of managed care revenue and closer to 50% on copays and deductibles, the higher the actuarial value of the plan (ie the more of the expected health care costs borne by the health plan) the bigger the benefit will be to hospitals.

Based on our analysis of the exchange enrollment, the implied actuarial value of exchange enrollment is 75%. We have adjusted the silver actuarial value for subsidized enrollment to reflect the estimated impact of additional cost sharing below 250% FPL. This breakout is available only for federal exchange states, and could differ on state-based exchanges.

This is basically stable when compared to the enrollment mix for 2014.

**Table 148: Implications for Actuarial Value, Federal Exchanges Only**

Metal Tier:	Enrollment		Actuarial Value			Total
	Subsidized	Non-Subsidized	Total	Subsidized	Non-Subsidized	
Catastrophic	0%	7%	1%	50%	50%	
Bronze	19%	35%	21%	60%	60%	
Silver	74%	32%	69%	79%	70%	
Gold	5%	19%	6%	80%	80%	
Platinum	2%	8%	3%	90%	90%	
<b>Total</b>	<b>7,690,916</b>	<b>1,147,375</b>	<b>8,838,291</b>	<b>75.5%</b>	<b>68.6%</b>	<b>74.6%</b>

Source: HHS, BofA Merrill Lynch Global Research

\*Not available for state-based exchanges

Assuming 25% of copays and deductibles are collected for the subsidized revenue (subsidized enrollees are by definition poorer and less likely to be able to afford out of pocket costs) and 75% are collected for non-subsidized revenue, 83% of the exchange revenue would be collected. This is down slightly from the 83.7% collection rate we estimated for 2014 based on that year's mix of enrollment. However, these numbers are still well above the average actuarial value of the individual market in 2013 (pre-ACA), which was close to 50%.

**Table 149: Potential Implications for Bad Debt on Exchange Revenue**

Exchange	Revenue	Actuarial Value	% Copay/Deductibles	% Copay/Deductibles Collectable	% of Revenue Collected
Subsidized	\$0.87	75.5%	24.5%	25.0%	81.6%
Non-Subsidized	\$0.13	68.6%	31.4%	75.0%	92.2%
<b>Total</b>					<b>83.0%</b>

Source: HHS, BofA Merrill Lynch Global Research

## Hospital markets slightly better than avg in 2019

On average, hospital companies saw a 2.5% decline in enrollment weighted by the percentage of beds in a state, slightly better than the 2.6% national average decline. Among the hospital companies, THC is best positioned based on its bed mix by state with a weighted average exchange enrollment drop of -1.1%. This is the smallest drop among peers as they aren't exposed to Virginia, Louisiana, and Indiana which were among the worst in y/y enrollment, while also being largely exposed to California and Florida which had strong exchange enrollment in 2019. UHS screens as worst positioned due to their outsized exposure to Nevada, which saw exchange enrollment down 8% in 2019. CYH (-2.6%) and HCA (-2.7%) screen as about in line with the national average.

**Table 150: Hospital exposure to 2019 exchange enrollment y/y decline**

CYH	HCA	THC	UHS	National Average
-2.6%	-2.7%	-1.1%	-3.5%	<b>-2.6%</b>

Source: CMS, company reports, BofA Merrill Lynch Global Research

## **33 states and DC expanded Medicaid**

The other major part of the coverage expansion was due to expanding the Medicaid program. On June 28, 2012, the Supreme Court upheld HC Reform (including the individual mandate and Medicaid expansion), but with the caveat that the federal government cannot threaten to withhold money from the states that do not comply with Medicaid expansion, essentially making Medicaid expansion optional instead of mandatory.

- During FY 2014, 26 states (including DC) implemented the Medicaid expansion. In FY 2015, four additional states (New Hampshire, Pennsylvania, Indiana and Alaska) implemented Medicaid expansion. Louisiana expanded Medicaid in July 2016. Maine adopted the Medicaid expansion through a ballot initiative in November 2017. Virginia approved the expansion in May 2018 with the coverage effective Jan 1, 2019. In total, 33 states and DC expanded Medicaid.
- In addition, three more states adopted but not yet implemented Medicaid expansion. Idaho, Nebraska, and Utah all passed ballot initiatives in late 2018 to expand Medicaid. The timing of implementation is uncertain in these states, but we would expect the earliest implementation to be in 2020. If Reform is not repealed/replaced, there is the potential that more states would expand over time.

## **Five states are using alternative models**

Among those 34, five states, Arkansas, Indiana, Michigan, Montana, and New Hampshire, are using alternative models. Pennsylvania and Iowa were initially using an alternative model but moved back to a traditional expansion.

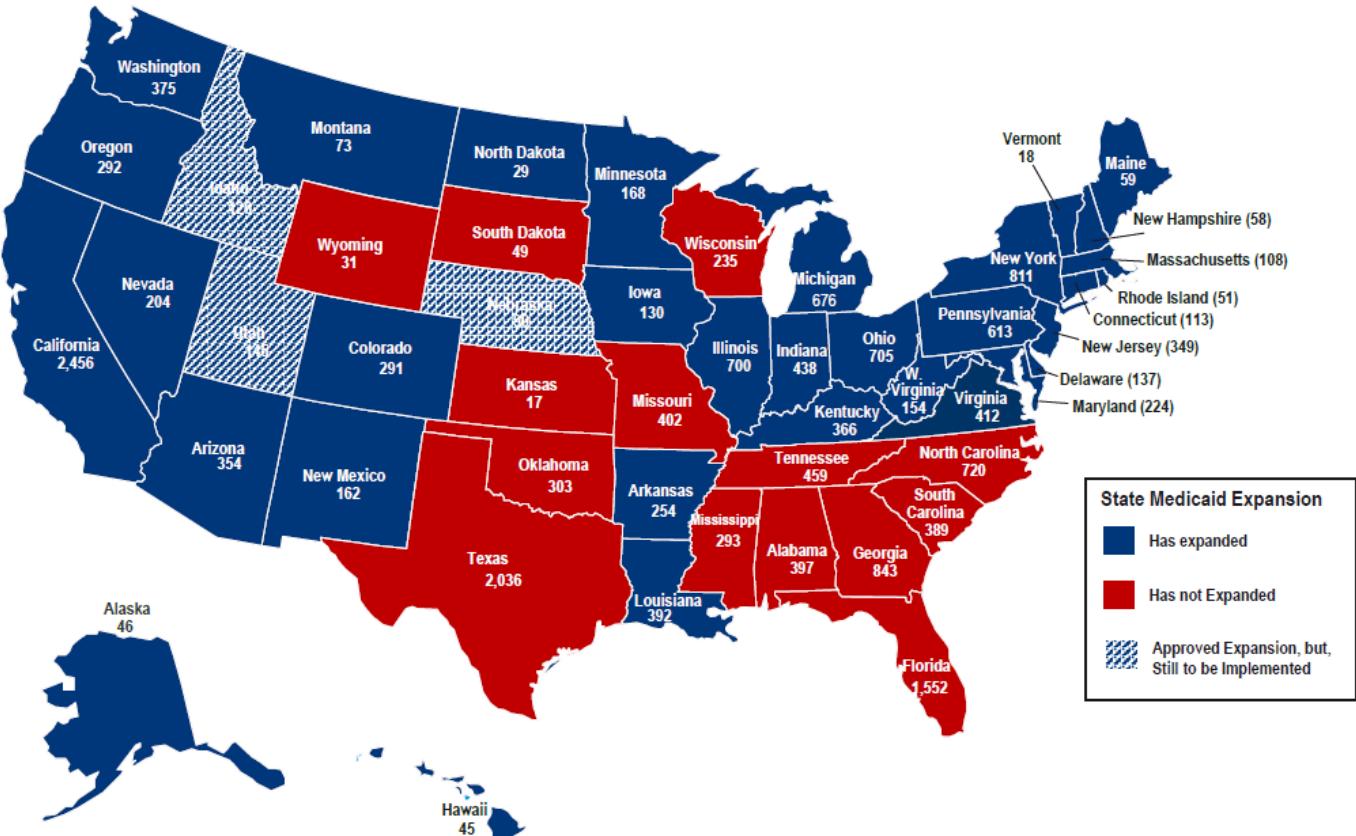
- **Arkansas.** In February 2013, CMS approved Arkansas “private option” to expand Medicaid under Reform. Arkansas was the first state to seek and receive approval for a Section 1115 waiver to expand Medicaid. The waiver allows the state to implement Medicaid expansion through a premium assistance model by using federal Medicaid funds to purchase coverage through qualified health plans (QHPs). The waiver provisions related to the work requirement and reduction of retroactive eligibility were set aside by court on March 27, 2019.
- **Indiana:** On 1/27/15, then Governor Mike Pence announced the state received approval from CMS to expand Medicaid coverage in the state which was estimated to cover about 350k additional people. The program is an alternative to a traditional expansion as it requires financial contribution from enrollees. The coverage began Feb. 1 2015.
- **Michigan.** On 9/1/15, as required by state law to prevent expansion from ending in 2016, Michigan submitted a waiver amendment for the Healthy Michigan Plan. Michigan is expanding Medicaid through an 1115 waiver, the Healthy Michigan program, which has been approved by CMS through 12/31/18 and is effective 4/1/14. Beneficiaries participate in health savings accounts that can be used for required cost sharing payments. On 12/17/15, CMS approved the waiver amendment with special conditions; in April 2018, all non-medically frail beneficiaries with incomes above 100% FPL will choose to move to a marketplace option or remain in the Medicaid delivery system.
- **Montana.** On 4/11/15, the Montana House voted to support Medicaid expansion in the state in a bill which was already cleared by the state's Senate. On November 2, 2015, CMS approved Montana's alternative Medicaid expansion plan, which will require some beneficiaries in the expansion population to pay premiums equivalent to 2% of their income, as well as pay copayments. Coverage began on Jan. 1, 2016.

- **New Hampshire.** The state waiver for a premium assistance model of coverage was approved in March 2015. Prior to this federal approval, eligible individuals were enrolled on July 1, 2014, with coverage beginning on August 15, 2014 in New Hampshire's Medicaid managed care program. With waiver approval, the state transitioned these individuals in 2016 to the Health Protection Program.
- **Iowa.** On 12/10/13, CMS approved Iowa's waiver application to implement the plan to expand Medicaid using premium subsidies for plans on the state's exchange. In July 2015, Iowa released a draft waiver amendment for public comment that proposes to end enrollment of individuals above 100% FPL in the Marketplace Choice Plan due to a lack of plan issuers. These individuals will instead be enrolled in Medicaid managed care plans in 2016. Effectively, the state is back to a more traditional Medicaid expansion, with a few other modifications, as the state is moving to a full Medicaid managed care approach vs including some individuals (100%-133%) in health exchange plans.
- **Pennsylvania.** On 2/19/14 Pennsylvania submitted a waiver request to CMS to expand Medicaid through a plan known as Healthy Pennsylvania. The proposal combines a premium support proposal similar to Arkansas with significant changes to the basic Medicaid program for expanded beneficiaries including adding a premium payment, additional cost-sharing, benefit limitations, and job-search requirements. On 8/28/14, CMS announced the expansion of Medicaid in PA which took effect Jan 2015. However, post the election, Governor Wolf announced that he would replace Healthy Pennsylvania with a traditional Medicaid program which was completed in September 2015.

#### **Virginia expansion with work requirements**

The Virginia General Assembly approved Medicaid expansion as part of its FY 2019-2020 budget on May 30, 2018; Governor Northam signed the budget into law on June 7, 2018. Expansion coverage became effective under state plan amendment (SPA) authority on January 1, 2019 after enrollment began on November 1, 2018, expanding coverage to 300k-400k uninsured Virginians. However, the coverage expansion benefit could be partially reduced by work requirements and premiums on beneficiaries earning above the federal poverty line, which could reduce the number of people actually enrolled in the program. The waiver is still pending approval by CMS.

**Exhibit 7: State Medicaid expansion plans – as of June 2019**



Source: AP, Urban Institute

### Additional states considering expansion

State level reforms and Medicaid waivers remain a focus, as several other states are looking to expand Medicaid. Utah, Idaho and Nebraska approved expansion initiatives on their 2018 ballots but have not yet fully implemented the expansion. The strong voter support for Medicaid expansion in those three states may spur Republican states to consider Medicaid expansion. Kansas, South Dakota, North Carolina, and other states have explored, or passed legislation in the past to expand Medicaid, but, have been unable to finalize any expansion.

We also note that Georgia has passed a more modest Medicaid expansion, only up to 100% of poverty. In North Carolina, there is legislation to expand Medicaid (providing coverage to roughly 500,000 individuals). However, it is unclear if it can move through the Republican legislature as the Democratic Governor supports the effort. Similarly, in Kansas, there is legislation that has passed the House that would expand coverage to 150,000 individuals, and has support from the Governor, but, is facing opposition in the State Senate.

In Idaho, where a state ballot initiative approved Medicaid expansion, the state legislature is also implementing a version of work requirements that would increase copayments for individuals who do not meet the work requirements. Similarly, Nebraska (which also expanded Medicaid via a ballot initiative), is also looking to implement work requirements, and is looking to begin its expansion enrollment in October 2020.

### Medicaid expansion at less than 138% of FPL

Several states are looking to expand Medicaid at a threshold lower than the current 138% of Federal Poverty Level (FPL) that is currently required by the ACA. Georgia and Utah have both passed expansion plans up to only 100% of the FPL, and both states are

hoping that the Trump Administration will be willing to waive the 138% threshold, and still provide the higher (90% in 2020) matching rate for Medicaid expansion below the 138% threshold. CMS Administrator Verma has suggested that they are looking at the possibility, but, CMS has yet to approve higher federal matching rates for Utah.

In Georgia, the partial Medicaid expansion (up to 100% of FPL) will yield an estimated 240,000 additional covered lives (vs. 470,000 under a full Medicaid expansion up to 138% of FPL). CMS has yet to announce if would approve a waiver for Georgia to provide the higher federal matching rate for this partial expansion – unlikely in our view.

#### **Medicaid Waivers – work requirements, premiums, etc**

We expect certain states will continue implementing Medicaid waivers to reduce costs, including work requirements, increased cost sharing, use of Health Savings Accounts, as well as modified enrollment requirements. Medicaid work requirements remain a controversial waiver issue, as more than 10 states are seeking to implement work requirements. Both Kentucky and Arkansas have seen their efforts stalled due to court challenges to the work requirement provisions. Work requirements were approved and implemented in only two states, IN and NH, while being approved and not yet implemented in five states, AZ, MI, OH, UT and WI.

#### **Voluntary Block Grants**

The Trump Administration is also looking to develop a Medicaid waiver program to allow states to elect a Block Grant payment from the federal government, in lieu of the existing matching funds program. CMS has been working with Alaska to be the first state to use block grants to fund Medicaid. However, there remain legal questions as to whether CMS can use a waiver to implement a block grant program, and we would expect any efforts may be challenged in court. In March, Alaska's Governor signaled his support for a block grant program, stating that he was "eager to do this" and would like to speed the application process. It is not clear if any other states may be interested in a block grant program. In addition, Tennessee (a non-expansion state) is also considering a plan to implement a voluntary block grant program as well.

#### **Florida (or Texas) expansion would boost the group but seems unlikely now**

While the key states, Florida and Texas, are missing from the list above, some hospital companies were of the belief these states will eventually expand. However, since 2016 elections and the Republicans efforts around repealing Reform, expansion in those states seems unlikely.

If the state were to expand Medicaid it would be positive for almost the entire group. Exposure is as follows:

**Table 151: Hospital exposure to Florida and Texas - Percentage of beds**

	CYH	HCA	LifePoint	THC	USH-Acute
Florida	16.8%	25.6%	0.0%	21.4%	10.3%
Texas	13.1%	27.7%	3.0%	21.7%	31.2%
<b>FL and TX exposure</b>	<b>29.9%</b>	<b>53.3%</b>	<b>3.0%</b>	<b>43.1%</b>	<b>41.5%</b>

Exposure as of 12/31/18 PF asset sales for CYH and THC.

Source: BofA Merrill Lynch Global Research, company reports

#### **Presumptive eligibility**

We highlight the presumptive eligibility policy under Reform as a positive for hospitals allowing providers to fully benefit from Medicaid expansion. One of the issues around Medicaid coverage is getting people who qualify to actually sign up. There were some estimates which indicated that in 2013, as many as 10 million people were qualified for Medicaid coverage, but never signed up.

On January 24, 2014, CMS released an informational bulletin and FAQ document regarding the requirement under Reform that all states implement hospital presumptive

eligibility policies. CMS provided guidance on structure and requirements of implementing presumptive eligibility, and the degree of flexibility that states will have. We note that despite the intention to have it be country-wide, not every state has implemented presumptive eligibility.

Presumptive eligibility allows certain qualified entities, hospitals, federally qualified health centers, and other providers, to make a preliminary eligibility determination for Medicaid or CHIP based on an individual's income and other information. This allows hospitals and other providers to be reimbursed for services provided to individuals who are likely eligible for Medicaid, but not enrolled as of the date of service.

CMS said that coverage begins when the hospital approves presumptive eligibility and ends at the end of the following month or until the individual is determined eligible for Medicaid. Hospitals can use estimations of income based on gross income or an approximation on modified adjusted gross income (MAGI) in determining presumptive eligibility. Furthermore, states must require that presumptive eligibility be available to all MAGI-based Medicaid eligibility groups in that state.

States may use a third-party contractor to assist in presumptive eligibility determinations, as long as the final determination rest with the hospital. Completion of a Medicaid application is not requirement for reimbursement.

Hospital services provided under the presumptive eligibility period will still be eligible for federal match even if the individual is later determined not to be eligible for Medicaid. Services provided under the presumptive eligibility period will be reimbursed at the prevailing federal medical assistance percentage (FMAP) in the state. States can adjust claiming if the presumptive eligibility period falls under the three-month retroactive eligibility period for Medicaid.

The final date for state plan amendment (SPA) filings to implement presumptive eligibility was March 31, 2014. The policy actually took effect January 1, 2014 under Reform.

LPNT indicated that it historically was able to sign up about 60% of the people it thought were qualified for Medicaid, with 40% not qualifying largely because the patient failed to complete the forms. The company believed that with presumptive eligibility, that conversion rate could end up being closer to 80%. The company ended up surpassing that mark and indicated that it qualifies about 90% of Medicaid eligibles.

## Analyzing Medicaid enrollment

### Medicaid/CHIP enrollment continues

While the exchange website was initially marred with issues during the open enrollment period for 2014 coverage, Medicaid expansion under Reform has been brisk in many states. In addition to the new enrollment coming in from the Medicaid expansion in states that opted in for the expansion, the overall increased outreach about getting insurance under Health Care Reform is driving the currently eligible but not enrolled in non-expansion states to sign up (the so called "woodwork effect"). For example, many states are able to auto enroll individuals that they know would qualify for Medicaid based on other government program eligibility (food stamps, etc.).

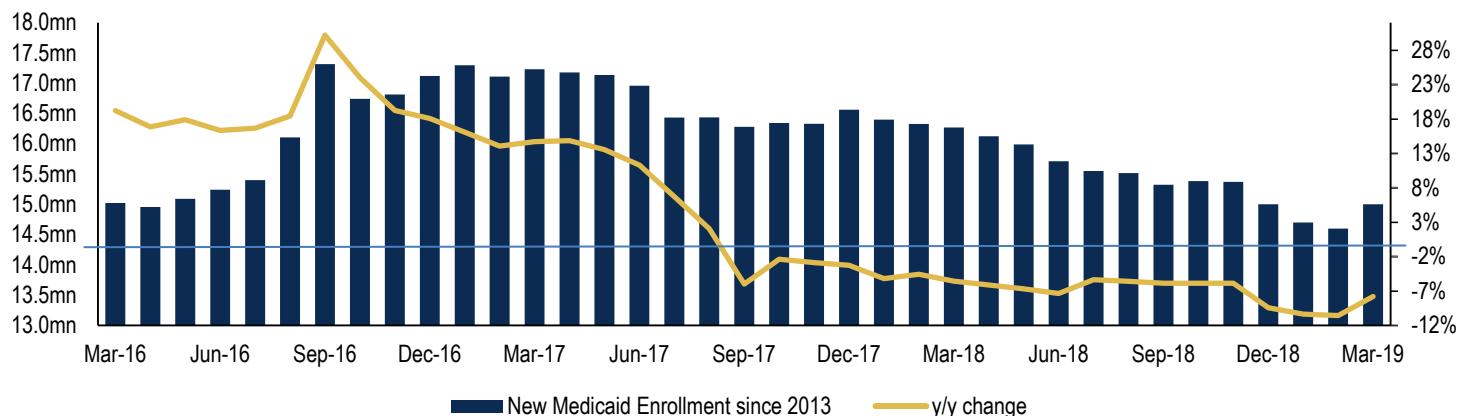
Unlike exchanges, there is no open enrollment deadline to enroll in Medicaid, so Medicaid enrollment grew throughout 2014 and 2015. The strong Medicaid growth in March and April of 2014 was not surprising as people went to the exchange to look for coverage and instead found out that they qualified for free Medicaid.

### Through March 2019, Medicaid enrollment up 15.0 million from 2013

In June 2019, CMS released a report announcing 15.0 million individuals enrolled in Medicaid and the Children's Health Insurance Program (CHIP) during the period from

October 1, 2013 through March 2019. In many ways, the enrollment growth was even more impressive than the headline number since it occurred during a period of economic improvement which all else equal would put downward pressure on Medicaid enrollment as people got coverage through their new jobs. Nevertheless, we note that the 15m incremental coverage is down 10% from the 16.6m incremental expansion as of March 2018. Over 72.6 million individuals were enrolled in Medicaid and CHIP in March 2019. However, we note that Medicaid enrollment dropped y/y in 2017, again in 2018 and is down y/y in March 2019.

**Chart 169: New Medicaid Enrollment since Fall 2013 (Millions)**



Source: CMS, BofA Merrill Lynch Global Research

#### **Enrollment in expansion states grew by 35% vs +8% in non-expansion**

For states that expanded Medicaid, enrollment grew by 13 million or 35% compared to the pre-ACA period. Kentucky (110%), Nevada (90%) and Montana (86%) experienced the largest growth.

For the states that did not expand Medicaid, enrollment still grew by almost 2 million or 8% vs the pre-ACA period. North Carolina (27%), Georgia (+17% - expanded up to 100% FPL), and South Carolina (+16%) experienced the largest growth. A portion of this growth is likely due to the "woodwork effect," which describes people who were always eligible for Medicaid but never signed up before and now got coverage because they found out they were eligible for Medicaid when they applied for exchange coverage, or wanted to avoid the individual mandate tax penalty.

**Table 152: Medicaid Enrollment Growth in Expansion States, March 2019 vs Pre-ACA**

Expansion States:	Increase, %	Non-expansion States:	Increase, %
Alaska	76.7%	Alabama	12.9%
Arizona	41.7%	Florida	12.5%
Arkansas	51.0%	Georgia	16.7%
California	52.1%	Idaho	13.2%
Colorado	64.7%	Kansas	0.9%
Connecticut	NA	Mississippi	-4.2%
Delaware	11.4%	Missouri	3.4%
District of Columbia	10.0%	Nebraska	-0.1%
Hawaii	14.3%	North Carolina	27.3%
Illinois	6.0%	Oklahoma	-2.2%
Indiana	29.8%	South Carolina	16.3%
Iowa	39.5%	South Dakota	0.9%
Kentucky	100.3%	Tennessee	15.4%
Louisiana	NA	Texas	1.3%
Maine	NA	Utah	-2.9%
Maryland	52.9%	Wisconsin	3.3%
Massachusetts	19.2%	Wyoming	-17.3%
Michigan	21.3%	Total- non expansion	7.7%
Minnesota	18.0%		

**Table 152: Medicaid Enrollment Growth in Expansion States, March 2019 vs Pre-ACA**

Expansion States:	Increase, %	Non-expansion States:	Increase, %
Montana	85.7%		
Nevada	90.3%		
New Hampshire	40.3%		
New Jersey	31.9%		
New Mexico	59.3%		
New York	15.0%		
North Dakota	31.5%		
Ohio	24.5%		
Oregon	56.1%		
Pennsylvania	23.3%		
Rhode Island	59.5%		
Vermont	-3.2%		
Virginia	38.1%		
Washington	53.9%		
West Virginia	49.3%		
<b>Total ex CT, LA</b>	<b>34.6%</b>		

Source: HHS

According to The Kaiser Commission on Medicaid and the Uninsured, there are 2.4 million uninsured adults within states that haven't expanded Medicaid that fall into a coverage gap. These individuals have incomes above Medicaid eligibility limits but below the lower limit for exchange premium tax credits.

Texas (638,000) and Florida (384,000), the two largest states for the public hospital companies, make up 43% of the nationwide coverage gap.

**Table 153: Uninsured Adults in Coverage Gap**

State	Individuals in Coverage Gap
Alabama	75,000
Florida	384,000
Georgia	240,000
Idaho	22,000
Kansas	48,000
Maine	N/A
Mississippi	99,000
Missouri	87,000
Nebraska	16,000
North Carolina	208,000
Oklahoma	84,000
South Carolina	92,000
South Dakota	15,000
Tennessee	163,000
Texas	638,000
Utah	46,000
Virginia	138,000
Wisconsin	0
Wyoming	6,000
<b>Total</b>	<b>2,371,000</b>

Source: The Kaiser Commission on Medicaid and the Uninsured

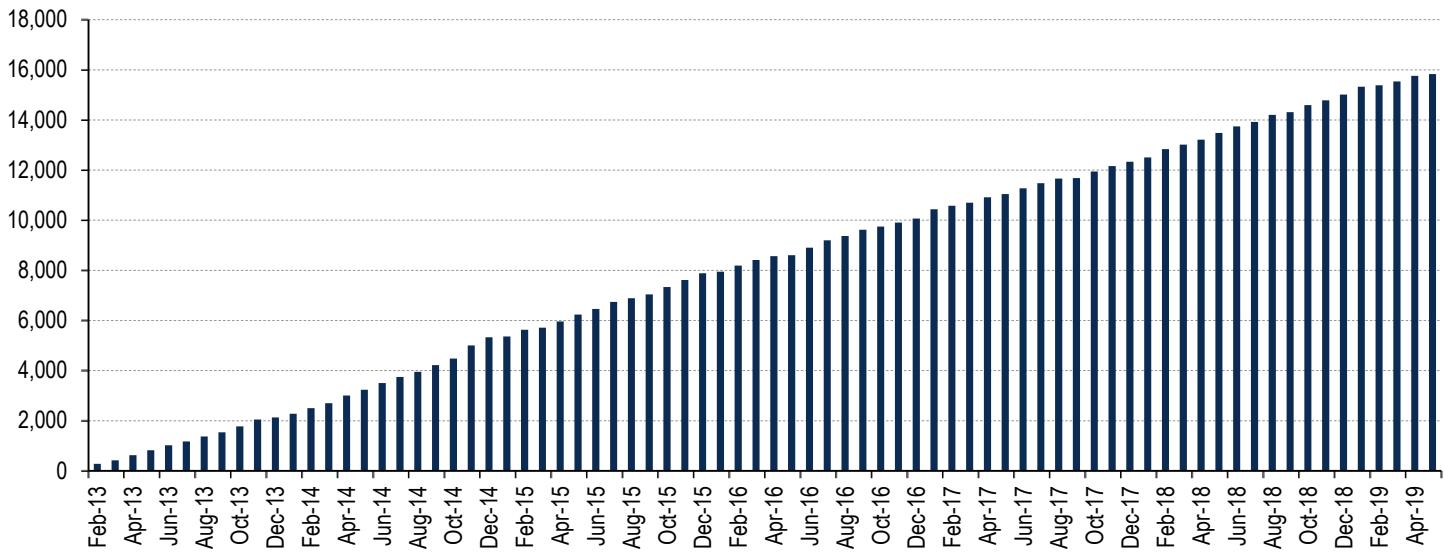
\* Wisconsin provides Medicaid eligibility to adults up to the poverty level under a Medicaid waiver. As a result, there is no one in the coverage gap in Wisconsin.

### Reform impact could be greater than reported

The impact of the ACA on Medicaid could be greater than the reported enrollment growth if people have been leaving the Medicaid program for employer-based coverage. Although there has been considerable focus on the falling unemployment rate and the role that the discouraged deciding to leave the workforce play, the total number employed indicates that gross jobs are, in fact, being created and, all else equal, growth in traditional Medicaid applications would be expected to be falling.

As of May 2019, overall employment has grown by 15.8 million individuals since January 2013. The growth in Medicaid enrollment, especially in non-expansion states, during a time of rising employment (which all else equal tends to pressure enrollment as people move to commercial coverage) is especially encouraging.

**Chart 170: Cumulative Non-Farm Employment Growth from January 2013 to Present (thousands)**



Source: BLS, BofA Merrill Lynch Global Research.

### HCA least exposed to expansion states, UHS most exposed

Given FL and TX, two states not expanding Medicaid under Reform, represent about half of HCA beds, the company's exposure to the expansion states is the lowest of all hospital companies, at 24%, partially helped by Virginia expanding most recently. UHS' Acute segment has the highest exposure with 51% of beds, followed by THC at 41% and CYH at 32%.

As mentioned above, three states (Idaho, Nebraska and Utah) approved Medicaid expansion but not yet implemented the changes. HCA has the biggest exposure, at 3% of beds. Other companies are not present in those states.

**Table 154: Exposure to states expanding Medicaid under Reform - % of beds**

% of beds	CYH PF	HCA	THC	UHS-Acute
Alaska	0.4%	0.5%	0.0%	0.0%
Arizona	3.5%	0.0%	8.9%	0.0%
Arkansas	4.0%	0.0%	0.0%	0.0%
California	0.0%	3.7%	14.6%	12.9%
Colorado	0.0%	5.2%	0.0%	0.0%
Connecticut	0.0%	0.0%	0.0%	0.0%
Delaware	0.0%	0.0%	0.0%	0.0%
District of Columbia	0.0%	0.0%	0.0%	6.1%
Hawaii	0.0%	0.0%	0.0%	0.0%
Illinois	0.0%	0.0%	0.0%	0.0%
Indiana	9.1%	0.6%	0.0%	0.0%
Iowa	0.0%	0.0%	0.0%	0.0%
Kentucky	0.0%	0.8%	0.0%	0.0%
Louisiana	1.0%	2.5%	0.0%	0.0%
Maryland	0.0%	0.0%	0.0%	0.0%
Massachusetts	0.0%	0.0%	3.5%	0.0%
Michigan	0.0%	0.0%	13.6%	0.0%
Minnesota	0.0%	0.0%	0.0%	0.0%
Montana	0.0%	0.0%	0.0%	0.0%
Nevada	0.0%	2.6%	0.0%	31.6%
New Hampshire	0.0%	0.6%	0.0%	0.0%

**Table 154: Exposure to states expanding Medicaid under Reform - % of beds**

% of beds	CYH PF	HCA	THC	UHS-Acute
New Hampshire	0.0%	0.6%	0.0%	0.0%
New Jersey	0.0%	0.0%	0.0%	0.0%
New Mexico	3.3%	0.0%	0.0%	0.0%
New York	0.0%	0.0%	0.0%	0.0%
North Dakota	0.0%	0.0%	0.0%	0.0%
Ohio	0.0%	0.0%	0.0%	0.0%
Oregon	0.0%	0.0%	0.0%	0.0%
Pennsylvania	6.7%	0.0%	0.0%	0.0%
Rhode Island	0.0%	0.0%	0.0%	0.0%
Vermont	0.0%	0.0%	0.0%	0.0%
Virginia	2.9%	7.0%	0.0%	0.0%
Washington	0.0%	0.0%	0.0%	0.0%
West Virginia	1.4%	0.0%	0.0%	0.0%
<b>Exposure to states currently expanded:</b>	<b>32%</b>	<b>24%</b>	<b>41%</b>	<b>51%</b>
<b>States adopted but not yet implemented expansion:</b>				
Idaho	0.0%	1.0%	0.0%	0.0%
Nebraska	0.0%	0.0%	0.0%	0.0%
Utah	0.0%	2.1%	0.0%	0.0%
<b>Exposure to 3 states that approved expansion</b>	<b>0.0%</b>	<b>3.1%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>SUBTOTAL</b>	<b>32%</b>	<b>27%</b>	<b>41%</b>	<b>51%</b>
<b>Potentially expanding in future:</b>				
Georgia	0.9%	5.1%	0.0%	0.0%
North Carolina	1.6%	2.3%	0.0%	0.0%
Kansas	0.0%	3.0%	0.0%	0.0%
<b>Exposure to states potentially expanding</b>	<b>2%</b>	<b>10%</b>	<b>0%</b>	<b>0%</b>

Exposure by states as of 12/31/18, asset sales for CYH and THC and acquisitions for HCA  
Source: Company reports, BofA Merrill Lynch Global Research

### Expansion exposure – glass half full or half empty?

Clearly, it is better to be operating in expansion states under Reform. But, states with low expansion exposure could benefit if their states ultimately do expand Medicaid. Meanwhile, given the potential repeal of Reform under a Republican administration, those companies who benefited the most from expansion would see the biggest headwind.

