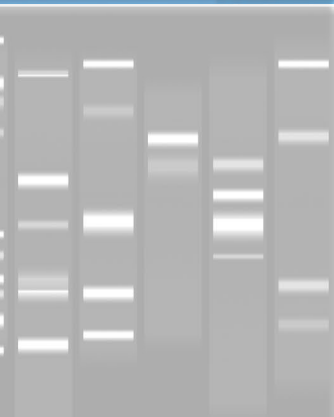
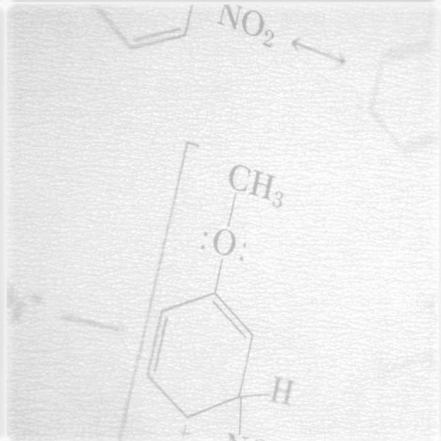
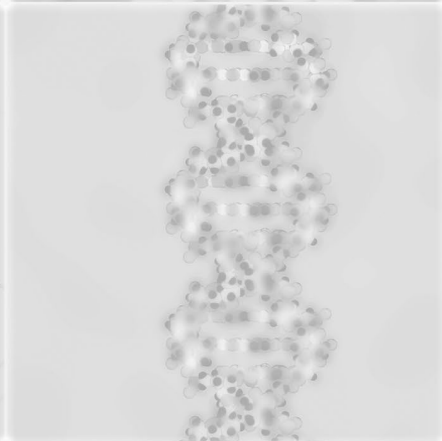
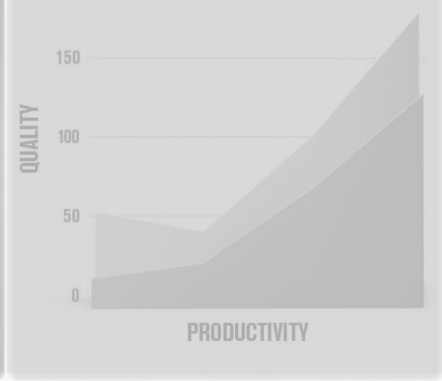
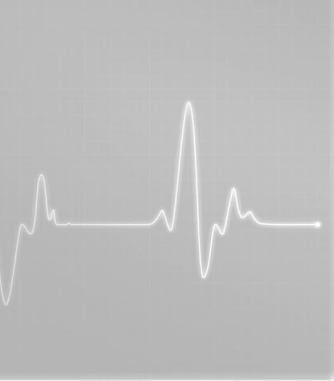




**GETTING *MUCH* CLOSER
TO THE COST PRECIPICE**

ALVAREZ & MARSAL HEALTHCARE



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Special thanks to Komal Patel, MPH, Analyst, for contributing to this report.



HEALTHCARE: GETTING *MUCH* CLOSER TO THE COST PRECIPICE

U.S. healthcare expenditures have reached crisis proportions, accounting for 17.7 percent of the GDP. Cost estimates from the Congressional Budget Office and the Centers for Medicare & Medicaid significantly understate the likely financial impact of an aging population, not adequately focusing on the five percent of the population accounting for 50 percent of costs. With the cost precipice fast approaching, the U.S. healthcare system is in great need of disruptive transformation.

The Patient Protection and Affordable Care Act (PPACA) is not about transforming the healthcare delivery system. Rather, it is about slowing the rate of Medicare payment increases, selectively reducing Medicare expenditures, exploring new payment models and imposing new taxes. The PPACA increases insurance coverage without adequate consideration of a growing shortage of primary care physicians and a growing need for chronic disease management. Healthcare delivery in the U.S. is mired in reimbursements, with shareholder focus on revenue maximization, and a lack of attention being paid to patient outcomes. With a rapidly aging population increasing demand for services and highlighting system inadequacies, traditional approaches to cost containment, such as provider discounts and cost shifting, will not suffice. There must be a strategic focus on leadership, execution and change management.

The following fact-based analysis, which contains nearly 200 identified references, is a must-read for every concerned U.S. citizen. Alvarez & Marsal's Healthcare Industry Group analyzed the \$2.6 trillion healthcare sector to better understand the potential impact of the PPACA. This analysis takes a convergent view across the healthcare industry spectrum, incorporating multiple vantage points; from clinical medicine to hospital system C-suites and employers; from the finance community to public policy leaders.

We invite you to take a seat at the table in this important debate.

