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Updates and Implications of Obamacare

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<Summary>

☐ 2014 is a critical year for the rollout of ACA. Despite a turbulent start, enrollment in health exchanges accelerated till the end, and 8mn Americans have enrolled in the public exchanges. Despite the worry over the lower enrolment rate of young adults in the exchange, insurance premium has come in below estimate. CBO forecast lower spending of government subsidies for the exchange. Medicaid expansion is also on track. So we believe ACA roll-out is a success.

☐ Concurrent with the implementation of ACA, since 2010, growth in national health expenditure has bucked historical trend to converge to GDP growth. Whether this slowdown is secular or cyclical and whether cost trend will pick up again is of great importance to the industry. As much as a third of U.S. healthcare spending is waste. So the room for saving is large. Although ACA is widely considered not doing enough to bend the cost curve, it has a number of measures that exert pressure on healthcare costs. Even absent of real policy impact, ACA could have a psychological impact on providers to rein in their cost.

☐ Fundamentally, we believe ACA accelerates the transition of U.S. healthcare into a capitated, value-based, consumer-empowered model. There are a number of trends that will depress healthcare spending. Firstly, providers and payers are converging. Value-based payment system such as ACOs will take the place of fee-for-service model. Secondly, consumer-driven healthcare is becoming more prevalent. The public exchanges established a marketplace for healthcare. It is being emulated in private exchanges. If a large number of commercial lives move to private exchanges, consumers will choose more cost-effective forms of care and thus drive down cost. Thirdly, healthcare technologies, especially healthcare IT is expected to exert substantial downward pressure on spending growth. In terms of forces that could boost healthcare spending, provider consolidation is a potential culprit. Another risk is beneficiary backlash. Finally, the recovering economy and tightening of labor market may also boost medical trend.

☐ In our view, ACA will have a positive impact on all major segments of U.S. healthcare. Product providers enjoy a boost to volume. But they need to have clearly-differentiated products and make a convincing value-based argument for their products. Scale is becoming more important, thus pushing for industry mergers. ACA is also positive for service providers. We believe regulators need to stay vigilant regarding mergers among service providers, in case market structure becomes uncompetitive.

EXECUTIVE SUMMARY

- As one of the most important healthcare legislations in the U.S. history, ACA is enormously important for the healthcare industry. Four years since its passage into law, we are finally seeing the rollout of coverage expansion. In this paper, we review the rollout of insurance coverage and examine ACA's impact.

- Despite a turbulent start, enrollment in health exchanges accelerated till the end. Eight million Americans have enrolled in the public exchanges, surpassing CBO's original forecast by one million. The ratio of young adults in the exchange is lower than the target population. However, premium for the plan is actually lower than expected as insurers designed more restrictive plans than what is typical for employer-sponsored plans. CBO forecast government's subsidy for exchanges will be $165bn lower for the following decade than its earlier forecast. So for now, based on government released statistics, ACA rollout is a success.

- Concurrent with the implementation of ACA, since 2010, growth in national health expenditure has bucked historical trend to converge to GDP growth. Whether this slowdown is secular or cyclical and whether cost trend will pick up again is of great importance to the industry. As much as a third of U.S. healthcare spending is waste. So the room for saving is large. Although ACA is widely considered not doing enough to bend the cost curve, it has a large number of measures that exert pressure on healthcare costs. Even absent of real policy impact, ACA could have a psychological impact on providers to rein in their costs.

- Fundamentally, we believe ACA accelerates the transition of the U.S. healthcare system into a capitated, value-based, consumer-empowered model. In the process, medical cost trend will become more favorable. There are a number of trends that will depress healthcare spending. Firstly, providers and payers are converging. ACOs created by ACA will accelerate this convergence. Capitation, value-based payment system will take the place of fee-for-service model, which should discourage wasteful medical consumption. Secondly, consumer-driven healthcare is becoming more prevalent. The public exchanges established a marketplace for healthcare for the first time. It is being emulated in private exchanges. Some observers predict a wholesale migration from employer-based health insurance to a defined contribution system offered through private exchanges. How big the private exchange will be is one of the most interesting questions in the healthcare industry. If a large number of large group lives move to private exchanges, cost-conscious consumers will choose more cost-effective forms of care and thus drive down costs. Thirdly, healthcare technology, especially healthcare IT, is expected to exert substantial downward pressure on spending growth. Health IT brings more transparency, better coordination, better outcome measurement, and more efficient care delivery to the healthcare system.

- In terms of forces that could boost healthcare spending, provider consolidation is one potential culprit. Another risk factor is beneficiary backlash. Finally, the recovering economy and tightening of labor market may also boost medical trend.

- In our view, ACA is expected to have a positive impact on all major segments of the U.S. healthcare market. For product providers, the volume benefit is significant. But they need to have clearly-differentiated products and make a convincing value-based argument for their products. The new system is unlikely to pay extra for me-too drugs or device with incremental improvement. Product manufacturers are trying to be more relevant to customers. Scale is also becoming more important. Some device companies have chosen to have a bundled approach on their own, i.e., a "big-to-big" go-to-market strategy. ACA is likely to push for industry consolidation. The recent merger between Zimmer and Biomet in orthopedics is an example. Leading device makers such as Medtronic have added a service offering to their hospital customers. Regardless, product providers need to be more creative in defending the value of their products in front of payers/providers.

ACA is also positive for service providers. Despite the initial worry for the deep cut, driven by ACA, MCOs are expected to experience a period of robust enrollment growth. The private exchanges and Medicaid expansion offer substantial opportunity for MCOs. MCOs have also been the primary beneficiary of the moderating medical trend. Hospitals are huge beneficiaries under ACA. ACA is expected to substantially reduce the amount of uncompensated cares at hospitals. The initial reimbursement pressure has catalyzed many hospital mergers, which makes tremendous financial sense. But at some point, hospital mergers could pose a threat to the medical cost trend. Regulators may want to intervene at certain point to ensure there is enough competition in the service providers, be it MCOs or hospitals. The last thing they want is "too-big-to-negotiate" incumbent.

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I. Introduction

Affordable Care Act (ACA) is one of the most important healthcare legislations in the U.S. history (see Table 1). It has been four years since the passage of ACA into law. This year we are finally seeing the roll-out of insurance expansion. Despite some initial hiccups, the roll-out has picked up pace. Amid the ACA implementation, some fundamentals of the U.S. healthcare system appear to be shifting. We believe ACA will likely hasten the shift of the U.S. healthcare system from a fee-for-service model to a capitation model. This shift could substantially reduce the growth of the U.S. healthcare spending. Therefore, although ACA doesn't directly address the cost trend of U.S. healthcare spending, it may indirectly lead to lower healthcare growth. In this paper, we look at the impact of ACA in the context of potential changes in U.S. healthcare system. We believe understanding the latter will be important for making more accurate forecast of the future. However we note there is still substantial variability in the ultimate outcome. The future will fall within a relatively wide range instead of a pinpointed definitive outcome.

For a brief primer on the U.S. healthcare system, please refer to section VI on page 25. For a summary of the basics of ACA, please refer to Kaiser Family Foundation report at:
http://kaiserfamilyfoundation.files.wordpress.com/2011/04/8061-021.pdf.

Table 1 Important U.S. Healthcare Legislations

Legislation	Time of Passage	Incumbent President	Significance
Social Security Amendments of 1965	July 30, 1965	Lyndon B. Johnson	Created Medicare and Medicaid. Medicare offers healthcare insurance coverage for people over 65. Medicaid covered low-income people. Medicare Part A covers inpatient hospital stays. Part B covers outpatient medical insurance.
The Drug Price Competition and Patent Term Restoration Act (also known as **Hatch-Waxman Act**)	September 24, 1984	Ronald W. Reagan	Created the modern generic drug industry framework.
The Balanced Budget Act (BBA) of 1997	August 5, 1997	William J. "Bill" Clinton	Significantly cut reimbursement to Medicare. Medicare beneficiaries were given the option to receive their Medicare benefits through private health insurance plans, instead of through the original Medicare plan (Parts A and B). These programs were known as "Medicare+Choice" or "Part C" plans (later called Medicare Advantage).
The Medicare Prescription Drug, Improvement, and Modernization Act (also called the **Medicare Modernization Act or MMA**)	December 8, 2003	George W. Bush	Provided prescription drug coverage (or Part D) for Medicare patients.
Patient Protection and Affordable Care Act (commonly known as **Affordable Care Act/ACA or Obama care**)	March 23, 2010	Barack Obama	Greatly expanded healthcare insurance coverage; insurance reform; many other ramifications in healthcare

Source: Compiled by MHBK/IRD based on public company reports.

II. ACA Timelines and Rollout

The passage of ACA on March 23, 2010 set out an extensive timeline for its implementation (see Table 2 and Table 3). As shown in Table 2, many critical activities are taking place this year, including the insurance coverage expansion. How successful is the insurance expansion is of enormous interest to the public and industry observers.

Table 2 Timeline of Insurance and Market Reform of ACA

Insurance and market reforms	Starting year	Explanations
Biosimilars	3/23/2010	Authorizes the FDA to approve generic copies of biologic drugs through the establishment of a new pathway.
Comparative Effectiveness Research **(PCORI)**	9/30/2010	Patient-Centered Outcomes Research Institute **(PCORI)** was established to do comparative effectiveness research.
Medicare Independent Payment Advisory Board **(IPAB)**	10/1/2011	Establishes IPAB and authorize it to submit recommendations to the Congress to reduce the per capita rate of growth in Medicare spending if spending exceeds targeted growth rates.
Medicaid Payments for HII	7/1/2011	Prohibits federal Medicaid payments to states for health care-acquired infections (HAI) in hospitals.
Medicare Value-Based Purchasing	10/1/2012	Establishes a hospital value-based purchasing program in Medicare. Reward hospitals exceeding quality measures.
Reduced Medicare Payments for Hospital Readmissions	10/1/2012	Reduces Medicare payments that would otherwise be made to hospitals to account for excess (preventable) hospital readmissions.
Accountable care organization (ACO)	1/1/2012	Allows providers organized as accountable care organizations (ACOs) that voluntarily meet quality thresholds to participate in the Medicare Shared Savings Program.
Medicaid Payment Demonstration Projects	1/1/2012	Creates new demonstration projects in Medicaid for up to eight states to pay bundled payments for episodes of care.
Medicare bundled payment program	1/1/2013	Establishes a national Medicare pilot program to develop and evaluate making bundled payments.
Health Insurance exchanges	1/1/2014	Creates state-based American Health Benefit Exchanges and Small Business Health Options Program (SHOP) Exchanges. Provide income-based subsidies on premium.
Medicaid expansion	1/1/2014	Expands Medicaid to all individuals not eligible for Medicare under age 65 with incomes up to 138% FPL.
Individual insurance mandate	1/1/2014	With penalty starts at $95 per year in 2014, increasing to $325 in 2015 and $695 in 2016 (or calculated as % to income).
MA minimus MLR	1/1/2014	Requires minimum medical loss ratio of 85% in Medicare Advantage
Guaranteed Availability of Insurance	1/1/2014	Requires guarantee issue and renewability of health insurance regardless of health status and allows rating variation based only on age (limited to a 3 to 1 ratio), geographic area, family composition, and tobacco use (limited to 1.5. to 1 ratio) in the individual and the small group market and the Exchanges. Prohibits annual limits on the dollar value of coverage.
Temporary reinsurance program	2014-2016	Collects fees from insurers to provide payments to plans that cover high-risk individuals and therefore has cost over-runs.
Employer mandate	1/1/2015	Assesses a fee of $2,000 per full-time employee on employers with more than 50 employees (the first 30 employees are excluded) . Originally scheduled to start in 1/1/2014. Now delayed to 1/1/2015 for business with ≥100 employees and 1/1/2016 for employers with 50-99 FTEs.
Medicare Payments for Hospital-Acquired Infections	2015	Reduces Medicare payments to certain hospitals for hospital-acquired conditions by 1%.

Source: Compiled by MHBK/IRD based on data from Kaiser Family Foundation and other public sources

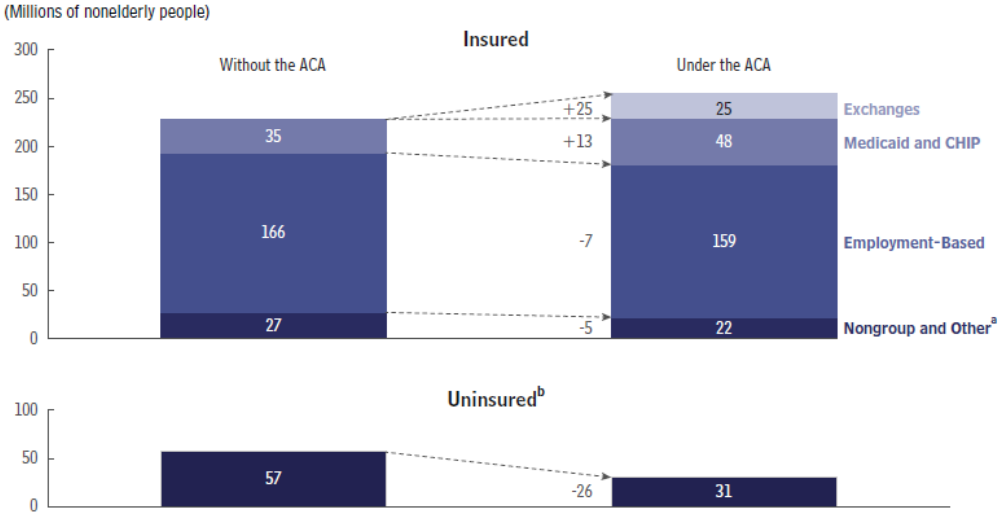
Table 3 Fees and Taxes on Industry and Individual

Industry	Starting year	Fees
Pharma	2010	Increase in Medicaid rebate from 15.1% to 23.1%.
	2010	$250 Medicare Part D rebate for people who reached the coverage gap.
	August-10	Expansion of 340(B) drug discount program.
	2011	Require pharma to provide 50% discount of brand drugs for the Medicare Part D coverage gap.
	2011	Medicaid rebates extended to Medicaid managed care.
	2012	Annual fee on industry.
Medical device	January-13	2.3% excise tax.
Hospitals and other facilities	2010	Reduce annual market basket updates for hospitals.
	2012	Add a market basket productivity adjustment.
	October-13	Cut to DSH payments
Managed care	January-11	Require minimal medical loss ratio / MLR (85% for large groups 80% for individual and small group)
	Starting 2011	Reduce payments to Medicare Advantage by gradually narrow the premium to fee-for-service rates.
	January-14	Require minimal medical loss ratio / MLR of 85% for Medicare Advantage plans
	January-14	Annual industry fees.
High-income tax payers	January-13	Medicare payroll tax hike from 1.45% to 2.35% for family earning over $250,000 a year or singles earning more than $200,000.
	January-13	3.8% tax on investment income for family earning over $250,000 a year or singles earning more than $200,000.
Tax on Cadillac tax	2018	40% excise tax on employer-sponsored plans spending more than $10,200 per employee (or $27,500 per family)

Source: Compiled by MHBK/IRD based on data from Kaiser Family Foundation and other public sources

In this section we review the status of ACA roll-out. ACA has a two-prong strategy to reduce the number of uninsured. One is through public exchanges and the other is through Medicaid expansion. In total, they are expected to reduce the number of uninsured population by 26 million by 2024 (see Figure 1).