## A review of how Reform helped 2014

### 2014 Reform likely greater than company disclosure

We think that the benefit from Reform was likely bigger than the companies' disclosures due to several reasons. First of all, it is difficult to parse out the benefit from Reform vs economy vs company initiatives. Some companies indicated that it is hard to tell whether a patient with an insurance card is an exchange enrollee or a traditional commercial insurance and either did not try to quantify the benefit from the exchanges during certain periods or took experience with a few payers in a few markets and generalized it across their portfolio.

Even the analysis of the benefits from the higher Medicaid volumes seems likely to underestimate the Medicaid benefit of Reform. For example, CYH estimated its Reform benefit in 1Q14 by using the 8% growth in Medicaid adjusted admissions as a proxy. With overall adjusted admissions down 5.3% in Q1, this likely understates the benefit that Reform had in Q1. It would make more sense for the company to compare the 8% Medicaid adjusted admission growth to the -5% it would have been otherwise for a 13% benefit, rather than just using 8% as the benefit. The company estimated the benefit was \$10m, only 6% of the full year guidance. We came up with a much higher estimate of \$22m, 17% of the full year guidance. Our estimate includes a \$3m benefit from exchanges while the company did not quantify the impact. Finally, in many ways, the

improving economy only makes the Medicaid volume increase even more impressive, since Medicaid volumes should have been down all else equal in an improving economy.

Companies have numerous reasons to underestimate Reform as a benefit. For example, they probably do not want to raise government scrutiny or make the industry more of a target for additional rate cuts. At the same time, attributing some of the strength in results to the improving economy in some ways helps the company attribute the shortfalls in 2013 to the bad economy (thus partially absolving management from blame for poor 2013 performance). Finally, management gets credit for company specific initiatives, where it gets little credit for Reform or economy tailwinds. At the end of the day, we do not believe that the companies are purposely misleading investors, but these reasons likely at the least do not incentivize companies to track the Reform benefits as closely as we might want them to. At the end of the day, we agree that there are three drivers to the improved 2014 results (Reform, improved economy and company specific initiatives), but the general commentary that the benefit is 1/3, 1/3, 1/3 to each, seems too simplistic in our view.

In the end, we believe that the Reform benefit was higher than the company disclosures, but likely slightly lower than our original estimates. The delta vs our estimates is mostly because our model assumed an even blend of exchange and Medicaid lives, when exchange lives ramped up through the year and Medicaid was a larger overall part of the benefit, resulting in a lower average rate/adjusted admission. However, we think that our numbers are probably more directionally correct than what the companies were pointing toward.

**Table 155: BofA Reform benefit est vs actual benefit as quantified by companies**

	BofA 2014 Reform benefit estimate	2014 Reform benefit as quantified by company	Company est vs BofA est
CYH	\$200	\$130	-35%
HCA	\$233	\$334	43%
LPNT	\$48	\$45	-6%
THC	\$110	\$105	-5%
UHS	\$49	\$40	-18%

Source: BofA Merrill Lynch Global Research estimates, company reports

#### **Company specific impact of volume boost from Reform in 2014**

We also would note that our analysis above does not include the benefit from additional volumes as the newly insured use the system more now that they are covered. Most companies didn't try to quantify this benefit either, which is another reason that we believe that the reported benefit from Reform is understated. In our industry section above, we estimated that the industry saw at least a 1.6% increase in volumes from Reform in 2014, and we can use this as a starting point to estimate the benefit to earnings for our companies.

We note that in 2014, the majority of the expansion came from Medicaid (11+ million new members) and the remainder from the exchanges (gross exchange enrollment was 6.7 million but there was also likely a reduction in employer coverage). Given that Medicaid coverage was higher in 2014 and exchange coverage was back end loaded, the mix of higher volumes in 2014 was probably skewed to 2/3 Medicaid and 1/3 commercial. Assuming lower incremental margins for Medicaid (10%) compared to Managed Care (50%), we estimate the total 160 basis point volume increase in 2014 added 15% to CYH 2014 EPS, 4% to HCA, 7% to LPNT, 23% to THC, 2% to UHS acute, and 1% to UHS psych.

Although hospital companies did not quantify the benefit of coverage expansion to volumes, several of them did say that the higher volumes in 2014 were partially due to Reform (THC said 20% of volume growth in 4Q14). We note only CYH included some volume benefits in its Reform guidance and UHS assumed volume benefit in the psych

segment (although we note that Medicaid doesn't cover adult psychiatric care in free standing facilities, so UHS's benefit in the psych business would be entirely in commercial).

**Table 156: Estimated Benefit from increased volumes in 2014**

	Benefit from higher Medicaid volumes (10% margin)	Benefit from higher commercial volumes (50% margin)	Total
<b>CYH</b>			
EPS Impact	\$0.13	\$0.33	\$0.47
% of 2014E EPS	4.1%	10.3%	14.5%
<b>HCA</b>			
EPS Impact	\$0.06	\$0.15	\$0.21
% of 2014E EPS	1.3%	3.1%	4.4%
<b>LPNT</b>			
EPS Impact	\$0.07	\$0.16	\$0.23
% of 2014E EPS	2.0%	5.0%	6.9%
<b>THC</b>			
EPS Impact	\$0.10	\$0.25	\$0.36
% of 2014E EPS	6.7%	16.7%	23.4%
<b>UHS (acute)</b>			
EPS Impact	\$0.03	\$0.08	\$0.11
% of 2014E EPS	0.6%	1.4%	1.9%
<b>UHS (psych)</b>			
EPS Impact		\$0.04	\$0.04
% of 2014E EPS		0.7%	0.7%

Source: BofA Merrill Lynch Global Research

## Hospitals expected 8% of EBITDA from Reform in 2015

Hospital companies provided 2015 Reform guidance with 4Q14 results or with preannouncements and some of them did it ahead of the final tally of exchange enrollment. On average, the hospital companies expected to see an 8% lift to EBITDA from Reform in 2015.

### Reform outlooks called for benefits to increase 66% on avg

The Reform outlooks from hospitals called for Reform benefits to increase on average by 66% with CYH and THC both guiding to benefits doubling on 2015. HCA guidance called for Reform benefits to increase about 50% and LPNT guided to a very minimal increase.

**Table 157: 2015 Reform guidance vs 2014 benefits and vs annualized 4Q14 benefit**

	2015 Reform			2015 guidance vs 4Q14 annualized benefit	
	2014 Reform benefit	guidance midpoint	% Y/Y growth	4Q14 Reform benefit annualized	
CYH	\$130	\$268	106%	\$180	49%
HCA	\$334	\$489	46%	\$443	10%
LPNT	\$45	\$52	16%	\$50	4%
THC	\$105	\$205	95%	\$140	46%
UHS	\$79	NA	NA	\$114	NA

Source: BofA Merrill Lynch Global Research, Company data

## 2015 Reform Benefit

### Exchange enrollment for companies above national average

Nationally, the number of plan selections as of the end of the open enrollment season in April 2015 grew 44.8% compared to the end of 2014 open enrollment. CYH saw the strongest market-specific growth (60% year over year), followed by THC (+59%), HCA (+58%), LPNT (+57%) and UHS (+56%). The growth rate for each company is significantly better than the national average.

**Table 158: 2015 exchange plan selection growth by hospital footprint**

CYH	HCA	LPNT	THC	UHS-Acute	National
59.6%	57.6%	57.1%	59.1%	56.2%	44.8%

Source: HHS, BofA Merrill Lynch Global Research

**2015 Reform benefit was more about exchanges vs Medicaid in 2014**

While 2014 Reform benefits were mostly about Medicaid, incremental benefits in 2015 were more about exchanges. Given that exchange rates are almost double the Medicaid rates, hospitals did not need a big exchanges enrollment number to see a comparable benefit from exchanges in 2015.

**Three states expanded Medicaid in 2015**

In 2015, three additional states expanded Medicaid coverage, Pennsylvania in January 2015, Indiana in February 2015, and Alaska in September 2015. Companies treated the potential upside from additional states expanding Medicaid differently. For example, while LPNT expected PA Medicaid expansion to contribute \$2m-\$4m on \$500m of annualized net revenue, it bucketed this benefit with core operating improvement and not with Reform benefits. Meanwhile, CYH included approximate \$40 million benefit related to Indiana and Pennsylvania expanding Medicaid for 2015 in its Reform guidance. THC Reform guidance assumed about \$5 million from PA expanding Medicaid in 2015.

**Table 159: Exposure to additional Medicaid expansion states**

(% of beds)	CYH PF	HCA	LPNT	THC	UHS-Acute
Exposure to states expanded by 2014	17%	14%	30%	38%	48%
<b>Exposure to states expanded in 2015:</b>					
Alaska	0.3%	0.6%	0.0%	0.0%	0.0%
Indiana	4.8%	0.6%	3.2%	0.0%	0.0%
Pennsylvania	11.4%	0.0%	7.7%	3.2%	0.0%
Exposure to states expanded in 2015	16.4%	1.9%	10.9%	3.2%	0.0%
Exposure to states expanded by 2014 and in 2015	33%	15%	40%	41%	48%

Source: BofA Merrill Lynch Global Research

**2015 Reform benefits more than doubled for CYH**

The Reform benefits increased about 70% in 2015 from 2014 with the biggest increase at CYH, followed by THC. We note LPNT and THC did not quantify the actual benefit in 2015 and the table below assumes those two companies hit their Reform guidance.

**Table 160: Reform benefits in 2014 and 2015**

	2014 Reform benefit	2015 Reform benefit	% Y/Y growth
CYH	\$130	\$290	123%
HCA	\$334	\$475	42%
LPNT	\$45	\$52	16%
THC	\$105	\$205	95%
UHS	\$79	NA	NA
<b>Average</b>			<b>69%</b>

Source: BofA Merrill Lynch Global Research

**Company specific impact of volume boost from Reform in 2015**

In the industry section above, we estimated that Reform likely added at least 70 bps to volumes in 2015. Similar to 2014, the majority of the expansion in 2015 came from incremental Medicaid (3.7 million) with net 2 million signed up on the exchanges.

Assuming lower incremental margins for Medicaid (10%) compared to Managed Care (50%), we estimate the total 70 basis point volume increase in 2015 added 7% to CYH 2015 EPS, 2% to HCA, 3% to LPNT, 8% to THC, 1% to UHS acute, and 1% to UHS psych. Companies generally did not assume any benefit to volumes from Reform, implying that their 2015 Reform benefit was likely larger than the guidance.

**Table 161: Benefit from volume increase in 2015**

	Benefit from higher Medicaid volumes (10% margin)	Benefit from higher commercial volumes (50% margin)	Total
<b>CYH</b>			
EPS Impact	\$0.06	\$0.16	\$0.22
% of 2015E EPS	1.7%	4.9%	6.7%
<b>HCA</b>			
EPS Impact	\$0.03	\$0.08	\$0.10
% of 2015E EPS	0.5%	1.4%	1.9%
<b>LPNT</b>			
EPS Impact	\$0.03	\$0.09	\$0.12
% of 2015E EPS	0.8%	2.2%	3.0%
<b>THC</b>			
EPS Impact	\$0.05	\$0.13	\$0.17
% of 2015E EPS	2.2%	6.2%	8.4%
<b>UHS (acute)</b>			
EPS Impact	\$0.01	\$0.04	\$0.05
% of 2015E EPS	0.2%	0.6%	0.8%
<b>UHS (psych)</b>			
EPS Impact		\$0.04	\$0.04
% of 2015E EPS		0.6%	0.6%

Source: BofA Merrill Lynch Global Research

## 2016 guidance assumed little incremental Reform benefit

Hospital companies did not expect much incremental Reform benefit in 2016 with the outlook ranging from 0% to 2% of EBITDA from incremental benefits. CYH guided to \$50-75m of incremental benefit, which implies about 2% of 2016 EBITDA. THC and HCA both guided to incremental benefit to be about 1% of EBITDA in 2016. Meanwhile, LPNT said its 2016 guidance does not assume any incremental benefit, but we note that it benefited from Louisiana expanding Medicaid July 1, 2016 (5% of LPNT beds).

THC said in early 2017 that its gross benefit from Reform has been about \$230m through 2016. But it was more than offset by about \$350m of Medicare cuts from 2010 to 2016.

While UHS did not specifically guided to Reform benefits, in 2017, it said that Reform added about \$40-60m of EBITDA (3%) and 2/3 of that came from Medicaid expansion in CA, NV and D.C. UHS indicated that it didn't see much of a benefit in its psych business from the Reform and downplayed the benefit from including psych in the 10 Essential Benefit list.

Overall, the total gross benefit from Reform, before any rate cuts associated with Reform, is expected to account for about 9% of hospital companies' annual EBITDA.

**Table 162: 2016 Reform benefit guidance by company (\$m)**

	incremental 2016 benefit	% of 2016 EBITDA guide midpoint	total 2016 benefit	% of 2016 EBITDA guide midpoint
CYH	\$63	2%	\$353	12%
HCA	\$79	1%	\$554	7%
LPNT	\$0	0%	\$52	7%
THC	\$25	1%	\$230	9%
UHS	NA	NA	\$50	3%
<b>Average</b>		1.0%		7.5%

Source: BofA Merrill Lynch Global Research, company reports.

Nevertheless, on average hospital companies expected the Reform benefits to increase 13% year over year in 2016.

**Table 163: 2016 Reform benefit growth (\$m)**

	2015 Reform benefit	incremental in 2016	2016 total Reform benefit guidance	% Y/Y growth
CYH	\$290	\$63	\$353	22%
HCA	\$475	\$79	\$554	17%
LPNT	\$52	\$0	\$52	0%
THC	\$205	\$25	\$230	12%
UHS	NA	NA	NA	NA
<b>Average</b>				<b>13%</b>

Source: BofA Merrill Lynch Global Research, company reports.

**Company specific impact of volume boost from Reform in 2016**

In the industry section above, we estimated that Reform likely caused at least a 50bps increase in volumes in 2016. Exchange enrollment increased by about 1 million in 2016 vs 2015. If we assume that Medicaid enrollment increases 2 million in 2016 after it increased 3 million in 2015, we estimate about 3 million of incremental coverage in 2016. Further assuming that 75% of new enrollment on exchanges is newly insured and Medicaid is all newly insured, the Reform benefit in 2016 would be more skewed toward Medicaid, with 73% from Medicaid and 27% from exchanges.

Assuming lower incremental margins for Medicaid (10%) compared to Managed Care (50%), we estimate the total 50 basis point volume increase in 2016 would add 7% to CYH EPS, 1% to HCA, 2% to LPNT, 5% to THC, 0.4% to UHS acute, and 0.5% to UHS psych.

**Table 164: Benefit from volume increase in 2016**

	Benefit from higher Medicaid volumes (10% margin)	Benefit from higher commercial volumes (50% margin)		Total
<b>CYH</b>				
EPS Impact	\$0.04	\$0.08	\$0.13	
% of 2016E EPS	2.3%	4.3%	6.6%	
<b>HCA</b>				
EPS Impact	\$0.02	\$0.04	\$0.06	
% of 2016E EPS	0.3%	0.6%	1.0%	
<b>LPNT</b>				
EPS Impact	\$0.03	\$0.05	\$0.07	
% of 2016E EPS	0.7%	1.2%	1.9%	
<b>THC</b>				
EPS Impact	\$0.03	\$0.06	\$0.10	
% of 2016E EPS	1.8%	3.4%	5.2%	
<b>UHS (acute)</b>				
EPS Impact	\$0.01	\$0.02	\$0.03	
% of 2016E EPS	0.1%	0.3%	0.4%	
<b>UHS (psych)</b>				
EPS Impact		\$0.04	\$0.04	
% of 2016E EPS		0.5%	0.5%	

Source: BofA Merrill Lynch Global Research estimates

# Efforts to repeal/replace Reform

After Republicans swept the 2016 elections, they made several efforts to repeal / replace HC Reform but eventually failed. Of note, the repeal proposals all went farther than simply repealing the ACA and included major entitlement reform such as including provisions calling for effectively reducing Medicaid spending over time via "per capita cap" or "block grants". However, when Democrats regained the House, it effectively blocked any progress on entitlement reform. That said, some of the changes are already taking place administratively, given the increased flexibility given to states to make changes to the Medicaid program, such as work requirements.

## Repeal would be negative for hospitals

A repeal of the ACA would be negative for hospitals because they benefited from coverage gains under the ACA. On average, hospitals said the Reform benefits added 7-11% of EBITDA. Of note, the CBO estimates that it would be much harder for the sick to buy and/or keep insurance. Given that sick people cause the majority of bad debt (see discussion above), it would put upward pressure on bad debt and downward pressure on volumes.

If the repeal were implemented and the impact was in line with the CBO forecasts, we estimate that hospitals would see an average 7% cut to EBITDA, partially offset by a 1-2% benefit from repealing DSH cuts that went into effect when uninsured dropped, with an incremental 1% cut to reflect the skimpier plans and less coverage for older people, if people return to the pre-2014 coverage with actuarial values of 50% vs (70-80% on the exchanges). Net, hospitals would see a 6-7% cut to EBITDA. Given the financial leverage, the stock impact should be 2-3x that amount.

**Table 165: Estimated impact of ACA**

	Reform benefit % EBITDA	cumulative DSH cuts % EBITDA	% EBITDA impact	% EPS impact
CYH	11%	-1.4%	-10%	-131%
HCA	7%	-1.7%	-6%	-11%
LPNT	7%	-0.3%	-8%	-20%
THC	9%	-3.2%	-7%	-63%
UHS	3%	-1.6%	-2%	-3%
<b>Avg</b>	<b>7%</b>	<b>-1.6%</b>	<b>-7%</b>	<b>-46%</b>

Source: BofA Merrill Lynch Global Research estimates

The above Reform benefit estimates do not include much of the benefit to companies from increased utilization (ie, volumes). As a result, we see downside risk to those estimates if people dial back utilization if Reform is repealed.

## Downward pressure on coverage even without repeal

Even if the House and Senate do not agree on the Reform repeal/replacement, we believe there would be changes made to health policy that would be negative for the hospital industry, such as repealing the individual mandate as part of the Tax Reform Bill. At the same time, we expect a significant movement to give more flexibility to states to develop new approaches to controlling costs in the Medicaid program, including potential work requirements, increased cost sharing, and moving to the use of Health Savings Accounts. Overall, we believe that the number of insured people will decline over time or would be unchanged in the best case scenario. Any increase in uninsured would be negative for providers.

## Administrative actions likely to continue to hurt exchange enrollment

Exchange enrollment has declined in both 2018 and 2019 and is at risk in the future due to administrative actions. The Trump Administration shortened the open enrollment period and reduced advertising of the health care exchanges in 2017 for the 2018 open

enrollment season which likely caused the decline in enrollment. It also reduced funding for the navigator program and defunded the cost share reduction subsidies.

### **Individual mandate repealed for 2019**

After the repeal and replace efforts failed in 2017, in December 2017, President Trump signed the Tax Cuts and Jobs Act of 2017, which repeals the individual mandate beginning in 2019.

According to a CBO analysis from November 2017, the individual mandate repeal could have the following effects:

- A reduction in the federal budget deficits by \$338 billion between 2018 and 2027
- A reduction in the insured population by 4 million in 2019 and 13 million in 2027
- Average premium increases in the individual market by approximately 10% in most years over the next decade

**Table 166: Effects of Repealing the Individual Mandate on Health Insurance Coverage for People Under Age 65 (millions)**

Change in Coverage Under the Policy	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Medicaid	0	-1	-2	-4	-4	-4	-4	-5	-5	-5
Nongroup coverage, including marketplaces	0	-3	-4	-5	-5	-5	-5	-5	-5	-5
Employment-based coverage	0	*	-1	-2	-2	-3	-3	-3	-2	-2
Other coverage	0	*	*	*	*	*	*	*	*	*
Uninsured	0	4	7	12	12	12	12	13	13	13

Source: Congressional Budget Office; staff of the Joint Committee on Taxation

\* = between -500,000 and zero

### **Risk from state waivers and flexibility to modify Medicaid**

On January 20, 2017, President Trump issued an executive order outlining several areas of regulatory relief from the Affordable Care Act, until it can be repealed and replaced. The executive order in and of itself does not change anything, and really only calls for future regulatory changes that will need to be promulgated through the departments of Health and Human Services, or the Treasury Department. The executive order highlighted that the Trump Administration plans to seek the prompt repeal of the ACA, but, in the meantime will seek to limit any economic or regulatory burdens of the law, while also providing the states with flexibility to "create a more free and open health care market."

In March 2017, HHS and CMS issued a letter to states noting that Medicaid expansion is "a clear departure from the core, historical mission" of the program, and asked states to consider more reforms to Medicaid. The letter asked states to shift to private insurance models and use 1115 waivers to incentivize employment for Medicaid-eligible, poor adults, and also noted that HHS will review all managed care regulations and put off enforcing the 2014 home and community-based services rule. HHS Secretary noted that he is committed to "doing everything within our authority to provide our nation's governors and state legislatures with greater flexibility on how they utilize Medicaid resources in caring for those in need."

Medicaid work requirements remain a controversial waiver issue, as more than 10 states are seeking to implement work requirements. Meanwhile, both Kentucky and Arkansas have seen their efforts stalled due to court challenges to the work requirement provisions. As of June 2019, only two states, IN and NH, (representing 1.5 million lives) have moved to implement work requirements. Work requirements were approved and no yet implemented in five states, AZ, MI, OH, UT and WI. In addition, six states have their waiver requests pending: AL, MS, OK, SD, TN, and VA.

Other State Medicaid waivers focus on: Health Savings Accounts (based on Indiana model), cost sharing increases / Premium contributions (allowed above 2% of income),

benefit re-design – reduced benefits, Medicaid drug formularies, time limits on benefits / limited Open enrollment periods / Drug testing.

There are already several examples of states reacting to the HHS/ CMS letter to Governors. For example, some states are interested in revising its Medicaid expansion eligibility down to 100% of FPL from 138% of FPL (e.g. Georgia). Meanwhile, Tennessee is the first state to submit for a waiver to move to a block grant, and Alaska is also interested in taking block grants.

### **The waivers are expected to reduce enrollment**

According to a PwC's Health Research Institute report published in April 2018, the work requirement waivers in 10 states that submitted requests would impact about 1.7m Medicaid beneficiaries, which represents about half of the beneficiaries in those states. Federal courts halted both Kentucky and Arkansas work requirement programs as not being consistent with Medicaid statute by reducing enrollment. The Trump Administration will likely appeal the Judge's most recent decision.

In May 2017, Arkansas legislature has approved a bill which would limit Medicaid expansion to 100% of FPL, and would institute a work requirement. The revisions are estimated to result in 60,000 Medicaid enrollees dropping off, which would account for about 20% of the 300,000 state residents covered by Medicaid. The state noted that those individuals between 100%-138% of FPL would be eligible for exchange coverage. Subsequently, lawsuits were filed claiming that while approving the waiver the HHS failed to consider the impact of coverage. The new requirements were phased in for most enrollees ages 30-49 beginning in June 2018 and (for individuals ages 19-29 starting in January 2019). According to the Arkansas Department of Human Services, over 18,000 people were disenrolled from Medicaid for failure to comply with the new requirements in 2018. As of February, only 11% of the 18,000 had reapplied for and regained coverage.

Kentucky's approved waiver is also being challenged in the courts, claiming that the approval ignored the state's own estimate that work requirements will reduce enrollment by 95k. In November 2018, HHS approved Kentucky's revised program. The state had made some changes, but what it resubmitted was largely identical to the first application. The consequences would be exactly the same with at least 95,000 people estimated to still lose Medicaid coverage. The state was sued again.

The other states pursuing work requirements also projected that enrollment would be reduced. Under its waiver proposal, Wisconsin projects that enrollment will decrease 2% from 150,050 beneficiaries in CY 2016 to 146,407 in CY 2018.

Maine projects that its proposed waiver would cover 56,000 fewer eligible member months but with an increase in per member per month costs from \$790 to \$815, comparing the "without waiver" estimates to the "with waiver estimates" in the fifth year of the waiver. Maine estimates that the number of covered beneficiaries would decline regardless of waiver implementation but that the decline "may slightly increase over the short-term" due to the waiver provisions. Maine also estimates that costs will increase because the "able-bodied" adults expected to lose eligibility under the waiver have lower costs compared to other coverage groups.

We note that other waiver requests include Health Savings Accounts (based on the Indiana model), cost sharing increases, premium contributions, drug testing, benefit redesign – reduced benefits, Medicaid drug formularies, time limits on benefits, and open enrollment periods. All of these actions would likely restrict Medicaid membership growth or reduce it, which would be negative for hospitals.

## **There could be a silver lining – additional expansions**

Implementing a work requirement would reduce enrollment in the existing programs. However, there are states that have yet to expand Medicaid, who appear more willing to expand, if they are allowed to expand Medicaid up to 100% of the poverty level. Georgia and Utah have both passed expansion plans up to only 100% of the FPL, and both states are hoping that the Trump Administration will be willing to waive the 138% threshold, and still provide the higher (90% in 2020) matching rate for Medicaid expansion below the 138% threshold. CMS Administrator Verma has suggested that they are looking at the possibility, but, CMS has yet to approve higher federal matching rates for Utah.

In Georgia, the partial Medicaid expansion (up to 100% of FPL) would yield an estimated 240,000 additional covered lives (vs. 470,000 under a full Medicaid expansion up to 138% of FPL). CMS has yet to announce if would approve a waiver for Georgia to provide the higher federal matching rate for this partial expansion.

## **Other potential offsets to Reform**

Reform was beneficial for hospitals in 2014-2017. However, there are a number of potential negatives (beyond the Medicare cuts to fund Reform) that could mitigate the benefit to the industry.

### **Reform impact on labor costs**

One of the risks to our models has been the potential that higher volumes will lead to upward pressure on costs. Given that there is already a shortage of registered nurses, the additional 20 million of newly insured was expected to put upward pressure on demand for and cost of labor, which represents the biggest cost item for hospitals (about 45% versus bad debt representing 8-13%). In fact, in 3Q15, hospital companies and other health care providers reported some issues around labor costs.

Almost two-thirds of companies in our coverage universe reported 3Q15 labor costs above our estimates, but there was not a general consensus around what was causing the issue. Some companies said labor issues were due to overstaffing caused by being caught off guard from slowing volumes and therefore were easily fixable over the next couple of quarters. Others indicated that issues were broad based, driven by systemic wage pressure and labor shortages. We note that companies did a better job managing costs in 4Q15 and 1Q16, somewhat lessening concern around labor costs.

However, the upward pressure on labor costs continued in 2016 and into 2017 with companies noting that the labor cost pressure seems to be concentrated in several geographic areas, and is not broad-based. We did start to see some relief in labor costs in 2018 and into 2019, as companies started to focus on reducing turnover/temporary employment by offering better benefits for their employees. However, at its most simplistic, we estimated that the ACA boosted volumes by at least 2-3%, which all else equal would have increased demand for nurses by 2-3% above and beyond what it would have been. Meanwhile, as the economy improves we believe that labor cost pressure will likely continue, presenting a risk for the group.

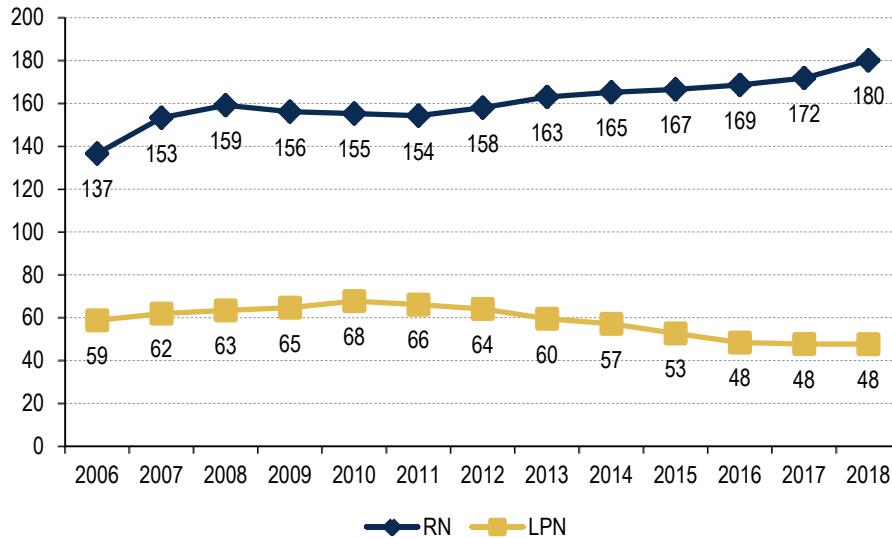
### **Weak economy helped reduce nurse shortage**

Since 1998, hospitals have reported a shortage of nurses, with the shortage peaking in 2001, when hospital nurse vacancy rates reached 13%. The vacancy rate has since dropped to 8% in 2019, below 8.2% in 2018. Data shows that increasing nurse supply has helped reverse the shortage. According to Health Affairs<sup>2</sup> researchers, a large increase in 2008 resulted from nurses who worked more hours because of the weak economy, and reentry among nurses who might have otherwise not participated in the labor market. For example, the percentage of nurses working part time in 2008 was

<sup>2</sup> Dr. Peter Buerhaus, "The Recent Surge in Nurse Employment: Causes and Implications," Health Affairs June 2009

17.4%, the lowest observed. In addition, there has been increased availability of entry level nursing education graduates. Plus, the relative slowdown in hospital volumes due to the recession reduced demand for nurses. This being said, more nurses are taking board exams for the first time, growing at a 2% CAGR over the past 13 years, about in line with what volume growth has been. 1Q2019 trends also point towards more first-time test takers in 2019.