Guy Sansone
Managing Director

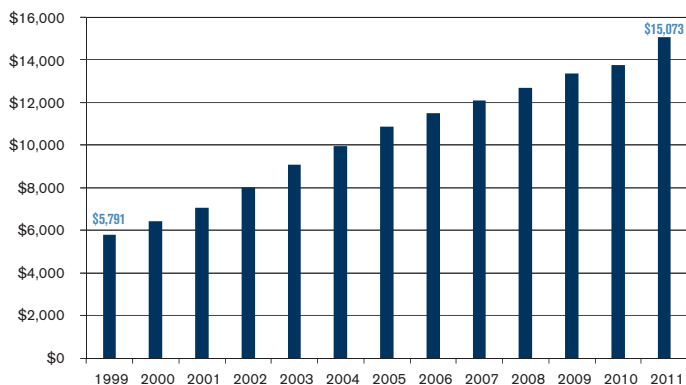
HEALTHCARE: APPROACHING THE COST PRECIPICE

Alvarez & Marsal (A&M) undertook an analysis of the \$2.6 trillion healthcare sector to better understand the potential impact of the Patient Protection and Affordable Care Act (PPACA) and its ability to increase access while slowing the rate of underlying spending growth. Our differentiated, fact-based analysis incorporates multiple vantage points, from that of clinical medicine to hospital CEOs, corporate executives, financial analysts, and public policy experts. It contains nearly 200 identified references and considers the practicum of execution.

Irrespective of PPACA intentions, the U.S. healthcare system is broken; disruptive transformation is required.

U.S. healthcare spending has reached crisis proportion and is limiting wage growth, “crowding out” near-term spending and longer-term investment, and contributing to personal bankruptcies.¹ The average coverage premium for a family of four is \$15,073, having increased 160% in only 12 years. Employers currently pay \$10,944, whereas family contributions, the amount of money paid by an employee for insurance coverage has reached \$4,129. Employee co-payments, deductibles and other out-of-pocket expenses add an additional \$2,007.² Total employee household healthcare expenditures of \$6,136 represent 12.3% of the median annual income.

FIGURE 1: AVERAGE FAMILY COVERAGE PREMIUMS



Source: Kaiser Family Foundation (KFF) and Health Research and Educational Trust (HRET)

Rising healthcare expenditures not only affect lifestyle, but also serve as a barrier to physician access, diagnostic tests, medical procedures, and medication adherence. Opportunities for earlier disease identification, intervention and treatment are being deferred, most likely leading to longer-term complications. Insurance companies have benefitted from slowing growth of the Medical Loss Ratio (MLR), the percentage of private insurance premium dollars spent on medical goods and services.³

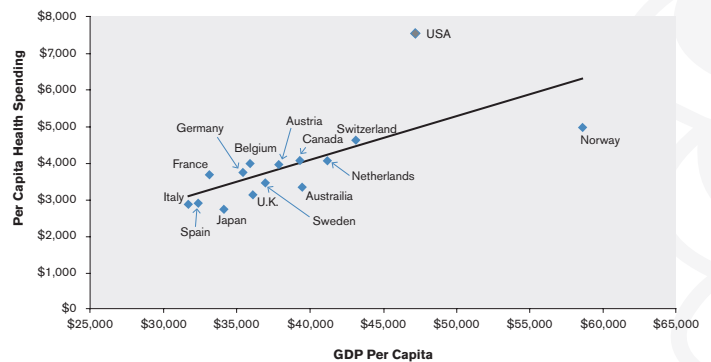
FIGURE 2: HEALTHCARE COSTS IMPACTING LIFESTYLE

	Millions of Americans	% Adult Population 18 - 64
In the past 12 months		
Had problems paying or unable to pay medical bills	53	29%
Contacted by collection agency for unpaid medical bills	30	17%
Had to change way of life to pay bills	31	16%
Any of the above bill problems	62	34%
Medical bills being paid off over time	44	24%
Any bill problems or medical debt	73	40%

Source: The Commonwealth Fund Biennial Health Insurance Survey (2010)

Despite a comparatively young population, per capita health expenditures in the U.S. are far higher than OECD countries⁴. Among the reasons for lower comparative spending in Europe include a focus on primary care services, integrated care delivery, new drug and procedure constraints; physician salaries 33-50% of those in the U.S.; limited administrative expenditures; and a single-payer system able to “restrain” expenditures in targeted areas.⁵