Figure 1 Effects of ACA on Health Insurance Coverage, 2024



Source: CBO, "Updated Estimates of the Effects of the Insurance Coverage Provisions of the Affordable Care Act." April 2014. Note a: "Other" includes Medicare; the changes under the ACA are almost entirely for nongroup coverage. Note b: The uninsured population includes unauthorized immigrants, people ineligible for Medicaid because they live in the state that has chosen not to expand coverage, and people who decided not to have coverage for whatever reason

A. Public Exchanges

State public exchanges are government-run online marketplaces where individuals and small businesses can compare policies and buy insurance (with a government subsidy if eligible). ACA authorizes one public exchange per state for individual policies. It can be run by the state itself (called state-based marketplaces / SBM) or by the federal government (called federal-facilitated marketplaces/FFM). Another

type of exchange is the ACA-sponsored SHOP (Small Business Health Options Program) exchanges for small businesses.

The insurance plans on the exchange have four metallic levels (bronze, silver, gold, and platinum) plus a separate catastrophic plan. In the first year of operation, open enrollment on the exchanges runs from October 1, 2013 to March 31, 2014. According to CBO's latest forecast issued in April 2014 (see Table 4), coverage expansion is expected to reduce uninsured population by 12mn in 2014 (5mn net in the exchange and 7mn in Medicaid). Over the long run, ACA is projected to reduce uninsured population by 26mn or about half of the uninsured population. So by 2017, 92% of nonelderly adults legally residing in the U.S. will have health insurance (see Table 4).

Table 4 CBO's Projection of Insurance Coverage Expansion

Effects on Insurance Coverage	Insurance scheme	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
(MN of nonelderly people)												
Prior Law Coverage	Medicaid and CHIP	35	35	34	33	33	34	34	34	35	35	35
	Employment-Based	156	158	160	163	164	165	165	165	166	166	166
	Nongroup and Other	24	24	25	25	26	26	26	26	27	27	27
	Uninsured	54	55	55	55	55	56	56	56	57	57	57
	Total	270	272	274	277	278	280	281	282	283	284	285
Change in Coverage b/c ACA	Medicaid and CHIP	7	11	12	12	13	13	13	13	13	13	13
	Employement-Based	*	-2	-7	-7	-8	-8	-8	-8	-8	-7	-7
	Nongroup and Other	-1	-3	-4	-4	-4	-4	-4	-4	-4	-5	-5
	Insurance Exchanges	6	13	24	25	25	25	25	25	25	25	25
	Uninsured	-12	-19	-25	-26	-26	-26	-26	-26	-26	-26	-26
Uninsured Population Under the ACA												
Number of Uninsured Nonelderly People		**42**	**36**	**30**	**30**	**29**	**30**	**30**	**30**	**31**	**31**	**31**
Insured Share of the Nonelderly Population												
Including All Residents		84%	87%	89%	89%	89%	89%	89%	89%	89%	89%	89%
Excluding Unauthorized Immigrants		86%	89%	91%	92%	92%	92%	92%	92%	92%	92%	92%

Source: Compiled by MHBK/IRD based on CBO estimates released in April 2014.

Problems associated with roll-out of coverage have been well reported. The technical difficulties in accessing the HealthCare.gov website has hindered initial enrollment. But the issue has largely been resolved and enrollment pace picked up. According to the White House, ACA has enrolled 8mn people through the exchanges, which surpassed Congressional Budget Office (CBO)'s May 2013 forecast of 7mn people. It appears people are predictably responsive to incentives. According to an early tally, more than 83% of people who enrolled are receiving financial assistance as they have income between 100% and 400% of federal poverty level (FPL).

Of the 8mn enrolled, 26% of the total are young adult between age 18 and 34. The ratio of young adult is much below the ratio hoped for by the Obama administration. Having a high percentage of young adults is important for lowering the overall cost of the insurance population. ACA doesn't permit premium to vary based on health status and gender, but allows it to vary based on age with limitation of 3 to 1. Without the 3 to 1 limitation, premium variations based on age are typically about five to one. So in effect, young adults are subsidizing the premium for old people. If insufficient number of young people enrolls, the higher proportion of old people will push up the cost, thus lowering the profitability or even incurring loss for the plans. A higher than expected medical cost in the exchanges could compel plan sponsors to raise premium for 2015, which could in turn lead to more adverse selection. In an extreme situation, an insurance death spiral may occur. The threat is real enough that President Obama and his administration had been going all out to court young adults to sign up insurance in the exchange.

In reality, this hypothetical death spiral is unlikely to happen[1]. We believe insurance pool in the public exchange should remain viable.

1. The premium is allowed to vary 3-1 based on age. This will be a big mitigating factor to blunt the impact of shortfall in enrollment of young adults.
2. We believe the higher fines in future years will also compel young adults to sign up. The fines associated with the individual insurance mandate will escalate from $95 (or 1% of income) in 2014 to $325 (or 2% income) in 2015 and $695 (or 2.5% income) in 2016.

[1] The Numbers Behind "Young Invincibles" and the Affordable Care Act, Kaiser Family Foundation, Dec. 13, 2013

3. There is a risk adjustment system in ACA that collects funds from marketplace participants and distribute it to plans with older and sicker population.
4. Even if the enrollment of young adults falls short of the target 40% population, the impact to plan profitability is likely limited. Plans typically set 3-4% profit margin so there is certain cushion for plans.

Table 5 Potential Cost Overrun under the Scenarios of Low Enrollment in Young Adults

Age Group	Population Benchmark	Current	Scenario 1	Scenario 2
Under 18	6%	6%		
18-34	**40%**	**26%**	**33%**	**25%**
35-54	37%	39%		
55 and older	17%	30%		
Cost overrun			**1.1%**	**2.4%**

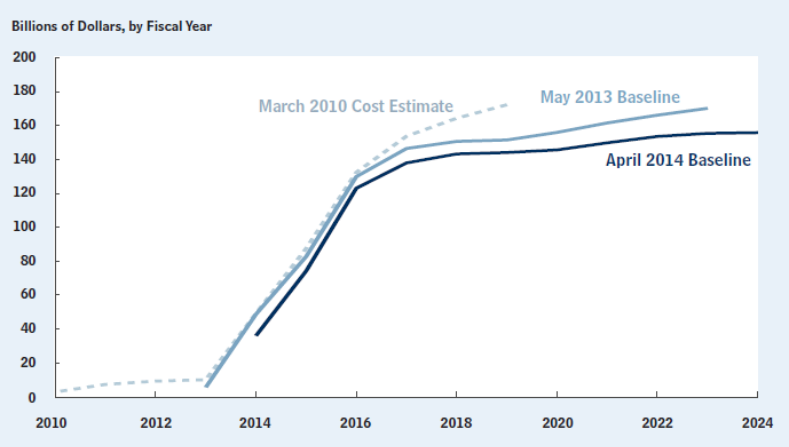
Source: Compiled by MHBK/IRD based on data from "The Numbers Behind "Young Invincibles" and the Affordable Care Act", Kaiser Family Foundation, Dec. 13, 2013

Although we see no dramatic deterioration in the exchange, we believe plans in the exchange will have poor profitability. It has been widely reported that people who have enrolled in exchanges are generally less healthy than in the general pool. Overall, given it is still early days, managed care companies have low visibility to the underlying cost trend in the exchange. But the managed care company Aetna is projecting a loss this year in the exchange. To mitigate the likely negative medical cost in the exchange, plans are likely to raise premium for next year. Some reports in the press suggest 2015 premium increase in the 10% range.

Another risk cited for the public exchanges is for the major employers to dump their employees into the public exchange. But so far we haven't seen this taking place. However, we are seeing the early signs of emergence of private exchanges, which could dramatically change the private insurance landscape (more on this topic later).

Perhaps to further put the concerns over ACA roll-out to bed, on April 1st, CBO released its new estimates on the cost of coverage expansion of Obamacare. In the report, CBO found health insurance premium on ACA exchanges to be lower than expected. This is because health insurers have designed plans on the exchanges with narrower networks of doctors and lower reimbursement rates for healthcare providers than is typical of employer-sponsored health plans. As a result, CBO expects the federal government to spend about $165bn less over the next decade on subsidizing low income people in the exchange than its earlier estimate. CBO also said the average size of a federal subsidy for each enrollee in the silver plan is about $3,800 in 2014, rising to $3,900 in 2015, $4,400 in 2016 and about $6,900 in 2024. The $4,400 estimate for the 2016 subsidy is 15% lower than the comparable estimate of $5,200 published by CBO in November 2009. Overall, CBO's cost estimate of ACA's coverage provisions has actually come down since ACA's enactment (see Figure 2).

Figure 2 Evolution of CBO's Estimates of ACA's Budgetary Effects



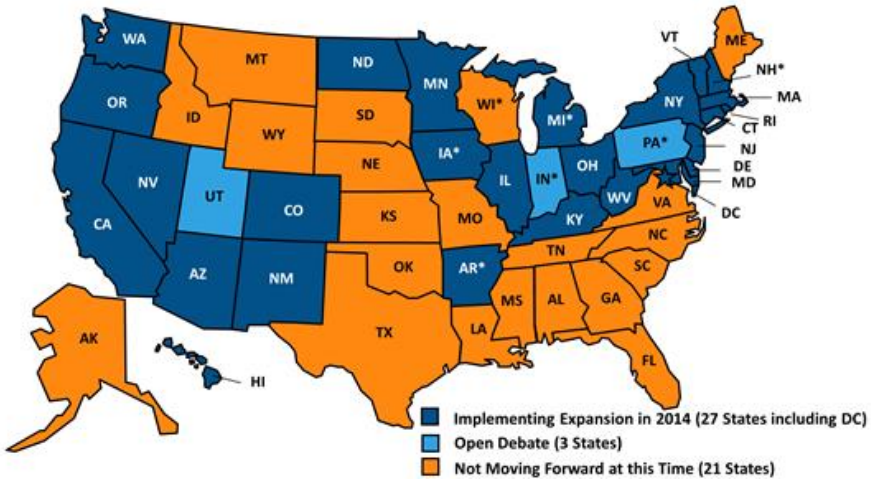
Source: CBO, "Updated Estimates of the Effects of the Insurance Coverage Provisions of the Affordable Care Act." April 2014.

B. Medicaid Expansion

Per ACA, Medicaid eligibility was expanded to include individuals and families with incomes up to 138% of the federal poverty level (FPL). ACA created a "no wrong door" policy, which means individuals can apply for health coverage through the marketplace or the Medicaid agency. Unlike the individual market, there is no deadline for people to sign up for Medicaid. People can sign up anytime during the year. So far, enrollment into the Medicaid expansion appears to be brisk. The Obama administration said on April 4th that three million additional Americans were enrolled in Medicaid as of the end of February than were in the program before the start of the health law's open enrollment period October 1. However, it is perhaps difficult to reach the CBO target of 7mn Medicaid and CHIP enrollment in 2014.

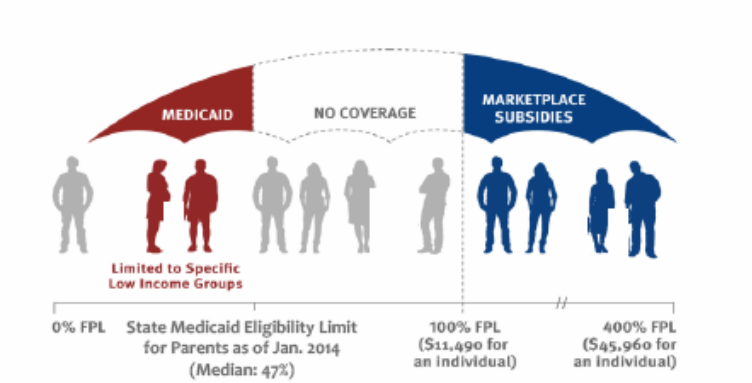
Although the Medicaid expansion is national, the June 2012 ruling by the U.S. Supreme Court made it optional for states to participate. 27 states plus the Washington DC have opted to expand their Medicaid programs, while 21 states have opted not to expand (see Figure 3). This has created a substantial disparity in coverage of low-income people. In states not expanding the coverage, only families with income below 47% of poverty level will be covered (none of the childless adults will be covered). Meanwhile state public exchanges provide subsidies (Marketplace premium tax credits) for people earning between 100% and 400% FPL. So this leaves a coverage gap for families earning between 47% and 100% FPL (see Figure 3). Nationwide, nearly five million people are in this gap. 11 of the 21 states that opted not to expand Medicaid are southern states, with a fifth living in Texas, 16% in Florida, 8% in Georgia, and 7% in North Carolina. This is a big issue for these people.