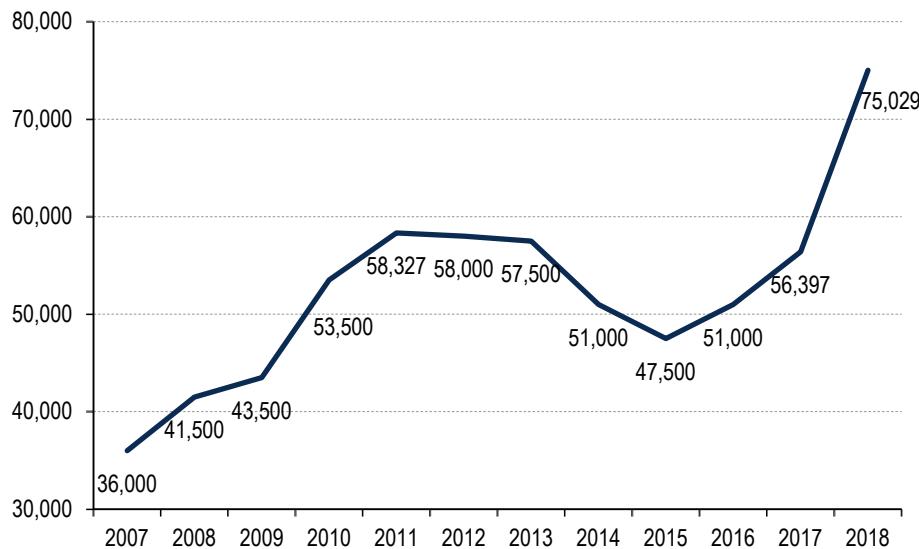
**Chart 171: # of US, First-Time Test Takers of Nurse Board Exams**



Source: National Council of State Boards of Nursing

The decision by younger people to enter the nursing workforce predates the recession, however, and can be attributed to initiatives to encourage nursing as a career. But the ability to expand the long-term supply of nurses appears to be constrained by the education system capacity. According to the American Association of Colleges of Nursing, nursing enrollments have increased so briskly that over 75,000 qualified applicants were turned away in 2018, way up from 56,000 in 2017. The researchers quote reports of shortages of faculty, inadequate classroom space, lack of clinical education sites, and budget shortfalls as reasons for the constraints.

**Chart 172: Qualified applicants continue to be turned away even in a nursing shortage**



Source: American Association of Colleges of Nursing

#### Nursing supply shortage smaller than 10 years ago

Currently, there are about three million registered nurses and approximately 1 million of them are over age 50, meaning 1/3<sup>rd</sup> of the workforce could be at retirement age in the next 10 to 15 years. National initiatives to spur nursing as a career and more students choosing nursing after the recession of 2008 have dramatically changed the outlook of nursing workforce. Nursing school enrollments doubled over the decade of the 2000s, as have the number of young registered nurses in the workforce.

Meanwhile, according to the U.S Bureau of Labor Statistics' Employment Projections 2016-2026, registered nursing is one of the occupations with the most job growth, with a 15% growth from 2016 to 2026, from 2.9 million to 3.4 million. This increase on demand is primarily due to the baby-boom generation coming to an age with high demand of healthcare services, to an improving economy with labor growth resulting in more people having insurance through their employer and a growing number of population with chronic diseases. In addition, there will be a need to replace nurses that will be retiring during the next decade.

More recently, a report published by the U.S. Department of Health and Human Services and the Health Resources and Services Administration examined supply and demand projections of the nursing workforce out to 2030. Looking between 2014 and 2030, the report cited a projected growth in RN supply of 39%, and a growth in demand of 28%, resulting in a national surplus of about 294,000 RNs by 2030, creating some hope that the state of RN staffing will continue to improve. However, looking at state level RN staffing, large population markets are projected to have significant RN shortages, such as California (44,500 short), Texas (15,900 short), New Jersey (11,400 short), and South Carolina (10,400 short), possibly leading to increased risk for companies with large exposure in these markets if RNs can't be recruited.

Meanwhile, not all studies are so rosy. According to Bauerhaus, although more people are entering the nursing profession (enough to replace the 1 million who will likely retire in the next 10 to 15 years), it may not be enough to match the national demand. Change in nurses exiting the workforce is projected to outpace the change of nurses entering it.

#### **Exhibit 8: Nurses entering workforce vs exiting workforce change**

	# of nurses (thousands)		
	2001	2020 projection	Percent change 2001-2020
Nurses entering workforce	75	108	44.3%
Nurses exiting workforce	26	72	178.3%

Source: WSJ

According to a 2015 survey of nurses conducted by AMN Healthcare, with the improving economy, 39% of all nurses answered yes or maybe when asked if they were thinking more about retirement now. Meanwhile, 62% of nurses older than age 54 answered yes or maybe when asked if they were thinking about retirement. In addition to attrition due to retirement there is also a risk of nurses reducing their work hours with 21% of respondents saying now that the economy improved they will move to part-time.

These results indicate the propensity of nurses to retire has increased over the last several years. In the 2014 AMN Healthcare survey, 23% of nurses age 55 and older said they plan to dramatically change their work life in the very near future, including 13% who say they will retire, while 3% say they will take a non-nursing job and 7% will work part-time.

Medscape also does an annual Nurse Career Satisfaction survey of over 10,000 nurses. In the most recent survey (2018), nurses aged 25 to 34 expect to retire in 30 years, those aged 35 to 44 expect to retire in 23 years, those 45 to 54 expect to retire in 15 years, those 55 to 64 expect to retire in 7 years, and those aged 65 or older expect to retire in 4 years. Interestingly, this implies that a 30 year old RN expects to retire at age 60, a 40 year old at age 62, a 50 year old at age 64, a 60 year old at age 66, and a 65 year old at age 68. This points to the fact that the nurses, like most people, tend to underestimate how long they need to work.

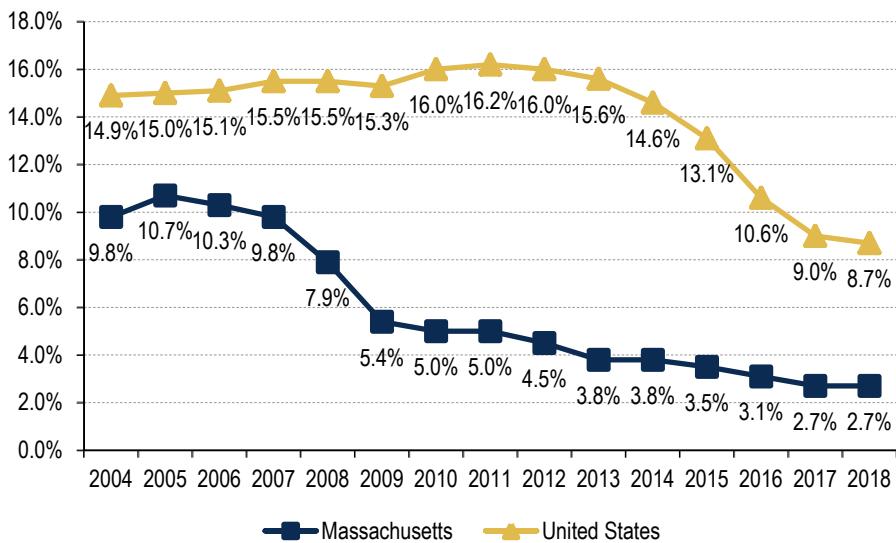
#### **Newly Insured lead to increased demand for doctors and nurses**

The newly insured create more demand for physician services, especially the primary care doctors, as the uninsured likely did not have a family doctor prior.

Massachusetts provides an example – decreasing uninsured and increasing physician shortage

Since 2006, Massachusetts has expanded coverage to 97% of its population and now has the lowest uninsured rate in the country (2.7% as per the 2018 America's Health Rankings report). However, the expansion of coverage has caused it to experience a significant shortage of doctors. According to a Merritt Hawkins survey from 2017, it takes 109 days on average to get an appointment with a family doctor in Boston, MA, more than four times the wait in New York and Atlanta, and six times the wait in Washington DC and Philadelphia. Interestingly though, Massachusetts has actually the highest ratio of active physicians at almost 450 per 100,000 population (vs the national median of 258).

**Chart 173: Un-insurance rate in Massachusetts vs total US population**



Source: America's Health Rankings

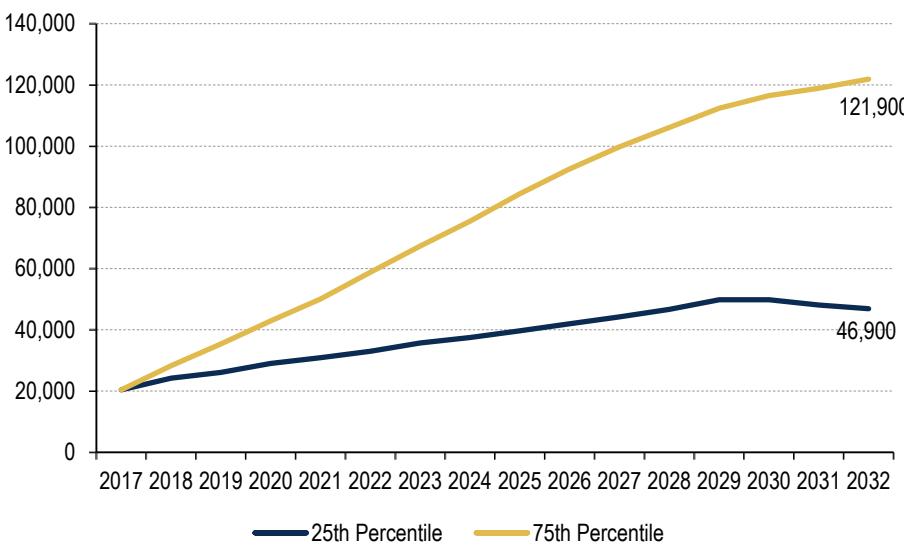
In addition, according to the 2018 CRS Report to Congress, about 20% of nonelderly adults in Massachusetts reported problems obtaining care because the physician's office or clinic either were not accepting new patients or did not accept their type of insurance. This problem is much more common for low income adults and those with public coverage, compared to adults with higher income or private coverage.

### Shortage of physicians

Given that there already is a shortage of primary care physicians, the additional 20 million newly insured would put additional pressure on the labor market for doctors, especially primary care physicians. Similar to the nursing workforce, the supply of physicians is also at risk from increasing retirements. A study of the American Medical Association (AMA) Masterfile shows that 15% of active physicians are over 65 and those between 55 and 64 make up 27% of physicians (42% total, more than 40% last year).

According to a April 2019 study conducted by IHS Ltd. for the Association of American Medical Colleges, population growth and aging will be the primary driver of increased demand between 2017 and 2032, estimating that the population aged 65 and older is projected to grow by 48%, resulting in a demand growth of between 2% and 19%. Meanwhile, supply growth is expected to only be between 2% and 11%, meaning that by 2032, the shortage that already exists is likely to expand to between 46,900 and 121,900 physicians short. The shortage represents about 9% of the current physician workforce of about 900,000.

**Chart 174: Projected physician shortage 2017-2032 – 25<sup>th</sup> and 75<sup>th</sup> percentile estimation**



Source: Association of American Medical Colleges

The study estimated the shortage for primary care doctors to be of between 21,100 and 55,200 physicians by 2032, which is higher than the previous 2018 study where they projected a 14,800 to 49,300 shortfall. The higher shortfall projection reflects the number of generalists who remain in primary care versus becoming a hospitalist or later specializing in non-primary care. If the nation were to achieve population health goals (improving weight, control of blood pressure, cholesterol, and blood glucose levels, reducing smoking, etc.), demand for physicians would be 33,900 physicians higher than in 2032 without achieving these goals.

For all specialty categories, physician retirement decisions are projected to have the greatest impact on supply, and more than one-third of all currently active physicians will be 65 or older within the next decade. It is also important to note that in the 2018 Medscape National Physician Burnout and Depression Report indicates that 42% of physician respondents reported burnout, with long work hours and excess bureaucratic tasks leading contributors to burn out.

The shortage of doctors is difficult to resolve quickly as it takes six years to educate a nurse practitioner and a dozen years to produce a doctor, implying it would take years to increase the supply of doctors that is needed.

Almost 70% of doctors work in higher-paid specialties, compared to about 50% 50 years ago. The table below shows that recently there has been a continued shift away from primary care disciplines toward specialties, which tend to pay better, so they tend to attract medical school students burdened with school debt. Family medicine ranks 16<sup>th</sup> in annual salary of the top 20 most popular specialties for new physicians.

**Table 167: Physician expected pay by specialty, 2018**

Specialty	Physician Recruitment Incentives, 2018
Cardiology	\$590,000
Orthopedic Surgery	\$533,000
Gastroenterology	\$487,000
Dermatology	\$425,000
Pulmonology	\$418,000
Otolaryngology	\$405,000
Urology	\$386,000
Radiology	\$371,000
Anesthesiology	\$371,000
Emergency Medicine	\$358,000

**Table 167: Physician expected pay by specialty, 2018**

Specialty	Physician Recruitment Incentives, 2018
OB/GYN	\$324,000
Neurology	\$301,000
Hospitalist	\$269,000
Psychiatry	\$261,000
Internal Medicine	\$261,000
Family Medicine	\$241,000
Urgent Care	\$234,000
Pediatrics	\$230,000
Nurse Practitioner	\$129,000
Physician Assistant	\$109,000

Source: Merritt Hawkins & Associates

## Other Reform provisions

In addition to the major provisions calling for coverage expansion, the Health Care Reform bill includes several other provisions that attempt to generate savings for the federal government. These provisions center on care coordination and quality incentives and include: demonstration projects for a bundled payment, a voluntary program for Accountable Care Organizations (started 1/1/2012), and a value based purchasing program beginning FY2013 (10/1/2012).

Although these provisions do not appear to have an immediate impact on hospital companies' earnings, they do lead to changes in the way the health care system works and may have significant implications over time.

Please see the section on [Evolving Payment Models](#) for more details about each program.

### Pay for performance

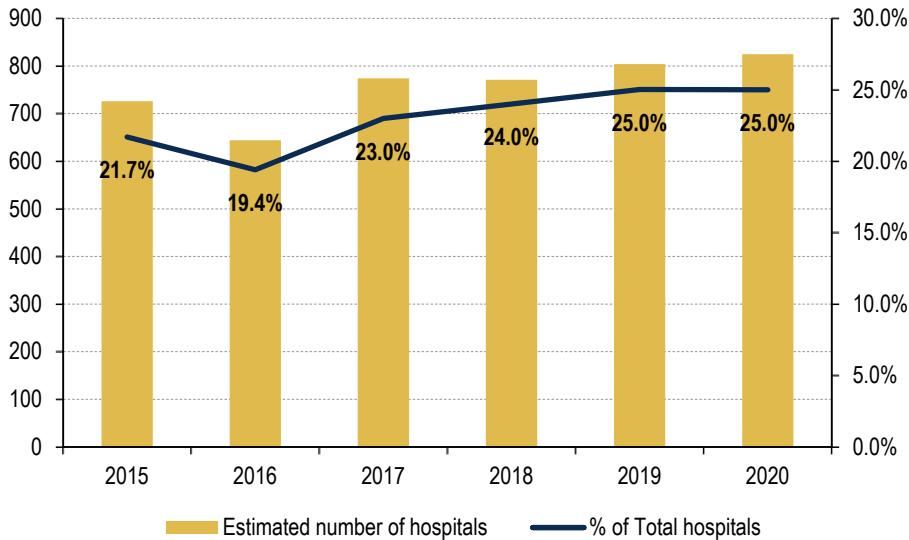
The trend of pay for quality is a well telegraphed direction of not only Medicare (as outlined in the HC Reform bill) but also commercial payers, and as a result, the publicly traded hospital companies all invested heavily in and appear well positioned to get paid under any system that rewards quality.

The first step in its attempt to improve quality was to require hospitals to report their performance against certain quality metrics. The Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003 authorized CMS to cut rates for hospitals that failed to report quality data. Initially, the adjustment was -0.4%, but was increased to -2% under the Deficit Reduction Act of 2005. By 2007, 95% of hospitals reported quality data and virtually all hospitals now report quality data.

### Hospital Acquired Conditions

The Reform bill includes a reduction of 1% in payments beginning in FY2015 and beyond for the worst 25% of hospitals for Hospital Acquired Conditions.

**Chart 175: Estimated number of hospitals that would see a HAC penalty**



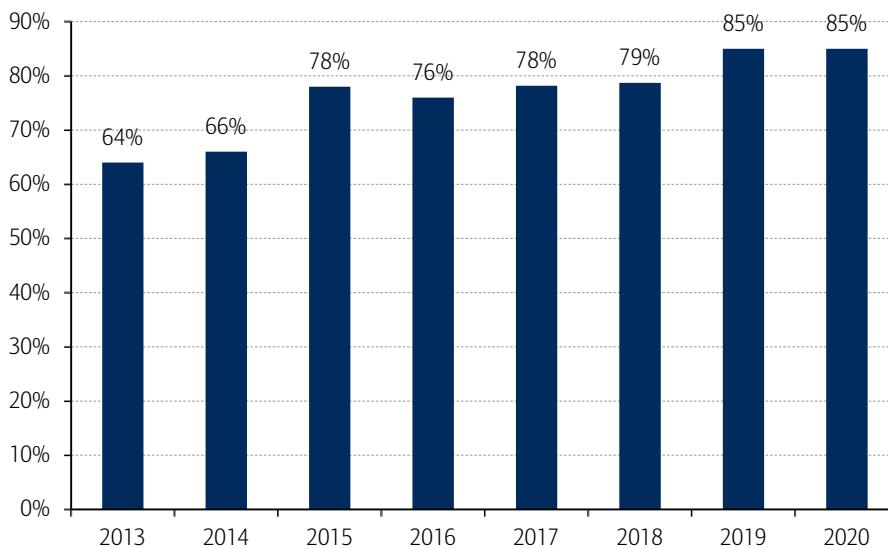
Source: CMS, BofA Merrill Lynch Global Research

### Readmissions

In addition, the Reform bill includes payment reductions beginning in 2013 for hospitals with readmissions rates above certain thresholds for certain conditions. It builds on the existing policy, which prevents higher payment to a hospital for treatment costs associated with certain preventable conditions that were not present on admission. Payment reduction increases from 1% in FY2013 to 2% in FY2014 and 3% in FY2015 and beyond.

In 2013, 64% of hospitals that fall under this program received a penalty. The penalty proportion rose to 66% in 2014 and further to an estimated 85% in 2020 as per the FY20 proposed regulation, which is about the same percent as the estimate for FY19.

### Exhibit 9: Percentage of hospitals penalized under HRRP, 2013-2020

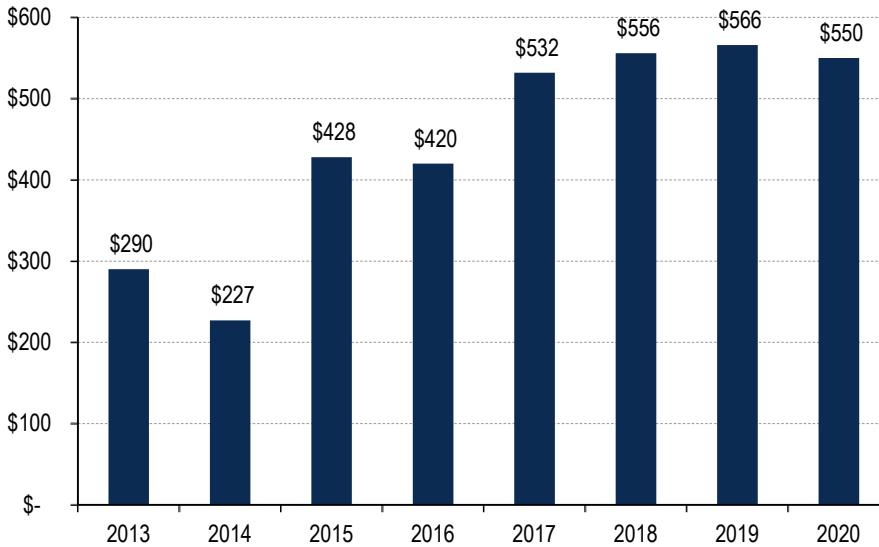


Source: CMS, BofA Merrill Lynch Global Research

CMS estimated total hospital penalties under HRRP to be \$290 million in 2013, \$227 million in 2014, and \$428 million in 2015. Note the significant jump from 2014 to 2015.

which was caused by CMS adding two diagnoses to the calculation (going from three to five). The penalties are expected to increase to \$423 million in 2016 and increase further to \$523 million in 2017 due to a refinement of the pneumonia readmission measure and an additional measure to the calculation of the payment adjustment, totaling six diagnoses. Total penalties were expected to be \$556 million and \$566 million in 2018 and 2019, respectively, and are actually expected to decrease slightly to \$550 million for FY20.

**Chart 176: CMS estimate of total penalties under HRRP (\$ million), 2013-2020**



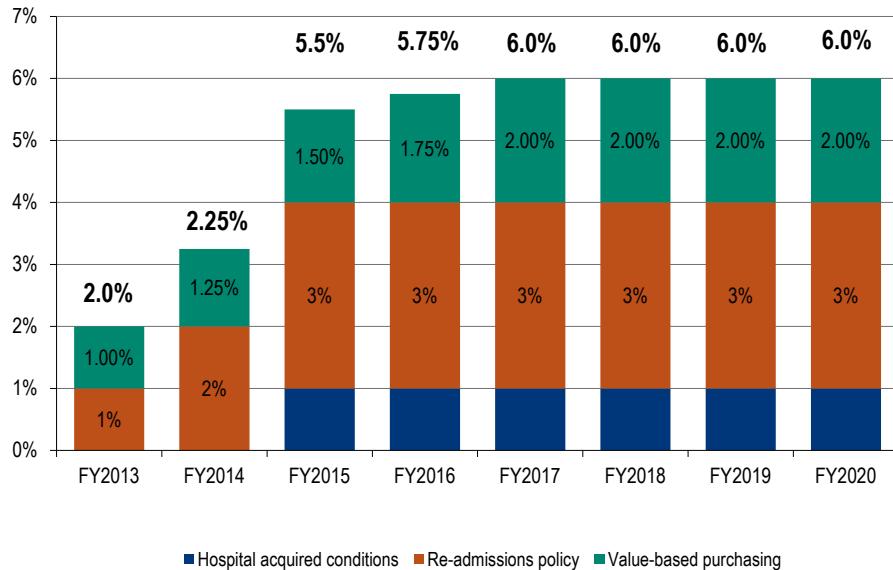
Source: The Kaiser Family Foundation, IPPS FY2019 Proposed rule (CMS)

### Value Based Purchasing

The aggregate VBP payments across all hospitals will be funded through a reduction in base operating DRG payments for each discharge, which was 1% in FY2013, rising to 2% by FY2017 (increasing by 0.25% starting in FY2014). However, if hospitals meet this criteria than can receive bonus payments that offset or even potentially exceed the amount of the cut.

The combined impact of these programs leaves the industry exposed to 2% of Medicare inpatient payments in FY13 with the exposure increasing to as much as 6% starting in FY17 if certain quality metrics are not met.

**Chart 177: Hospital Quality Programs**



Source: BofA Merrill Lynch Global Research, CMS

## **Summary: Reform boosted 2014-2016, now a risk**

The passage of Health Care Reform marks the biggest expansion of health care since the creation of Medicare and Medicaid in 1965. As expected, the Reform benefits were more front end loaded as the sick people rushed to buy insurance as soon as possible (why would a sick person wait until Year 3 to buy insurance?), and those patients represent the majority of hospitals' uncompensated care – the sickest 5% of uninsured represent 67% of uninsured spending. Due to this dynamic, the hospitals saw a boost in earnings in 2014-2016, which we had expected would be only a modest long-term benefit as the margin benefits are largely offset over time by the rate cuts implemented to fund Reform. “Medicare Rules” apply – if Reform would up being significantly better than expected, Congress would be unlikely to let any sector have a windfall, and will pass rate cuts to return margins toward 2013 levels.

Post the 2016 elections, our view turned more cautious. Even though Reform was not repealed, we believe there's downside risk to the number of insured people under the current Administration: 1) individual mandate was repealed for 2019, 2) the administration has not supported the exchanges the way the prior administration did (eg pulled advertising meant to encourage sign ups) and 3) it gave more flexibility to states to develop new approaches to controlling Medicaid costs, including potential work requirements, increased cost sharing, and moving to more private sector solutions for Medicaid such as the use of Health Savings Accounts. Overall, we believe that the percentage of the population that is uninsured will increase over time or would be unchanged in the best case scenario. This would put upward pressure on bad debt and downward pressure on volume growth.

However, as the 2016 election showed, the move towards increased coverage can pivot, depending on who is the White House. If at some point in the future, Democrats regain control, we could see movement to shore up the exchanges and encourage more states to expand Medicaid, creating a tailwind for the group.

# Medicare for All Scenarios

There has been a growing movement within the Democratic party to move the US healthcare system towards a single payer or government run program. There are a large number of proposals that have been dubbed "Medicare for All" and they range the gamut from giving people the option to get Medicare coverage (through a buy-in or Medicare plan on the exchanges) to elimination of the current health care system and full replacement with a Medicare program that is even more robust than the current Medicare system.

True Medicare for All would replace the existing system entirely. Both Bernie Sanders and Pramila Jayapal have proposals for this type of system, and they have backing from Elizabeth Warren as well. This system would provide more extensive benefits than the traditional Medicare program, with no/limited premiums, copayments, or cost-sharing for most services, and would also include direct price negotiations for drugs and devices.

By eliminating most private insurance coverage, the hospitals would be subject to receiving Medicare rates for all of their services. While hospitals would benefit from lower bad debt and higher utilization under universal health care coverage, seeing a volume benefit even greater than the one Health Care Reform provided, the cut of commercial rates to Medicare rates (40% cut) on 50% of their revenue would more than offset the bad debt/volume benefit. Additionally, higher utilization would result in increased pressure on labor costs, as hospitals need to staff for the increased volume.

## Positive – covering the uninsured

Similar to the benefits of Health Care Reform, Hospitals would benefit from lower bad debt and higher utilization from universal coverage, with the impact likely to be 2x the benefit of HC Reform (since about twice as many people would be covered). Hospitals saw a 7% boost to EBITDA when 16m people got coverage under the ACA. If another 32m people get coverage then it would add 15% to EBITDA.

**Table 168: Est benefit from additional coverage expansion**

Incremental coverage under Reform	16
Avg Reform benefit % EBITDA	7.4%
Universal coverage	32
<b>Est benefit from additional coverage expansion</b>	<b>14.7%</b>

Source: BofA Merrill Lynch Global Research estimates

## Positive – moving from Medicaid to Medicare would be a 30% rate boost

Under the "Medicare for All" plan, Medicaid coverage would be replaced with the new Medicare coverage. This would be a positive for hospitals as Medicare pays about 30% more than Medicaid. Adding, 30% to 10% of hospital revenues would increase revenue by 3%, and with that amount falling through to the bottom line, would increase industry EBITDA by approximately 21%.

**Table 169: Est Impact of Medicaid rates going up to Medicare**

Rate increase (Medicaid going up to Medicare)	30%
Medicaid % of total revs	10%
Impact to revs	3%
Avg EBITDA margin	14.5%
<b>Impact as % of margin</b>	<b>21%</b>

Source: BofA Merrill Lynch Global Research estimates

## Negative – shift from commercial to Medicare is a 40% cut

However, under the worst case "Medicare for all" scenario, commercially insured population would be shifted to Medicare with Medicare rates being 40% below commercial rates on average. The 40% cut on 50% of revenue would more than offset

the bad debt benefit. In fact, this 20% cut to revenue would more than eliminate the industry's entire EBITDA.

**Table 170: Est Impact of Commercial rates going down to Medicare**

<b>Rate cut (Commercial going to Medicare)</b>	<b>-40%</b>
Commercial rev as % of total	50%
Impact to revs	-20%
Avg EBITDA margin	14.5%
<b>Cut as % of margin</b>	<b>-138%</b>

Source: BofA Merrill Lynch Global Research estimates

Of note, companies doing the best under the current system would likely see the biggest hits. Companies with dominant local market share and the best commercial rates would see a bigger rate cut when moving to the Medicare rate (where there is no ability to negotiate, outside of Medicare Advantage).

#### **Net, industry profits would be wiped out**

Net, we estimate that industry EBITDA would turn slightly negative, as EBITDA would be cut by 102%. With companies needing to fund capex and interest expense, we could envision at least 20% of hospitals having to close. We note that a study by the Center for American Progress estimated that rates would have to be 20% above current Medicare rates for "Medicare for All" to create a viable hospital industry.

**Table 171: Estimated impact on hospitals of "Medicare for all"**

<b>Est benefit from additional coverage expansion</b>	<b>15%</b>
Impact of rate increase (Medicaid going up to Medicare)	21%
Impact of rate cut (Commercial going to Medicare)	-138%
<b>Net impact</b>	<b>-102%</b>

Source: BofA Merrill Lynch Global Research estimates

#### **Medicare Buy-In more likely, more modest negative**

We believe that actual implementation of a true Medicare for All bill has a low likelihood due to the political hoops that such a bill would have to jump through to get passed. Although still unlikely, we think that two more likely options are a Medicare Buy-In for people over 50 or a Medicare option on the exchanges.

Commercial rates are 50% or more above Medicare rates, so any initiative (Medicare buy-in or exchange option) that would shift more beneficiaries into Medicare at lower payment rates at the expense of commercial would be a negative for hospitals. This would exacerbate what we see as a negative long term shift away from commercial to government payors. Meanwhile, although we would expect some additional coverage, and lower bad debt, we would not expect enough new coverage to offset the margin compression on the existing business.

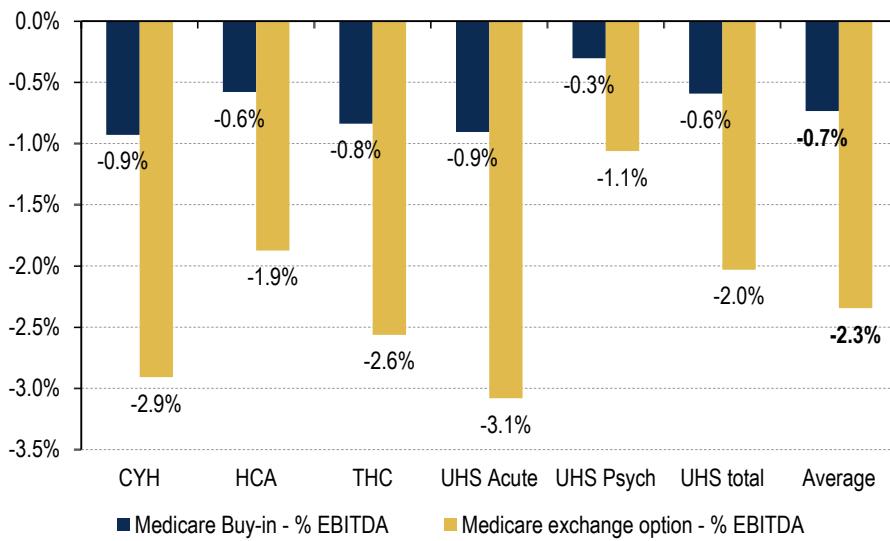
We note that hospitals are already facing a difficult demographic backdrop. With population growth of 70-80 basis points per year and the cohort over the age 65 expected to grow in the 3% range over the next decade, then the under 65 (ie working age population) is expected to grow only 0.2-0.3% per year. This is particularly negative for the hospital companies which derive about half of their revenues and almost all of their profits from the commercially-insured population. With unemployment near historic lows (and more likely to increase over time than decrease) and the potential for Medicaid to grow slightly faster than average, the total number of commercially-insured people in the US may end up being flat to negative over the next 10 years. In addition, the large managed care companies continue to talk about opportunities to reduce inpatient bed days per 1,000 people, which would further pressure commercial utilization.