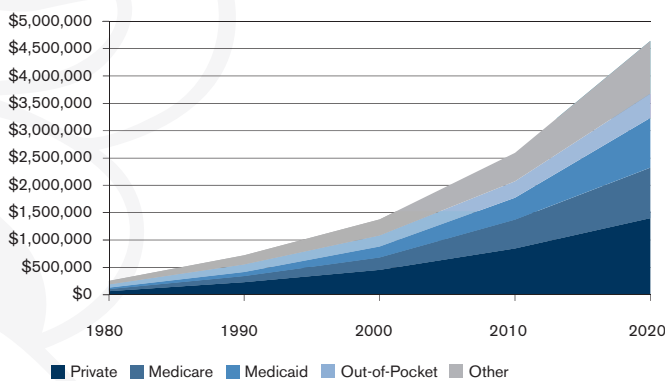
FIGURE 3: TOTAL HEALTH EXPENDITURES PER CAPITA AND GDP PER CAPITA, US AND SELECTED COUNTRIES, 2008



Source: “Healthcare spending in the United States and Selected OECD Countries” <http://facts.kff.org/chart.aspx?ch=1952>, April 2011

U.S. healthcare spending will continue to increase. National health expenditures are forecast to reach \$4.6 trillion in 2020, an increase of \$2.0 trillion in 10 years. Spending as a percentage of GDP rises from 17.7% to 19.8%. Moderate spending growth during 2010-13 will be followed by an expenditure rise of 8.3% in 2014 due to higher service utilization and prescription drug usage secondary to an increase in Medicaid and health exchange coverage. The PPACA expands access without materially affecting cost constraints.

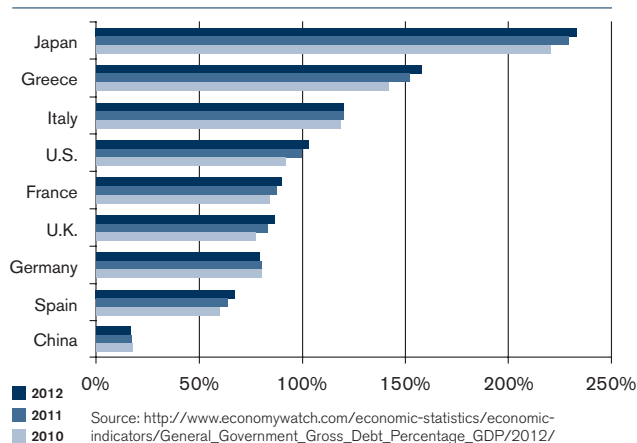
FIGURE 4: NATIONAL HEALTH EXPENDITURES 1980 - 2020



Source: Centers for Medicare and Medicaid Services, Office of the Actuary

Gross debt as a percentage of GDP in the U.S. exceeds 100%, a level surpassed by Italy, Ireland, Greece and Japan – countries with significant financial concerns. The U.S. figure, unlike those from other countries include Treasury issuance of “special securities to Social Security, Medicare, and other federal programs whose earmarked revenues (such as from payroll taxes) have exceeded their outlays (such as for Social Security benefits)”⁶

FIGURE 5: GROSS DEBT AS %GDP

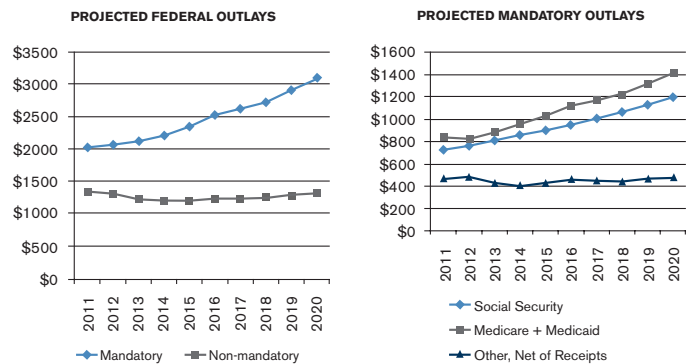


Source: http://www.economywatch.com/economic-statistics/economic-indicators/General_Government_Gross_Debt_Percentage_GDP/2012/

Economists prefer to focus on debt held by the public, the amount borrowed in private credit markets. The CBO estimate for Fiscal 2012 is 72.5%.⁷ Professors Reinhart and Rogoff, pre-eminent economists have shown that debt-to-GDP ratios of >90% represent the threshold for slowing economic growth, with a median decline of 1% and a far higher average decline.⁸

Total Federal outlays are forecast to increase from \$3.6 trillion in 2011 to \$5.0 trillion in 2020. Revenues range from \$2.3 trillion to \$4.7 trillion in 2011 and 2020, respectively. Mandatory outlays during this period, primarily Social Security, Medicare and Medicaid, account for the entire increase in expenditures; discretionary spending actually declines from \$1,346 billion to \$1,313 billion during the decade. Combined Medicare and Medicaid spending already exceeds that of Social Security.⁹