Figure 3 Medicaid Expansion by States, as of June 2014



Source: Kaiser Family Foundation

Figure 4 Illustration of the Gap in States Not Expanding Medicaid per ACA

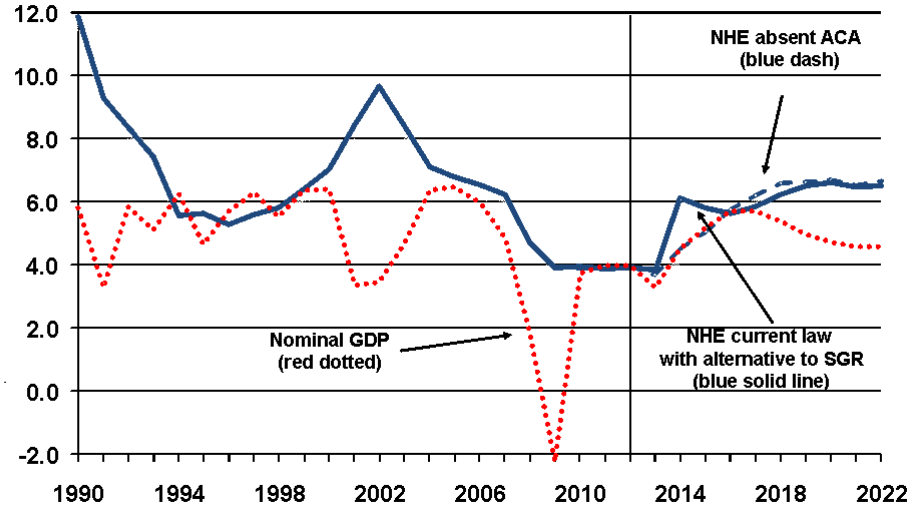


Source: "Characteristics of Poor Uninsured Adults who Fall into the Coverage Gap." The Kaiser Commission on Medicaid and the Uninsured. Dec. 2013

III. Potential Impact of ACA on the Growth in U.S. Healthcare

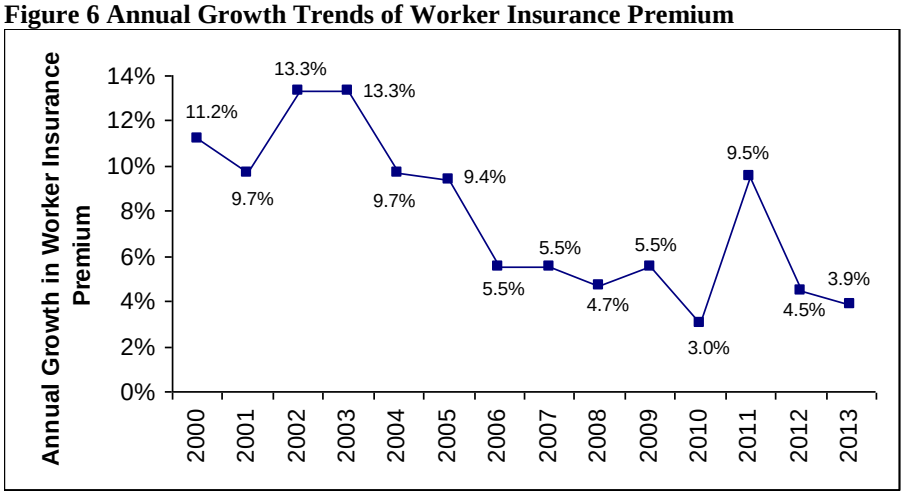
Since 1960, healthcare spending has increased at an annual pace that is on average 2.3% higher than GDP growth[2]. However, since 2010, National Health Expenditure (NHE) growth has converged to GDP growth (Figure 5). For the ten year period 2003-2012, NHE on real term grew 1.8%, slightly below real GDP growth of 2.0%[2]. Looking at the worker insurance premium tells the same trend (see Figure 6). The other period that showed a convergence of NHE and GDP growth was from 1993 to 1998, when real NHE grew 2.5% and real GDP grew 2.6%. The slowdown in 1993-1998 was due to lower price as managed care exerted cost containment over the U.S. healthcare. This is in stark contrast to the recent slowdown, which was attributed to lower volume of medical utilization. What driving forces are behind the recent slowdown and what role ACA plays in it are of high interest. Some people believe structural changes are taking place in the U.S. healthcare system, and they will irreversibly bend the cost curve downward. Some other forecasters believe the recent slowdown was cyclical (due to the recession) rather than secular, and with the improvement of economy healthcare spending will pick up again. For example, CMS projects a faster growth for NHE than GDP in out years (see Figure 5). We believe this divergent view is the one of the most interesting topics in healthcare today.

Figure 5 Growth in National Health Expenditures (NHE) 1990-2022



Source: Cutler G et al., "National Health Expenditure Projections, 2012–22: Slow Growth until Coverage Expands and Economy Improves" Health Affairs 32, no. 10 (2013).

Figure 6 Annual Growth Trends of Worker Insurance Premium



Source: Compiled by MHBK/IRD based on Kaiser Family Foundation 2013 Annual Survey on Employer Health Benefits

[2] "Health Care Spending – A Giant Slain or Sleeping?" David Blumenthal, et al, The New England Journal of Medicine, December 26, 2013

A. Measures in ACA that Will Help Lower Healthcare Cost

The amount of waste from the U.S. healthcare system is enormous. It was estimated that as much as a third of health spending in the U.S. is wasted. The waste ranges from overtreatment, failures of care coordination, failures in execution of care processes, administrative complexity, pricing failures and fraud and abuse[3]. When ACA was passed, it was widely regarded as only addressing the coverage expansion side of healthcare, while doing little to "bend the cost curve." However there are provisions in ACA that may have contributed substantially to the lower spending trend. These include:

1. Accountable Care Organizations (ACOs)

One of the main ways ACA seeks to reduce cost is by encouraging doctors, hospitals and other health care providers to form networks to delivery coordinated care to patients. These networks are called ACOs (Accountable Care Organizations). An ACO is eligible to share the savings but may have to pay a penalty if it doesn't meet performance and savings benchmarks. ACA encourages the formation of ACOs in the Medicare population. According to Kaiser[4], about four million Medicare beneficiaries are now in an ACO, and, combined with the private sector, more than 428 provider groups have signed up. An estimated 14 percent of the U.S. population is covered by an ACO.

Providers can choose to be at risk of losing money if they want to aim for a bigger reward, or they can enter the program with no risk. CMS established the Pioneer ACO (Accountable Care Organization) pilot program for high-performing health systems to pocket more of the expected savings in exchange for taking on greater financial risk. 32 health care organizations have participated in the program. According to Pioneer ACO Evaluation Report posted on January 30, 2014[5], for the first year of operation, overall the program saved Medicare $146.9mn. Spending at 23 of 32 ACOs didn't differ significantly from local FFS comparison markets. Eight ACOs have significant lower spending than local market, leading to $155.4mn total savings. One Pioneer ACO had significantly higher spending, costing Medicare $8mn more. So overall the Pioneer program had a modest impact on Medicare spending. This is because many participants were already operating at a low-cost structure at the outset and hence low-hanging fruits had been picked. Some leading medical institutions such as Mayo Clinic and Cleveland Clinic had chosen not to participate in Pioneer. In 2013, 9 of the 32 ACOs have decided to leave Pioneer program. Seven Pioneer ACOs that did not produce savings in the first year of the Pioneer program will switch to the Medicare Shared Savings Program (MSSP), and two will abandon Medicare accountable care models altogether. MSSP is a less stringent ACO than Pioneer, where participants don't face downside financial risk. Although Pioneer had mixed results, the ACO train has left the station. In December 2013, CMS named 123 new ACOs in the MSSP starting January 1, 2014. This was the largest cohort of ACOs that Medicare had announced since the program started in April 2012. The new batch of ACOs will cover 1.5mn Medicare lives.

Beyond ACO, ACA also established a national Medicare pilot bundled payment program. We believe ACA is pushing U.S. healthcare into a capitation, bundled payment model. ACA accelerated this trend, which will ultimately lead to substantial cost savings.

2. Reimbursement Cut to Medicare

ACA included provisions to cut Medicare advantage rate, Medicare payments to hospitals and payment reforms with incentives to providers. The severe pricing pressure plus the incentive to share savings are making providers more efficient.

3. Empowering Consumers for More Healthcare Consumerism

The establishment of public exchanges introduced the concept of consumer-driven competition into healthcare insurance. In public exchanges, consumers directly buy from plan sponsors. They have shown an overwhelming preference for low-cost plans (esp. the Silver plan). This fits the recent trend of rising consumerism and associated cost-consciousness in healthcare purchasing

[3] "Eliminating Waste in US Health Care." Donald M. Berwick and Andrew D. Hackbarth, JAMA April 11, 2012
[4] http://www.kaiserhealthnews.org/stories/2011/january/13/aco-accountable-care-organization-faq.aspx
[5] http://innovation.cms.gov/Files/reports/PioneerACOEvalReport1.pdf

decisions. Increasingly, costs are being shifted from employers to employees. Although public exchange may not have a big impact presently on the cost trend, private employers are starting to emulate it in joining private exchanges. Some people believe this could lead to a big migration from employer-based insurance to a "defined contribution" model where employers contribute premium to employees and have them buy their own insurances on private exchanges. This is a very powerful idea that could lead to substantially lower medical cost.

4. Discourage Overly Generous Form of Health Insurance

Excise tax on Cadillac plan starting in 2018 will discourage employers from offering overly generous plans to their employees.

5. New Panel to Recommend Ways to Cut Medicare Spending

ACA established an Independent Payment Advisory Board (IPAB) which comprises of 15 members and is tasked with submitting proposals to CMS if Medicare spending exceeds certain rate. So far, the IPAB hasn't made any recommendation to cut cost. But there is potential for IPAB to do more in the future.

6. Step up Comparative Effective Research to Reduce Costs

ACA also established comparative effective research (CER) through PCORI. However, to date, with low budget and inability to run comparison trials, PCORI appears to have had limited impact. But it could change.

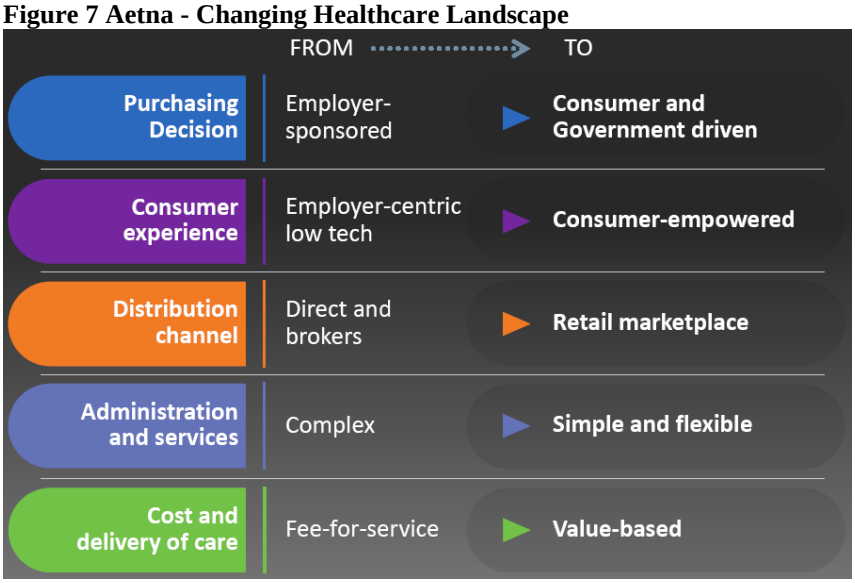
7. Potential Psychological Impact on Providers

Finally, there could be psychological component of how ACA could reduce healthcare spending. Historically, pending government interventions sometimes led providers to preemptively cut cost. So the looming threat of ACA's cost containment tools may tamp down the cost trend.

IV. Forces Shaping Healthcare Spending

In this section, we review some major trends that are reshaping U.S. Healthcare. U.S. Managed care company Aetna hosted an analyst day in December 2013, during which it gave an informative presentation on the coming changes in U.S. healthcare (see Figure 7). We believe U.S. healthcare system is transitioning to a capitated, value-based, consumer-empowered model. ACA is likely to accelerate such transition.

Figure 7 Aetna - Changing Healthcare Landscape



Source: Aetna Analyst Day, December 12, 2013

In the following section, we separately discuss the headwinds and tailwinds of U.S. healthcare spending.