Given this backdrop, any incremental pressure to payor mix from a Medicare Buy-in or Medicare exchange option would be harder to offset.

- **Medicare Buy In** – if 25% of individually insured move to the Medicare buy-in and 400k uninsured gain coverage, it would be a 1% hit to hospital companies' EBITDA.
- **Medicare Option on the exchange** – assuming 25% of the individual market and 10% of the small group market move to Medicare, and 2m uninsured gain coverage, we estimate the Medicare exchange option would be a 2% hit to hospital EBITDA.

**Chart 178: We estimate Medicare Buy-in would be a 1% hit, and the Medicare exchange option would be a 2% hit to hospital EBITDA**

Assuming 25% of individual market moves to the Buy-in; 25% of individual and 10% of small group market move to Medicare exchange option



Source: BofA Merrill Lynch Global Research estimates

## Evolving payment models



## Evolving Payment Models

Payment systems have been evolving slowly over the last few decades, but the pace of change appears to have accelerated since Health Care Reform implemented a number of initiatives supporting more value-based care. The traditional fee-for-service (FFS) model is inherently inefficient – providers get paid every time they provide a service, so the incentive is to provide more services. The goal is to move toward value-based payment approaches, where providers are incentivized to provide high quality service in the lowest cost setting. Health care cost growth has slowed, and yet it continues to grow faster than the economy overall, putting pressure on the government, employers and the individual to see if there is a better way to control costs. The implications and potential rewards are huge: a 1% reduction to overall US health care spending growth each year over the next 10 years could lead to \$2.5+ trillion in savings. We wrote a [nearly 300 page primer](#) on evolving payment models, discussing this trend in detail, including the impact on payers and providers, and this section is a summary of some of those trends.

There has been mixed signals from the Trump administration regarding the overall goals of value-based care programs originally created under the Obama administration as former HHS secretary Tom Price indicated opposition to making certain payment models mandatory. Throughout 2017, bundled payment initiatives were delayed or cancelled. The Comprehensive Care for Joint Replacement Model (CJR) expansion as well as the implementation of cardiac bundled payment initiatives were delayed multiple times. By the end of the year, CMS cancelled the Episode Payment Models (EPMs) and Cardiac Rehabilitation (CR) Incentive Payment Model. CMS also reduced the number of mandatory geographic areas participating in the CJR Model.

However, in January 2018, HHS secretary Alex Azar indicated support on the mandatory bundled payments and included value-based transformation among the top priorities. He stated that the fee-for-service system is unsustainable and there is no going back to it. Earlier this year, CMS announced a new voluntary episode payment model, Bundled Payment for Care Improvement (BPCI) Advanced.

### Key takeaways

Below we highlight a few of the key findings from our primer on evolving payment models.

#### **Very little of current reimbursement is tied to performance, but it is growing**

In January 2015, HHS stated its goal to have 30% of reimbursement tied to alternative payment models in 2016, up to 50% by the end of 2018. Meanwhile, the large diversified managed care companies often quote how they have tens of billions of dollars tied to performance. However, in both cases, the organizations are including the entire payment, even if only 2% of that payment actually is tied to performance. As a result, the incentive for providers to change how they operate is much smaller than the headline appears. However, there is uniform agreement that this percentage is only likely to rise, and the shift to value should not be ignored.

#### **Requirements to report quality data are followed by requirements to perform**

It is unclear to us how much of this shift to quality was planned at the time, but looking at the changes over the last 15 years, CMS seems to have led the industry methodically down the path toward pay for quality. For example, the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003 authorized CMS to cut rates for hospitals that failed to report quality data. Initially, the adjustment was -0.4%, but was increased to -2% under the Deficit Reduction Act of 2005. By 2007, 95% of hospitals reported quality data and virtually all hospitals now report quality data.

As hospitals reported data, CMS began to better understand industry performance, which laid the groundwork for Valued Based Purchasing (VBP). By 2013, VBP was put into effect for hospitals, requiring hospitals to actually hit their quality data in order to

receive full payment. For those subsectors that are just now being asked to submit data, we would expect value based purchasing to be rolled out a few years later.

### **CMS taking the lead, and committing to increasing Pay for Performance is key**

When asking why this round of shifting to pay for performance is different from prior attempts (eg, the shift to capitation in the mid 1990s), one response was the role of CMS. As the largest single payer for health care, CMS has the ability to influence providers. However, it is important not only that CMS made notable changes, but also that it set goals for continued movement to VBP. The deliberate pace of change gives providers time to adjust, while also creating a sense of urgency to start acting now to hit targets down the road. This should give more staying power to the move to value-based care than prior attempts.

### **Value based purchasing is the “new rate cut”**

CMS is not acting alone in the shift to value-based care – Congress also is a proponent. Historically, the easiest way to save money to fund a doc fix or some other legislation was to cut provider rates. However, in our view Congress perceives there is a limit to how much rates can be cut. Instead, its focus is on controlling utilization and changing the way that the dollars are spent in the system. As a result, Congress increasingly seeks to save money through value-based arrangements – eg, instead of outright cutting nursing home rates, putting in a penalty for readmissions to the hospital.

### **Quality matters today and only will matter more going forward**

With rates starting to be tied to quality, it was not surprising that providers were focusing on being the highest quality provider, but it was surprising that this was not done simply to avoid rate cuts (although that was clearly part of it). Instead, being high quality was increasingly a component in managed care discussions, not just around rates, but also around whether the provider would even be in network. MCOs indicated a willingness to work with low quality providers who were interested in improving, but noted that consistently low performers would be cut from networks. This is because payers increasingly see high quality as a way to help control health care spending.

Providers increasingly embrace quality because new payment models require that they do so. For example, pay for performance structures like Medicare ACOs, which allow providers to share in savings if they can reduce costs below a benchmark, often require that the provider achieve certain quality targets in addition to controlling costs if they want a bonus payment. This ensures that providers are not simply hitting cost targets by denying care, and it makes pay for performance a more sustainable model.

### **Technology will help, but physician engagement is vital**

We asked companies what the key was to controlling costs and being successful under pay for performance models. They frequently discussed their differentiated systems, data warehouses and analytical capabilities, so we expected IT systems would be the number one answer. However, the most common response was physician engagement. Without the buy-in from physicians from the top down, shared risk payment models are unlikely to succeed. Physician groups need to be willing to change practice patterns, invest in systems and potentially weather some bumpiness in near term results. Without that commitment, many attempts to shift payment models would fail. One respondent noted, “IT systems are all well and good, but you have to remember that some physician groups were successful managing costs under capitation 20+ years ago when IT systems were pretty poor. Getting doctors on-board is key.”

### **For-profit providers not rushing toward new models, but are quietly preparing**

Response to evolving payment models run the gamut, so it is dangerous to oversimplify, but generally the for-profit companies seem slow to embrace the movement toward value-based care. This is likely because they are successful under the current reimbursement model, and since past attempts to change reimbursement structures 20

years ago largely failed, they are once bitten, twice shy about embracing a new system. However, every company is participating in at least a dozen small projects (ACOs, bundling etc) to see how new payment models work.

Companies also are acting to help maximize profits under the new system while preparing for the next system. Many providers note they are focusing on benchmarking doctors along a cost and quality spectrum, to move low quality doctors up and high cost doctors down. This standardization in financial/quality outcomes improves profitability in a fee for service world, but is also a prerequisite for understanding how to take risk. Many providers fear that their non-profit brethren are rushing into risk sharing arrangements without a good sense of what their unit costs are – which is why so many providers failed last time.

#### **Hospitals are moving to Value Based Purchasing (VBP) out of fear, not greed**

There are numerous examples of providers being successful under capitation or shared risk, but MCOs rarely find that providers are making the move in an attempt to increase profits. Instead, the vast majority of conversations about a move to VBP that are initiated by hospitals are from a point of view that the shift is starting to happen, it is inevitable, and they need a game plan in order to deal with it. If there is a provider looking at a shift as an opportunity, it is likely to be a sophisticated physician practice, where the upside is clearer and the changes necessary to be successful are more straightforward. The fact that the move was driven by fear, rather than greed is somewhat surprising to us, given MCOs' commentary that a provider who embraces new payment models can be more profitable than under fee for service.

#### **Companies seem to want to learn from their past mistakes and taking it slow**

Managed care companies do not want to push providers into capitation arrangements. Instead, they (and seemingly CMS) are willing to slowly move payments in that direction. Paying bonuses for quality is the first step, followed by shared savings arrangements, which give providers upside if they achieve cost targets but no downside if they fall short. The next step is shared risk, where the potential upside is larger, but the provider also has to share in the downside. The last step would be to full capitation. Although most MCOs indicated that they would rather have a provider in a capitated contract if that provider were ready to accept risk, at least one indicated that shared risk was its preferred structure, because this meant the provider and the managed care company were truly aligned (would both see upside if costs dropped and downside if costs rose).

#### **It will be difficult to offset lost inpatient volume with outpatient volume**

A number of inpatient based post-acute companies added home health capabilities in recent years with the view that inpatient volumes increasingly could move in that direction, and they would need to be able to serve those patients. However, we find it difficult to see how this would work, given than companies will be losing high dollar/high incremental margin business and replacing it with lower rate/lower incremental margin business. Meanwhile, the number of home health users is 50% larger than long-term care hospital (LTCH), inpatient rehab facility (IRF) and skilled nursing facility (SNF) users combined. As a result, in order for there to be a 10% increase in home health volumes, 16% of the combined volume in IRFs, SNFs and LTCHs would have to move to home health. In order for the math to truly work, post-acute care providers need to gain a larger share of what appears to be a shrinking inpatient pool.

#### **This will take time**

The vast majority of companies that we spoke to indicated that they expect the shift to new payment models to happen over a long period. However, most of them indicated that the pace of change would vary significantly by market, with some markets adopting rapidly and other markets taking much longer.

## **Company-specific exposure to new models**

### **CYH exposure to new payment models – Medium**

In general, we have found fewer value-based care initiatives outside of urban markets. As a result, we see potential volume pressures from these initiatives as less of an issue for CYH than for some of its urban peers. However, CYH does have exposure to value-based care models as they stated their intention to transition markets where they have multiple hospitals better suited for a move to value based care and population health reimbursement models, especially as a self-proclaimed “urban hospital company”, we can expect that their exposure to value-based care models will only increase.

### **HCA exposure to new payment models – Medium**

Like most publicly traded hospitals, HCA has very little of its revenue at risk under new payment models, outside of the mandatory value based initiatives from Medicare. However, the company expects the percentage to grow over time and is evaluating a number of pilots across the country. As an urban hospital company, the pressure to move toward these new models is likely above average given a more competitive hospital market and the potential first mover advantages of aligning with a major payer in an ACO. This being said, HCA did note on their 1Q19 conference call that roughly 75-80% of inpatient admissions take a form of risk and that they get DRG payments or case rate payments depending on the patient.

### **THC exposure to new payment models – Medium**

THC is generally confident about the transition to value-based reimbursement and is more forward looking than its peers. However, in recent years, THC appears to have taken a step backwards. The company's exposure to alternative payment models expanded with the acquisition of Vanguard (ACOs, Medicaid MCO plans, etc.). But since then, THC has sold most of its health plan business and is attempting to sell Conifer (its revenue cycle management business), somewhat lessening its in-house capabilities, and signaling that THC's movement towards new payment models will be more gradual. THC's expedited shift to a capitation model hit the EBITDA by \$15 million in 2018 (weighted toward the first half). THC says that it will get solved, but will take time, and will likely result in THC being more cautious when entering capitation agreements.

THC does not plan to drive all markets toward risk-based contracts but does hope to engage in value-based payment models where they have a competitive advantage in doing so. Some THC alternative payment models have been successful while others have not, and management emphasizes that the success of the arrangements is market-specific. THC management believes the company would benefit from the transition to value-based care for two main reasons: 1) the company generally prices below leading nonprofit health systems, and 2) THC operates at a fraction of its capacity.

### **UHS exposure to new payment models – Medium**

UHS views sees pressure to move toward these new models given a more competitive hospital market and the potential first mover advantages of aligning with a major payer or ACO. The vast majority of UHS's contracts continue to rely heavily on the FFS model, but UHS is seeing a more accelerated, although still relatively modest, shift to value-based arrangements. Some commercial contracts include some quality requirements, and some of the exchange products have some flavor of that through the use of narrow networks, where the company believes it was chosen to be in network due to its quality. The company does not participate in Medicare ACOs or commercial ACOs. However, UHS does participate in the bundle demo. While initially all of its hospitals were enrolled for at least one condition in the BPCI program, since fall 2016 only ten of its hospitals participate. UHS also runs a couple of health plans in TX and NV.

## Fee for service vs fee for value

From the beginning, US health care providers have been reimbursed on a fee-for-service basis. Under this system, the insurer or patient pays a separate fee for each service provided to the patient. Although the system has worked for the past few hundred years, there are clear signs that it is unsustainable.

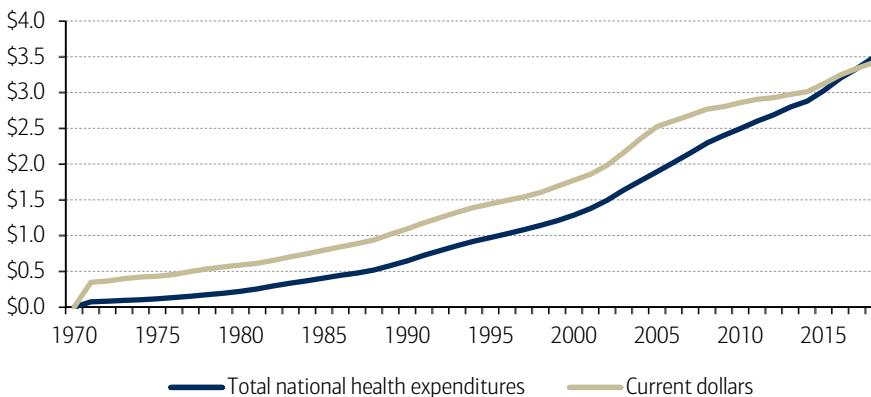
### Issues with the current system

- **A focus on volume.** Under FFS, physicians and other providers are paid more money if they provide more services, creating the incentive to run more tests and perform more expensive procedures than necessary. This issue can be compounded by the current legal system, which leaves physicians liable for misdiagnosis and drives the practice of defensive medicine. If a provider gets more money to run a test to go from 98% confident in a diagnosis to 100% confident and reduce the likelihood of getting sued, why not order that test?
- **A lack of focus on quality.** Although we believe that all health care providers want to do a good job, their main focus is on what happens at their site, with little attention paid to the long term outcomes for the patient. In fact, most providers have little data on what happens after patients leave their doors. Without the time, resources, or financial incentives to follow patients, there is little reason for doctors to even try to do so. These gaps in care dramatically reduce overall quality.
- **A barrier to shift to low cost setting.** With the focus on quantity, not quality of care, many physician practices bought MRIs and other imaging equipment in an effort to capture more of the economics of the patients that they see. As a result, there is an incentive to use that machine, even if a freestanding imaging center might be a lower cost option. In the end, the patient can receive suboptimal care, pay a higher price, or both.
- **Little focus on preventative care.** The current model is based on treating people after they get sick, and there are few incentives to keep people healthy.

### Costs are rising too quickly

According to The Kaiser Family Foundation, in 1970, health care spending totaled \$350 billion in 2015 dollars. In 2000, this figure reached \$1.9 trillion, up 4x and by 2016, health expenditures had more than doubled again to \$3.3 trillion. In 2017 spending increased 3.9% to \$3.5 trillion (\$10,739 per person). National health spending is projected to grow at an average 5.5% per year for 2017-2026.

**Exhibit 10: Total US health expenditures (\$ trillions), 1970-2017**

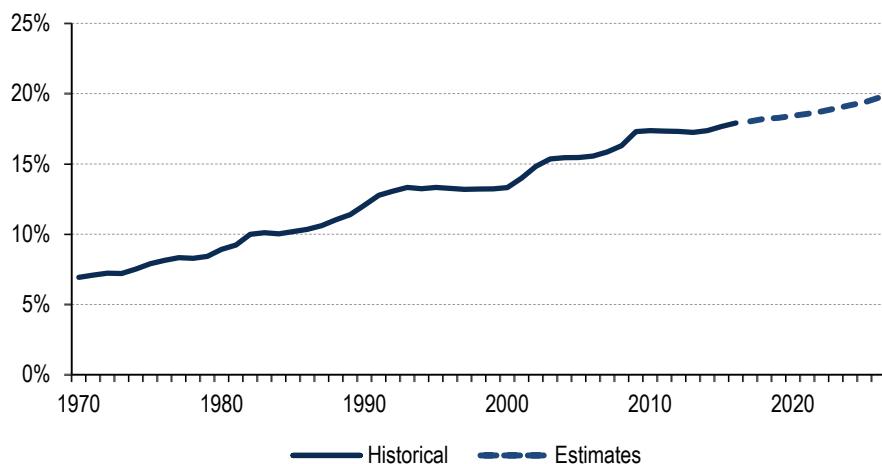


Source: BofA Merrill Lynch Global Research, Kaiser Family Foundation analysis of National Health Expenditure (NHE) data from Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group

## Health spending as a percentage of GDP

The portion of US GDP dedicated to health spending has also increased dramatically. In 1970, approximately 7% of the GDP was dedicated to health spending and by 2015 it rose to 18% for both 2015. Based on estimates from CBO and the Bureau of Economic Analysis, it will reach 20% in 2026. Marshall Islands, a small country with a GDP of approximately \$183 million and a population of almost 53,100, is the only country that matches US health expenditures as a percentage of GDP according to The World Bank.

**Exhibit 11: Total national health expenditures as a percentage of GDP, 1970-2026**

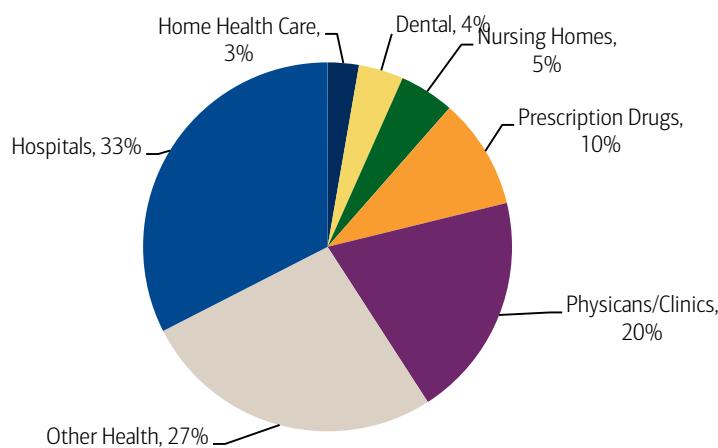


Source: BofA Merrill Lynch Global Research, CMS, BEA, CBO, NHE

## Relative contributions

Below we highlight the major components of health care spending and note that hospital spending is the largest component, followed by physicians.

**Exhibit 12: Relative contributions to total national health expenditures, 2017**



Source: Kaiser Family Foundation analysis of National Health Expenditure (NHE) data from Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group

## Looking for a more sustainable approach – value-based care

In response to the rapid growth in health care spending and the acknowledgement that it is unsustainable, there has been a move to shift away from fee for service toward fee for value (value-based care or value-based purchasing). There are many different value-based models that link financial rewards with clinical performance and cost control. These models range from a FFS base with extra payments for providers who meet

quality goals, to a shared-risk framework, all the way to full capitation. The main thing they have in common is they incentivize providers to deliver not only top quality care, but also low-cost care.

**Table 172: Prevalence of Types of Value Based Payment Arrangements**

Value Based Purchasing Model	Commercial	Medicare	Medicaid
<b>Shared Savings (Upside only Risk) - Upside only payments comprised of a percentage of any net savings for providers that successfully reduce spending for a defined population. (Lowest Risk)</b>	<ul style="list-style-type: none"> <li>- 2% of payments are FFS plus Shared Savings as of 2014</li>   <li>- 0.2% of payments are non-FFS shared savings as of 2014</li> </ul>	<ul style="list-style-type: none"> <li>- 11.8% of traditional Medicare payments paid through shared savings arrangements as of 2013</li> </ul>	<ul style="list-style-type: none"> <li>5 states surveyed have implemented ACOs or shared savings as of 2015; of 2013</li> </ul>
<b>Pay for Performance (P4P) - Financial bonuses and penalties to align payment in areas such as quality patient experience, or cost; typically tied to existing fee-for-service structure (Low Risk)</b>	<ul style="list-style-type: none"> <li>- 12.8% of in-network payments are FFS-based pay plus P4P (as of 2014)</li> </ul>	<ul style="list-style-type: none"> <li>MSSP ACOs: 91% are one sided shared savings only as of January 2017; And cover 9 million lives or 16% of Medicare.</li> <li>53% of surveyed Medicare Advantage Plans report having ACOs with shared savings as of 2015.</li> <li>- 32.8% of traditional Medicare payments are FFS plus P4P via the Hospital Value Based Purchasing and ESRD programs as of 2013</li> <li>- Other P4P arrangements include hospital readmissions reduction, Value based Payment Modifier, Oncology Care Model, and Hospital Acquired Condition Reduction Programs.</li> </ul>	<ul style="list-style-type: none"> <li>3 states surveyed are currently implementing shared savings as of 2015;</li> <li>20 states surveyed are planning or studying how to implement shared savings as of 2015.</li> <li>15 states have implemented P4P in the FFS plus P4P via the Hospital Value Based Managed Care Organizations</li> <li>5 states surveyed are in the process of implementing P4P in MCOs</li> </ul>
<b>Bundled/Episode Based Payment - Single payment to providers for the expected costs of treating a clinically defined episode of care. (Medium Risk)</b>	<ul style="list-style-type: none"> <li>- 0.1% of in-network payments are bundled with quality incentives</li>   <li>- 34 commercial bundled payment plans across the country (as of 2013)</li> </ul>	<ul style="list-style-type: none"> <li>- 1,244 providers currently participating in the Bundled Payments for Care Improvement Initiative as of July 2017;</li> <li>- Approximately 800 hospitals required to participate in the Comprehensive Care for Joint Replacement (CJR) model across 67 designated geographic areas. In November 2017, HHS modified CJR by making participating mandatory in only 34 of the 67 designated areas and voluntary in 33 markets.</li> <li>- 33% of surveyed MA health plans report having bundled payment arrangements in 2015.</li> <li>- 1.9% of traditional Medicare payments are shared risk as of 2013</li> </ul>	<ul style="list-style-type: none"> <li>7 states surveyed have implemented bundled payments (as of 2015)</li> <li>3 states surveyed are currently implementing bundled payments (as of 2015)</li> <li>21 states are planning or studying how to implement bundled payments (as of 2015)</li> </ul>
<b>Shared Savings &amp; Losses (Up and Downside Risk) - Financial bonuses or penalties comprised of a percentage of any net savings or losses in providers' spending for a defined population (Medium-High Risk)</b>		<ul style="list-style-type: none"> <li>- 121 of 562 Medicare ACOs are in a risk bearing track as of January 2017, including 9% of MSSP ACOs as of January 2017; 45 Next Generation ACOs as of June 2017; A subset of the 37 comprehensive ESRD Care Model programs as of April 2017; and 43% of surveyed MA health plans report having ACOs with shared risk in 2015.</li> <li>- 40% of surveyed MA plans report having global capitation arrangements with some network providers as of 2015;</li> <li>- In Performance Year 2, Next Generation ACOs have the option to participate in a capitated payment model.</li> </ul>	<ul style="list-style-type: none"> <li>- Capitation payments are paid to Medicaid MCOs, but, MCOs may pay providers on a FFS basis.</li> </ul>
<b>Global Budget/Partial or Full Capitation - Fixed payment to providers for each assigned patient over a defined period of time (Highest Risk)</b>	<ul style="list-style-type: none"> <li>- Of all in-network payments paid to providers, 15% are fully capitated with quality incentives and 1.6% are partially or condition specific capitated with quality incentives (as of 2014)</li> </ul>		

Source: AHA, TrendWatch, December 2017

## **Value-based payments**

Under these types of arrangements, providers continue to be paid through the FFS model. However, in addition to the base rate, providers would be paid an additional amount for hitting certain quality benchmarks (or would be penalized if they do not).

## **Bundled payments**

In bundled payments, providers are reimbursed on a “pay for episode of care” basis. An episode is defined to include all necessary inpatient and outpatient services required to treat a specific injury or illness from diagnosis through recovery. The single fixed fee covers the costs of the physicians and other clinicians, drugs, devices, facilities, and any other resources dedicated to the episode of care. This approach incentivizes providers to collaborate across the continuum of care to deliver high-quality, low-cost health care. However, there is no incentive to focus on preventative care, since the payment begins at the time that the episode starts (after there is already a health care issue). Nevertheless, there is a real incentive to ensure that there are no gaps in care when a patient moves from one care setting to the next during recovery. The bundled payment rate is based on the average cost of an episode, so providers can make money by keeping spending below the bundled rate, but would be at risk if costs go above.

## **BPCI Advanced replaces BPCI**

In January 2018, CMS’ Center for Medicare and Medicaid Innovation (Innovation Center) announced a new voluntary episode payment model, Bundled Payments for Care Improvement Advanced (BPCI Advanced). It replaces the existing voluntary BPCI models. Under the new model, participants can receive payments for 33 clinical episodes of care, including additional outpatient episodes.

BPCI Advanced will qualify as an Advanced Alternative Payment Model (APM) under the Quality Payment Program. The first cohort of Participants started participation in the Model on October 1, 2018, and the Model Period Performance will run through December 31, 2023. CMS will provide a second application opportunity in January 2020, where the application period for the second cohort closed on June 24, 2019. Only hospitals and physician groups can participate in the BPCI Advanced. There is no longer Model 3, which was initiated by post-acute.

BPCI Advanced operates under a total-cost-of-care concept, in which the total Medicare FFS spending on all items and services furnished to a BPCI Advanced Beneficiary during the Clinical Episode, including outlier payments, will be part of the Clinical Episode expenditures for purposes of the Target Price and reconciliation calculations, unless specifically excluded.

For the BPCI Advanced program, a participant is defined as an entity that enters into a Participation Agreement with CMS to participate in the Model. BPCI Advanced will require downside financial risk of all Participants from the outset of the Model Performance Period. In March 2019, CMS announced that 1,086 health care providers are participating in the program, which is below the 1,299 entities that were in the program at the onset in October.

## **Accountable care organizations (ACOs)**

ACOs are physician led groups (physician practices or integrated health systems) that collaborate to deliver quality care at a low cost. The financial incentives are similar to capitation in that providers are assigned a number of enrollees and there is a benchmark spending target for that pool of members. Unlike capitation, where providers are paid the full rate each month, ACOs are usually paid on a fee for service basis during the period. However, at the end of the period, actual spending is compared against the benchmark level of spending and if there are savings, the providers share a percentage of the upside. ACOs can be structured as “one way risk” (where there is upside if costs are below the benchmark, but no penalties if costs are above the benchmark) or “two

way risk" (where providers share in the upside if costs come in below the benchmark and the downside if costs come in above the benchmark). Two way risk models usually share a greater percentage of the upside in return for taking risk to the downside.

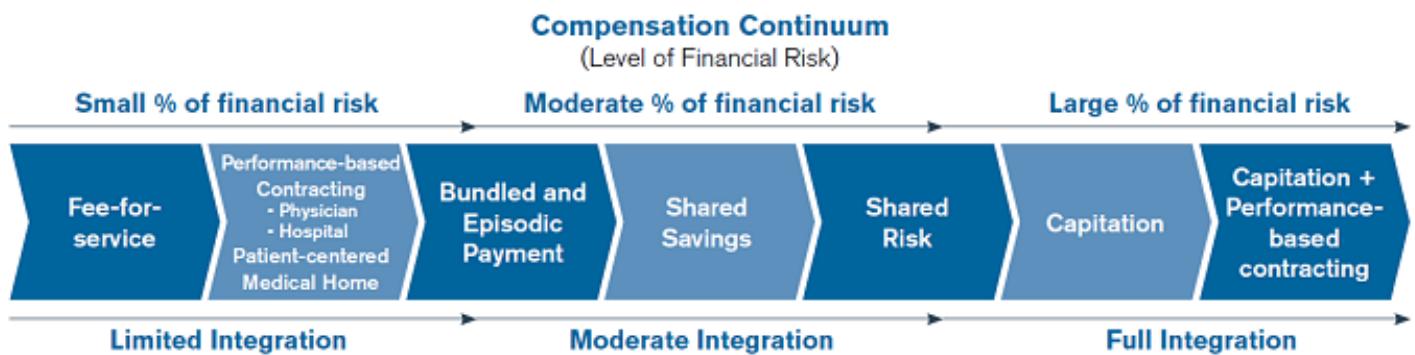
### Capitation

Under capitation, providers are paid a set amount per each enrollee per month, regardless of the services that the enrollee needs. This population-based approach incentivizes a long-term commitment to (and associated investment in) patient health and wellness with a focus on preventative care and ensuring that when services are provided that they are provided in the lowest cost setting appropriate. If the provider can keep the costs below the capitated rate, then it makes money, while if costs go above the capitated rate, it loses money. Essentially, the managed care is fully offloading risk onto the provider. Capitation can be "partial cap" (i.e. only covering part of spending such as physician services or hospital costs) or "Global cap" (covering all health care spending of the population). Often, the capitated amount will be risk adjusted to ensure that providers are not disincentivized to take the high risk patients. Capitation works best when there is a large patient base to spread the risk across.

**Table 173: CMS framework for value-based care**

1: Pure FFS	2: FFS with quality link	3: Alternative payment based on FFS architecture	4: Population-based payment
<ul style="list-style-type: none"> <li>• Description</li> <li>• Traditional model</li> <li>• No link between payments and quality or efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Description</li> <li>• Some payments based on quality and efficiency</li> <li>• Performance incentives without fundamentally changing the FFS model</li> </ul>	<ul style="list-style-type: none"> <li>• Description</li> <li>• Some payments linked to effective population health management or episode of cares</li> <li>• Shared savings</li> <li>• 2-sided risk</li> </ul>	<ul style="list-style-type: none"> <li>• Description</li> <li>• No link between payments and volume</li> <li>• Providers care for a patient for a long period (1+ years)</li> </ul>
<ul style="list-style-type: none"> <li>• Examples</li> <li>• Transition away from this model for Medicare and others</li> <li>• Variation by state for Medicaid</li> </ul>	<ul style="list-style-type: none"> <li>• Examples</li> <li>• Hospital value-based purchasing</li> <li>• Readmissions reductions</li> <li>• Hospital-acquired conditions reductions</li> </ul>	<ul style="list-style-type: none"> <li>• Examples</li> <li>• ACOs</li> <li>• Medical homes</li> <li>• Bundled payments</li> <li>• Integrated care models</li> <li>• Managed FFS for dual eligibles</li> <li>• Medicaid shared savings models</li> </ul>	<ul style="list-style-type: none"> <li>• Examples</li> <li>• Eligible Pioneer ACOs</li> <li>• Some Medicare Advantage plans</li> <li>• Some dual eligibles plans</li> </ul>

**Exhibit 13: Evolving payment models**



Source: UNH

### Accountable Care Organizations (ACOs)

ACOs are physician driven organizations (but can also include hospitals, and other health care providers) that take responsibility for the holistic care of the patient. The goal of the ACO framework is to increase coordination and improve the health care delivery model, not only by ensuring better care of patients who are sick, but also trying to engage patients early and keep them healthy. They are usually paid under a financial arrangement that allows them to participate in the savings that they generate.