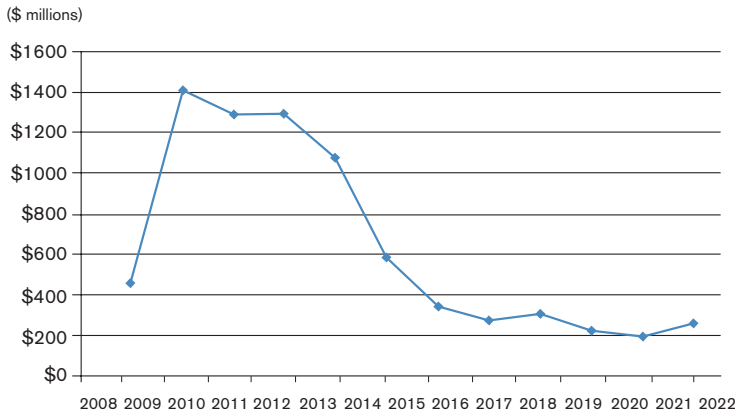
FIGURE 6: FEDERAL OUTLAYS



Source: CBO. The Budget and Economic Outlook: FY2012 - 22

The CBO projects a decline in the Federal budget deficit from \$1,079 billion in 2012 to \$585 billion in 2013 based on a slight decline in outlays and an 18.4% increase in revenues.¹⁰ Deficits throughout the remainder of the decade vary from \$345 to \$196 billion, figures that may be optimistic given the government propensity for spending and the lack of political consensus regarding budget cuts and taxation. Unlike the CBO, which incorporates these optimistic expectations, we believe the debt held by the public, driven by higher healthcare spending, will continue to grow.

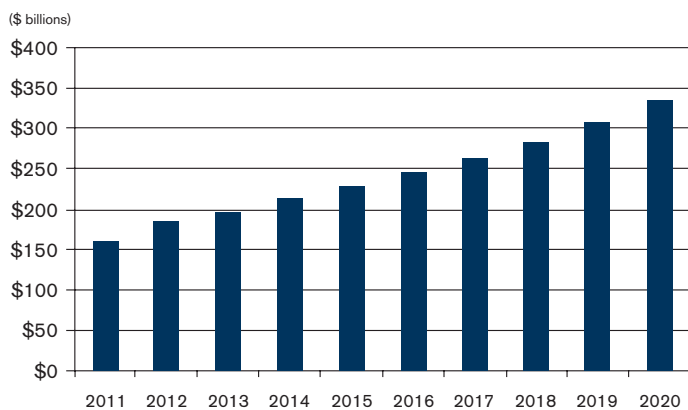
FIGURE 7: CBO BASELINE BUDGET DEFICIT OUTLOOK



Source: CBO. The Budget and Economic Outlook: Fiscal Years 2012 to 2022; January 2012

The “crowding out” of investment due to rising healthcare spending is already occurring. Fiscal constraints in specific states have limited appropriations to higher education.^{10, 11} The Patient Protection and Affordable Care Act (PPACA) requires the Federal Government to pay for 100% of new Medicaid enrollees from 2014 – 2016, and then decline to 95% in 2017, 94% in 2018, 93% in 2019 and 90% thereafter.¹² However, the PPACA does not alter the financing formula for the aged Medicaid population, 68% of whom receive long-term care, and the disabled Medicaid cohort – groups accounting for three-quarters of Medicaid spending growth.¹³ As a result, state outlays for Medicaid are forecast to increase from \$158 billion in 2011 to \$357 billion in 2020.

FIGURE 8: RISING STATE MEDICAID EXPENDITURES



Source: Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group

THE PATIENT PROTECTION AND AFFORDABLE CARE ACT: ACCESS, SPENDING AND SUBSIDIES

The PPACA increases health insurance coverage and ensures that people with pre-existing conditions will not be denied coverage. Insurance companies are banned from dropping coverage of ill patients and those meeting lifetime caps. Children under the age of 26 can remain on their parent’s insurance policy. As a result, the number of uninsured in the U.S. is forecast to decline from 48.5 million in 2010 to 25.9 million in 2020, representing 15.6% and 7.7% of the population respectively.¹⁴

Increased coverage will exacerbate the growing primary care shortage, forecast to reach 45,400 physicians in 2020.¹⁵

Medicare and Medicaid expenditures nearly double from \$926 billion in 2010 to \$1,830 billion in 2020, reflecting a 7.0% compound annual rate of growth. The comparable rate of growth between 2000 and 2010 was 8.1%. Slowing expenditure growth is forecast despite an increase in the number of non-elderly with health insurance by 32 million in 2016 and a rapidly aging Baby Boomer and elderly population.¹⁶

Cost containment initiatives are limited and focus on permanent reductions in the Medicare fee-for-service (market basket adjustment) payment rates (\$196 billion between FY10-19) and lowering Medicare Advantage rates based on average bids submitted in each market (\$135 billion). Minor savings of \$0.5 to \$3.0 billion per annum are forecast for (a) hospitals receiving disproportionate Medicare payments for serving low income patients (b) modifications to the part B premiums for high income recipients (c) creating an independent Payment Advisory Board (d) and applying penalties to hospitals for excessive hospital re-admissions and hospital acquired conditions.¹⁷

Pilot initiatives, including episodes of care payment and Accountable Care Organizations are voluntary and thus, unlikely to generate significant savings. Efforts to mandate new payment models or transform care delivery are limited.