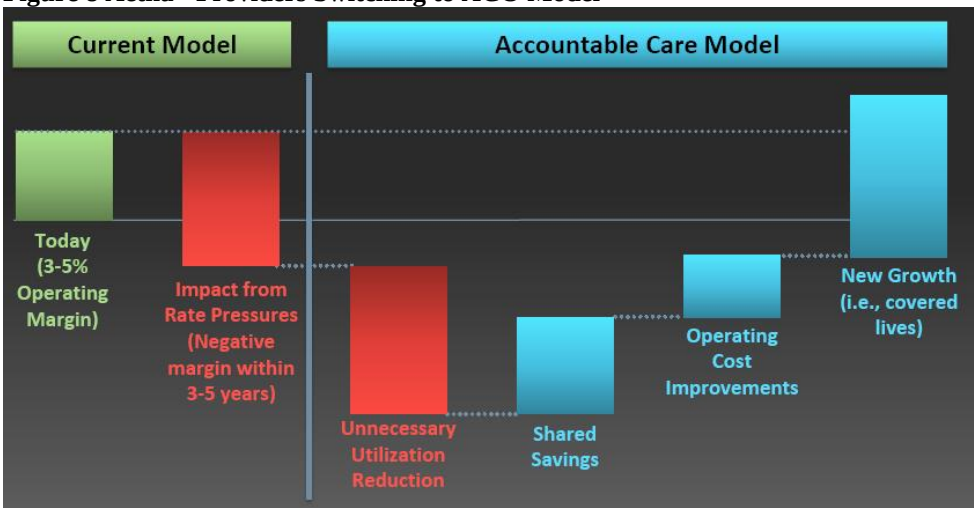
Forces that could depress healthcare spending:

A. Providers Moving to Capitation Model

Historically, payers and providers are separate entities in the U.S. healthcare system. Payers such as managed care companies or government agencies contract with providers to provide care for the insured population. Payers assume the financial risk while providers are paid on a fee-for-service model. This separation leads to the distortion of financial incentives. Providers have no incentive to curtail care because it will cut their revenues. However this mismatched incentive is changing. To some extent, the role of providers and payers are merging into a capitation model where providers are paid a fixed fee for managing the health of a particular population. Increasingly, providers take on the underwriting risk and therefore share the upside as well as downside. There are an increasing number of ACOs and participants in Medicare bundled-payment initiatives. Nearly 10% of Medicare beneficiaries are now enrolled in an ACO. More than 500 hospitals are participating in a Medicare bundled-payment initiative. In the private sector, there are at least 235 health systems that have entered into ACO arrangement with payers. Aetna expects in 2020, 50% of healthcare dollars will be paid through value-based payment models.

Negative reimbursement pressure from ACA has prompted providers to consolidate through mergers and vertically integrate by acquiring physician groups. The logic for provider merger is simple and straightforward. Through mergers, providers can save on SG&A cost and also have better bargaining power vs. the payers. Providers are also buying up physician groups. This allows providers better coordination of care and also allows them more power over physicians in order to control cost. When providers move to the ACO model (as illustrated in Figure 8), first they will see a decline in sales as unnecessary care is reduced. Then through shared savings, operating cost improvement and gaining more covered lives, providers may make back the lost profits and even lead to some upside. The ACO or related value-based payment system will substantially drive out cost from the U.S. system. Providers will have no incentive to over-treat. Instead, they will try to delivery best coordinated care in order to reduce the overall cost of patient care.

Figure 8 Aetna - Providers Switching to ACO Model



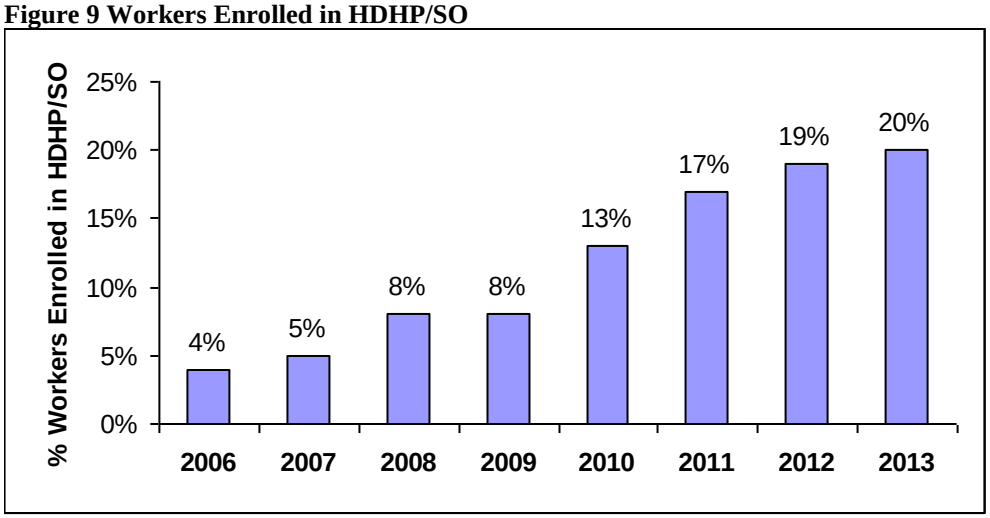
Source: Aetna Analyst Day, December 12, 2013

B. Consumers-driven Healthcare Will Reduce Waste

1. Increasing Consumerism as Employees Bear More Cost

In recent years, cost of health insurance has increasingly shifted from employers to employees. In 2013, 20% workers are enrolled in High-Deductible Health Plan with a Savings Option (HDHP/SO) (see Figure 9). Workers also face higher deductibles and copays. These lead to an increasing degree of consumerism in healthcare.

Figure 9 Workers Enrolled in HDHP/SO



Source: Compiled by MHBK/IRD based on Kaiser Family Foundation 2013 Annual Survey on Employer Health Benefits

2. Public and Private Health Exchanges

The advent of health exchanges could take this trend of empowering consumers of healthcare to a whole new level. ACA set up public state exchanges for individual market as well as small group (2-50) market. But public exchanges don't address the large commercial group market, which counts for 150mn or almost half of the of total U.S. population. Of the 150mn commercial lives, 80mn are in ASO (Administrative services only) plans, where large employers self-insure and just pay for administrative services of managed care companies. Benefit consulting companies such as Aon Hewitt have set up private exchanges. There are differences between the public and private exchanges (Table 6). In the private exchange model, instead of assuming the risk, employers will

contribute a fixed amount of premium to employees and employees will shop for individual plans on private exchanges. This migration is similar to the migration of U.S. pension system from the defined benefit model to the defined contribution model (e.g., 401(k)). U.S. has seen an evolution from the defined benefit retirement model to the defined contribution model (see Figure 10). Some forecasters expect a significant conversion of the commercial market to the private exchanges. For example, U.S. MCO Aetna forecast by 2020, 50mn or one third of people in employer plans will enroll in private exchanges (see Figure 11). Accenture forecast private exchange enrollment could reach 40mn by 2018. This level of conversion would represent a wholesale shift by employer to the exchanges. Other observers are more circumspect. One projects 10% large group risk will migrate to private exchanges. So there is a spectrum of possible scenarios for private exchanges.

This risk shifting is no doubt appealing to the employers. Under the private exchange, individuals will be able to shop for the best plan in their locations. As consumers have demonstrated in public exchanges, they are likely to select low-cost plans that have narrow networks. This unification of payer and user of healthcare will significantly tame the growth of medical cost as compared to the old employer-based insurance.

But there are several headwinds for the adoption of private exchanges. There is an around 10% cost difference between employer self-insured ASO and using private exchanges. The 10% extra cost associated with private exchange includes health plan profits, ACA fees, broker commissions, etc. In addition, it is in employers' best interest to keep employees healthy. Directly offering employees health benefits allows employers to implement wellness and prevention programs to keep employees healthy. Employers may not want their employees to be too frugal in selecting their health plans. So far only two big employers – Walgreen and Sears have switched their active employees to private exchanges. We note both companies are in the retail business and employ relatively low-skill labors. We haven't seen high-tech companies to move their active employees into private exchanges. However there is perhaps a good chance for big financial firms to adopt the private exchanges. We believe any industry facing significant pressure could potentially accelerate their pace of adopting private exchanges for their current employees.

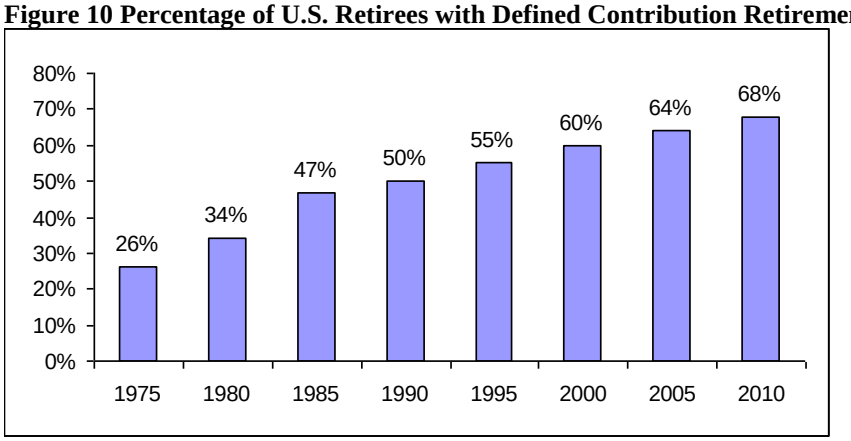
Whether the private exchange is a fad or a trend has significant consequences for the U.S. healthcare spending. If employees become active consumers, it will have a substantial damping effect on the growth of healthcare spending. The disconnect between payer and user of healthcare is often cited as a fundamental deficiency in U.S. healthcare system. It encourages wasteful care utilization, and deprives the system of pricing discipline. Therefore, if private exchange were to catch on, it would have a huge impact on U.S. healthcare. Faced with rising premium, large employers may finally throw in the towel and convert to private exchanges. The availability of private exchange may allow big employers to finally "sever the cord."

Table 6 Differences between Public and Private Exchanges

Attributes	Public Exchanges	Private Exchanges
Operated by	State or federal government	Benefit consulting firms or MCOs
Insured Population	Individual and small group.	Employer-sponsored group.
Population size	50mn uninsured/11.5mn individual market	150mn (80mn in ASO)
Plan Design	Actuarial metal tiers	Customizable to address needs of any employer

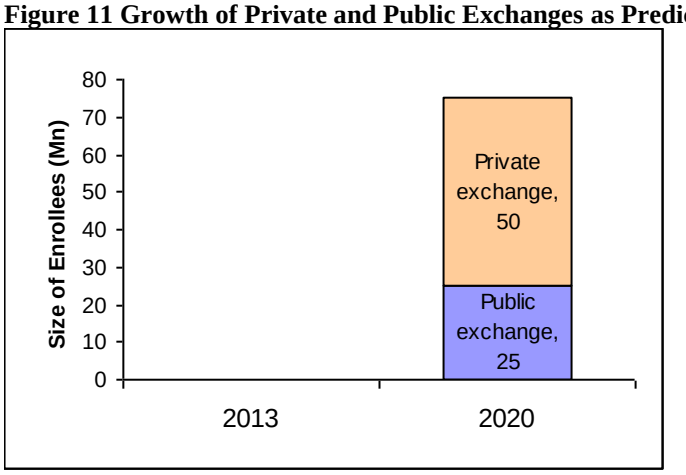
Source: Compiled by MHBK/IRD based on public company reports

Figure 10 Percentage of U.S. Retirees with Defined Contribution Retirement Plans



Source: Compiled by MHBK/IRD based on public data from U.S. Department of Labor

Figure 11 Growth of Private and Public Exchanges as Predicted by Aetna



Source: Compiled by MHBK/IRD based on Aetna Analyst Day, December 12, 2013

C. Technology (especially Healthcare IT) May Slow Health Spending

1. Healthcare IT Will Improve Care and Reduce Cost

As stated earlier, there is significant amount of inefficiency and waste in the U.S. healthcare system. Technology, mainly Healthcare IT is crucial for shedding a spotlight on the waste and driving out the inefficiencies in the system. Almost concurrent with the ACA, the Health Information Technology for Economic and Clinical Health (HITECH) Act was signed into law in February 2009. The HITECH Act offers financial incentives and penalties to encourage the adoption of electronic health record (EHR) or electronic medical record (EMR). Adoption of EHR is likely only the first step in a healthcare IT-driven revolution of U.S. healthcare system.

Medical cost is often invisible to the consumers. There is substantial variability in terms of list price for common procedures. According to the Wall Street Journal, the average charge for joint-replacement ranged from $5,300 in Ada, Okla., to $223,000 in Monterey Park, Calif. Even for hospitals in the same location, the listed price could vary by many folds (see the example in greater Los Angeles area in Table 7). Hospitals typically offer significant discount on list price. Even after the discount, each hospital also offers very different prices to different payers (see Table 8). Hospitals say they need to charge substantially higher premium to make up for the losses they incur for the Medicare/Medicaid population. American Hospital Association said hospitals lost $46bn last year on Medicare/Medicaid patients. But still the discrepancy in hospital cost is too big to ignore.

Table 7 Hospitals' list Price for Common Procedures Vary Significantly

Hospital	Brain hemorrhage	Heart failure and shock	Chest pain	Kidney failure
Sherman Oaks Hospital	$31,668	$39,795	$13,133	$21,106
Garfield Medical Center	$178,435	$146,428	$52,580	$77,719
Cedar-Sinai Medical Center	$167,860	$125,036	$43,715	$88,191
Los Angeles Community Hospital	$60,176	$52,110	$15,356	$21,864
LAC/Harbor-UCLA Medical Center	$85,156	$57,735	$15,835	$53,128

Source: Compiled by MHBK/IRD based on Wall Street Journal, February 24, 2014

Table 8 MRI Cost at Oakwood Healthcare System in Dearborn, Mich.

List or "chargemaster" price	$2,844
Cash price	$695
UnitedHealthcare negotiated price	$1,990
Blue Cross negotiated price	$617
Aetna negotiated price	$520
Cigna negotiated price	$341-362
Medicare rate	$335

Source: Compiled by MHBK/IRD based on Wall Street Journal, February 24, 2014

Health IT could bring sunshine to the opaque hospital pricing environment. Managed care companies such as UnitedHealth and Aetna are providing such tools to their members. In addition, there are a number of healthcare IT companies offering services that allow consumers to compare prices and shop. One prominent company is Castlight Health, which completed its IPO in mid. March and its current market cap is $1bn. Castlight's customers are big employers who self-insure their employees. Castlight sells subscription-based products to these companies to help their employees shop for the best care.