Accountable care organizations can have contract structures in the following forms:  
Shared savings arrangements; Shared risk arrangements, and Capitation

## Shared savings (upside potential, no downside risk)

In a shared saving arrangement, ACOs have the potential for upside to their reimbursement if costs are held below a benchmark but there is no downside if costs rise above expectations. A target benchmark spending level for the ACO population is set based on a predetermined baseline trend for the population being served. There are also quality metrics that ACOs are incentivized to meet. Through the year, providers are paid on a FFS basis, but if a provider is able to reduce costs and perform well on quality measures, the ACO is able to retain a portion of the savings it generated.

### Pros and cons

**Pros:** The ability to make more money is clearly an incentive to get providers to begin changing the way that they care for patients. The biggest advantage of this model is that without downside risk, the shift from fee for service is less daunting and providers are more likely to agree to participate. In addition, payers can use this model as a bridge to transition providers to models that shift more of the risk to the provider over time.

**Cons:** Compared with shared risk and capitated arrangements, the shared savings framework puts the least amount of pressure on providers to control costs and meet quality benchmarks, because it lacks the risk of potential financial losses. As a result, providers may not embrace the changes necessary to be truly effective. Meanwhile, from the provider side, usually the financial upside potential is more limited than in a shared risk or capitated contract (because payers are more willing to fully share the upside if the providers are also willing to share the downside).

### Financial model

Below we provide an example of an ACO financial model with a shared saving framework, based on disclosures from UAM (since acquired by WCG), one of the few publicly traded companies to participate in the Medicare ACO program. In its model, UAM uses its tools and resources to help the physician group better manage costs, and in return, it shares in some of the savings that the ACO generates.

In this example, when 10% savings is estimated to be achieved (out of the max 20%), the gross savings is \$10.2 million. The ACO participants split the savings 50/50 with CMS. As a result, \$5.1 million goes to CMS and \$5.1 million goes to the ACO. From there, we subtract out ACO expenses to get a net operating income of \$3.9 million. In this example, the provider and MCO are splitting the savings 50/50, so each receives a payout of \$1,950,000. The shared savings in this example results in upside for all parties: CMS, the MCO, and the provider all benefit from the arrangement. Not all ACOs demonstrate such success under this model, but this example illustrates the potential benefits of participation in an ACO.

**Table 174: ACO financial model example**

ACO financial model	\$102,000,000	\$102,000,000
Number of patients	10,000	10,000
Blended monthly benchmark	\$850	\$850
Estimated savings achieved	6%	10%
Gross savings	\$6,120,000	\$10,200,000
Less: CMS portion	(3,060,000)	(5,100,000)
ACO savings	3,060,000	5,100,000
ACO expenses	(1,200,000)	(1,200,000)
ACO operating income	1,860,000	3,900,000

**Table 174: ACO financial model example**

Provider share (50%)	-930,000	1,950,000
MCO share (50%)	930,000	1,950,000

Source: BofA Merrill Lynch Global Research, UAM

## Shared risk (upside and downside potential)

Shared risk arrangements are a step up from shared savings arrangements in terms of changing provider behavior because they include upside and downside risk. The payment model works the same way as the one above, in that if costs are held below the benchmark and the provider meets quality targets, the provider can share in the savings. However, in this model, if spending exceeds the benchmark, the providers would have to pay money back to CMS (or the MCO).

### Pros and Cons

**Pros:** With both upside and downside risk, the financial incentives of the payer and the provider are closely aligned (both do better when costs are controlled and both do worse when costs are higher than expected). In addition, as noted above, since the provider is taking downside risk, usually, the upside potential is larger than it would be in a shared savings arrangement.

**Cons:** Shared risk is a bigger step away from fee for service, which makes it more difficult to get providers comfortable with this model. ACOs require substantial upfront investment, and the potential for downside risk and short-term financial losses may discourage potential providers from participating. Examples of necessary investments for a successful ACO include investments in staff members, information technology, care management, quality reporting capabilities, and financial reserves.

## Capitated ACOs

Under a capitated framework, ACOs are paid a monthly rate based on the number of enrollees and the expected health care spending per enrollee. This population-based approach incentivizes a long-term commitment to (and associated investment in) patient health and wellness with a focus on preventative care and ensuring that when services are necessary, they are provided in the lowest cost setting appropriate. If the provider can keep the costs below the capitated rate, then it makes money, while if costs go above the capitated rate, it loses money. Essentially, the managed care organization is fully offloading risk onto the provider. Capitation can be "partial cap" (ie only cover part of spending such as physician services or hospital costs) or "Global cap" (covering all health care spending of the population). Often, the capitated amount will be risk adjusted to ensure that providers are not disincentivized to take high risk patients.

### Pros and Cons

**Pros:** This model fully aligns the financial incentives of the providers with controlling health care costs. It also gives high visibility to the payer regarding their spending per enrollee for the year. When done well, there is a real focus on wellness and preventative medicine, which leads to better health outcomes for patients as well.

**Cons:** Capitation works best when there is a large patient base to spread the risk across, so it may not be appropriate for small providers. In addition, the payment model is dramatically different from fee for service and requires care to be performed in a completely different way. Without a true commitment to the model, providers could easily lose money on these contracts. The rate setting can be relatively complex, and it can be difficult to get physicians and other providers on board.

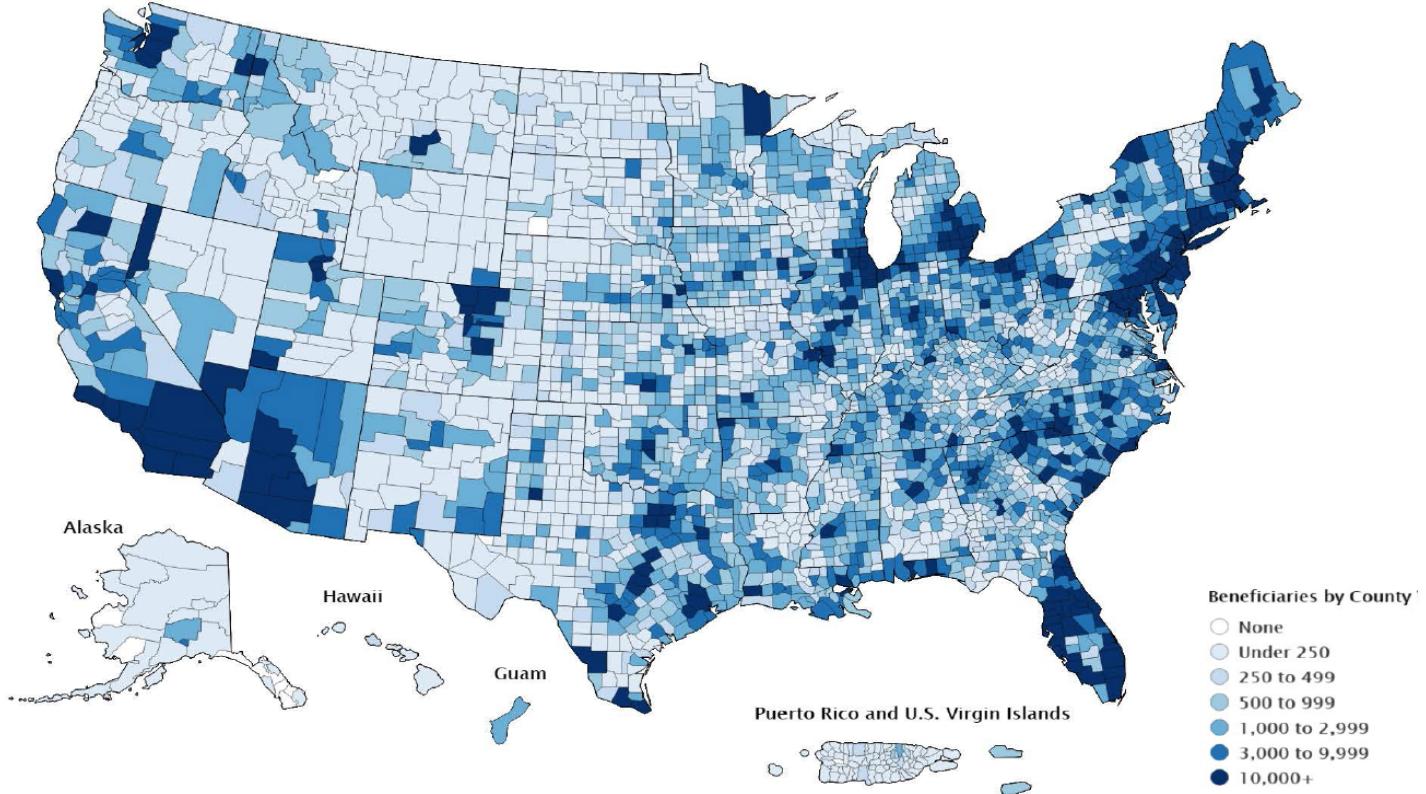
## Medicare ACOs

Medicare has unique programs in place in support of the ACO framework. Last year, MSSP ACOs covered 10.5 million assigned beneficiaries. As of February 2019, there are

487 ACOs that participate in the Medicare shared savings program across the United States. A map showing the ACOs by county in the US is shown below. The colors show the number of ACOs in each county, with white representing multiple ACOs in an area, blue meaning one, and empty space means no ACOs. Notice that there are very few ACOs in rural parts of the country.

ACOs are meant to be physician-led organizations, although they can be structured to include larger health systems and other provider types. Unlike Medicare Advantage, there is no network structure, so although providers take some risk for a population, they cannot ensure that the population exclusively uses the ACO providers.

**Exhibit 14: Medicare Shared Savings Program ACO and Pioneer ACO Assigned Beneficiary Population by ACO by County**



Source: CMS, January 2018

The primary ACO programs include the following:

- Medicare Shared Savings Program (MSSP)
- Advance Payment ACO Model
- ACO Investment Model
- Pioneer ACO Model
- Next Generation ACO Model
- Comprehensive End Stage Renal Disease (ESRD) Care Initiative

For a complete discussion of each type of ACO, please see our [primer on new payment models](#).

## ACOs more common in markets with MA history

In October 2015, PwC published its view on ACOs, bundles, and other alternative payment models (APMs). In their report, PwC concludes that ACOs have greater success transitioning to APMs if they form in markets where Medicare Advantage plans have already shown an ability to reduce medical services and lower costs. This conclusion is supported with data, collected from CMS, that shows cluster communities where ACOs and bundled payment efforts co-exist with a high density of Medicare Advantage patients. Of the 400+ providers who participate in Medicare Shared Savings Program, early data released by CMS showed mixed results. Of the 220 ACOs, less than one quarter earned savings, the rest either earned money but failed to meet the minimum or did not accrue savings. Since many new providers had difficulty in generating savings, piggybacking off established market norms seems to be the prevailing strategy.

**Exhibit 15: Accountable Care Organizations and bundled payment initiatives track closely with each other**



Source: PwC Health Research Institute Analysis, Centers for Medicare & Medicaid Services

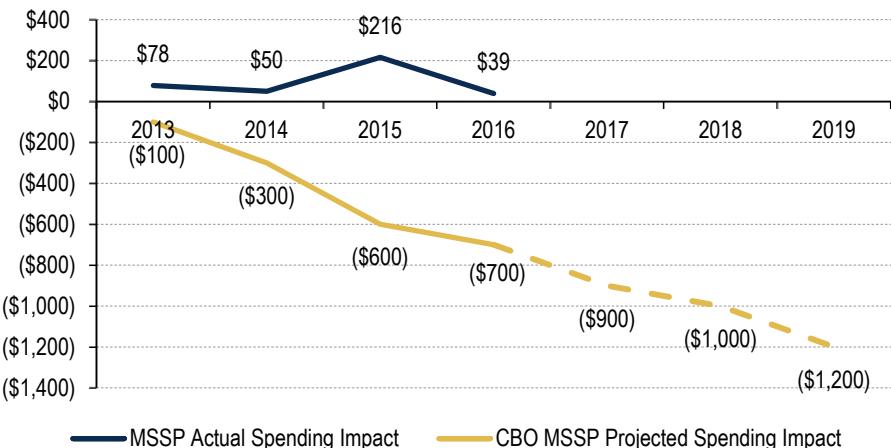
## MSSP underperformed

On March 2018, a report conducted by Avalere, showed that MSSP ACOs had performed well below the estimates made in 2010 by the Congressional Budget Office (CBO). In 2010, the CBO estimated that the MSSP would generate net savings of \$1.7 billion during 2013-2016. However, as Avalere research shows, the MSSP didn't generate savings and it increased federal spending by \$384 million from 2013 to 2016.

According to Avalere, the Medicare ACO program did not achieve the projected savings because the majority of ACOs chose the shared savings arrangements. The shared savings models increased federal budget by \$444 million from 2013 to 2016, while the shared-risk models generated savings of \$60 million.

However, according to the study, as ACOs gain years of experience, they improve their cost efficiency. Avalere found that on their first year in the program, ACOs increased federal spending by \$228 million, dropping to \$216 million in Year 2 and \$91 million in Year 3. Surprisingly, ACOs generated savings of \$152 million on their fourth year in the program. This improvement is likely aided by the fact that poor performing ACOs tend to drop out over time, leaving the more highly successful programs by year four.

**Chart 179: MSSP performance year results vs CBO projections (\$mm), 2013-2019**



Source: Avalere Health LLC, BofA Merrill Lynch Global Research

## Commercial ACOs

Similar to government payments, the vast majority of payments from MCOs to providers are based on a fee for service model. However, MCOs have been trying to move providers toward new payment models for even longer than the government has. In this section, we will use the term commercial ACO, but we note that many of the arrangements that MCOs have with health systems are actually more a part of their Medicare Advantage network strategy than their commercial employer strategy. This is in large part because Medicare (and Medicare Advantage) patients are generally high cost (\$950 PMPM versus \$420 PMPM for commercial) and the ability to generate saving is greater the higher the medical spending. In addition, historically, commercial contracts sold to employers tend to be more open network in nature, which makes aligning with just one health system in an ACO more difficult.

In many ways the commercial ACO model is similar to the Medicare ACO model, but there are some significant differences.

### Contrasting Commercial vs Medicare ACOs

The most significant difference between Commercial ACOs and Medicare ACOs is that commercial ACOs have networks (restrictions on which providers that enrollees can see), while Medicare ACOs allow beneficiaries to see any provider that accepts Medicare. This gives commercial ACOs a medical management tool that Medicare ACOs lack – ie commercial ACOs can steer patients to low-cost/high quality providers. The network dynamic has other implications for commercial ACOs.

For example, while the Medicare ACO is a physician-led model, most commercial ACOs are done with health systems (hospital systems that also employ doctors, etc). In many ways this makes sense because in traditional Medicare, patients have their choice of any hospital or any doctor, so putting the doctor in charge of the care is relatively straightforward. In commercial ACOs, there are networks, and which health systems are in network can be a key marketing tool for the health plan (well-known hospitals are a bigger draw than well-known doctors). Given the importance of the health system in network construction, putting them in charge of the ACO may make more sense.

In addition, by creating networks, commercial ACOs have the ability to steer volume in return for better price. By negotiating better unit costs with providers, the health plan can then price the insurance product at a lower rate, boosting their membership and the amount of volume that they can potentially shift to the health system. Medicare ACOs generally use the Medicare fee schedule as the rate that providers receive and since

there is no network, they cannot guarantee hospitals a certain amount of volume, so there is little potential savings on unit costs.

### **Not all commercial ACOs are the same**

The financial arrangements between the commercial ACO and the providers are similar to Medicare ACOs – they can be structured as shared savings, shared risk, partial capitation or global capitation. However, unlike Medicare ACOs, which have a strict definition under Medicare, there are no strict criteria to call an arrangement with a provider a commercial ACO. At their heart, a commercial ACO is supposed to be a patient centered model, focused on care coordination across multiple providers, focused on wellness and preventative care, but when care is needed, providing care at the right time at the lowest cost setting that is appropriate. However, we have seen announcement of ACOs by MCOs that might be better characterized as a narrow network plan (with the intent to steer volume to a particular health system in return for better unit costs – but lacking in any real commitment to medical management or changing the way that care is delivered) than an ACO.

### **Choosing a value-based partner**

Management teams at leading MCOs highlighted the qualities they look for when partnering with providers. We found that a strong physician engagement and a commitment to value-based contracts critical.

### **Physician engagement**

Engaging physicians and other clinicians is absolutely critical when transitioning toward value-based reimbursement. After all, it is the clinical staff that interacts with patients and delivers the health care services. MCOs seek to partner with providers that are prepared to educate their clinical staff on the necessary changes to their operations, provide clinicians with resources that will help ease the transition, monitor the physician-patient relationship, and getting their sign off every step of the way is vital to effectively changing the way that care is provided.

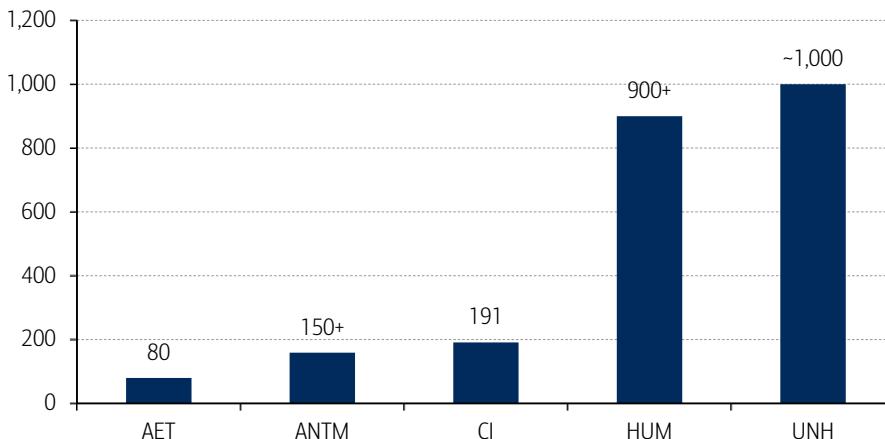
### **Commitment**

MCOs recognize that providers opt to participate in value-based payment models for a number of reasons (to gain share, to improve profitability, to deepen their physician relationships, to better serve their community, fear that this is where reimbursement is going and they need to get on board or fall behind, as a hedge to test what works, etc) and they want to ensure that they are partnering with providers who are truly committed to ACO participation and understand the risks and rewards. The commitment must come in the form of operational changes, investments in technology and other enabling capabilities, and a strategic vision regarding how the ACO will operate over the next 5 to 10 years, knowing that the first 1-2 years could be bumpy.

### **Current developments**

MCOs are rapidly embracing the ACO model. The management teams we spoke with recognized the growing trend toward value-based care via accountable care organizations. They have devoted substantial resources to preparing for payment reform and developing relationships with providers for ACOs. As noted above, it is difficult to define exactly what each company considers to be an ACO and their definitions vary from company to company. AET had 80 ACOs and ANTM has more than 150 ACOs. UNH currently has nearly 1,000 ACOs. HUM has 900+ accountable care relationships. Meanwhile, CI has 230 and expects to reach 280 by the end of 2020.

**Chart 180: Number of ACOs by MCO**



Source: BofA Merrill Lynch Global Research, company disclosures

## Capitation

Capitation (derived from “per capita”) is a method of paying for health care services under which providers receive a set payment for each person or “covered life” instead of receiving payment based on the number of services provided or the costs of the services rendered. These payments are usually adjusted based on the demographic characteristics, such as age and gender, or the expected costs of the members.

### System design

There are various types of capitation arrangements.

- **Global or full capitation:** A provider is reimbursed on a per-member per-month basis (PMPM) to cover the entire range of health care services. In this model, historic data is used to project future costs and rates for services.
- **Partial capitation:** A provider operates under a partial or blended capitation model if it receives capitated reimbursements only for certain types of services – eg, physician specialists.
- **Sub capitation:** This is the process where one provider takes risk on a broad set of services and then pays a PMPM to another provider to provide a subset of services (eg a provider taking global cap might sub capitate to an orthopedic physician group through a partial capitation contract to cover orthopedic costs).

By system design, capitation results in the following:

- **A focus on number of enrollees, not number of services.** A traditional fee for service (FFS) model incentivizes hospitals and other providers to provide more services or raise their prices in order to increase revenue and generate a profit. Under FFS, serving sick patients is in the strategic interest of providers since these patients require the most care. Capitation incentivizes providers to implement preventative measures to control health care utilization. Under this model, reducing costs for care and limiting unnecessary services is in the strategic interest of providers. By delivering care in the most efficient and cost-effective way, providers are able to attract enrollees and generate a consistent stream of revenue.
- **Shifting risk to the provider.** In a FFS model, the insurer serves as the primary risk-bearing entity. Under capitation, utilization risk shifts from payers to providers, because providers are paid a fixed reimbursement based on the number of enrollees, regardless of the cost of care. This framework encourages physicians and

other health care professionals to carefully consider each dollar spent on patients, but it also encourages them to spend money on prevention, rather than simply treating patients after they get sick. The thought process is that the care giver is the person closest to the patient and therefore best able to make the correct call about the most cost effective setting for care.

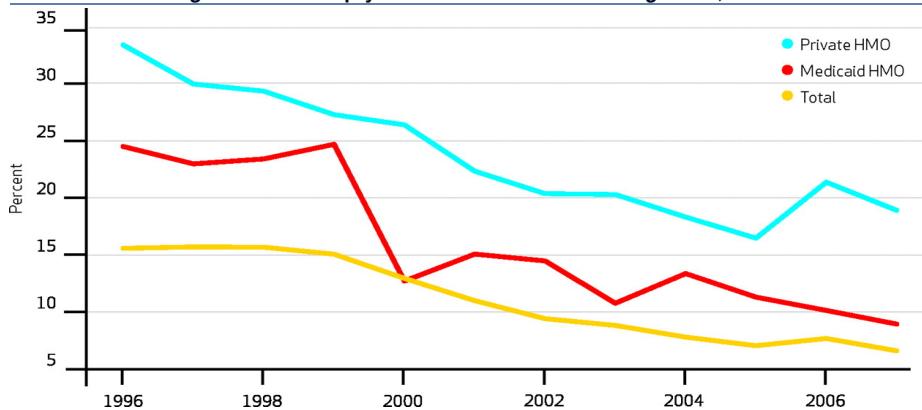
- **Cost reduction incentives.** All of the incentives under the fee-for-service model are directed toward the physician performing more services. For example, the choice for the physician about whether to perform another test becomes relatively simple: run an extra test, provide some protection against a potential malpractice liability, and bill additional revenue. Under integrated care models, the incentives are to control costs, so an incremental test is more likely to be run by the doctor if there is true diagnostic benefits from doing so. This model could incentivize a short-term reduction in services in order to hit a bonus target. However, if physicians are routinely denying care, eventually, the patient will have a health care issue that needs to be treated in a high-cost setting leading to losses. As a result, there is a long-term incentive to focus on preventative medicine and to spend a modest amount of money today to avoid a costly health issue tomorrow.
- **Lower institutional care.** Integrated care arrangements with physicians allow MCOs to incentivize physicians to keep patients out of higher cost institutional care settings (hospitals and nursing homes). Physicians represent about 20% of medical costs for MCOs, so they are essentially saying to physicians that they will pay them more if they help them lower the medical costs on the other 80% of medical costs. MCOs and physicians win under this relationship – medical costs are lower for MCOs and physicians earn more money.

#### **Past capitation efforts had mixed results**

A similar capitated payment model was implemented in the 1990s but failed to take hold. Under that system, risk management shifted from payers to providers. Providers, especially small providers, were unprepared and unable to take on financial risk. Even after consolidating, many providers were unable to develop sustainable risk management practices. Meanwhile, running capitation with a fee for service mindset (ie the more you do, the better it is) will quickly lead to losses.

As a result of the inability to predict risk and control costs, providers largely rejected the capitated model and returned to fee for service. The percentage of physician visits under capitation declined from the mid-1990s to the mid-2000s.

**Exhibit 16: Percentage of office-based physician visits covered under arrangements, 1996–2007**



Source: Samuel H. Zuvekas, and Joel W. Cohen Health Aff 2010;29:1661-1666

However, as the charts above indicate, capitation did not disappear entirely and remained a common form of payment in many markets (particularly in CA, parts of the Southwest and Florida). Overall, the model has proved successful in some markets, but very difficult to replicate nationally. For example, CNC acquired HNT in part due to its strong capitation capabilities in CA with a goal of expanding it nationally. However, its MA rollout has been slower than expected, as the company has struggled to export that capitation model into new markets that historically were FFS.

### **Adjusting payments based on demographic factors**

Capitated payments may be adjusted based on age and gender. Below, we discuss the relationship between age and medical spending.

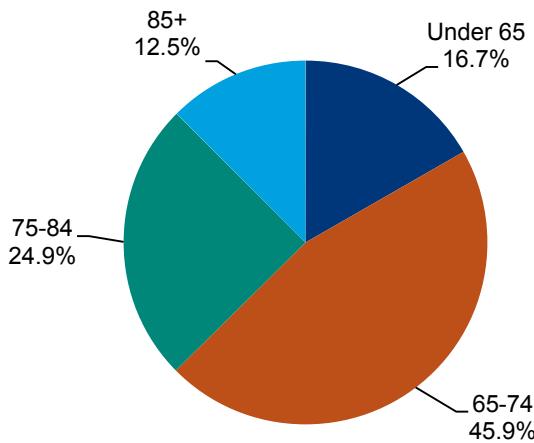
#### **The older, the costlier**

MedPAC's statistics show a positive correlation between the age of a member and Medicare spending. In 2013, \$8,506 was spent on the youngest cluster (65-74) of beneficiaries, was \$12,416 for the middle cluster (75-84) and \$15,138 for the oldest cluster (85+). Older patients are more prone to injuries and illnesses and are more likely than others to require care for multiple chronic conditions and functional limitations.

The most common conditions for the FFS Medicare population include high blood pressure, high cholesterol, arthritis, heart disease, and diabetes. According to a county-level study conducted by USA Today, two-thirds of Medicare beneficiaries have two or more chronic conditions. HHS defines a chronic condition as a physical, mental, or cognitive condition that lasts at least one year and requires ongoing medical attention and/or limits daily activities. According to CMS, people with multiple chronic conditions are more likely to require visits to the doctor, emergency room services, home health visits, post-acute services and other medical arrangements. CMS now pays clinicians more when they deal with patients with two or more chronic conditions. Since factors such as age impact the overall medical costs of a patient population, capitated payments are risk-adjusted based on these factors. This method helps prevent providers from cherry picking to avoid certain at-risk populations.

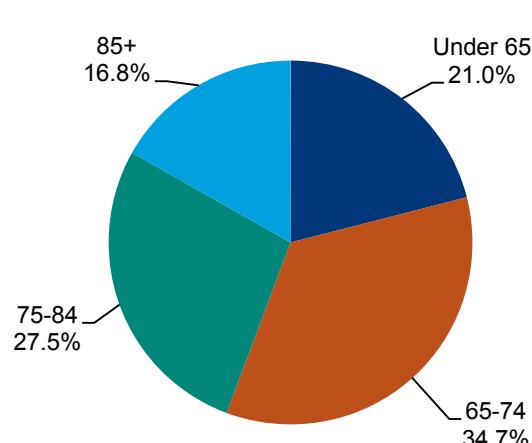
Below we show the breakout of spending by age group in 2013. We note that Medicare beneficiaries under 65 tend to be costly, since the only way to qualify for Medicare under age 65 is to have a chronic disease such as kidney failure.

**Exhibit 17: Beneficiary age groups**



Source: MedPAC

**Exhibit 18: Spending on each group**

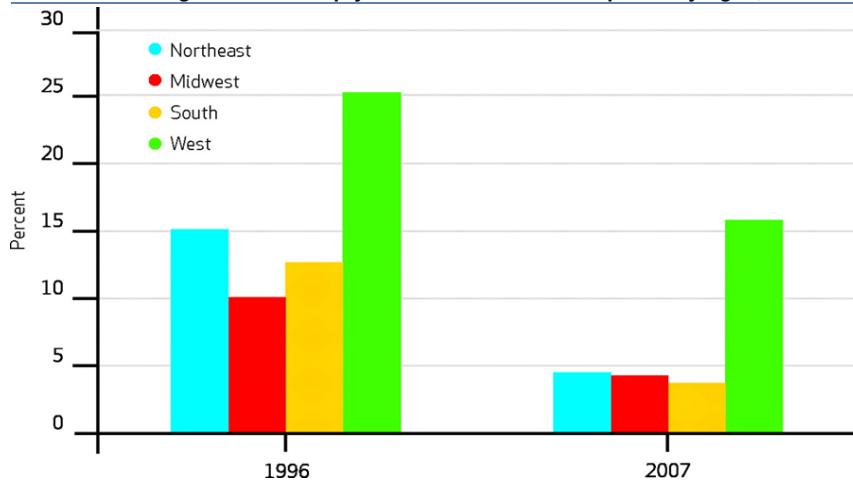


Source: MedPAC

## Issues with capitation

- **Financial pressure on providers.** Some health care leaders believe that doctors, nurses, and other clinicians should be focused only on clinical outcomes. They raise concerns that pressure on the health care providers and physicians to make the right financial decisions could come at the expense of the health of their enrollees and patients. For example, a doctor may forgo performing a necessary procedure or conducting a test based on the costs. More generally, capitation could hurt the physician-patient relationship as they have competing interests in mind. However, we note that short-term thinking on the part of the provider usually results in larger health care issues (and spending) down the road, so strong providers understand that they need to avoid the temptation of short-term gains.
- **Sophistication needed to make it work.** One of the issues with capitation in the 1990s, is that providers did not fully understand their own costs and were unable to predict whether the capitated rate that they received would be enough. Meanwhile, providers in a fee for service world, sit in their office and wait for patients to come to them with health issues. They often do not have the capabilities to identify patients at high risk of a health issue in advance, because it was not necessary under a fee for service model. A lack of sophistication in understanding how to price risk and how to first identify and then engage with high risk populations, is one of the biggest gating factors to widespread capitation.
- **Difficulty in penetrating new markets.** There is a wide variation in acceptance (and success) of capitation by geography. The West Coast, even after a large decline in capitation utilization from 1996 to 2007, remains the most penetrated area of the country in capitation. About 16% of physician visits were under capitation in 2007. Meanwhile, other regions are much less penetrated, with less than 5% of physician visits under capitated agreements for the Northeast, Midwest, and South in 2007. This gets to the issue of being able to engage with a provider and truly shift their mindset away from fee for service to fee for value. As a market begins to embrace capitated models, the next generation of doctors grow up in that model and it becomes further solidified as a core payment mechanism. However, first getting to that point can be difficult.