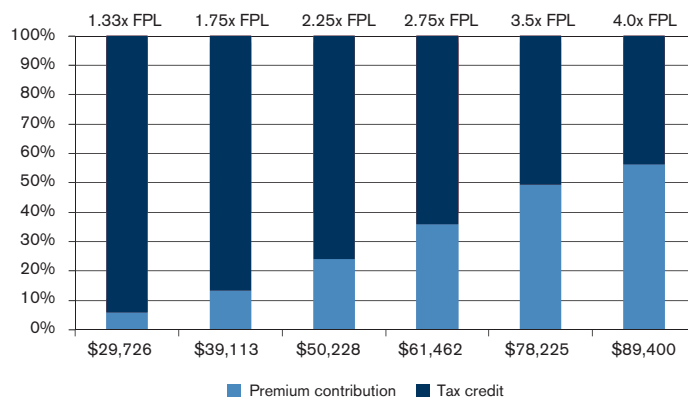
Revenue provisions, also known as taxes and fees raise \$391.7 billion in 2010-2019, \$146.9 billion from firms and \$244.8 billion from individuals.¹⁸

In late March, the Supreme Court heard oral arguments on the constitutionality of the individual mandate. Other issues to be addressed include (a) whether the individual mandate can actually be decided today or in 2015, when the first individual penalty is assessed (b) whether the entire PPACA or specific portions are unconstitutional and (c) whether the Federal government can mandate additional Medicaid coverage to states.¹⁹ Irrespective of the outcome, healthcare costs will continue to rise to unsustainable levels and care delivery transformation will still be required.

THE PPACA IS ABOUT ACCESS AND TRANSFERRING THE “BURDEN” OF RISING HEALTHCARE COSTS FOR LOW AND MIDDLE INCOME AMERICANS TO THE FEDERAL GOVERNMENT

1. The denial of health insurance coverage and the imposition of lifetime spending limits will no longer be allowed.
2. Young adults < 26 years will be guaranteed coverage under their parent’s insurance policy; already implemented and affecting 2.3 million young Americans.
3. States will be required to raise Medicaid eligibility from 100% to 133% of the Federal Poverty Limit (FPL). In 2011, 100% of the FPL for an individual was \$10,890, whereas for a family of four it was \$22,350. According to the CBO, 16 million more Americans will be covered under the PPACA relative to baseline. The federal government will pay for 90-100% of the associated costs.
4. Federal tax credits will be provided to Americans earning 133% to 400% of the Federal Poverty Limit (individual: \$14,408-\$43,320; family of four: \$29,327-\$89,400). Assuming an average health insurance premium of \$15,073 for a family of four results in a range of individual premium contributions based on income from \$892-\$7,431. Conversely, the tax subsidy ranges from \$14,181 for those with a household income of 1.33x the FPL (\$29,726) to \$7,642 for those with the maximum income eligible for a tax subsidy at 4.0x the FPL (\$89,400).

FIGURE 9: PAYMENT MIX FOR SUBSIDIZED INSURANCE RECIPIENTS

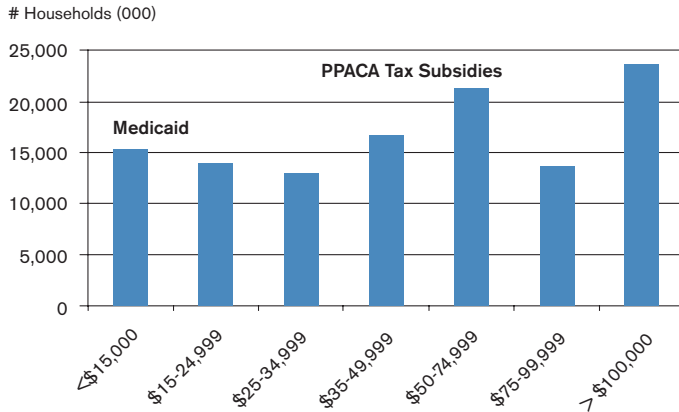


Source: Congressional Research Service, Kaiser Family Foundation. 2011 Federal Poverty Limit (FPL) for a family of four = \$22,350; Premium cost = \$15,073.