Bringing cost transparency to the health system is only one step although a very important step in optimizing the system. Healthcare system also needs other aspects of Health IT, including EMR, clinical decision support system, telehealth, etc. These healthcare IT systems should work in unison as the brain behind medical practices. Founded by biotech entrepreneur Dr. Patrick Soon-Shiong, NantHealth has emerged as leader in healthcare IT. Through personal investment of $1bn, since 2005 Dr. Soon-Shiong acquired and integrated around 40 healthcare IT companies into NantHealth. In addition, his company has built proprietary fiber optic networks in collaboration with Verizon to stream massive data and has installed super computers for comprehensive genomic analysis. NantHealth is bringing disruptive technology to the current patchwork of healthcare IT industry, which is dominated by EMR companies. NantHealth's offerings were unveiled in early 2014 (see Table 9). The main component is the Clinical Operating System (cOS™), which basically serves as a brain to integrate patient information from various sources and provide decision support tools. We believe healthcare IT companies such as NantHealth and Castlight will play a critical role in shaping U.S. healthcare system.

Table 9 Major Components of NantHealth

NantHealth	Description	Problem it addresses
Clinical Operating System (cOS™); launched February 2014 at HIMSS14 conference	Cloud-based middleware platform integrating clinical, financial, operational and environmental data. It provides real-time decision support for clinicians.	Disparate EMR systems often act as silos. Information is disbursed, rather than concentrated and integrated. ACOs and other value-based system cannot measure clinical outcome as they don't track it.
Eviti decision support tool for oncologists	Decision support tool for oncologists. Used by U.S. Oncology. It compiles treatment pathways derived from the peer-reviewed literature, oncology associations and government agencies. It also offers practice management and drug supply/reimbursement tools.	With the explosion of information, busy clinicians often cannot keep up to date with latest clinical development, which result in suboptimal care delivery.
NantHealth Alert	Based in Portugal, Alert Life Sciences offers web-based advanced EMR and other healthcare IT software. NantHealth entered into a collaboration with Alert to bring big data analytics to Alert's platform.	Complex genomic data is often not available for doctors on a real-time basis, thus hindering its use.
DeviceConX	Real-time Wireless Biometric and Vital Sign Health Boxes are installed on a national scale. Device connectivity is now operational at over 250 hospitals, including 120 Epic sites.	In most hospitals, a critical gap exists between having data at a medical device and giving physicians and clinicians access to that data in the patient record.

Source: Compiled by MHBK/IRD based on public company releases from NantHealth

2. Potential Slowdown in Healthcare Innovation

Separate from the healthcare IT issue, it has been cited that the shortage of new medical innovations may have contributed to the slowdown in the growth of medical cost[6]. The difficulty in developing break-through drugs is widely acknowledged. Meanwhile, many blockbuster drugs have lost patent exclusivity in recent years. The medical device industry is always characterized by incremental innovation, rather than product revolution. Today's environment just doesn't pay premium for incremental innovation. The net result is a lower level of innovation in the current stock of medical products, which naturally leads to lower premium. However this prevailing theme is at risk of reversing recently. For examples, new innovation in drugs treating HCV has sounded alarm for managed care companies and other payers. Gilead set the price of its HCV drug Sovaldi at $1,000 per pill, which has generated a public outcry for the high cost and some congressional inquiries.

Forces that could boost healthcare spending:

A. Providers Consolidations

As discussed earlier, providers have been going through a period of rapid horizontally and vertically integration. Horizontal integration involves hospitals merge with other hospitals. Vertical integration entails hospitals buying physician groups or other non-hospital healthcare providers. ACA cut Medicare reimbursement to hospitals by around 1.5% per year. Faced with this cut as well as other provisions in ACA, hospital consolidation has been on the rise. From 2007 to 2012, 432 hospital M&A deals took place, involving 835 hospitals. Hospitals mergers can eliminate considerable SG&A and other operating expenses, thus counter-balancing the cuts from ACA and sequestration. In recent years, hospitals increasingly form health systems, which generally have 1 or more academic medical center as "hubs," surrounded by other community or short-term acute hospital "spokes.[7]" 60% of hospitals are now part of health systems, up 7 percentage point compared to a decade ago (see Table 10). One recent example is the merger between Mount Sinai Medical Center (specialized major academic hospital) and Continuum Health Partners (community-oriented hospitals) in the New York area to create Mount Sinai Health System.

Hospitals have also been doing vertical integration. From 2004 to 2011, hospital ownership of physician practices increased from 24% of practices to 49%. Health systems also offer non-hospital services such as home health, skilled nursing facilities, etc. (see Table 10).

Big health systems have the benefits of potentially better coordination of care but at the same time they have stronger bargaining power with payers. Provider consolidations pose a major threat to containing medical cost. When a local market is controlled by three big providers, payers will have a hard time eliminating one from its network. It seems the market forces at play could be so strong that regulatory actions may be needed to break apart the potential monopolies in local markets.

Table 10 Consolidation in the US Hospital Industry by 2011

Hospiral data (N = 4973)	
Hospitals in a health system	60%
No. of Hospitals in typical system	3.2
Offering nonhospital services	
Home Health care	60%
Skilled nursing facilities	37%
Hospice services	62%
Assisted living care	15%
Mergers and acquisions (2007-2012)	
No. of deals	432
No. of hospitals	832
Ownership of physician practice	
By hospitals	49%
By physicians	41%
Other	10%

Source: Compiled by MHBK/IRD from "Hospitals, Market Share, and Consolidation." David Cutler and Fiona Morton,

[6] "If Slow Rate Of Health Care Spending Growth Persists, Projections May Be Off By $770 Billion", David Cutler and Nikhil Sahni, Health Affaires, May 2013.
[7] "Hospitals, Market Share, and Consolidation." David Cutler and Fiona Morton, JAMA, November, 2013

B. Beneficiary Backlash

Strong push-back from beneficiaries regarding benefit design or cuts could lead to rising healthcare cost. The backlash against HMOs in late 1990s contributed to the abandonments of some cost-containment practices and subsequent rapid growth in healthcare spending. So far in health exchanges, there doesn't seem to be a big pushback on narrow network. However there are strong pushbacks in certain cuts to coverage. For example, early in the year, CMS proposed rules that eliminate 2 of the 6 protected classes in Medicare Part D. Previously all Part D plans have to cover substantially all approved drugs in six classes. The new proposed rule would eliminate the requirement for antidepressants and immunosupressants for translplants. After the proposed rule was released, CMS came under strong criticism from seniors. Now it appears CMS has abandoned this proposal.

C. Improving economy

Improving economy and tightening of labor market will drive up medical cost. U.S. economy just went through a traumatic period of great recession. Although U.S. economy has made back the 8+ million jobs lost in the recession, labor market recovery is still tepid and wage inflation is absent. With the improving economy, U.S. healthcare spending may pick up again. Historically, healthcare spending growth has tracked GDP growth. But on relative terms (i.e., NHE grows faster than GDP growth), it is hard to pinpoint how much acceleration NHE may have due to the improving economy.

V. Impact of Obamacare on Each Segment of U.S. Healthcare

A. Impact of Healthcare Reform on Brand Pharma Industry

Pharmaceutical industry has contributed substantial rebates and fees to ACA (see Table 3). In 2014, with the coverage expansion, the industry will finally get some returns to its multi-year down payments. As shown in Table 11, in 2014 absent of the ACA coverage expansion, sales of U.S. prescription drug are expected to grow 2.3%, but with ACA, growth is expected to be 5.2%. So ACA will boost U.S. prescription drug growth by 2.9% (i.e., 5.2%-2.3%) in 2014. In 2015, ACA is expected to boost prescription drug sales by 1.8% (see Table 11).

Table 11 CMS's Forecast of ACA Impact on U.S. Prescription Drug Sales

$ in billions	2011A	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E
Rx Drugs without ACA	262.3	259.9	261.5	267.4	281.1	297.8	316.5	337.0	359.7	384.4	411.0	439.7
year/year increase		-0.9%	0.6%	2.3%	5.1%	5.9%	6.3%	6.5%	6.7%	6.9%	6.9%	7.0%
Rx Drugs including ACA	263.0	260.8	262.3	275.9	294.9	311.6	330.7	350.6	372.7	397.9	425.5	455.0
year/year increase		-0.8%	0.6%	5.2%	6.9%	5.7%	6.1%	6.0%	6.3%	6.8%	6.9%	6.9%
Rx $ impact from ACA		0.2	-0.1	7.7	4.9	-0.8	-0.5	-1.5	-1.5	0.4	0.1	-0.2
year/year increase		0.1%	0.0%	2.9%	1.8%	-0.3%	-0.1%	-0.5%	-0.4%	-0.1%	0.0%	0.0%

Source: Compiled by MHBK/IRD based on data from CMS, Office of the Actuary. Note: Forecast released September 2013

In the current healthcare system, there is increasingly higher copay, deductible and more tiering for consumers. ACA will accelerate this trend as consumers are increasingly empowered and value-based model takes hold. More ACOs are likely to be formed under ACA, which will exert downward pressure on drug usage. The bundled payment system (e.g., how Medicare pays for kidney dialysis) is likely to gain more popularity. Reimbursement for poorly differentiated drugs will become ever tougher. The market will still pay for innovation. But for therapeutic classes where generics or many similar drugs are available, the reimbursement will be challenging. In short, companies have to demonstrate the value of the medicines to payers in addition to the FDA in order to get coverage. This value-based reimbursement environment will force pharma to change R&D processes to proactively develop such evidence.

An important element from the ACA is the establishment of a biosimilar pathway. President Obama has tried to shorten the biologic exclusivity from 12 years to 7 years. But with heavy pushback from the biotech industry, especially from heavily Democratic states such as California and Massachusetts, the 12-year exclusivity is likely to stay. ACA sets out an elaborate litigation process for biosimilars. So far, there hasn't been any litigation to our knowledge as stipulated by the ACA. So the mechanism is untested. FDA has put out several guidance documents. On the important points, FDA is likely to demand a fairly large clinical trial and would likely allow extrapolation of clinical data across indications. There hasn't been clarity on the interchangeability between biosmilars and brands from the FDA. At least the agency would require switching studies to show the maintenance of efficacy. So biosimilars are coming to the U.S. market. Whether they will go through the ACA pathway is another question.

ACA also funded $500mn to create PCORI (Patient-Centered Outcomes Research Institute), which is responsible for doing comparative effectiveness research (CER). So far, PCORI's work has been mostly meta-analysis using existing clinical trial data, rather than running new trials on its own. With the relatively small budget and given the often very complex medical problem it tries to resolve, perhaps it is unrealistic for PCORI to run comparative trials. Pharma are not a fan of comparative trials as they could pit their expensive drugs vs. cheap generics. There is often little upside for pharma in such comparative trials. For example, NIH ran a trial comparing Lucentis to Avastin in advanced macular degeneration (AMD). Fortunately the trial result was mixed. Otherwise, Lucentis' blockbuster sales could be undercut. Overall the impact of PCORI on the pharmaceutical industry is unclear to us.

Also on the pricing side, under ACA, the increasingly wide-spread 340(b) drug discount program has become a headache for biopharma companies. Its rock-bottom pricing has become more prevalent. Many institutions are using the 340(b) program for patients not intended to benefit under such program. We could see more industry push-back on this program.

B. Impact of Healthcare Reform on Medical Device Industry

Medical device industry started contributing 2.3% excise tax from the beginning of 2013. President Obama has strongly supported this fee despite wide Congressional support to repeal the tax. Increased healthcare utilization is also expected to benefit the device industry. However as most people signed up for the Silver plan in the Health Exchanges, it is unclear how much they are willing to spend on high copay for expensive procedures.

Same as the pharmaceutical industry, the "value-based" medicine concept also rings loudly for device companies. The consolidating hospital providers have substantial bargaining power when they purchase medical devices. They are not going to pay extra for incremental benefits. Device makers increasingly find it lucky just to hold the line on pricing. To cope with increasingly bargaining power from providers and rising cost pressure, device makers are realizing the benefit of a bigger scale. Certain big device companies (such as Medtronic and Johnson & Johnson) are trying the approach of product bundling to get some bargaining advantage. They claim having a big portfolio of products helps them in the marketplace. The preference for larger scale has also pushed M&As in the industry. Recently Zimmer acquired Biomet to create a behemoth in the orthopedic industry, and Medtronic acquired Covidien in the largest deal ever in the medtech industry. We could see more consolidations to follow in the device industry.

Some device companies have also entered into hospital services business to wrap services around their device offerings. For example, Medtronic acquired home-monitoring company Cardiocom in August 2013 for $200mn. Cardiocom is a supplier of patient home-monitoring services. It provides patients with cardiovascular diseases monitoring tools (to measure weight, blood pressure, glucose, pulse oximetry, etc.) and a software system to connect with caregivers. Per ACA, beginning in 2013, hospital payments will be reduced if a hospital has excessive 30-day readmission rate for conditions such as heart failure, heart attacks, pneumonia and other conditions. Therefore it is to hospitals' economic interest to prevent readmissions within 30 days of discharge. Therefore, the service of Cardiocom will be quite valued by hospitals. In September 2013, Medtronic formed Medtronic Hospital Solutions, This business will first help manage cath labs in Europe. In this setting, Medtronic will simultaneously sell products to the hospital cath labs and manage them to achieve cost savings. The goal is not so much to earn revenues on the service side, but to get larger share of Medtronic products in those cath labs and potentially shut out competitors.