**Exhibit 19: Percentage of office-based physician visits covered under capitation by region, 1996 and 2007**



Source: Samuel H. Zuvekas, and Joel W. Cohen Health Aff 2010;29:1661-1666

## Some providers can do it well already

DaVita bought Health Care Partners (HCP), a physician group practice that has demonstrated success operating under a capitation framework. HCP has been rebranded to DaVita Medical Group (DMG). Based on its 10-K for 2018, approximately 84% of

DMG's operating revenues came from multi-year capitation contracts with health plans, largely in Medicare Advantage. Like most health care organizations operating under capitation, DMG receives payments on a per member per month (PMPM) basis.

DMG notes that physicians supporting its network tend to see fewer patients (18 to 20) each day than do regular FFS primary care physicians (30 to 40), which can be beneficial for the patient experience. DMG management also discusses the importance it places on early diagnosis and preventative care in order to contain costs early and reduce unnecessary expenditures. Physician spending is only about 20% of total spending (and primary care is about half of that). This means that, as a physician group, DMG can spend an extra 10-20% on its 10-20% of health care spending, if it means that they can cut 10-20% out of the rest of the health care dollar. As a result, upfront spending can have significant returns in the form of lower hospital utilization.

Management further highlights its advanced information technology and data management system that allows providers to store data and communicate effectively with patients. It is clear that the capitation model is central to the firm's long-term success.

In 2019, UNH acquired DMG, combining it with its physician practice business. Other providers such as HealthSpring (CIGNA's Medicare platform that was acquired in 2011) and Caremore (acquired by ANTM) can provide similar patient engagement and risk sharing savings.

## **Evolving models a modest negative for hospitals**

One of the main ways that the system can save money is by keeping people out of the highest cost setting for care. That means avoiding hospital stays and avoiding readmissions. The focus on readmissions has been in place for several years and is not new, but a new focus on care coordination and avoiding the first inpatient stay could further pressure volumes. In addition, we expect the shift to outpatient services from inpatient services will continue under these models. This affects hospitals in two ways: 1) outpatient rates are lower than inpatient rates, and 2) potentially lost volume (when something is done on an inpatient basis hospitals are the only location for care – but on an outpatient basis there are alternatives such as surgery centers, free standing cath labs, diagnostic imaging, etc.).

We estimate these types of initiatives could cut 50-100bps from utilization each year. However, with population growth and demographics arguing for something closer to 1.5-2%, we still expect hospital volumes to grow at 1% per year even with the headwind. Given the shift to outpatient services, we would expect inpatient volume to be relatively flat and outpatient volume increasing 2-3%, resulting in 1% adjusted admission growth.

Meanwhile, there are some new operational issues that hospitals will have to deal with as they increasingly are being asked to take risk, and hospitals that do it well could actually partially offset those headwinds as they control costs through risk sharing. Returns on capital could actually improve as hospitals move to higher margin/less capital intensive outpatient services and risk share bonus payments come with little/no capital investment. However, those that cannot manage the new payment system could struggle even more as volumes and margins decline.

## **The biggest potential threat is the least likely short term**

The impact of the new payment systems on volumes will vary greatly depending on the program. For example, many value-based programs begin only once there has been an admission (bundles, bonuses for quality, etc.) and therefore should not affect volumes. The models that could have a greater impact are population-based health programs including ACOs, capitation, etc, which try to keep people from having to go to the hospital in the first place and therefore may serve as a potential threat to admissions.

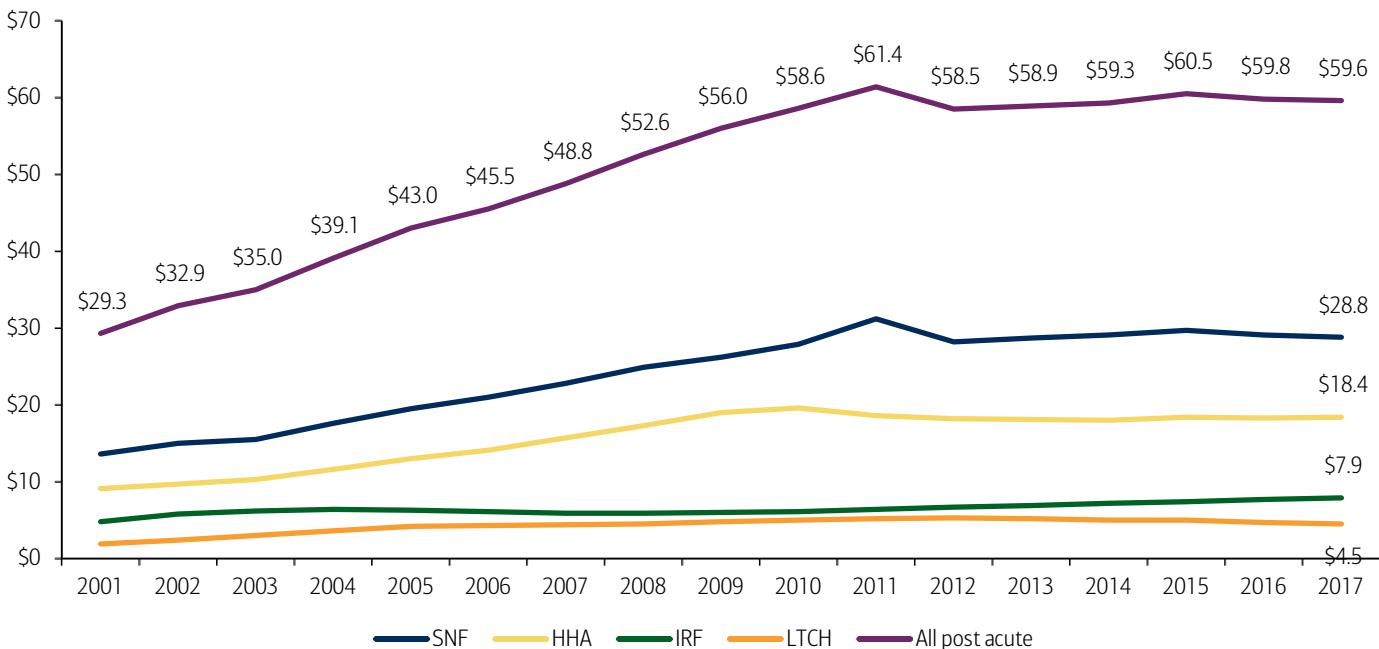
However, these programs are relatively new, and there is uncertainty about their effectiveness and scalability. Many of the providers we spoke to indicated that models like bundling were much more likely to be successful because they leveraged the current healthcare system model (treat people once they get sick), and therefore are more intuitive than the new payment models that require engagement while the patient is still relatively healthy. As a result, the biggest threat to admissions still seems years away from being a meaningful headwind.

#### **Shared savings could offset 35-70% of the volume headwind**

One positive for hospitals is that they are currently at the epicenter of the health care system and their role in treating the highest acuity patients is unlikely to change. As a result, managed care companies and CMS appear to view health systems (particularly hospitals systems that also employ physicians) as a change agent. So although hospital spending is an area of focus, it appears that hospitals will be given a shot at trying to control the downstream spending. Although some post-acute care providers could be successful in this scenario, our general rule of thumb is that when health care dollars are being managed, you want to be the first in line, rather than the last in line.

There is approximately \$60 billion a year in post-acute care spending each year, excluding hospice care, primarily driven by SNFs and Home Health Agencies. If these new payment models result in a 5% savings with 50% of that going back to the government and hospitals keeping one-half of the remaining provider portion (the other half would be split with physicians and post-acute care partners), the hospital industry earnings could benefit by \$750 million a year. If we assume that an average Medicare inpatient admission is \$6,000 with an incremental margin of 10%, this would equate to capturing the economics of 1.25 million Medicare admissions, or 3.5% of industry volumes. In other words, if we thought that these models might reduce admissions by 5-10% cumulatively over the next 10 years, the ability to participate in shared savings on post-acute care spending could offset 35%-70% of the impact. The offset would be even higher since hospitals would also get some bonus on whatever hospital savings were generated.

**Exhibit 20: Medicare post-acute spending (\$ billions), 2001-2017**



Source: MedPAC Report to Congress June 2019

**Table 175: Estimated potential benefit to hospitals from participating in new payment models**

<b>Post-acute spending</b>	<b>\$60 billion</b>
5% savings	\$3 billion
50% of savings to government	\$1.5 billion
<b>50% of the remaining 50% of savings goes to hospitals</b>	<b>\$750 million</b>
Average Medicare inpatient admission	\$6,000
Incremental margin	10%
Income on average Medicare inpatient admission	\$600
All hospital admissions	35,416,000
Admissions matched by savings	1,250,000
Offset headwind from volume reductions	3.53%

Source: BofA Merrill Lynch Global Research estimates

We note that controlling post-acute care spending is not currently the core competency of hospitals so they will need to make a lot of investments to ensure that this is done well. Meanwhile, it is unlikely that every hospital will be successful and we expect many will struggle. However, we believe that the large, publicly traded companies are well capitalized and will continue to make the investments necessary to be winners if models move in this direction.

### Opportunity to reduce capital footprint, improve ROI

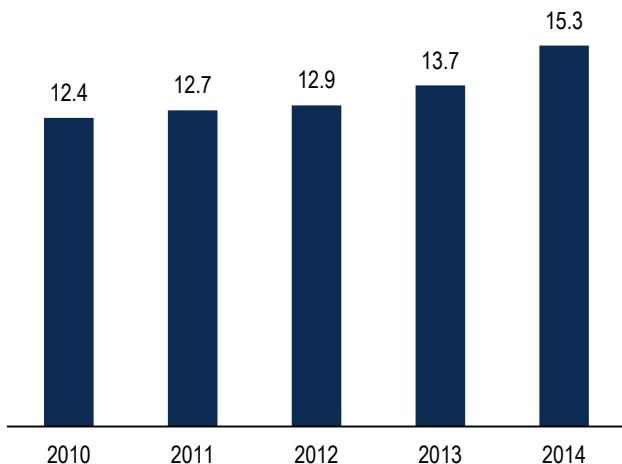
The other opportunity for hospitals is to adjust their capital spending and cost structure to the new reimbursement system. As volumes shift to the outpatient setting, their capital will increasingly shift in that direction, and on average outpatient is a higher margin/less capital intensive business. In our conversations with one hospital CEO, he noted that the current hospital is built for 70% inpatient capacity and 30% outpatient. But if he was to build a new hospital today, it would be the reverse.

Meanwhile, to the extent that hospitals participate in commercial ACOs, etc. they will get paid additional bonus payments for reducing costs. The bonus payment will require little incremental capex (potentially some IT spending), further boosting the return profile. As a result, over time, hospital companies could improve their financial returns under a new payment system. However, as noted above, we would caution that any such shift is likely to be bumpy and many providers will struggle to make the conversion.

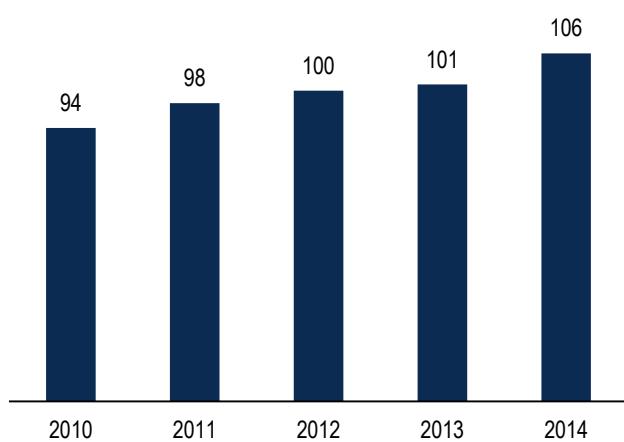
### Hospitals having difficulty taking risk

As providers adapt their business models in response to the transition from fee-for-service to value-based payment models, some of them have been exploring the benefits of vertical integration. In some cases, they have chosen to offer their own health plans. According to a May 2017 report by McKinsey, the number of providers offering one or more health plans grew to 106 in 2014 from 94 in 2010. Furthermore, many providers expanded into additional lines of business overtime. In 2010, only 47 or 50% of the providers owning health plans operated in more than one line of business, which increased to 65 or 61% in 2014.

Provider-led health plans (PLHPs) were available in 43 states in 2014, and enrollment in the plans grew at a 6% CAGR to 15.3 million from 12.4 million in 2010.

**Chart 181: Provider-led health plans enrollment (millions)**

Source: McKinsey Report May 2017

**Chart 182: Number of Provider-led health plans**

Source: McKinsey Report May 2017

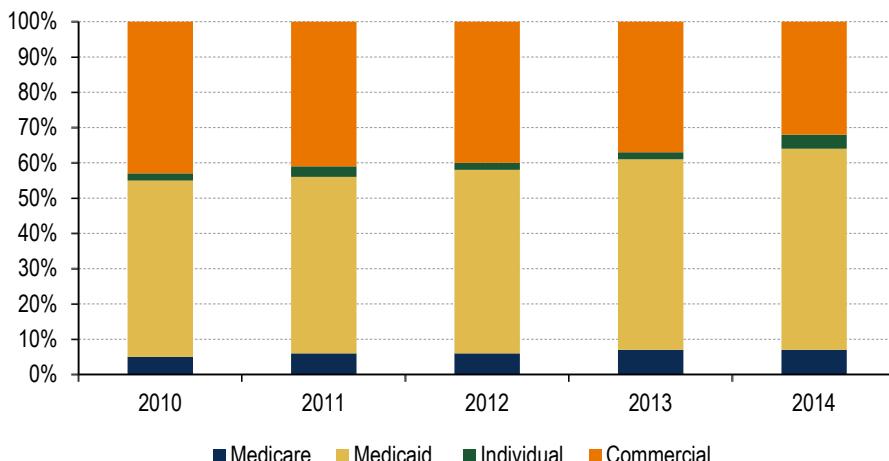
Most of the enrollment growth in PLHPs occurred in individual markets (+25% 2010-2014 CAGR) primarily because many providers introduced public exchange plans as a way to drive volume. However, individual business is only 4% of total PLHP membership.

The largest enrollment growth in absolute terms occurred in the managed Medicaid market, from about 6.1 million lives in 2010 to 8.8 million lives in 2014 (+9% CAGR). PLHPs cover about 22% of the people in that market, and Medicaid accounts for 57% of total PLHP enrollment. One of the drivers going forward could be the shift to value-based payments as it is amplifying the need for population health management skills. Also, state regulations for managed Medicaid programs are favorable for PLHPs.

Medicare Advantage (MA) enrollment in PLPHs increased at a 17% CAGR to 1.1 million lives in 2014. However, the exposure to this population is limited for PLPHs (7% of membership) as these consumers are typically well served by payers.

Despite the significant increase in overall enrollment, most PLHPs remain relatively small. In 2014, only five providers had plans that cover more than 500,000 lives. In the aggregate, however, these plans had a fairly large local market share (from about 16% in the total MA market to 31% in the total managed Medicaid market). Enrollment is also concentrated at the state level. More than 40% of all people covered by PLHPs live in Pennsylvania, Michigan, New York, or Texas.

**Chart 183: Provider-led health plans enrollment by line of business - % of total PLHP members**



Source: McKinsey Report May 2017

However, we note that the profitability of this business has been low. Among 51 providers offering managed Medicaid plans, operating margins on average were about 1.3% in 2014. Scale helps margins as plans with over 500k lives had average margins of 2.95% vs 1.58% for plans with less than 100k lives.

#### **Some large hospital systems exited health plan business**

It appears that some hospital systems have struggled with their health plans and decided to exit this business given the lack of scale required to be profitable.

In November 2016, THG announced its plans to exit its health insurance business in 2017. The company viewed this business as non-core due to its small scale which resulted in this business being unprofitable and a drain on capital. Instead, THG said it would focus on growing its stake in a fast growing ASC business. Of note, THG has been historically the only publicly traded hospital company to own a major health plan business (UHS has a small, primarily Medicare Advantage health plan in NV and TX). We note that as of 2018, THG no longer has any health plan businesses.

Meanwhile, private for-profit hospital company, Iasis Healthcare, has been active in the health plan business with more than 680k lives. However, it exited the AZ exchange on January 1, 2017 after mounting losses. In May 2017, the company announced plans to merge with Steward Health Care, which also offers health insurance products for about 400,000.

There are also several examples of non-profits who after dipping their toes in the health plans business decided to exit it. Catholic Health Initiatives, the nonprofit health system which has 103 hospitals in 18 states, entered the insurance markets in 2013 by buying an Arkansas managed-care plan, acquiring stakes in a Washington state insurer and rapidly entering seven states. The system's strategy was to market directly to employers. Catholic Health operates health plans in Arkansas, Iowa, Kentucky, Nebraska, Ohio, Tennessee and Washington, some of them with fewer than 1,000 members. However, in December 2016 the company announced its plans to sell off some of its health insurance business, which reported a loss of \$109.6 million in FY16.

Two Georgia hospital operators, WellStar Health System and Piedmont Healthcare, launched an insurer in January 2014. After less than two years and steep losses, the hospital systems decided to shut it down. In addition, Memorial Hermann Health System exited its three-year individual health insurance business in 2018.

# **Company exposure to new models**

## **Community Health Systems (CYH)**

### **Exposure to new payment models – medium**

In general, we have found that there are fewer value-based care initiatives outside of urban markets. As a result, we see potential volume pressures from these initiatives as less of an issue for CYH than for some of its urban peers. However, CYH does have exposure to value-based care models as they stated their intention to transition markets where they have multiple hospitals better suited for a move to value based care and population health reimbursement models. As the company continues to refocus on its larger markets, we can expect that their exposure to value-based care models will only increase.

### **Consumer-driven health care**

In the past, the company stated that it didn't have much exposure to value-base payment models and management believed that the shift to value-based reimbursement will be a gradual evolution. In the past year, CYH had made investments in consumer-driven healthcare initiatives in order to drive long-term volume, such as the ACO program and their Transfer Center initiative. The company stated that these initiatives are key in improving performance during the current low-volume environment.

The company focuses on quality and consumer-driven health care. Overall, CYH performs well on hospital-acquired conditions measures but has seen some modest readmissions penalties in non-urban markets. Overall, penalties for performance on VPB, readmissions, and HACs account for approximately \$4-5 million for CYH. The company is committed to improving performance on these measures and has invested in clinical standardization and centralization. As a result of CYH's quality improvements, its readmission rates have declined 18.5%, its hospital-acquired conditions declined 23.4%, and its serious safety events are down 86% from when the initiative started in 2012. CYH's quality improvements have translated into a number of CYH hospitals gaining recognition from The Joint Commission.

CYH is collaborating with Harvard T.H. Chan School of Public Health on their continuing research related to the Safe Surgery Checklist. The World Health Organization (WHO) demonstrated significant reduction in surgical mortality and complications with the use of this tool.

### **New ACO program**

CYH launched its ACO program in early 2018, through 15 ACOs through the Medicare FFS program, which primarily focus on post-acute. In January 2018, the ACO program had more than 500 participating practices and hospitals with more than 260,000 attributed MFFS lives. On its 1Q19 call, the company stated that they had increased participation, adding approximately 20,000 Medicare fee for service lives and had a 97% renewal rate of their primary care physicians, while adding 150 new independent physicians.

### **Bundling initiatives in four markets**

In 2017, CYH had bundling programs in four markets. The company's bundling participation started on April 1, 2015. The bundles are primarily for orthopedics. CYH is working with a third party to manage its bundling projects in an effort to improve its home care operations. We note that as of the end of 2016, CYH sold 80% stake in its home health business to AFAM.

### **Potential pressure on volumes**

New payment models could cut 50-100bp from utilization each year. Given CYH's more rural footprint, we would expect the impact to be at the lower end for CYH. We estimate that a 50bp headwind to volumes for CYH is a \$26 million (2%) headwind to EBITDA or a \$0.18 (14%) headwind to annual EPS. Below we show a sensitivity analysis.

**Table 176: CYH - Sensitivity to changes in adjusted admissions**

	Change in Adjusted Admissions									
	-0.1%	-0.2%	-0.3%	-0.4%	-0.5%	-0.6%	-0.7%	-0.8%	-0.9%	-1.0%
EPS Impact	(\$0.04)	(\$0.07)	(\$0.11)	(\$0.15)	(\$0.18)	(\$0.22)	(\$0.25)	(\$0.29)	(\$0.33)	(\$0.36)
% of 2019E EPS	2.8%	5.5%	8.3%	11.1%	13.8%	16.6%	19.4%	22.1%	24.9%	27.7%

Source: BofA Merrill Lynch Global Research estimates

## Hospital Corp of America (HCA)

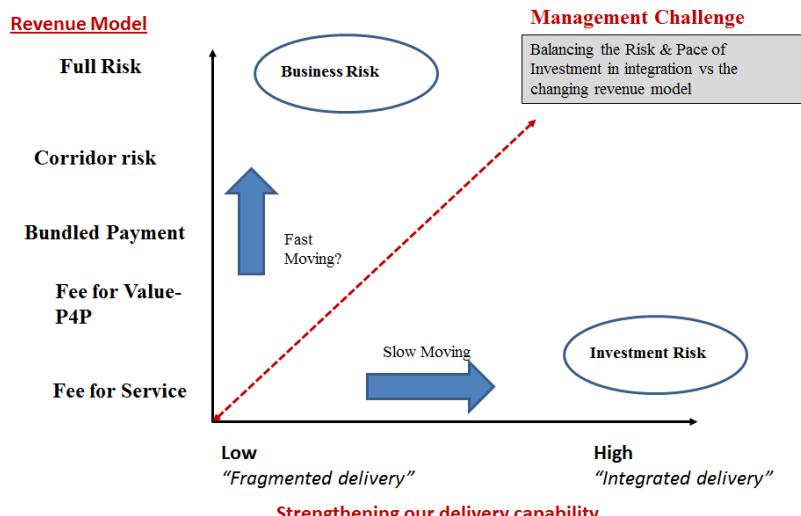
### Exposure to new payment models - Medium

Like most publicly traded hospitals, HCA has very little of its revenue at risk under new payment models, outside of the mandatory value based initiatives from Medicare. However, the company expects the percentage to grow over time and is evaluating a number of pilots across the country. As an urban hospital company, the pressure to move toward these new models is likely above average given a more competitive hospital market and the potential first mover advantages of aligning with a major payer in an ACO. This being said, HCA did note on their 1Q19 conference call that roughly 75-80% of inpatient admissions take a form of risk and that they get DRG payments or case rate payments depending on the patient (highlighting that hospitals already manage a case rate for the patient while they are in the hospital, versus a per diem, or cost reimbursement, where there is less risk of cost over-runs).

### HCA testing various models

Management does not see the need to increase its exposure to “at risk” arrangements, and does not believe the momentum toward value-based reimbursement is as fast-moving as others may think. As shown in the chart below, HCA management is focused on balancing between adjusting to the changes in the revenue model and the integration of care delivery. This concept of managing the transition came to the forefront in all our conversations with hospitals (for profit and non-profit). HCA’s focus is on strengthening its delivery capabilities by providing high quality care in cost efficient way, a strategy that increases profitability in the current fee for service environment, but also prepares it for new payment models if that is how the industry evolves.

### Exhibit 21: Balancing risk under payment reform



1

Source: HCA

## **Pay for performance clauses**

The majority of HCA commercial contracts have some form of pay for performance clause, but these clauses are not always meaningful as a percentage of revenue (~1%). These clauses can be related to a number of factors such as outcomes or simply to processes and often are easily achievable.

## **Risk-based models do not pose material risk**

HCA also has models where the company takes on risk in certain markets, but these models do not pose material risk to the company as a whole. These include a full spectrum of different models including pay for performance, shared savings, and capitation. For example, HCA has a model program in Tampa, Florida with a fully capitated payment arrangement for a physician group. The group has full clinical and financial responsibility for about 30,000 lives. Still, the combined impact of these alternative payment structures does not have a large impact on HCA as a whole.

## **Little revenue at risk, but doubled over last five years**

HCA has a low-single-digit percent of revenue at risk in its alternative payment models. This figure refers to the revenue that is actually at risk, not the percent of contracts that fall under broadly defined value-based arrangements (MCOs often talk about the value of the contract, rather than the amount that is actually at risk). However, this amount is growing, and HCA estimates that it probably has doubled over the last five years.

## **Participation in ACO-like models**

In our discussions with the company, HCA generally shied away from using the term accountable care organizations (ACO), noting the large variety of initiatives that companies call ACOs sometimes make it difficult to compare what is actually going on. HCA is focused on an incremental approach to value-based care via clinical co-management agreements, which mirror ACOs in nature. HCA has a small number of Physician-Hospital Organizations (PHOs) which consist of a physician network and a hospital network under a defined governance structure. HCA shares savings on the performance of the lives covered. Management notes that these arrangements are similar to ACOs but may not necessarily be defined as ACOs. In terms of the strictly defined, Medicare ACOs, HCA participates in two, including one in Florida through a JV.

## **20 hospitals in BPCI Model 2**

HCA had about 20 hospitals participate under BPCI Model 2 (hospital and post-acute care). These hospitals use 90-day episodes in order to give them the ability to drive the most savings and value. The company chose various types of episodes, mostly orthopedic, some cardio and congestive heart failure.

HCA acts as its own convener for its bundling initiatives, but does have physician groups acting as conveners in certain markets. HCA works with naviHealth for some services but does not give it convener status, although in some contracts, it does shared savings arrangements with naviHealth. For example, HCA leverages naviHealth's capabilities related to care management and coordination.

The company noted that the bundling does not require owning post-acute care operators. Rather, the company needs to pay closer attention to credentialing post-acute providers, looking at quality outcomes and only aligning with high quality post-acute care providers.

HCA also participates in the BPCI Advanced Initiative, which the new Bundled Payments model that will be in place out to 2023.

## **Focus on quality**

While the company is hesitant to form pay-for-value contracts and taking on additional risk, HCA sees a focus on quality as increasingly important. Not only is Medicare

reimbursement and some managed care reimbursement tied to quality, the company believes that increasingly low quality providers will become at risk for being out of network. The organization invests in technology and infrastructure in support of patient experience and satisfaction. This is another example of the company operating in the current fee for service environment, but positioning itself for new models.

### **Delivery System Reform Incentive Program**

HCA operates under the Delivery System Reform Incentive Program (DSRIP) in Texas. This payment reform initiative was established to provide incentives to providers to improve the quality of care for Medicaid beneficiaries. There is a particular focus on process-oriented performance improvement initiatives including systems redesign and infrastructure development in the beginning. As years go on, the focus shifts to outcome-based metrics such as clinical health and population health management. The program started out with a narrow focus on providing funding for safety net hospitals, which provided a disproportionate level of charity care compared to other providers. It has since expanded to other aspects of care delivery. The program grew from its original three states (California, Texas, and Massachusetts) to include additional states (New Jersey, Kansas, and New York).

### **Potential pressure on volumes**

New payment models could cut 50-100bp from utilization each year. Given HCA's urban footprint, we would expect the impact to be at the higher end. With population growth and demographics arguing for volumes growing 2%+ in HCA's markets, we still expect HCA to grow at 1.5% per year, even with the headwind. We estimate that a 100bp headwind to volumes for HCA is a \$204 million (2%) headwind to EBITDA, or a \$0.45 (4.4%) headwind to annual EPS. Below we show a sensitivity analysis.

**Table 177: HCA - Sensitivity to changes in adjusted admissions**

	Change in Adjusted Admissions									
	-0.1%	-0.2%	-0.3%	-0.4%	-0.5%	-0.6%	-0.7%	-0.8%	-0.9%	-1.0%
EPS Impact	(\$0.05)	(\$0.09)	(\$0.14)	(\$0.18)	(\$0.23)	(\$0.27)	(\$0.32)	(\$0.36)	(\$0.41)	(\$0.45)
% of 2019E EPS	-0.4%	-0.9%	-1.3%	-1.8%	-2.2%	-2.6%	-3.1%	-3.5%	-4.0%	-4.4%

Source: BofA Merrill Lynch Global Research

## **Tenet Healthcare (THC)**

### **Exposure to new payment models – Medium**

THC is generally confident about the transition to value-based reimbursement and is more forward looking than its peers. However, in recent years, THC appears to have taken a step backwards. The company's exposure to alternative payment models expanded with the acquisition of Vanguard (ACOs, Medicaid MCO plans, etc.). But since then, THC has sold most of its health plan business and is attempting to sell Conifer (its revenue cycle management business), somewhat lessening its in-house capabilities, and signaling that THC's movement towards new payment models will be more gradual. THC's expedited shift to a capitation model hit the EBITDA by \$15 million in 2018 (weighted toward the first half). THC says that it will get solved, but will take time, and will likely result in THC being more cautious when entering capitation agreements.

THC does not plan to drive all markets toward risk-based contracts but does hope to engage in value-based payment models where they have a competitive advantage in doing so. Some THC alternative payment models have been successful while others have not, and management emphasizes that the success of the arrangements is market-specific. THC management believes the company would benefit from the transition to value-based care for two main reasons: 1) the company generally prices below leading nonprofit health systems, and 2) THC operates at a fraction of its capacity.

### **Less than 5% of revenues in value-based models**

Of the hospital operators, Tenet stands out as the company appears to be more involved in ACOs than other hospital companies with approximately 85% of THC's hospitals participating in an ACO, covering nearly 1 million patients. Many of these lives are in medical home arrangement. The company noted that the shift away from FFS toward paying for quality has been ongoing for the last seven years, with changes at the Medicare level and commercial plans adding quality metrics to its payment structures that still pay on the FFS basis. However, the changes are relatively slow and less than 5% of THC revenues are in non-standard arrangements in what the company calls value-based arrangements such as ACOs, medical homes, bundling, capitation, and premiums on health plans. The 5% does not include pay for performance portion on Medicare.

The company noted that in order to be successful under the new payment models, the key is aligning with the physicians who embrace the new models. Hospital systems need to create case management capabilities and build networks in its markets.

### **Participation in commercial and Medicare ACOs**

THC forms ACOs with all kinds of health care organizations including nonprofits, private companies, and publicly traded corporations. As of 2017, THC had 15 ACOs, 6 of which are contracted with private payers. Some of Tenet's ACOs had both Medicare and private payer contracts. The ACOs are paid a monthly management fee. The fee is in the single digits for commercial and in the teens for Medicare. THC noted that its ACOs help the company hedge against readmissions penalties since ACOs are focused on reducing readmissions in order to achieve shared savings around a budgetary target.

### **DMC is one of the initial Pioneer ACOs**

Tenet's Detroit Medical Center (DMC) is one of the initial 32 participants in the Medicare Pioneer Program. DMC saved money in its first year and stayed in the program. In program year 2, DMC earned \$14 million from Medicare. In program year 3, DMC saved nearly \$17 million, making it the most successful Pioneer ACO in 2014 in terms of cost control. The model is a two-sided risk arrangement and since its inception in 2012, DMC has saved nearly \$41 million, during which time the ACO experienced consecutive year-over-year improvement in quality results.