The average household income in 2010 was \$62,481 (median: \$49,909) implying that most Americans are potentially eligible to receive a tax credit for the purchase of health insurance. The ultimate size of the subsidy will partially depend upon the Supreme Court and its decision regarding the individual insurance mandate, as well as the decision by employers to drop insurance coverage and pay a nominal tax penalty of \$2,000 per employee.

The CBO and Joint Commission on Taxation (JCT) estimate that the PPACA will increase health insurance coverage by 32 million people in 2016 and 34 million by 2021. Despite the efforts to increase coverage, 23 million people will remain uninsured.²⁰

FIGURE 10: U.S. HOUSEHOLDS BY INCOME



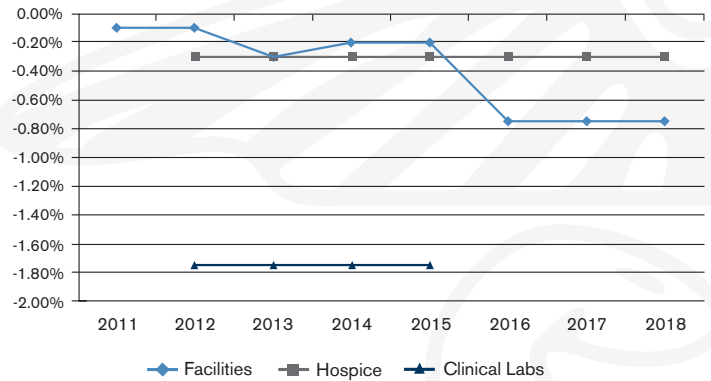
Source: U.S. Census, Table 692: Money Income of Households, 2009

THE PPACA IS NOT ABOUT TRANSFORMING THE HEALTHCARE DELIVERY SYSTEM. IT'S ABOUT SLOWING THE RATE OF MEDICARE PAYMENT INCREASES, SELECTIVELY REDUCING MEDICARE EXPENDITURES, EXPLORING NEW PAYMENT MODELS AND IMPOSING NEW TAXES.

The PPACA does not transform healthcare. It attempts to “squeeze” providers by reducing payments to improve efficiency and reduce the rate of re-admissions and hospital acquired infections. It also supports the emergence of new care delivery models on a voluntary, small scale basis.

The PPACA includes reductions to the Medicare basket update, the annual increase per sector (e.g., hospitals, skilled nursing facilities, etc.) that “answers the question of how much more or less it would cost, at a later time, to purchase the same mix of goods and services that was purchased in a base period.”²¹ Reductions are forecast by the CBO to save \$196.3 billion over 10 years.²² It’s important to recognize that update reductions do not imply negative growth; they reflect a downward adjustment to the expected rate of positive growth.

FIGURE 11: TIMELINE FOR UPDATE REDUCTIONS INCLUDING PRODUCTIVITY ADJUSTMENTS, BY PROVIDER

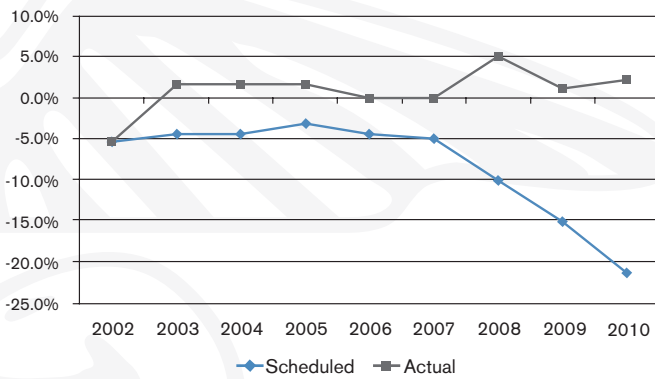


Source: Congressional Research Service. Medicare Provisions in the PPACA, Appendix B; April 23, 2010. Facilities include acute care hospitals, inpatient psychiatric facilities, inpatient rehabilitation facilities and long-term care hospitals

During 2000-2010, the annual market basket update ranged from 2.0-3.7% for most healthcare sectors (hospitals, nursing homes, inpatient rehabilitation facilities, home health agencies, etc.). A distinct possibility exists that the proposed market basket reductions for hospitals, beginning 2016 will be re-negotiated.

Our concern about the sustainability of proposed reductions in the Medicare basket update is reflected by the history of Congressional “corrective actions” for the Sustainable Growth Rate (SGR) mechanism, Medicare’s payment formula for physician services. Until 1992, Medicare paid physicians on “usual, customary and reasonable” charges. The Center for Medicare and Medicaid Services subsequently used and still uses the Resource Based Relative Value Scale (RBRVS) fee schedule to assign prices to 7,000 specific physician tasks and services. The RBRVS assigns value to the time, skill and intensity of a physician’s work; practice expenses and malpractice costs.²³ Scheduled reductions in Medicare physician payments have been deferred by Congressional action for the past several years.