Johnson & Johnson through its Janssen Healthcare Innovation group announced a disease management platform called Care4Today. Initially Care4Today will focus on J&J's stronghold in orthopedics. Care4Today Orthopedic Solutions will integrate mobile health and other tools to help patients return home faster and also improve patients' recovery at home.

Beyond J&J and Medtronic, other medtech companies have also recognized the need to offer hospitals other help beyond their medical devices. In 2012, Zimmer acquired Dornoch Medical, which makes medical waste disposal system that can keep hospital workers safe from handling infectious fluids. In late 2013, Stryker acquires Patient Safety Technologies, Inc. The company's proprietary Safety-Sponge® System and SurgiCount 360(TM) compliance software help prevent Retained Foreign Objects (RFOs) in the operating room, thereby improving patient safety and reducing healthcare costs. Per ACA, hospitals with excessive number of hospital-acquired conditions (HAC) especially the so-called "never events" like RFO will be penalized. Starting in 2015, hospitals falling in the top quartile will face 1% reduction in Medicare payments. Sponges are the most common items accidentally left in the body after surgical operation. So Zimmer tries to offer hospital a product to address this safety issue.

C. Impact of Healthcare Reform on Managed Care Industry

Healthcare reform is often referred to as a healthcare insurance reform. Therefore ACA has the largest impact on the managed care industry. Contrary to initial concern, ACA actually turned out to be a boost for managed care industry. As shown in Figure 12 and Table 12, enrollment growth for the five-year periods prior to 2013 had been around 3%, but from 2013-2018, ACA will boost enrollment by 14%. Managed care will enjoy a period of robust growth in membership.

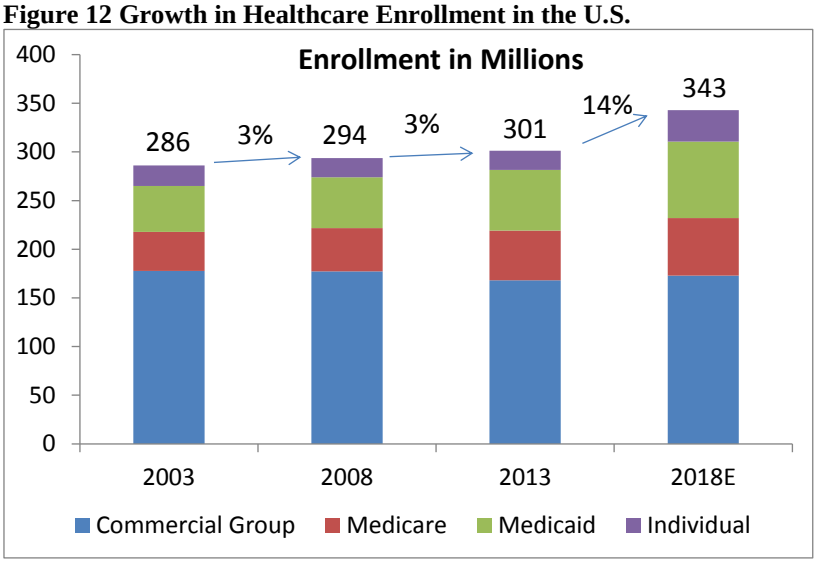
As listed in Table 3, since 2011, various reimbursement cuts have been imposed on MCOs. Starting in 2014, MCOs will start paying annual industry fees totaling $8bn. MCOs are expected to mostly pass this fee onto their customers. MCOs will also face substantial cut to Medicare Advantage (MA) rate in 2014 and 2015 to narrow the premium to Medicare fee-for-service levels. However many congressmen (even from the Democratic Party) oppose to such cut to MA rate. MCOs may have benefited from the political climate ahead of the mid-term election in late 2014. During recent years, MCOs have benefited from moderating medical cost and they have downward adjusted their cost structure. Therefore, the reimbursement cuts haven't caused notable hardship for the industry. With the prospect of enrollment growth and subdued cost trend, MCOs shares are currently trading close to all-time highs.

Going forward, whether this subdued medical cost trend can continue will be crucial for MCOs. There is a constant debate on whether this subdued medical cost trend is cyclical (impacted by the weak economy) or secular (structural forces discussed in section II). MCOs have conservatively assumed a pick-up in medical cost trend this year.

Because of the Medicaid expansion by ACA, one opportunity for MCO is the Medicaid managed care space. In 2012, WellPoint acquired Medicaid MCO Amerigroup for $4.9bn. Separately, anticipating the growth of Medicare advantage, in October 2011 Cigna acquired Healthspring, a player in Medicare space for $3.8bn.

Besides Medicaid, health exchange will provide another boost to the managed care industry. Health exchanges represent both opportunities and risks to MCOs. Based on the preliminary enrollment statistics, public exchanges are unlikely to be very profitable for MCOs this year. MCOs are likely to raise premium next year for plans on the exchanges. Beyond public exchanges, private exchanges could be an opportunity for MCOs. If employers switch their ACO plans to private exchanges, MCOs will be able to capture these lives at good commercial margins. The risk of ACA to MCOs is if employers dump many non-ASO insured employees to the public exchange at less favorable margins to health plans.

Figure 12 Growth in Healthcare Enrollment in the U.S.



Source: CMS and WellPoint. Note: Medicaid includes CHIP, Individual includes Health Exchanges, and Commercial excludes all individual commercial insurance. Enrollment figures exclude other public enrollment through Department of Veterans Affairs and Department of Defense.

Table 12 Growth in WellPoint Membership and Revenues

WellPoint	2008	2013	2018E
Membership (mn)	35	36	40
Operating revenues ($bn)	$ 64	$ 70	$ 100

Source: Compiled by MHBK/IRD based on data from WellPoint 2014 Analyst Day Presentation.

D. Impact of Healthcare Reform on Hospital Industry

Hospitals are widely recognized as the group most benefited from ACA. The reduction in uninsured population will directly lead to a reduction in uncompensated care and bad debt. Cuts to Hospital reimbursement by ACA started in 2010 (see Table 3). Besides ACA, starting in April 2013, sequestration per the Budget Control Act of 2011 cut Medicare reimbursement to providers by 2% per annum. So hospitals have been operating under tough environment for a number of years. In 2014, with the enrollment expansion, finally they will see the benefits from ACA.

The fact that half of the 50 states had chosen not to expand Medicaid this year was a setback for the hospital industry. However, this is mitigated by the fact that hospitals lose money on admissions of Medicaid and Medicare patients. Still with the big difference between the close-to-nothing hospitals get from the uninsured population and the discounted Medicaid provider rate, hospitals are much better off having people enrolled in Medicaid. The Medicaid picture is likely to improve as more states opt to expand their Medicaid programs under ACA.

The enrollment numbers as well as the composition of enrollees from ACA will be important in gauging ACA's impact on hospitals. If many so-called frequent-flyers (patients often use emergency rooms and in-patient services) are enrolled in ACA, it will reduce the uncompensated care at hospitals.

As we discussed earlier, one logical strategic reaction from payment cut is for hospitals to merge. Indeed, hospital mergers have been on the rise. In 2013, we saw two huge hospital mergers – Community Health Systems' $7.6bn acquisition of Health Management Associates and Tenet's $4.3bn acquisition of Vanguard Health Systems. The logic for hospital merger is very sound. But from the perspective of controlling medical cost, it is not desirable for hospitals to have big market share in a given location. Therefore, FTC and other regulatory bodies may want to ramp up anti-trust review of hospital mergers.

VI. A Brief Primer of the U.S. Healthcare System[8]

A. U.S. Health Insurance Coverage Scheme

As shown in Table 13, Americans obtain health insurance through employers, Medicare, Medicaid, or directly from health plans. Compared to other developed countries such as Japan and European countries, public health insurance plays a relatively small role in the U.S. Of the 316mn U.S. population, half obtain coverage through employers. The U.S. system provides health insurance safety net for the elderly (at or above 65) through Medicare and low-income people through Medicaid. Because of the lack of universal health insurance from the government, a substantial number of Americans don't have any health insurance. The goal of ACA is to reduce the number of uninsured people through expanding Medicaid and facilitating/subsidizing people to purchase insurance directly from newly created health insurance marketplace.

Table 13 U.S. Health Insurance Coverage Scheme

Insurance Scheme	Target Population	Benefits	Source of funding	Impact from ACA
1. Public Insurance				
Medicare	Seniors at or above 65 and young adults with permanent disabilities. Currently 54mn (~17% of total) people are enrolled in Medicare.	See below.	Federal general revenues (40%), Payroll tax (38%), premiums (12%)	ACA will reduce the growth in Medicare spending. Medicare reduction is achieved through: cuts of MA payment; cut to providers; delivery system reforms.
Medicare Part A	Also known as the Hospital Insurance (HI) program. Covers 47mn people in 2010, including 39mn seniors and 8mn young adults.	Covers inpatient hospital services, skilled nursing facility, home health, and hospice.	Payroll tax - 2.9% of earnings paid by employers and workers (1.45% each). ACA added 0.9% tax for high-income taxpayers (earnings >$200K individual and $250K/couple)	
Medicare Part B	Also called the Supplementary Medical Insurance (SMI) program. Covers 43.6mn people in 2010.	Physician, outpatient, home health, and preventive services	General revenues and beneficiary premiums ($110.50 per month in 2010).	
Medicare Part C	Also known as the Medicare Advantage (MA) program, allows beneficiaries to enroll in a private plan as an alternative to traditional fee-for-service program. Covers 15.7mn people or 30% total Medicare.	Private plans receives payments from Medicare to provide Medicare benefits, including hospital and physician services and in some cases prescription drug benefits (MA-PD).	Medicare (pass-through), premiums from beneficiaries.	
Medicare Part D	The outpatient prescription drug benefit was established by Medicare Modernization Act of 2003 (MMA). As of January 2014, 36.6mn people enrolled, with 23mn with stand-alone plans and 13.5mn with MA-PD plans.	Outpatient prescription drug benefits.	General revenues, beneficiary premiums, and state payments.	ACA will gradually eliminate the coverage gap (doughnut hole) in Part D.
Medicaid and CHIP (The Children's Health Insurance Program)	Low-income Americans (adults and children). CHIP was established in 1997 to cover low-income children ineligible for Medicaid. Currently 66mn people (~20% of total) are covered.	Wide benefits.	Federal, state general revenues.	Expand Medicaid non-elderly adults eligibility to 138% of FPL.
2. Private Insurance				
Employer	Employment-based insurance. The majority of U.S. non-senior population (~157mn, or ~50% of total) receive insurance from employers. Because the contribution from employer is not taxed, this is a tax-advantaged way for employees to receive benefits from employers.	Wide benefits.	Employer and employee premiums.	ACA allows children to stay on parents' plan until age 26. ACA has an "employer mandate." ACA will tax overly generous "Cadillac" plan. Employers with 50 or more employees are required to offer insurance. Otherwise, they need to pay a panelty.
Individual, small group, and other	People who are self employed or work for small companies that don't offer insurance obtain insurance directly from private insurers. Around 25mn, or 8% of total, Americans are in this category.	Wide benefits.	Individual premiums	Individuals will go to health exchanges to purchase insurance. Some may be eligible for federal subsidies.
3. Uninsured	57mn people, or ~18% total, in the U.S. are uninsured before ACA implementation. These include legal residents as well as illegal immigrants. ACA will cut this population by 26mn to 31mn.	No benefits. But tap health care and lead to uncompensated care.	Medicaid, uncompensated care, some copays.	ACA expands coverage and provide federal subsidy for legal residents to obtain coverage. There is also a penalty for not getting insurance.

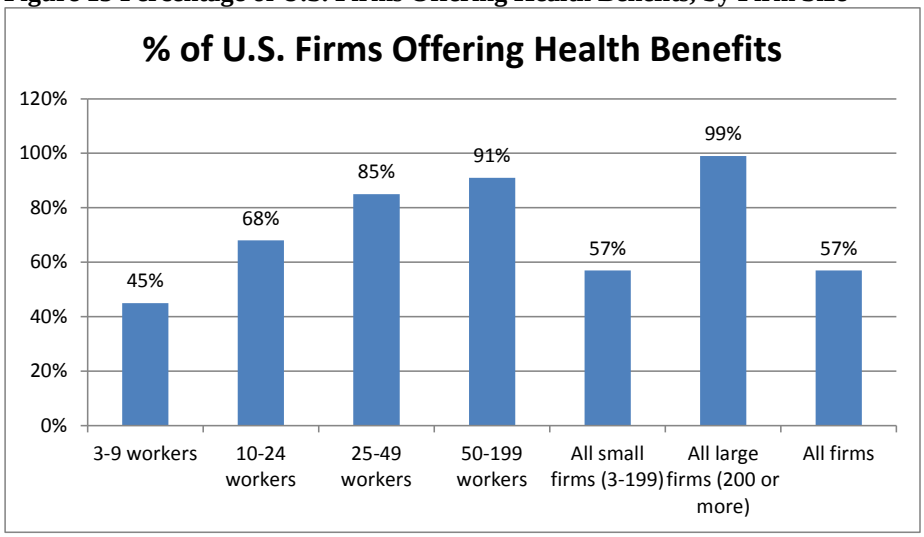
Source: Compiled by MHBK/IRD based on data from Kaiser Family Foundation and Centers for Medicare & Medicaid Services.
Note: numbers in the table sometimes don't match up perfectly with the following text due to different sources of statistics or different year for which the statistics is based.