The \$41 million in saving resulted in a \$20 million net savings to Medicare program, representing 40% of total Tenet Medicare ACO savings to CMS of \$50 million from 2012-2014. In January 2017, DMC announced that it was selected to participate in the 2017 CMS Next Generation ACO Model. Building on the Pioneer ACO Model and the Medicare Shared Savings Program, the Next Generation ACO Model offers a new opportunity in accountable care that sets predictable financial targets, enables providers and beneficiaries greater opportunities for coordination with the aim to attain the highest quality standards of care and improve health outcomes. DMC is one of nine original 32 Pioneer ACOs still successfully participating.

### **Participates in bundling**

As of early 2017, THC participated in the CMS Bundled Care for Improvement Initiative in San Antonio, Chicago, and some other markets (THC since sold its Chicago operations). THC primarily used Model 2 (acute and post-acute care) for its bundles with a focus on orthopedic episodes and sometimes a cardiac heart failure episode. The company focused on clinical standardization and case management of post-acute care. THC noted that the company does not necessarily need to own post-acute providers and would prefer to case manage it. In essence, THC can focus on partnering with post-acute providers that deliver high quality outcomes and leveraging their capabilities in the space. THC's bundling strategy is heavily geared toward physicians – getting enough primary care coverage, engaging with high quality specialists and generally focusing on doctors who are collaborative and willing to work within the system.

## About 10% of Conifer revenues tied to value-based care

About 10% of Tenet's Conifer Health Solutions revenue is tied to value-based payment or population health management, with the other 90% dedicated to its hospital revenue cycle business. Of the 6 million lives in value-based care, approximately 1 million are full risk for providers and 5 million are population health management for self-insured employers. Conifer provides care management to its customers such as analytics platform to identify at-risk patients, call centers, and the capability to identify those patients that are high risk/high cost. THC is evaluating a sale of this business, so it may end up lessening its exposure to value-based care.

## Potential pressure on volumes

The new payment models could cut 50-100bp from utilization each year. Given Tenet's urban footprint, we would expect the impact to be at the higher end for the company. We estimate that a 100bp headwind to volumes for THC is a \$61 million (2%) headwind to EBITDA or a \$0.35 (15%) headwind to annual EPS. Below we show a sensitivity analysis.

**Table 178: THC - Sensitivity to changes in adjusted admissions**

	Change in Adjusted Admissions									
	-0.1%	-0.2%	-0.3%	-0.4%	-0.5%	-0.6%	-0.7%	-0.8%	-0.9%	-1.0%
EPS Impact	(\$0.03)	(\$0.07)	(\$0.10)	(\$0.14)	(\$0.17)	(\$0.21)	(\$0.24)	(\$0.28)	(\$0.31)	(\$0.35)
% of 2019E EPS	(0.02)	(0.03)	(0.05)	(0.06)	(0.08)	(0.09)	(0.11)	(0.12)	(0.14)	(0.15)

Source: BofA Merrill Lynch Global Research estimates

## Universal Health Services (UHS)

### Exposure to new payment models - Medium

The vast majority of UHS's contracts continue to rely heavily on the FFS model, but UHS is seeing a more accelerated, although still relatively modest, shift to value-based arrangements. Some commercial contracts include some quality indicator requirements, and some of the exchange products have some flavor of that through the use of narrow networks, where the company believes it was chosen to be in network due to its quality. The company does not participate in Medicare ACOs or commercial ACOs. However, UHS does participate in the bundle demo. While initially all of its hospitals were enrolled for at least one condition in the BPCI program, since fall 2016 only 10 of its hospitals participate. UHS also runs a couple of health plans in TX and NV.

### 10 UHS hospitals participated in bundle demo in 2017

UHS notes that, while initially all of its hospitals were enrolled for at least one condition in the BPCI program, since the fall 2016 the number of participating hospitals had fallen to 10 in 2017. As of early 2017, UHS participated in BCPI Model 2, which covered inpatient and post-acute episodes. The company chose various types of episodes, mostly orthopedics, joints, congestive heart failure, and sepsis. Surgical procedures are easier to be managed under a bundle since there is only one main physician responsible for a patient. In contrast, in other more chronic cases, such as diabetes, the patient is seen by multiple doctors. UHS chose episodes in its markets based on the local hospital's relationship with its physicians, as it needs strong relationship that would allow it to develop protocols needed to manage patient care under the bundle.

Management sees the use of bundled payments as a way to effectively manage patients across the continuum of care. UHS focuses on aligning physicians with their new payment initiatives.

UHS decision to reduce the number of hospital participating in BPCI was due largely to 1) a small census in certain locations, which made managing for success challenging and 2) the administrative burden (especially the patient attribution rules) which, when coupled with the small census at certain locations, ultimately made BPCI unappealing in certain markets. UHS continues to participant in Southern California, Nevada and Palm

Beach, and remains committed to using the program as a laboratory to prepare effectively for the future of healthcare reform.

### **Savings to come from reducing readmits, better post-acute care management**

UHS believes cost savings in the bundle can come from reducing readmissions and from effective management of post-acute care (eg, reducing length of stay in SNFs).

### **UHS owns a small Medicare Advantage plan**

UHS entered the Medicare Advantage space in early 2015 in two markets (NV and TX). Management views Medicare Advantage as supportive for the core acute care hospital segment, rather than a business it is trying to grow on its own. The decision to open up a health plan was driven by competitive dynamics in one market (UHS was not in a major plan network so it wanted to counteract that with a plan of its own) and to align with physician network in the other market. UHS also participated in the exchanges, but then pared back its exposure due to poor results.

### **Bundled Payment for Care Improvement Advanced (BPCI-A)**

UHS has formally applied for 12 hospitals and, for the first time, an owned, Texas based physician group potentially to participate in the second generation BPCI-A. CMS has begun to release data to potential awardees in June, and signed participation agreements are due on or before August 1. Using 2014-16 CMS data, UHS is assessing which (if any) of the available 29 inpatient and 3 outpatient conditions warrant potential participation.

### **Private Payer Value-based contracting (VBC)**

UHS continues to contract with private payers such as local/regional Blue Cross plans, CVS/Aetna, Anthem and United Healthcare to add supplemental revenue opportunities, based upon evolving VBC models, to existing legacy fee-for-service arrangements. UHS believes that VBC revenue represents less than five percent (5%) of total acute care private payer revenue.

### **Potential pressure on acute care volumes**

The new payment models could cut 50-100bp from utilization each year. Given UHS's urban footprint, we would expect the impact to be at the higher end for the company. We estimate that a 100bp headwind to volumes for UHS's acute care segment is a \$24 million headwind to EBITDA (1%), or a \$0.20 (2%) headwind to annual EPS. Below we show a sensitivity analysis.

**Table 179: UHS - Sensitivity to changes in adjusted admissions**

	Change in Adjusted Admissions									
	-0.1%	-0.2%	-0.3%	-0.4%	-0.5%	-0.6%	-0.7%	-0.8%	-0.9%	-1.0%
EPS Impact	(\$0.02)	(\$0.04)	(\$0.06)	(\$0.08)	(\$0.10)	(\$0.12)	(\$0.14)	(\$0.16)	(\$0.18)	(\$0.20)
% of 2019E EPS	-0.2%	-0.4%	-0.6%	-0.8%	-1.0%	-1.2%	-1.4%	-1.6%	-1.8%	-2.0%

Source: BofA Merrill Lynch Global Research estimates



## Company snapshots



## Community Health Systems – overview

**Table 180: CYH Key Facts**

Market Cap (millions)	\$306
2019E Net Revenue (millions)	\$13,092
2019E EBITDA (millions)	\$1,644
2019E EPS	-\$1.31
2020E EV/EBITDA	8.0x
Historical EV/EBITDA avg.	7.6x
Valuation Range	4.5x-14.3x

Source: BofA Merrill Lynch Global Research, Company data

Community Health Systems (CYH), founded in 1986, operates acute care hospitals predominantly in non-urban markets throughout the US. As of May 22, 2019, CYH operated 106 hospitals, comprised of 104 general acute care hospitals and two stand-alone rehabilitation or psychiatric hospitals. The company is in the process of pruning its portfolio. Over the past year, CYH has been executing on their divestiture program, which is supposed to provide CYH with \$1.3 billion of proceeds on \$2 billion of revenues coming out of the business. So far in 2019, CYH has completed sales of their last 4 hospitals in South Carolina, and has a definitive agreement in place to sell a 245 bed hospital in Tennessee as well as an agreement to sell a 193 bed hospital and three hospitals in Florida.

**Table 181: CYH Bed Concentration as of 12/31/18 PF Divestitures**

State	% of Beds
Florida	16.8%
Texas	13.1%
Mississippi	10.3%
Indiana	9.1%
Tennessee	9.1%
Alabama	8.1%
Pennsylvania	6.7%
Oklahoma	4.4%
Arkansas	4.0%
Missouri	3.6%
Arizona	3.5%
New Mexico	3.3%
Virginia	2.9%
North Carolina	1.6%
West Virginia	1.4%
Louisiana	1.0%
Georgia	0.9%
Alaska	0.4%
<b>Total</b>	<b>100.0%</b>

Source: BofA Merrill Lynch Global Research, Company data

On July 25, 2007, the company completed the acquisition of Triad Hospitals, which almost doubled the company's size. Triad operated 50 hospitals in non-urban and middle market communities in 17 states and Ireland. Triad also owned the QHR hospital management business, which serves 150 facilities. Immediately following the acquisition, on a combined basis, the company owned and operated 128 hospitals in 28 states and Ireland. Since that time, the company has divested a number of non-core assets (including the hospital in Ireland). In 2014, CYH made another sizeable acquisition, buying HMA, another non-urban hospital operator with 71 facilities located in markets where CYH already had a presence.

In 2016, CYH announced its plan to rationalize and refine its portfolio. On April 29, 2016, CYH completed the spin-off of 38 smaller hospitals and its Quorum hospital management and consulting business, into a new publicly traded company named Quorum Health Corporation (ticker QHC). It also sold its stake in the Las Vegas assets and other assets, which combined allowed the company to reduce debt by \$1.8bn in 2016. At the end of 2016, CYH sold an 80% stake in its 74 home care agencies and 15

licensed hospice agencies to Almost Family (AFAM, subsequently acquired by LHC Group).

In 2017, CYH sold 30 hospitals with annualized revenues of \$3.4bn. The proceeds from divestitures of about \$1.7bn were put towards debt paydown. The company announced plans to another \$2 billion of revenues in 2018, but the timing has slipped and the process continues into 2019.

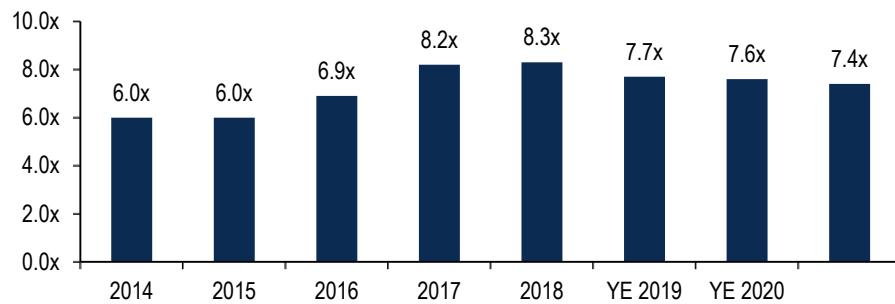
#### Key issues

- Company volumes continue to underperform
- High leverage relative to peers
- Delays in asset sale plan

#### Key strengths

- Asset sales to help reduce leverage
- Pruning refocuses on best markets
- Cost control initiatives in places

**Chart 184: CYH Leverage**



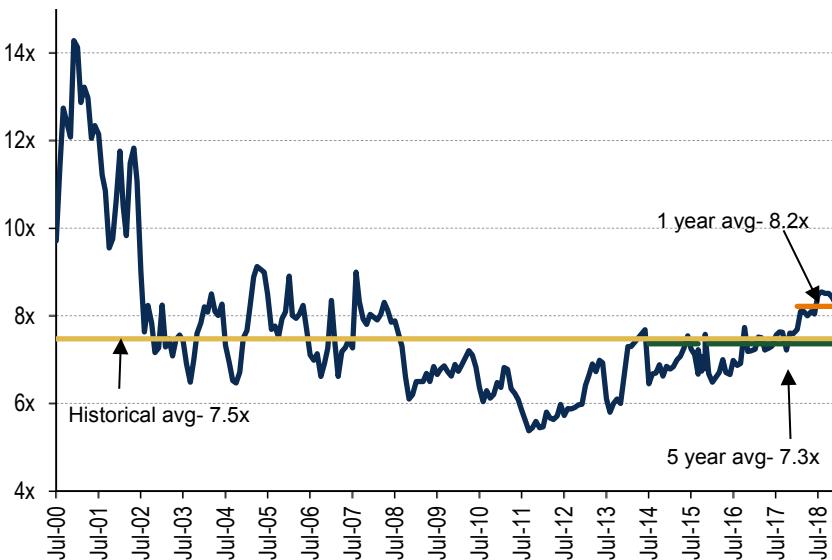
- Source: BofA Merrill Lynch Global Research, Company data

**Chart 185: CYH 5 year price performance**



Source: Bloomberg, BofA Merrill Lynch Global Research

**Chart 186: CYH historical EV/EBITDA valuation**



Source: BofA Merrill Lynch Global Research, Bloomberg

**Table 182: CYH management**

Name	Age	Role
Wayne T. Smith	73	CEO, Chairman of the board
Thomas J. Aaron	55	CFO, EVP
Tim Hingtgen	51	COO
Lynn T. Simon, M.D.	58	CMO

Source: Company filings, BofA Merrill Lynch Global Research

Source: Company filings, BofA Merrill Lynch Global Research

## HCA – overview

**Table 183: HCA Key Facts**

Market Cap (millions)	\$45,903
2019E Net Revenue (millions)	\$51,048
2019E EBITDA (millions)	\$9,739
2019E EPS	\$10.27
2019E EV/EBITDA	8.6x
Historical EV/EBITDA avg.	7.5x
Valuation Range	5.7x-9.1x

Source: BofA Merrill Lynch Global Research, Company data

HCA, founded in 1968, is the largest for-profit hospital company, and represents about 5% of total hospital industry volume. As of March 31, 2019 it owns and operates 185 hospitals with about 48,500 beds in 21 states and the United Kingdom, as well as 124 ambulatory surgery centers, 20 GI centers, 130 urgent care centers, and 85 freestanding ERs. HCA assets are located in 16 of the 25 US MSAs with the strongest Economic Health Index. The company's market share ranks 1st or 2nd in 27 of 38 studied markets (as of 4Q18).

**Table 184: HCA Bed Concentration as of 3/31/19**

State	% of Beds
Texas	28.1%
Florida	25.5%
Virginia	7.0%
Tennessee	5.4%
Georgia	5.2%
Colorado	5.1%
California	3.9%
Kansas	2.9%
Nevada	2.7%
North Carolina	2.7%
Louisiana	2.2%
Missouri	2.2%
Utah	2.1%
South California	2.0%
England	1.8%
Idaho	1.0%
Kentucky	0.8%
New Hampshire	0.6%
Indiana	0.6%
Alaska	0.5%
Mississippi	0.3%
<b>Total</b>	<b>100.0%</b>

Source: BofA Merrill Lynch Global Research, Company data

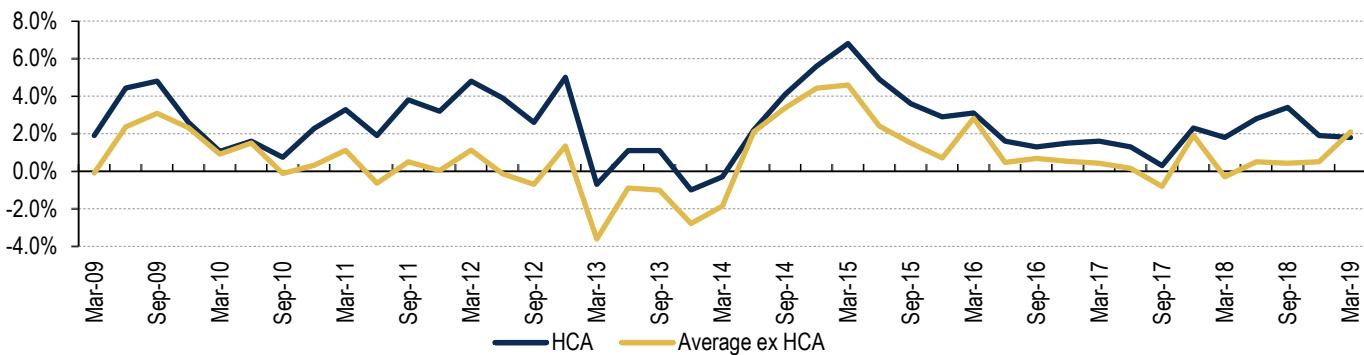
### Key issues

- Industry volumes continue to moderate
- Labor cost pressures, rising interest rates
- Payer mix worsens, ACA pressures

### Key strengths

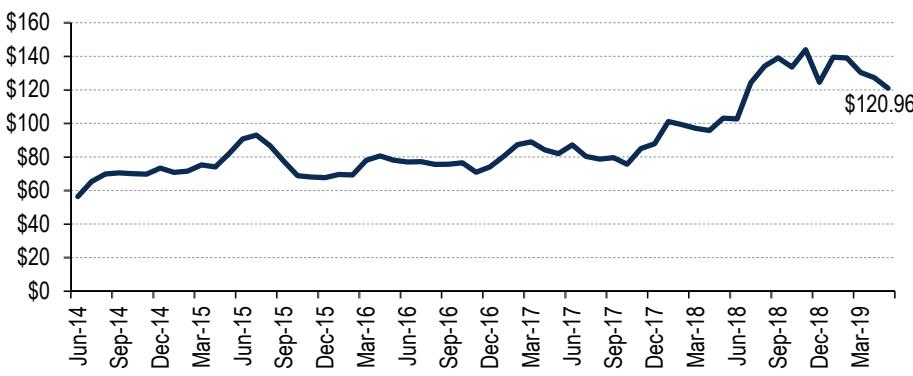
- Significant share in fast growing markets
- Tailwind from DSH and recent deals
- Ability to continue deploying capital

**Chart 187: HCA SS adjusted admission growth vs peers**



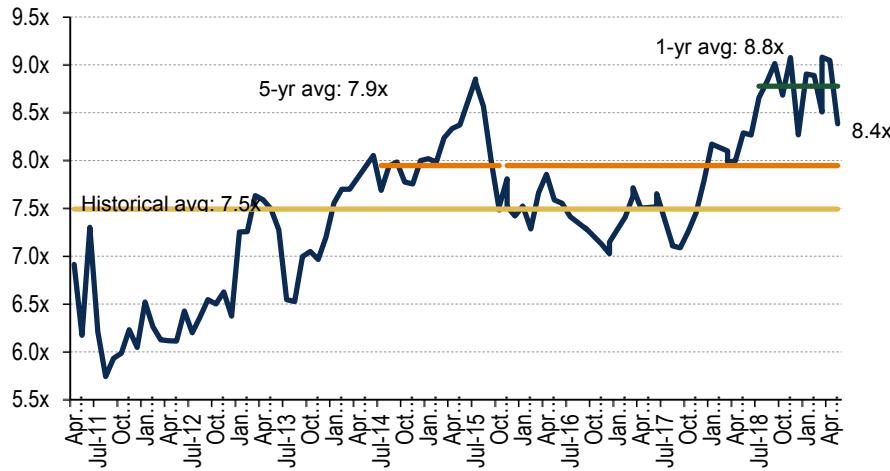
Source: Company reports, BofA Merrill Lynch Global Research

**Chart 188: HCA 5 year price performance**



Source: Bloomberg, BofA Merrill Lynch Global Research

**Chart 189: HCA Historical EV/EBITDA valuation**



Source: BofA Merrill Lynch Global Research estimates

**Table 185: HCA management**

Name	Age	Role
Sam Hazen	58	CEO
William B. Rutherford	55	CFO, EVP

Source: Company filings, BofA Merrill Lynch Global Research

## Tenet Healthcare – overview

**Table 186: THC Key Facts**

Market Cap (millions)	\$2,095
2019E Net Revenue (millions)	\$18,196
2019E EBITDA (millions)	\$2,699
2019E EPS	\$2.28
2019E EV/EBITDA	6.8x
Historical EV/EBITDA avg.	7.7x
Valution Range	3.8x-14.0x

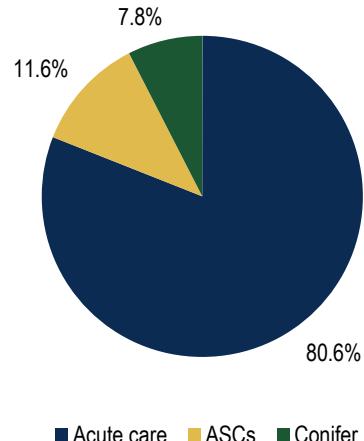
Source: BofA Merrill Lynch Global Research, Company data

Tenet Healthcare (THC) was created in March 1995 through the merger of health care provider National Medical Enterprises (NME), Inc. and the parent company of American Medical International (AMI), Inc., which was founded in 1960 as the nation's first investor-owned hospital management company. In the late 1990s and early 2000s, Tenet grew through acquisitions, ultimately becoming the second largest investor-owned hospital company in the US. In late 2002, Tenet was faced with a number of investigations brought by the US Department of Justice and various state and federal agencies regarding the overbilling of Medicare. Over the next several years, new management came in and pruned the portfolio to about half of its prior size. At March 31, 2019, Tenet operated 65 hospitals in 9 states, with a combined total of 17,221 licensed beds. The company also operates 23 surgical hospitals and 470 outpatient centers, freestanding urgent care centers, satellite emergency departments and provider-based ambulatory surgery centers.

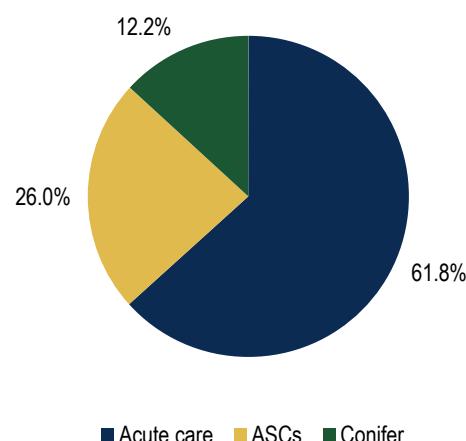
In 2015, THC combined its 49 ambulatory surgery centers (ASCs) and 20 imaging centers with the assets (249 ASCs, 20 short-stay surgery hospitals, 20 imaging centers and 81 urgent care centers) of United Surgical Partners International, Inc. into a new USPI joint venture. THC had a 56.3% ownership interest in the USPI JV, while Welsh, Carson, Anderson & Stowe, a private equity firm, owned 38.7% and Baylor University Medical Center owned 5% of the JV. THC subsequently acquired the remaining Welsh Carson stake, leaving them with a 95% stake and the JV just with Baylor.

Given its high leverage, THC has been pruning its portfolio over the past two years, selling its Philadelphia-Area hospitals, its Chicago-Area hospitals, its North Texas hospitals, Des Peres Hospital in St. Louis, Aspen Healthcare (its UK business), and the remainder of its health plans (Golden State in California). On top of that, the company has been looking to transact Conifer, their revenue cycle management business.

**Chart 190: THC's Revenue by Segment 2019E**



**Chart 191: THC's EBITDA less Minority Interest by Segment 2019E**



Source: Company Filings, BofA Merrill Lynch Global Research

Source: Company Filings, BofA Merrill Lynch Global Research

**Table 187: THC Bed Concentration as of 3/31/19**

State	% of Beds
Texas	21.7%
Florida	21.4%
California	14.6%
Michigan	13.6%
Alabama	9.5%
Arizona	8.9%
Tennessee	3.9%
Massachusetts	3.5%
South Carolina	3.0%
<b>Total</b>	<b>100.0%</b>

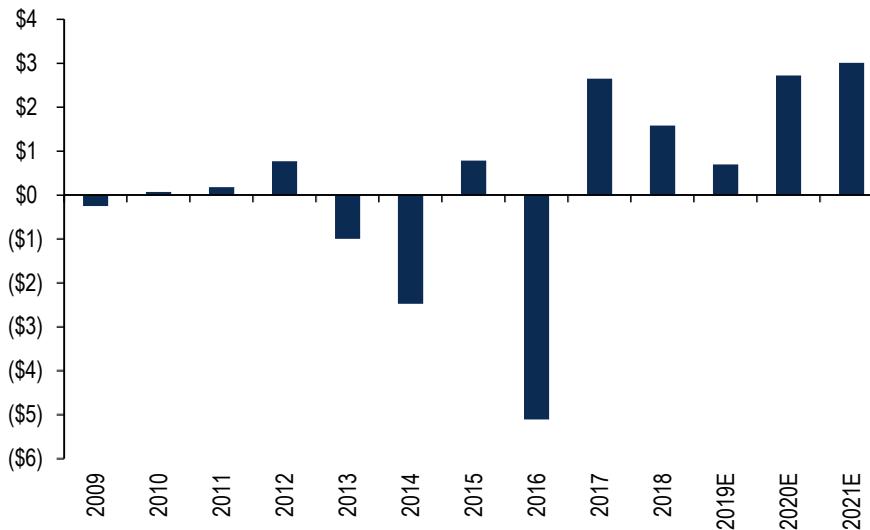
Source: BofA Merrill Lynch Global Research, Company data

### Key strengths

- Potential upside from additional portfolio rationalization
- Bigger exposure to faster growing, higher margin, lower capex ASC business
- Sale of Conifer could expedite deleveraging efforts

### Key issues

- Above average leverage (approximately 6x)
- Negative payer mix shift
- Conifer sale delayed/may not happen

**Chart 192: THC - FCF per share**

Source: Company Filings, BofA Merrill Lynch Global Research

**Chart 193: THC 5 year price performance**



Source: BofA Merrill Lynch Global Research, Bloomberg

**Chart 194: THC historical EV/EBITDA valuation**



Source: Bloomberg, BofA Merrill Lynch Global Research

**Table 188: THC Management**

Name	Age	Role
Ronald A. Rittenmeyer	71	CEO, Executive chairman
Daniel J. Cancelmi	56	CFO
Saumya Sutaria, M.D.	46	COO

Source: Company filings, BofA Merrill Lynch Global Research

## Universal Health Services – overview

**Table 189: UHS Key Facts**

Market Cap (millions)	\$11,551
2019E Net Revenue (millions)	\$11,278
2019E EBITDA (millions)	\$1,877
2019E EPS	\$9.94
2019E EV/EBITDA	8.3x
Historical EV/EBITDA avg.	6.6x
Valuation Range	3.0x-11.2x

Source: BofA Merrill Lynch Global Research, Company data

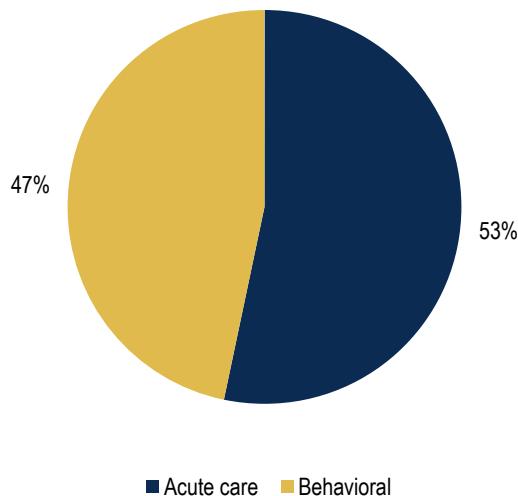
Universal Health Services (UHS) was founded in 1978 by Alan B. Miller, chairman and CEO. Mr. Miller owns super voting shares, giving him over 80% of the voting shares in the company. UHS stands out from other hospital companies as it operates not only acute care hospitals, which represent 53% of revenues and 48% of EBITDA, but also behavioral care facilities, which contributed 52% of EBITDA in 1Q 2019.

As of March 31<sup>st</sup>, 2019, UHS owned and/or operated 43 acute care facilities (26 inpatient hospitals, 10 free-standing EDs, 6 outpatient centers, and 1 surgical hospital) and 348 behavioral health centers (inpatient and outpatient) located in 37 states, Washington, DC, the UK, and Puerto Rico.

In 2010, UHS acquired Psychiatric Solutions, the second largest psych operator at that time, in a \$3bn transaction, which doubled its psych revenues and made it the largest behavioral healthcare provider in the US.

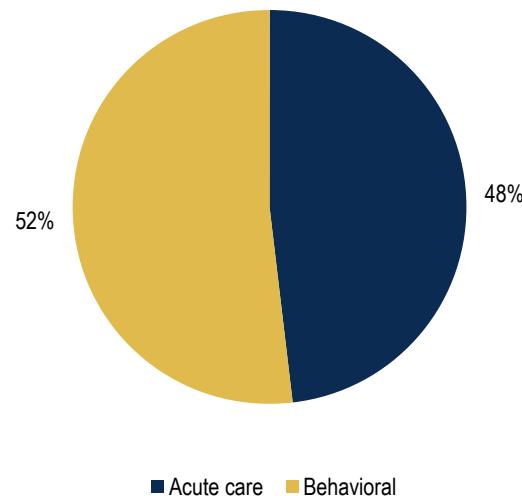
UHS entered the UK psych market in September 2014 by acquiring Cygnet Health Care, one of the largest psych facility operators in the UK with 18 facilities and 7% market share. In 2016, UHS expanded this business by acquiring the Cambian Adult Services division, consisting of 81 behavioral health facilities in the U.K.