FIGURE 12: SUSTAINABLE GROWTH RATE CONGRESSIONAL INTERVENTION



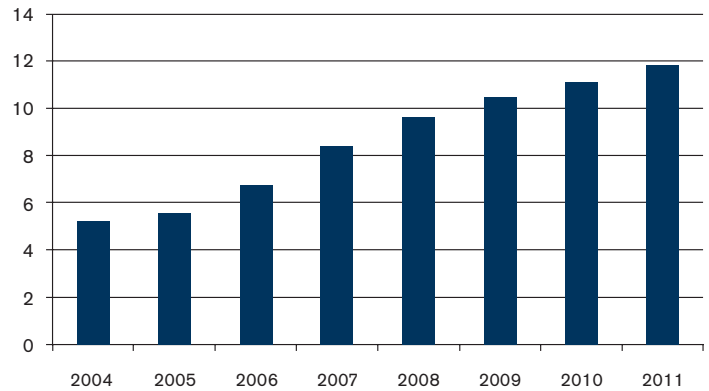
Source: American Medical Association. Health System Reform. October 15, 2009

Medicare Advantage (MA) plans have been identified in the PPACA as another major source of potential cost savings. They are offered to Medicare recipients by private insurers and provide hospital, medical and typically, prescription drug coverage as an alternative to fee for service plans. Approximately 11.9 million people were enrolled in MA plans in 2011, representing 25% of the Medicare population.²⁴

The number of MA plans has declined 28.9% from 2,830 in 2009 to 2,012 in 2011. The average monthly premium is \$50.61.²⁵ MA plans are paid a fixed monthly amount by CMS to provide coverage. In 2009, for the same level of risk-adjusted per patient services, Medicare Advantage plans outspent Medicare fee-for-service plans by \$14 billion, a “violation” of the budget neutrality requirement. As a result, the Medicare Payment Commission (MedPAC) instituted a multi-year reduction in the reimbursement rate.²⁶ The PPACA has targeted longer-term adjustments to Medicare Advantage plans. According to the CBO, “setting payment rates on the average basis of the average bid submitted by Medicare Advantage plans will account for an estimated \$135 billion in savings over ten years.”²⁷

Despite the ongoing and planned reduction in Medicare Advantage reimbursement, major private insurance companies have targeted MA plans for profitable growth based on (a) the rapidly growing population of aging Baby Boomers turning 65 who are already familiar with managed care (b) the potential for infrastructure leverage and reduced price competition via consolidation, as evidenced by recent acquisitions, such as Cigna - Healthspring, United - XL Health and Wellpoint - CareMore and (c) limited growth opportunities in commercial insurance, as enrollment has been flat for nearly a decade.²⁸

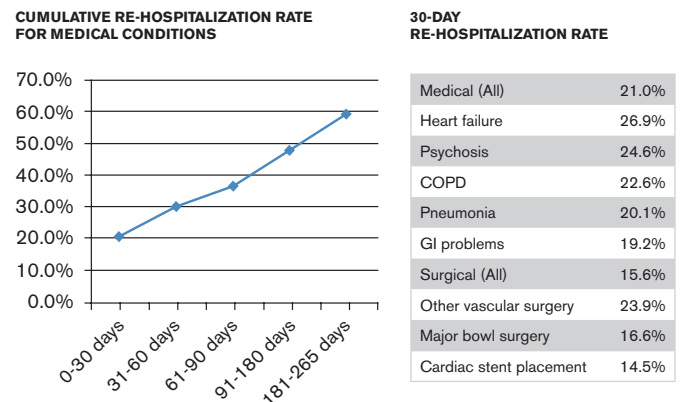
FIGURE 13: MEDICARE ADVANTAGE ENROLLMENT



Source: Kaiser Family Foundation. Medicare Advantage 2010 and 2011 Data Spotlight

The PPACA also attempts to address the “excess” of hospital re-admissions and hospital acquired conditions (relative to expectations). Reductions in Medicare payments are planned for hospital re-admissions in selected conditions: heart attack, congestive heart failure and pneumonia.²⁹ CMS has estimated the cost of preventable re-admissions at \$12 billion per year.³⁰ A review of Medicare fee-for-service data from 2003-04 highlights the magnitude of the overall problem (i.e. 19.6% of the patients were re-hospitalized within 30 days, 34.0% within 90 days, and 56.1% within 365 days.)³¹ The majority of re-admitted patients did not see a physician within 30-days post-discharge. Beginning in 2013, a 1% hospital penalty will be applied to the total Medicare billing for “excessive” re-admission; penalties will reach 3% in 2015. The estimated hospital cost savings is \$700-800 million per annum.²³