[8] This section is primarily referenced from Kaiser Family Foundation and data from government sources (CMS and The While House)

1. Employer-Sponsored Health Insurance

Most U.S. working adults get health insurance through employers. Mid-large U.S. corporations typically offer health insurance to their employees. According to the 2013 Kaiser Survey of employer health benefits (see Figure 13), 99% of large firms (over 200 employees) and 57% of small firms (3-199) offer health insurance benefits to their employees. Twenty-eight percent of large firms also offer health benefits to retirees. In total, employer-sponsored insurance covers 149mn nonelderly people. Covered workers contribute on average 18% of premium for single coverage and 29% of the premium for family coverage. Premium for employer-sponsored health benefits has grown substantially (see Figure 14). Many employers are trying to find ways to slow down the growth of health care expense. One trend is for employers to shift more expenses to employees. This comes in the forms of higher annual deductibles, higher copays (a fixed dollar amount), and higher coinsurance (a percentage of covered amount). Seventy-eight percent of covered workers have a general deductible for single coverage that must be met before service is reimbursed by the plan. Twenty percent of covered workers are enrolled in an HDHP/SO (high-deductible health plans with a savings option). In HDHP/SO plans, workers pay lower premium but face high deductibles before reimbursement. Enrollment in HDHP/SOs increased significantly between 2009 and 2011, from 8% to 17% of covered workers, but has plateaued since then[9]. Copays and coinsurance for physician visits, prescription drugs and other forms of health services have also gone up. Overall, this cost shift to employees is expected to empower consumers of healthcare and lead to more healthcare consumerisms. This will help address one of the shortcomings of the U.S. healthcare, which is the decoupled nature of providers and consumers (because employers and government pay for most of the care, historically patients have little incentive to use more efficient care).

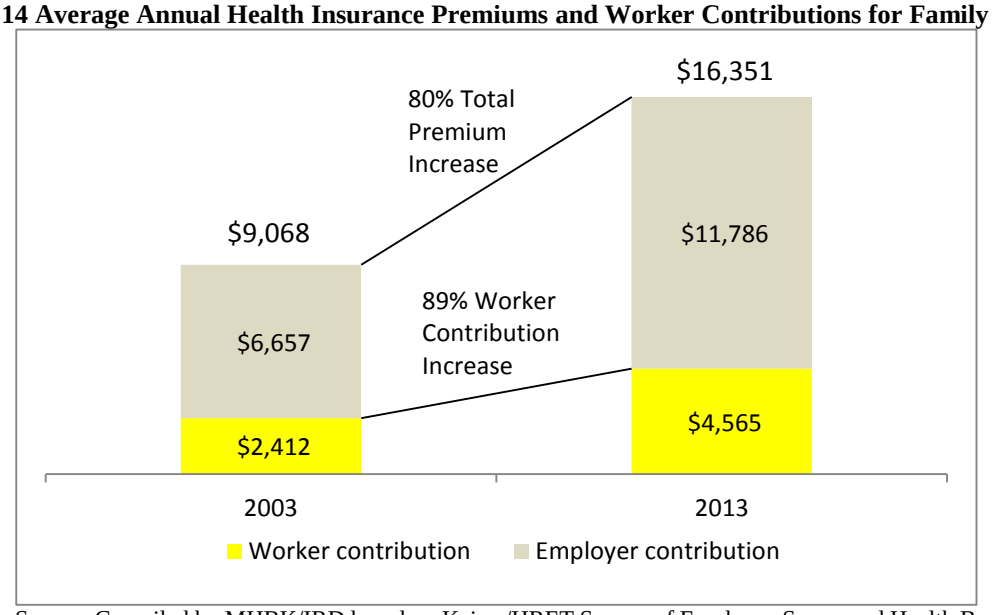
Figure 13 Percentage of U.S. Firms Offering Health Benefits, by Firm Size



Source: Compiled by MHBK/IRD based on Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2003-2013

[9] Kaiser/HRET 2013 Survey of Employer-Sponsored Health Benefits, 2003-2013

Figure 14 Average Annual Health Insurance Premiums and Worker Contributions for Family Coverage



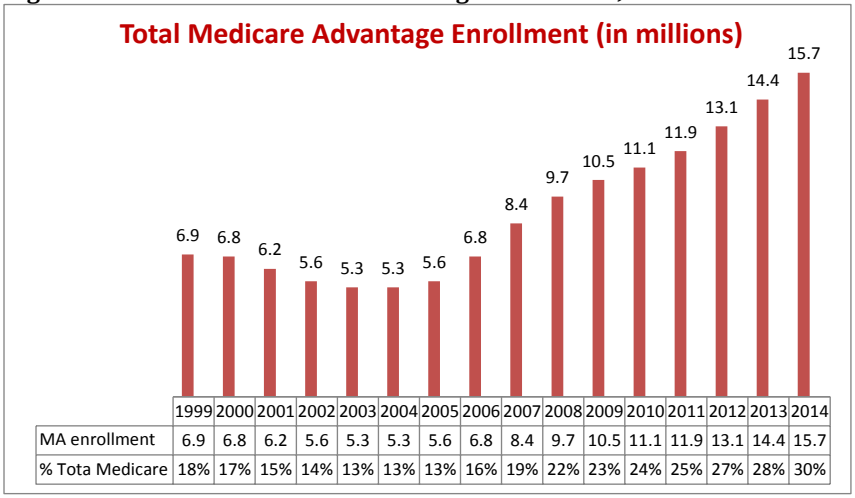
Source: Compiled by MHBK/IRD based on Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2003-2013

2. Medicare

Medicare offers a healthcare safety net for Americans 65 and older. Prior to the enactment of Social Security Amendments of 1965, half of the U.S. elderly population didn't have insurance. As explained in Table 13, Medicare has four parts. Part A offers hospital services. It is paid for by payroll taxes and the government. Seniors need to pay copays for hospital visits. Part B covers physician visits and other health services. It is funded by government and beneficiary premiums. Most seniors enroll in both Part A and B. Part A and B are operated on a so-called fee-for-service (FFS) basis, which is to reimburse per use of care.

In the 1970s, Medicare Part C came into being. Through Part C, Medicare beneficiaries have the option to receive their Medicare benefits through private health plans - mainly health maintenance organizations (HMOs, 64%), but also preferred provider organizations (PPOs, 23%), provider-sponsored organizations (PSOs, 3%), private fee-for-service (PFFS, 2%) plans. The Balanced Budget Act (BBA) of 1997 named Medicare's managed care program "Medicare+Choice" and the Medicare Modernization Act (MMA) of 2003 renamed it "Medicare Advantage." Medicare payments to plans are projected to total $156 billion in 2014, accounting for 30% of total Medicare spending. Since 2004, enrollment in MA has almost tripled from 5.3mn to 15.7mn, or to 30% of the Medicare population in 2014 (see Figure 15). Medicare pays Medicare Advantage plans a capitated amount per enrollee to cover Part A, Part B and Part D (if the plan offers prescription drug benefit). Historically, Medicare pays a premium to MA plans over the traditional FFS. ACA aims to reduce and eliminate this premium over time. When ACA was passed in 2010, there was wide-spread concern over the future of MA. Seniors, represented by the American Association of Retired Persons (AARP), pushed back on the planned MA cut. However, as shown in Figure 15, MA enrollment has grown substantially since then. Many plans prove to be quite capable of managing costs and reducing premiums. So the initial concern appears to be moot.

Figure 15 Growth of Medicare Advantage Enrollment, 1999-2014

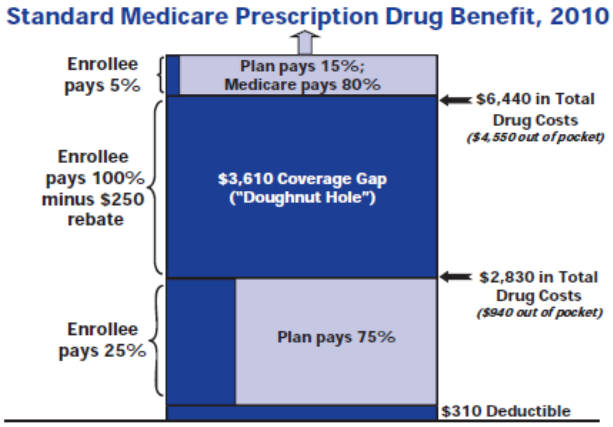


	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
MA enrollment	6.9	6.8	6.2	5.6	5.3	5.3	5.6	6.8	8.4	9.7	10.5	11.1	11.9	13.1	14.4	15.7
% Tota Medicare	18%	17%	15%	14%	13%	13%	13%	16%	19%	22%	23%	24%	25%	27%	28%	30%

Source: Compiled by MHBK/IRD based on data from Kaiser Family Foundation

The Medicare Modernization Act of 2003 established Medicare Part D, which provides prescription drug benefits for Medicare beneficiaries. Medicare beneficiaries can either enroll in stand-alone prescription drug plans (PDPs) or in Medicare Advantage prescription drug (MA-PD) plans. Part D is very popular among seniors and also very profitable for drug makers. Currently around 37mn seniors are enrolled in Part D. When Part D was set up, there was a coverage gap, which is also colloquially called the "doughnut hole" (see Figure 16). With the passage of ACA, brand drug makers agreed to cover half of the drug costs in the doughnut hole from January 2011. Government will gradually increase its share of the doughnut hole cost to 25% in 2020. So from 2020 onward, doughnut hole will be completely phased out. This element of ACA is quite favorable to seniors and more than offsets the cut to MA in terms of impact to seniors.

Figure 16 Illustration of Medicare Part D "Doughnut hole" in 2010



Source: Kaiser Family Foundation

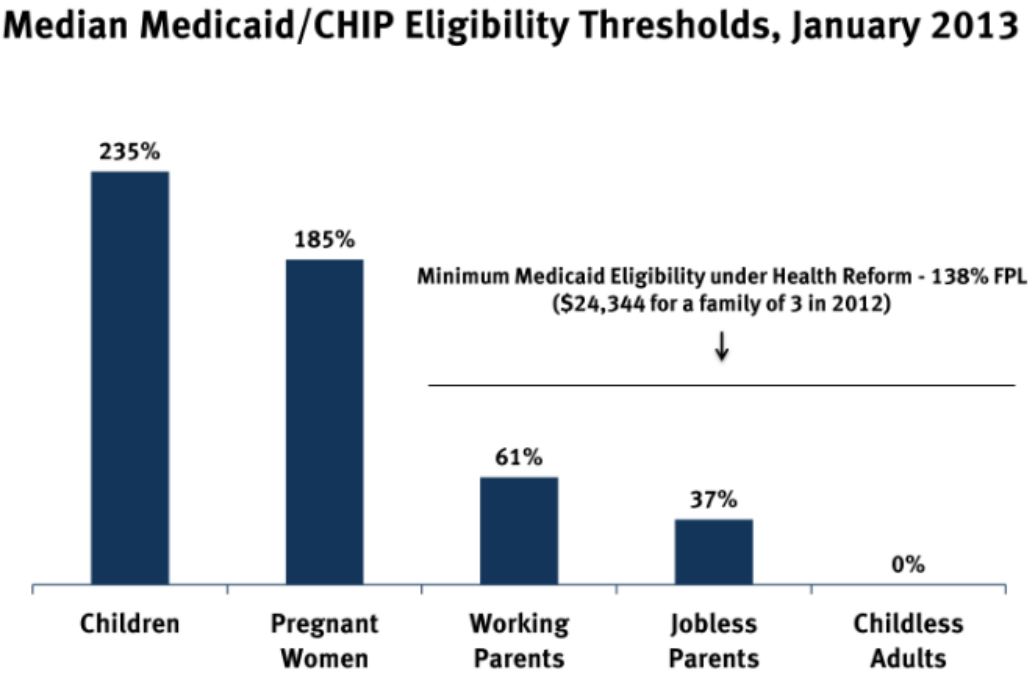
3. Medicaid

Medicaid covers low income Americans and is the single largest source of healthcare coverage in the U.S. Currently Medicaid covers 66 million – more than 1 in every 5, Americans. The 66mn beneficiaries include 32mn children, 18mn low-income adults, and 16mn elderly and people with disabilities.

Historically, Medicaid mostly covered children. Medicaid, with the smaller Children's Health Insurance Program, covers one in three children in the U.S. In addition to children, Medicaid also covers pregnant women and low-income parents. But overall coverage for adults is very limited. ACA greatly expanded coverage for adults. As shown in Figure 17, ACA expanded the coverage limit to 138% FPL.

Medicaid is administered by the states. States and the federal government fund the program jointly. The federal government's share of Medicaid funding varies by state, higher in poor states and lower in rich states. It ranges from 50% to 73% with average being 57%. The ACA Medicaid expansion is very favorable to states. Government will pay 100% cost for first three years (2014-2016) and at least 90% thereafter. Therefore, the additional federal Medicaid funding per ACA is almost like free money to states. However, a substantial number of states had chosen not to expand Medicaid, mostly based on ideological ground. The SCOTUS (The Supreme Court of the United States) ruling in 2012 made it optional for states to expand Medicaid under ACA. Currently 25 states plus the District of Columbia have expanded Medicaid under ACA. In states where there is no Medicaid expansion, a coverage gap emerges, which makes many low-income adults vulnerable. Under ACA, Medicaid expansion is expected to cover 13mn of the uninsured people.