**Chart 195: UHS's Revenue by Segment 2019E**



Source: Company Filings, BofA Merrill Lynch Global Research

**Chart 196: UHS's EBITDA by Segment from 1Q19**



Source: Company Filings, BofA Merrill Lynch Global Research

**Table 190: UHS Beds by state as of 3/31/2019**

<b>State</b>	<b>Acute</b>	<b>Behavioral</b>	<b>Consolidated*</b>
Alabama		1.8%	0.3%
Alaska		0.8%	0.2%
Arizona		1.6%	0.3%
Arkansas		1.8%	0.3%
California	13.2%	4.0%	11.5%
Colorado		1.3%	0.2%
Connecticut		0.3%	0.1%
Delaware		1.0%	0.2%
Florida	10.5%	6.5%	9.8%
Georgia		5.0%	0.9%
Idaho		1.1%	0.2%
Illinois		3.7%	0.7%
Indiana		2.2%	0.4%
Kentucky		2.8%	0.5%
Louisiana		1.4%	0.3%
Massachusetts		1.8%	0.3%
Michigan		2.1%	0.4%
Minnesota		0.2%	0.0%
Mississippi		2.7%	0.5%
Missouri		0.6%	0.1%
Nevada	30.1%	1.5%	24.7%
New Jersey		1.0%	0.2%
New Mexico		0.4%	0.1%
North Carolina		2.3%	0.4%
North Dakota		0.7%	0.1%
Ohio		2.1%	0.4%
Oklahoma	3.7%	1.8%	3.4%
Oregon		0.4%	0.1%
Pennsylvania		6.5%	1.2%
South Carolina	4.2%	2.8%	3.9%
Tennessee		4.8%	0.9%
Texas	32.1%	9.6%	27.9%
Utah		3.5%	0.7%
Virginia		4.4%	0.8%
Washington		0.0%	0.0%
District of Columbia	6.2%	1.6%	5.4%
West Virginia		0.8%	0.1%
Wyoming		0.6%	0.1%
UK		11.3%	2.1%
Puerto Rico		1.0%	0.2%
Virgin Islands		0.0%	0.0%
Total	100.0%	100.0%	100.0%

Source: BofA Merrill Lynch Global Research, company reports

\*Since acute care beds generate more revenue, "Consolidated" percentages adjust beds to reflect relative revenue generation

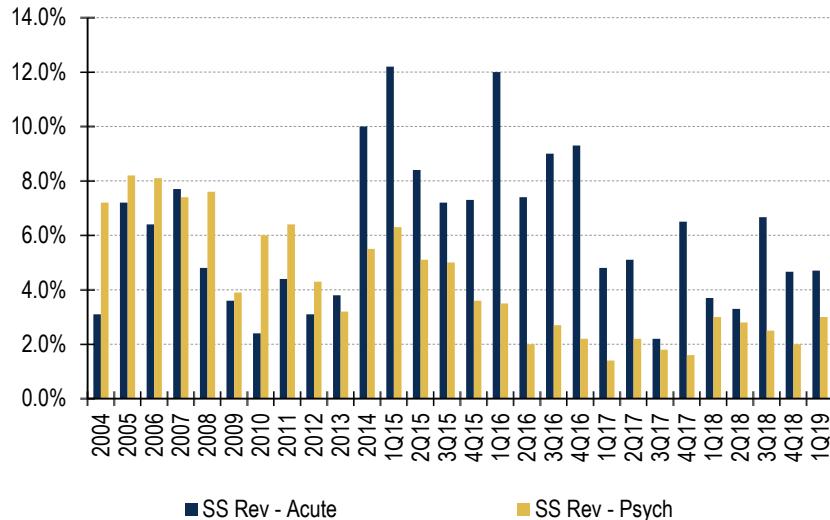
**Key strengths**

- Psych settlement could help growth
- Psych a faster growing, higher margin, higher ROIC business than acute
- Las Vegas economy remains strong

**Key issues**

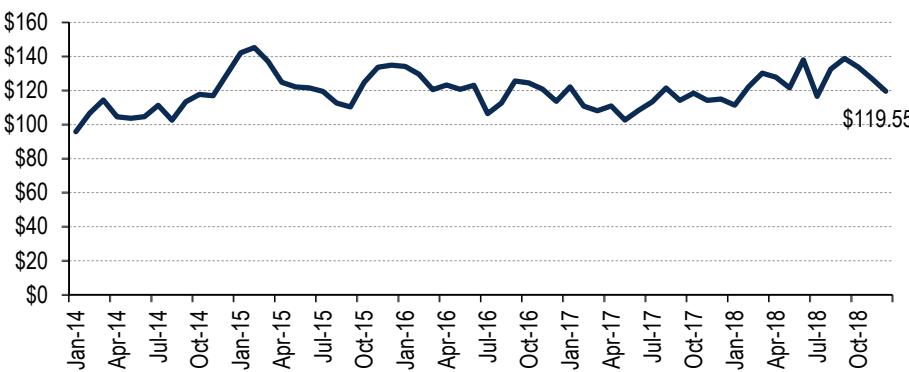
- Government scrutiny/headline risks in the psych biz
- Company struggling to grow psych as fast as peers
- Labor shortage could continue to restrain psych volume growth

**Chart 197: UHS Same store revenue growth - Acute versus Psych**



Source: Company filings, BofA Merrill Lynch Global Research

**Chart 198: UHS 5 year price performance**



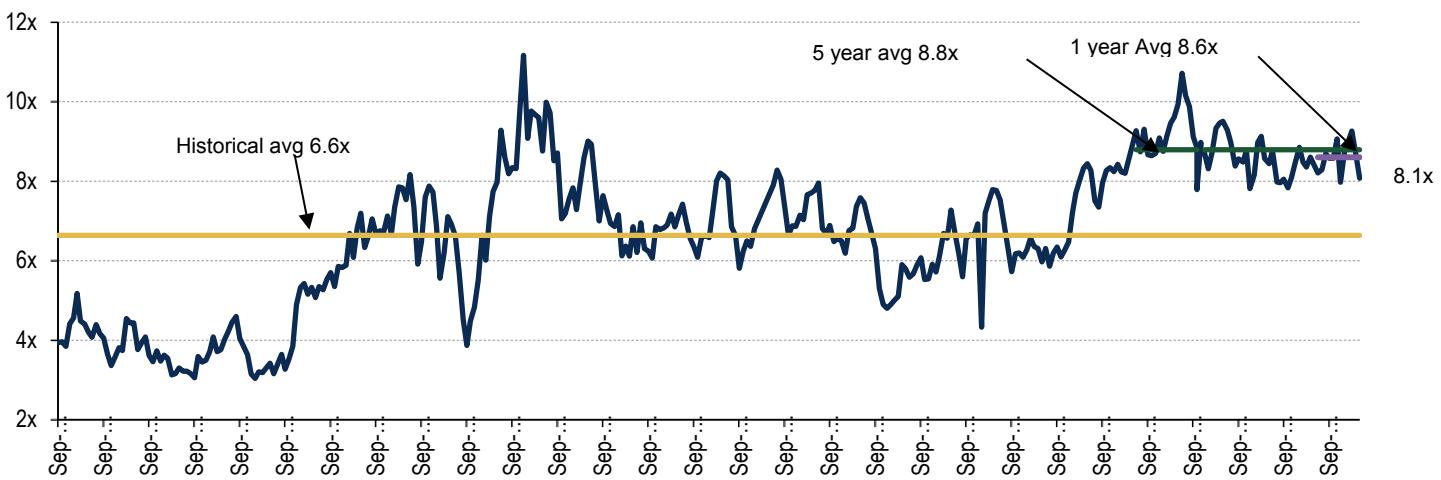
Source: BofA Merrill Lynch Global Research, Bloomberg

**Table 191: UHS Management**

Name	Age	Role
Alan B. Miller	81	CEO, Chairman of the board
Steve G. Filton	61	EVP, CFO
Marc D. Miller	48	President

Source: Company filings, BofA Merrill Lynch Global Research

Chart 199: UHS historical EV/EBITDA valuation



Source: Bloomberg, BofA Merrill Lynch Global Research

## Glossary



In this section, we provide a glossary of terms used in the managed care industry.

**ACO = Accountable Care Organization.** A network of health care providers that band together and are held accountable for the quality and cost of care. Pilot programs in Medicare and Medicaid would provide financial incentives for these organizations to improve quality and reduce costs by allowing them to share in any savings achieved as a result of these efforts.

**ASC = Ambulatory Surgery Center.** A freestanding facility that only performs outpatient surgeries.

**BBA of 1997 = Balanced Budget Act of 1997.** Legislation outlining a number of changes across health care providers, expected to save \$115 billion over 5 years with \$50 billion of savings coming from hospitals. Main source of savings was to reduce the inflationary update from 1997-2002.

**BBRA of 1999 = Balanced Budget Act of 1999.** Act passed to help return funds to providers after Congress realized the Balanced Budget Act of 1997 was draconian. \$17 billion was returned to providers.

**BIPA = Benefits and Improvement Act.** Legislation enacted in 2000 that provided further relief to providers affected by BBA.

**Bundled payment** = A rate combining the acute care hospital payment with the post-acute care payments and/or other provider payments. The Reform bill includes a provision that calls for a demonstration project to evaluate integrated care around a hospitalization. The idea is that under the current system providers have no incentives to coordinate care, but paying one rate not only for the care in the hospital but the care the patient receives afterwards, should lead to cost savings as care is better managed.

**BPCI** = Bundled Payment Care Improvement initiative – BPCI is an alternative payment model where a provider takes risk for managing the patient during their stay at their site of care as well as a subsequent 30, 60 or 90 day period. Doctors, hospitals or post acute care providers can participate, but only one provider can be in charge of a given patient.

**Capitation** = A method of paying for health care services under which providers receive a set payment for each person or “covered life” instead of receiving payment based on the number of services provided or the costs of the services rendered. These payments can be adjusted based on the demographic characteristics, such as age and gender, or the expected costs of the members.

**Case Management** = The process of coordinating medical care provided to patients with specific diagnoses or those with high health care needs. These functions are performed by case managers who can be physicians, nurses, or social workers.

**CJR** = Comprehensive Care for Joint Replacement. CMS made a mandatory bundle for comprehensive joint replacement, putting the hospital in charge of managing the patient during the inpatient stay as well as the post discharge care. The model began in April 2016 and will run for five years. Unlike other bundles (eg BPCI), it is mandatory for hospitals located in 67 metropolitan areas (covering approximately 25% of the country).

**CMS = Center for Medicare and Medicaid Services.** The federal agency within the US Department of Health and Human Services responsible for Medicare, Medicaid, and State Children’s Health Insurance Program. CMS is in charge of implementing the policies outlined by Congress and working within that broad framework to set reimbursement levels for providers.

**Children’s Health Insurance Program (CHIP)** = Enacted in 1997, CHIP is a federal-state program that provides health care coverage for uninsured low income children who are not eligible for Medicaid. States have the option of administering CHIP through

their Medicaid programs or through a separate program (or a combination of both). The federal government matches state spending for CHIP but federal CHIP funds are capped.

**COBRA** = When employees lose their jobs, they are able to continue their employer-sponsored coverage for up to 18 months through the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA). Under the original legislation, individuals were required to pay the full premium to continue their insurance through COBRA. The American Recovery and Reinvestment Act (ARRA) provides a temporary subsidy of 65% of the premium cost for the purchase of COBRA coverage to people who have lost their job between September 1, 2008 and December 31, 2009.

**CBO = Congressional Budget Office.** The CBO provides all budget estimates and analyses for Congress.

**Charity Care** = When a patient enters a hospital, and the hospital determines that the patient has no ability to pay, instead of charging the patient and writing off the revenue as bad debt, the company will often classify that service as "charity care" and book no revenue for the patient (and therefore no bad debt).

**Coding Creep** = Phenomenon that typically occurs when CMS makes changes to the reimbursement systems (such as adding new billing codes) and companies adjust their coding, sometimes culminating in more patients being classified into higher reimbursement categories than CMS anticipated when setting the rates.

**Coding adjustment.** A rate cut implemented by CMS to adjust for the "coding creep" by making a downward coding adjustment in future years. Although this change is meant to simply keep aggregate spending in line with its long-term targets, it marks a reduction in rates from the prior year. Unlike the recoupment adjustment, the coding adjustment permanently lowers rates and is the base off of which all future rate increases will be made.

**CAH = Critical Access Hospital.** Certain (typically rural) hospitals that receive special payment consideration under Medicare given their role as the major health care provider in a market.

**Co-payment** = A fixed dollar amount paid by an individual at the time of receiving a covered health care service from a participating provider. The required fee varies by the service provided and by the health plan.

**Cost Containment** = A set of strategies aimed at controlling the level or rate of growth of health care costs. These measures encompass a myriad of activities that focus on reducing overutilization of health services, addressing provider reimbursement issues, eliminating waste, and increasing efficiency in the health care system.

**Cost-Sharing** = A feature of health plans where beneficiaries are required to pay a portion of the costs of their care. Examples of costs include copayments, coinsurance and annual deductibles.

**Cost Shifting** = When hospitals increase rates from some payers (usually managed care) to offset losses or lower reimbursement from other payers (such as government payers and the uninsured).

**Deductible** = A feature of health plans in which consumers are responsible for health care costs up to a specified dollar amount. After the deductible has been paid, the health insurance plan begins to pay for health care services.

**DRG = Diagnosis Related Group.** Used in the Medicare reimbursement system for hospitals, and is based on patients' clinical conditions and treatment strategies. The payment system has 335 base DRGs, most of which are split into 2 or 3 medical severity DRGs (MS-DRGs) based on the presence of either a comorbidity or complication (CC) or major CC.

**DSH = Disproportionate Share Hospital adjustment.** Hospitals treating a high-percentage of low-income patients (15%+ of patients) receive a percentage add-on payment applied to the DRG-adjusted base payment rate.

**Dual Eligible** = A Medicare beneficiary that qualifies (due to low-income status) for Medicaid coverage as well.

**Electronic Health Record/Electronic Medical Records** = Computerized records of a patient's health information including medical, demographic, and administrative data. This record can be created and stored within one health care organization or it can be shared across health care organizations and delivery sites.

**Entitlement Program** = Federal programs, such as Medicare and Medicaid, for which people who meet eligibility criteria have a federal right to benefits. Changes to eligibility criteria and benefits require legislation. The federal government is required to spend the funds necessary to provide benefits for individuals in these programs, unlike discretionary programs for which spending is set by Congress through the appropriations process. Enrollment in these programs cannot be capped and neither states nor the federal government may establish waiting lists.

**FMAP = Federal Medical Assistance Percentage.** The statutory term for the federal Medicaid matching rate – ie, the share of the costs of Medicaid services or administration that the federal government bears. In the case of covered services, FMAP varies from 50% to 76% depending upon a state's per capita income; on average, across all states, the federal government pays 57% of the costs of Medicaid.

**FPL = Federal Poverty Level.** The federal government's working definition of poverty that is used as the reference point to determine the number of people with income below poverty and the income standard for eligibility for public programs. The federal government uses two different definitions of poverty. The US Census poverty threshold is used as the basis for official poverty population statistics, such as the percentage of people living in poverty. The poverty guidelines, released by the US Department of Health and Human Services (HHS), are used to determine eligibility for public programs and subsidies. . For 2016, the Census weighted average poverty threshold for a family of four was \$24,755 and HHS poverty guideline for 2017 is \$24,600.

**Fee-for-Service** = The traditional method of paying for medical services under which doctors and hospitals are paid for each service they provide. Therefore, providers make more money the more services that they provide (as opposed to capitation where providers make the same amount regardless of the amount or severity of the service).

**GAO = Government Accountability Office:** GAO is an arm of Congress that provides research, audits and oversight for all government programs, including Medicare and Medicaid.

**HAC = Hospital Acquired Condition.** An undesirable condition affecting a patient that arose during a hospital stay and was not present on admission. The Reform bill included a reduction of 1% in payments beginning in FY15 for the worst 25% of hospitals for Hospital Acquired Conditions. The provision in the Reform bill required the HHS to identify conditions that: 1) are high cost or high volume or both; 2) result in the assignment of a case to a DRG that has a higher payment when present as a secondary diagnosis; and 3) could reasonably have been prevented through the application of evidence-based guidelines. Ten conditions were identified.

**HHS = Department of Health and Human Services.** United States government agency whose principal responsibility is protecting the health of the population and providing essential human services. CMS is an agency under the Department of Health and Human Services.

**Health Information Technology:** Systems and technologies that enable health care organizations and providers to gather, store, and share information electronically.

**HMO = Health maintenance organization.** A managed care policy where covered members are required to use only the providers in the network. Members are also assigned primary care physicians (PCP) who ensures the members' overall care and issues referrals for specialized care that they do not provide.

**Individual Insurance Market** = The market where individuals who do not have employer sponsored coverage directly purchase private health insurance from the managed care company. This market is also referred to as the non-group market.

**Individual Mandate** = The requirement that all individuals obtain health insurance or pay a penalty. A mandate could apply to the entire population, just to children, and/or could exempt specified individuals. Massachusetts was the first state to impose an individual mandate that all adults have health insurance, but Health Care Reform now includes a national mandate.

**LOS** = Length of Stay of a patient at a facility.

**Market Basket** = The estimate for health care cost inflation for a specific provider type. Typically, each sub-sector has its own market basket measure.

**Medicaid** = A state-run program that covers medical expenses for people with low or limited incomes. The state runs the program and pays some of the expenses, but the Federal government funds a majority of the program through the FMAP program and maintains some oversight.

**Medicaid Waivers** = Authority granted by the Secretary of Health and Human Services to allow a state to continue receiving federal Medicaid matching funds even though it is no longer in compliance with certain requirements of the Medicaid statute. States can use waivers to implement home and community-based services programs, managed care, and to expand coverage to populations, such as adults without dependent children, who are not otherwise eligible for Medicaid. Typically, in order to secure a waiver, the state must prove that the new program is expected to save money, among other requirements.

**Medicare** = The federal health insurance program created in 1965 to cover people over the age of 65.

**MMA = Medicare Modernization Act.** Legislation enacted in 2003 that provides for a new Medicare prescription drug benefit, as well as makes significant changes in Medicare and Medicaid payments, coverage and benefits.

**Medicare Part A** = The part of Medicare that covers medically necessary inpatient hospital, skilled nursing facility, home health and hospice care.

**Medicare Part B** = The part of Medicare that covers medically necessary doctors' services, preventive care, durable medical equipment, hospital outpatient services, laboratory tests, x-rays, mental health and some home health and ambulance services.

**Medicare Part C** = Medicare coverage from private health plans – Medicare Advantage (MA) plans, which typically include HMOs and PPOs. MA plans must cover Part A and Part B services, but could also cover additional services.

**Medicare Part D** = Medicare prescription drug coverage (began in 2006).

**MedPAC = Medicare Payment Advisory Commission.** The advisory panel to Congress on Medicare issues. It is made up of 17 commissioners who have experience across a number of sectors within healthcare. MedPAC has been charged with determining the appropriate reimbursement for each sub-sector and making recommendations to Congress about potential changes.

**OIG = Office of the Inspector General.** Office, within the Department of HHS, that has oversight authority for Medicare and Medicaid programs, including fraud and abuse oversight.

**OMB = Office of Management and Budget.** Part of the Executive Office of the President that has authority over all budget and regulatory guidance and policy decisions for all executive branch agencies.

**OPPS = Outpatient Prospective Payment System.** The reimbursement system under which hospitals are paid for procedures that do not require admission into the hospital (e.g. outpatient surgery). It sets payments for individual services using a set of relative weights, a conversion factor, and makes other geographic adjustments.

**Outlier payments** = Extra payments to health care facilities who treat high cost patients.

**PPACA = Patient Protection and Affordable Care Act.** The Health Care Reform bill signed into law by President Obama on March 23, 2010. The bill includes many changes that will impact both Health Care Facilities and Managed Care.

**PPS = Prospective Payment Systems.** Method of payment, under Medicare, that uses a pre-determined payment rate, based on a patient's diagnosis, or level of resource utilization (as opposed to being paid based upon your costs).

**Readmissions** - Patient readmissions occur when patients who leave the hospital return within 30 days. Although some readmissions are unavoidable, there is a widely held belief that many readmissions could be avoided by better coordinated care. As part of Health Care Reform, the administration and the Congressional committees have been advocating ways to reward quality and emphasize prevention and coordination by reducing payments to hospitals with high readmission rates.

**Recoupment adjustment.** A rate cut used by CMS to recoup any past overpayments due to coding creep. Unlike the prospective coding adjustments which permanently reduces the baseline off of which future rates are based, the recoupment adjustments are one time in nature and do not affect rates in out years.

**Sole Community Hospital (SCH)** = A designation for certain (typically rural) hospitals that are the only provider in a certain area. These providers usually receive extra payments.

**Two Midnight Rule.** The provision directs Medicare's contractors to assume hospital admissions are reasonable and necessary for patients who stay in a hospital through two midnights. Stays that are shorter than that are presumed legitimate if coded as outpatient observation. CMS developed the policy in response to a rise in observation stays.

**Uncompensated Care** = A measure of the costs of health care services that are provided but not paid for by the patient or by insurance. Usually this number would include bad debt, charity care and discounts to the uninsured.

**Underinsured** = People who have health insurance but who face out-of-pocket health care costs or limits on benefits that may affect their ability to access or pay for health care services.

**VBP = Value Based Purchasing.** Health Care Reform includes a value based purchasing program that began in 2013 for hospitals and is being implemented on a budget neutral basis. Acute care hospitals receive an incentive payment under IPPS if they perform well on quality measures relating both to clinical process of care and to patient experience of care, or if they make improvements in their performance on those measures. Poor performers would see rate cuts, while top performers could see rate increases.

**Table 192: Stocks Mentioned**

BofAML Ticker	Bloomberg Ticker	Company Name	Price	Rating
CYH	CYH US EQUITY	Community Health	US\$ 2.67	C-3-9
HCA	HCA US EQUITY	HCA Healthcare	US\$ 135.21	B-3-7
THC	THC US EQUITY	Tenet Healthcare	US\$ 20.64	C-2-9
UHS	UHS US EQUITY	Universal Health	US\$ 130.27	B-1-7

Source: BofA Merrill Lynch Global Research

## Price objective basis & risk

### Community Health Systems (CYH)

Our \$3.50 PO is based on 7.8x our 2019 EBITDA estimate, near the middle of the company's historical 6-9x range. EV is adjusted for \$1.3bn of expected proceeds. We think this is justified given the history of disappointing results which reduces visibility.

Upside risks to our PO are: 1) Volumes are better than expected, 2) Margin improvements are better than expected, and 3) Cash flows are better than expected allowing for faster than expected deleveraging.

Downside risks to our PO are: 1) Further government reimbursement reductions, 2) Utilization pressure, 3) High leverage relative to peers, and 4) HMA improvement does not materialize.

### HCA (HCA)

Our \$130 PO is based on 8.6x our 2019E EBITDA, at the top of its historical 6-9x multiple range, as tax reform will boost FCF, but new organic growth opportunities are more than offset by tougher operating back drop (moderating volumes, mounting labor pressures, and worsening payor mix) resulting in a growth profile below historical norms.

Risk to the upside are that HCA has a history of aggressively controlling costs in tough operating environments and the company has a track record of putting its strong balance sheet and FCF to work.

Risks to the downside are that volumes continue to moderate and bad debt grows more than we are currently forecasting. In addition, the government could cut rates more than we anticipate or repeal the Affordable Care Act. Also payor mix could continue to worsen and labor pressures continue to mount.

### Tenet Healthcare (THC)

Our \$30 PO is based on 7.1x our 2019 EBITDA estimate, toward the midpoint of the company's historical 5.5x-8.5x range. We expect growth at the ambulatory surgery center or ASC business to continue to be solid but be somewhat offset by slower growth at the Acute care business given the negative payor mix and labor cost inflation.

Upside risks to our PO are: 1) Volumes are better than expected, 2) Margin improvements are better than expected, 3) Healthcare coverage under Reform remains in place without significant tweaks. Downside risks to our PO are: 1) Further government reimbursement reductions, 2) Utilization pressure, 3) Margin pressure at recently acquired assets, 4) Above average leverage.

### Universal Health Services (UHS)

Our \$158 PO is based on 9.7x our 2019 EBITDA estimate. This represents a multiple above the midpoint of the company's historical range of 6-10x EBITDA, reflecting better expected performance in the behavioral business and higher earnings exposure to the higher growth/return psych business today than over the historical period on average.

Upside risks to our PO are larger than expected demand tailwinds in the behavioral business, additional unexpected federal funding for behavioral health programs with which UHS has exposure, and faster than expected growth in the acute business. Downside risks to our PO are continued delay of Psych rebound, rising labor costs, a generally weak backdrop in utilization, rising bad debt and the risk a DoJ settlement takes much longer than expected to be resolved, and is much higher than expected.

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I, Kevin Fischbeck, CFA, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

## US - Facilities, Hospitals and Managed Healthcare Coverage Cluster

Investment rating	Company	BofA Merrill Lynch ticker	Bloomberg symbol	Analyst
<b>BUY</b>				
	Acadia Healthcare	ACHC	ACHC US	Kevin Fischbeck, CFA
	Amedisys, Inc.	AMED	AMED US	Joanna Gajuk
	Anthem	ANTM	ANTM US	Kevin Fischbeck, CFA
	Centene Corporation	CNC	CNC US	Kevin Fischbeck, CFA
	Chemed Corporation	CHE	CHE US	Joanna Gajuk
	CIGNA Corp	CI	CI US	Kevin Fischbeck, CFA
	DaVita Inc	DVA	DVA US	Kevin Fischbeck, CFA
	Humana Inc	HUM	HUM US	Kevin Fischbeck, CFA
	LHC Group, Inc.	LHCG	LHCG US	Joanna Gajuk
	Magellan Health	MGLN	MGLN US	Kevin Fischbeck, CFA
	Service Corp. International	SCI	SCI US	Joanna Gajuk
	Surgery Partners, Inc	SGRY	SGRY US	Kevin Fischbeck, CFA
	UnitedHealth Group	UNH	UNH US	Kevin Fischbeck, CFA
	Universal Health Services	UHS	UHS US	Kevin Fischbeck, CFA
<b>NEUTRAL</b>				
	Encompass Health	EHC	EHC US	Kevin Fischbeck, CFA
	Mednax	MD	MD US	Kevin Fischbeck, CFA
	Select Medical Corp.	SEM	SEM US	Kevin Fischbeck, CFA
	Tenet Healthcare	THC	THC US	Kevin Fischbeck, CFA
<b>UNDERPERFORM</b>				
	Brookdale Senior Living	BKD	BKD US	Joanna Gajuk
	Capital Senior Living	CSU	CSU US	Joanna Gajuk
	Community Health Systems	CYH	CYH US	Kevin Fischbeck, CFA
	Genesis Healthcare Inc	GEN	GEN US	Joanna Gajuk
	HCA	HCA	HCA US	Kevin Fischbeck, CFA
	Molina Healthcare, Inc.	MOH	MOH US	Kevin Fischbeck, CFA
<b>RW</b>				
	American Renal	ARA	ARA US	Kevin Fischbeck, CFA

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### Important Disclosures

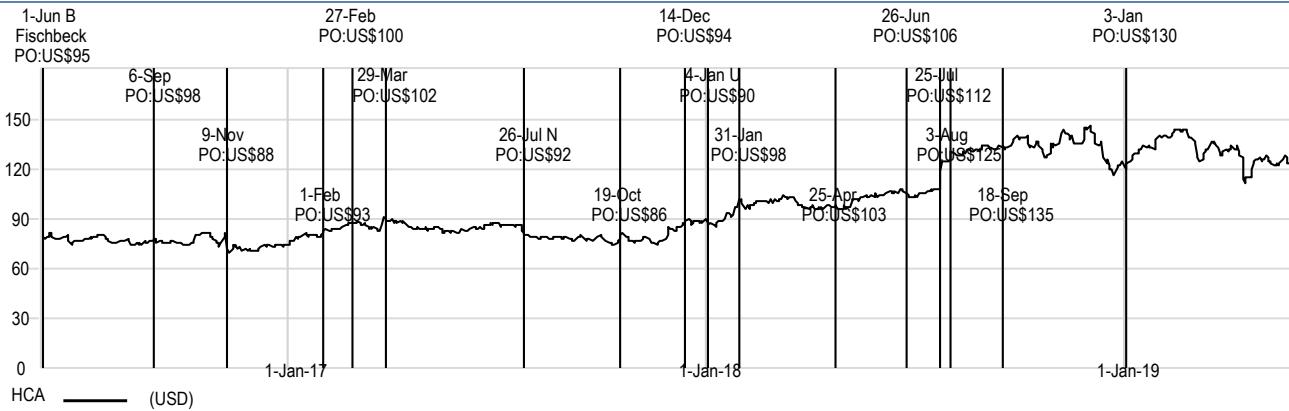
#### CYH Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

The Investment Opinion System is contained at the end of the report under the heading 'Fundamental Equity Opinion Key'. Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of May 31, 2019 or such later date as indicated.

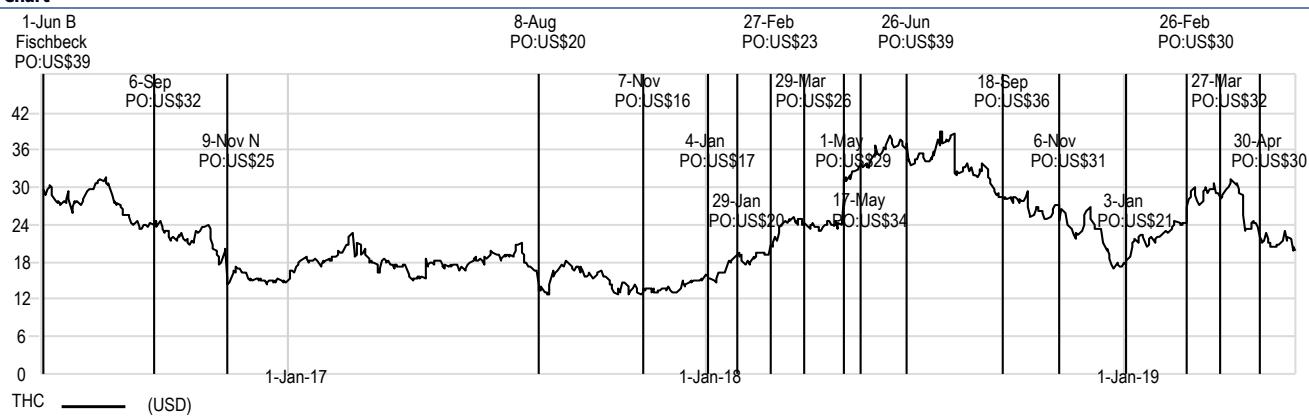
### HCA Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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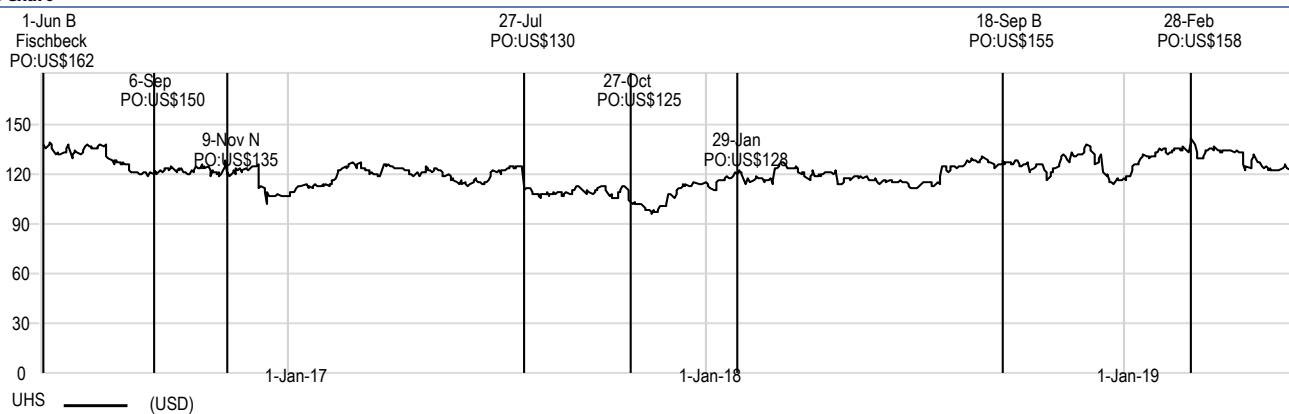
### THC Price Chart



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### UHS Price Chart



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## Equity Investment Rating Distribution: Health Care Group (as of 31 Mar 2019)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	154	56.83%	Buy	97	62.99%
Hold	62	22.88%	Hold	37	59.68%
Sell	55	20.30%	Sell	17	30.91%

## Equity Investment Rating Distribution: Global Group (as of 31 Mar 2019)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	1519	51.39%	Buy	954	62.80%
Hold	701	23.71%	Hold	443	63.20%
Sell	736	24.90%	Sell	362	49.18%

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster*
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Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

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