Figure 17 Medicaid Enrollment Eligibilities



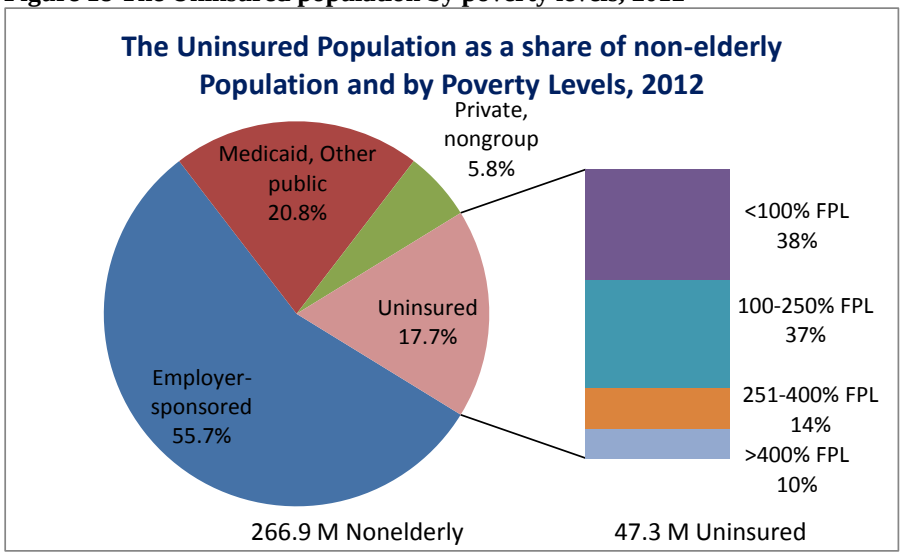
Source: Kaiser Family Foundation.

4. Uninsured People

In 2013, there were over 50mn people in the U.S. without health insurance[10]. According to Kaiser, in 2012, 47.3mn or 17.7% nonelderly Americans were without health insurance. Most of the uninsured earn low income - 90% of the uninsured population has income below 400% FPL (see Figure 18). Premium affordability is the primary reason for nonelderly adults to forego insurance. Besides employer-sponsored insurance and Medicaid, only 5.8% nonelderly adults purchase insurance in the individual and non-group market. The majority of the uninsured are native or naturalized U.S. citizens. Legal or illegal immigrants count for less than 20% of the uninsured population.

[10] CBO estimates released May 2013.

Figure 18 The Uninsured population by poverty levels, 2012

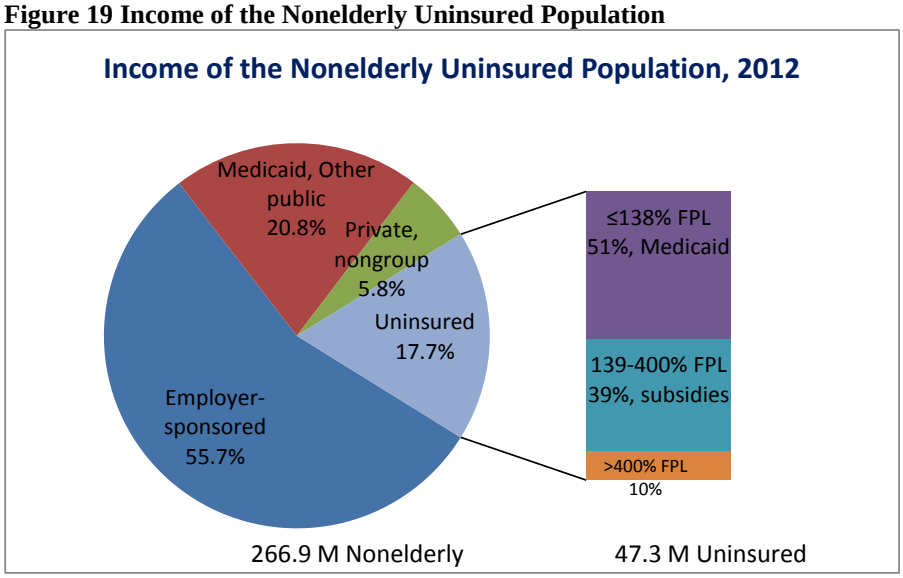


Source: Compiled by MHBK/IRD based on data from Kaiser Family Foundation.

The primary goal of ACA is reducing the number of uninsured people and increasing insurance affordability. ACA will reduce the uninsured population in mainly three ways (see Figure 19). Among the 47.3mn uninsured, over half (24 million) have income at or below 138% of poverty. This group will be helped by ACA's Medicaid expansion. Four in ten of uninsured population have income between 139-400% federal poverty line. They will be helped by federal subsidies for insurances in the public exchanges. Thirdly, ACA further build on employer-based coverage through measures such as employer-mandate.

Overall, CBO projects ACA will reduce U.S. uninsured population by 26mn or about half. By 2022, excluding illegal residents, 92% of U.S. nonelderly population will have health insurance (see Table 4). Although ACA has an individual mandate for individuals to carry health insurance, there are various exemptions so in the end many people don't need to pay the penalty. In addition, some people may simply refuse to buy health insurance. The result is in 2023, 31 million of Americans are still expected to have no health insurance.

Figure 19 Income of the Nonelderly Uninsured Population



Source: Compiled by MHBK/IRD based on data from Kaiser Family Foundation.

B. Growth in NHE and Its Major Components

U.S. health expenditure (NHE) totaled $2.9 trillion dollars in 2013, representing 18% GDP. As shown in Table 14, major spending items include hospital care, professional services, prescription drug, other medical products, home health care, and nursing care. Historically, annual NHE growth was 2-3% faster than GDP growth, which after compounding led to the run-away of healthcare cost. To blunt the compounding effect, a critical goal of reining in healthcare spending is to "bend the cost curve," which is to narrow or even eliminate the growth differential between healthcare and GDP. As highlighted in Table 14, since 2010, bucking historical trend, NHE growth has converged to GDP growth. Whether this trend can continue is of high importance. CMS projects the trend to revert back to historical norm in the long term (i.e., from 2020, NHE growth is ~2% higher than GDP growth).

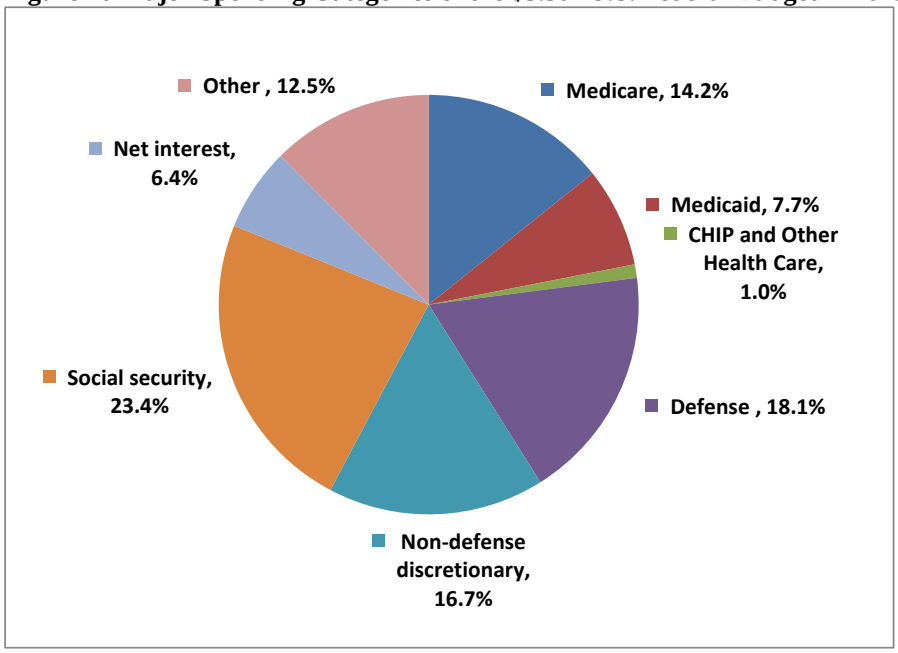
Table 14 Trends of U.S. National Health Expenditures

Item	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2015-2021 CAGR
National Health Expenditures ($trillion)	$2.5	$2.6	$2.7	$2.8	$2.9	$3.1	$3.3	$3.5	$3.7	$3.9	$4.1	$4.4	$4.7	$5.0	
% growth		*4.0%*	*3.9%*	*3.9%*	*3.8%*	*6.1%*	*5.8%*	*5.7%*	*5.8%*	*6.3%*	*6.5%*	*6.6%*	*6.5%*	*6.5%*	6.3%
GDP ($trillion)	$14.0	$14.5	$15.1	$15.7	$16.2	$16.9	$17.8	$18.8	$19.9	$21.0	$22.0	$23.0	$24.1	$25.2	
% growth		*3.8%*	*4.0%*	*4.0%*	*3.3%*	*4.5%*	*5.2%*	*5.7%*	*5.7%*	*5.4%*	*5.0%*	*4.7%*	*4.6%*	*4.6%*	
NHE % GDP	17.9%	17.9%	17.9%	17.9%	18.0%	18.3%	18.4%	18.4%	18.4%	18.5%	18.8%	19.2%	19.5%	19.9%	5.1%
Hospital Care ($bn)	$777.9	$815.5	$852.1	$893.1	$931.7	$974.3	$1,024.8	$1,087.0	$1,159.5	$1,241.1	$1,324.5	$1,414.0	$1,506.5	$1,608.2	
% growth		*4.8%*	*4.5%*	*4.8%*	*4.3%*	*4.6%*	*5.2%*	*6.1%*	*6.7%*	*7.0%*	*6.7%*	*6.8%*	*6.5%*	*6.8%*	1.1%
Professional Services ($bn)	672.5	693.0	721.1	754.4	781.8	819.6	859.7	907.7	962.4	1025.5	1093.8	1167.6	1243.5	1325.3	
% growth		*3.0%*	*4.1%*	*4.6%*	*3.6%*	*4.8%*	*4.9%*	*5.6%*	*6.0%*	*6.6%*	*6.7%*	*6.7%*	*6.5%*	*6.6%*	3.8%
Prescription drugs ($bn)	254.6	257.4	262.3	259.9	261.5	267.4	281.1	297.8	316.5	337	359.7	384.4	411	439.7	
% growth		*1.1%*	*1.9%*	*-0.9%*	*0.6%*	*2.3%*	*5.1%*	*5.9%*	*6.3%*	*6.5%*	*6.7%*	*6.9%*	*6.9%*	*7.0%*	*6.6%*
Other Medical Products ($bn)	78.4	82.1	86.2	90.2	93.4	96.7	100.9	105.7	111.3	117.3	123.7	130.3	136.9	144	
% growth		*4.7%*	*5.0%*	*4.6%*	*3.5%*	*3.5%*	*4.3%*	*4.8%*	*5.3%*	*5.4%*	*5.5%*	*5.3%*	*5.1%*	*5.2%*	3.8%
Home Health Care ($bn)	67.3	71.2	75.1	78.7	82.7	88	94.3	101.8	110.3	119.5	129.2	139.9	151.4	165	
% growth		*5.8%*	*5.5%*	*4.8%*	*5.1%*	*6.4%*	*7.2%*	*8.0%*	*8.3%*	*8.3%*	*8.1%*	*8.3%*	*8.2%*	*9.0%*	4.3%
Nursing Care Facilities and Continuing Care Retirement Communities	138.5	143.0	149.7	151.6	157.5	164.8	172.8	182.4	193.5	205.6	218.6	232.3	247.3	264.8	
% growth		*3.2%*	*4.7%*	*1.3%*	*3.9%*	*4.6%*	*4.9%*	*5.6%*	*6.1%*	*6.3%*	*6.3%*	*6.3%*	*6.5%*	*7.1%*	3.3%

Source: Compiled by MHBK/IRD based on data from Centers for Medicare & Medicaid Services, Office of the Actuary

As shown in Figure 20, Medicare, Medicaid and CHIP count for 23% of the U.S. federal spending. Because Medicare runs deficit each year, the Medicare trust fund is expected to be exhausted by 2030. In addition, given the dire U.S. deficit situation, there is enormous pressure to reduce spending on entitlement programs such as Medicare and Medicaid. So a major trend in the U.S. healthcare industry is the continued cost containment pressure coming from the government. ACA will further intensify the cost pressure.

Figure 20 Major Spending Categories of the $3.5tn U.S. Federal Budget in 2013



Source: Compiled by MHBK/IRD based on public data from White House, Office of Management and Budget. http://www.whitehouse.gov/omb/budget/historicals

VII. Appendix

Abbreviations	
ACA/PPACA	Affordable Care Act; also known as PPACA or Obamacare
ACO	Accountable Care Organization
CBO	Congressional Budget Office
CDHP	Consumer directed health plans
CER	Comparative effectiveness research
CHIP	Children's Health Insurance Plans
CMS	Centers for Medicare and Medicaid Services
DSH	Disproportionate share hospital
EHR	Electronic Health Record, also known as EMR
EMR	Electronic Medical Record, also known as EHR
FFM	Federal-facilitated marketplaces
FFS	Fee for service
FPL	Federal poverty level. In 2014, FPL for single is $11,670. FPL for a family of three is $19,790. For a family of four, it is $23,850.
HAI	health care-acquired infections
HAC	Hospital-acquired conditions
HDHP	High Deductible Health Plans
HHS	U.S. Department of Health and Human Services
HITECH Act	Health Information Technology for Economic and Clinical Health Act
HSA	Health Spending Account
IPAB	Independent Payment Advisory Board
Healthcare IT	Healthcare Information Technology
HIMMS	Healthcare Information and Management Systems Society
MCO	Managed Care Organization
NHE	National Health Expenditure
Obamacare	See PPACA
PCORI	Patient Centered Outcomes Research Institute
PPACA / ACA	Patient Protection and Affordable Care Act; also known as ACA or Obamacare
SBM	State-based marketplaces
SHOP	Small Business Health Options Program
SHOP Marketplace	Help provide coverage for employees in companies with 50 or fewer full-time-equivalent employees (FTEs).
Three R's	Reinsurance, Risk Corridors, Risk Adjustment. They are used by HHS to minimize the risk of loss in plans participating in the exchanges when there is adverse selection

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