FIGURE 14: RE-HOSPITALIZATION RATES



Source: Jenks S, Williams M, Coleman E. Re-hospitalizations among Patients in the Medicare Fee-for-Service Program. NEJM 360(14); April 2, 2009

Beginning in FY2015 (October 2014), Medicare will also impose a 1% reduction in total payments to hospitals that are in the lowest performance quartile in the rate of risk-adjusted Hospital Acquired Conditions. These include inadvertent falls, infections (e.g., bloodstream, ventilator, surgical site, urinary tract), blood incompatibility, poor glucose control and blood clots. Hospital acquired infections alone account for 99,000 deaths per year. The estimated cost savings is \$400-800 million per annum.

FIGURE 15: HOSPITAL ACQUIRED INFECTIONS

	Attributes cost per infection, adjusted to 2007 \$ (1, 2)	Number of cases
Surgical site infections (SSIs)	\$11,874-34,670	290,485
Central line associated bloodstream infections (CLABSIs)	\$7,288-29,156	92,011
Ventilator-associated pneumonias (VAPs)	\$19,633-28,508	52,543
Catheter-associated urinary tract infections (CAUTIs)	\$862-1,007	449,334
Gastro-intestinal (Clostridium difficile) associated disease	\$6,408-9,124	178,000
Total		1,737,125

Source: (1) Stone PW, Braccia D, Larson E. Systematic review of economic analysis of health care-associated infections. *Am J Infect Control* 2005;33:501-509. (2) Anderson DJ, Kirkland KB, et al. Under-resourced hospital infection control and prevention programs: penny wise, pound foolish? *Infect Control Hosp Epidemiology* 2007;28:767-773. (5) R. Douglas Scott. The Direct Medical Costs of Healthcare Associated Infections in U.S. Hospitals and the Benefits of Prevention. CDC, March 2009

The PPACA recognizes but does not mandate the need for new patient care models driven by stakeholder-aligned financial incentives. Demonstration projects are being considered to “address a variety of themes including medical homes, coordinated care, alternative payment mechanisms, health information technology (HIT), medication management, patient education, integrated care for dual eligibles, care for cancer patients, post-acute care, chronic care management, telehealth and collaboration among mixed provider types.”³³

Specific payment reforms, albeit on a voluntary and pilot basis are potential catalysts for change to local care delivery systems. Initiatives include pre-defined “episode of care” bundled payments and the creation of shared savings programs for Accountable Care Organizations.

An episode of care for a specific condition may include care services delivered three days prior to admission, the length of hospital stay and 30-90 days post-discharge; alternative models may only be inpatient or include post-discharge services. A single bundled payment is determined by applying a discount to the total cost of care for similar episodes as defined by historical data.³⁴ Payments are then allocated among all the service providers: physician,

hospital, post-acute care, laboratory and diagnostic, etc. Shared financial risk will enhance care coordination, collaboration and transition management; clinical and economic outcomes are likely to improve.

Episode of care payment bundling is particularly relevant to complex procedures, but fails to recognize the nature of chronic disease for conditions such as congestive heart failure, COPD and diabetes. Payment bundling reflects the advent of periodic exacerbations of the underlying conditions. It does not consider the cost savings potential for secondary intervention; i.e., avoidance of complications and/or a reduction in the severity of complications due to timely intervention. Episode of care bundling is not equivalent to capitation where a specific provider assumes the entire risk of care delivery for a period of time across the continuum of disease progression.

Accountable Care Organizations represent an extension of the successful Physician Group Practice demonstration, initiated in April 2005 that offered performance bonuses to ten large group practices if they met quality and cost-efficiency target metrics. An ACO may include primary care physicians, specialists, and care extenders (nurse practitioners, physician assistants) in not only a group practice setting, but also networks of practices and partnerships or joint ventures among providers, hospitals, insurers and others. Requirements include a legal structure for payment distribution, a program commitment of at least three years and adequate primary care capacity to treat at least 5,000 patients. Waivers from the Anti-Kickback Statute and Physician Self-Referral (“Stark”) Law may be required. Patients in Medicare Advantage plans are excluded from the shared savings program.

According to the Congressional Research Services, “in each year of the three year agreement period, an ACO will be eligible for a shared savings payment if the estimated per capita Medicare expenditures for Part A [hospital] and Part B [professional services], adjusted for beneficiary characteristics is at least the specified percentage below the applicable benchmark.”³⁵

Other sources of identified PPACA savings include a reduction in Medicare payments to disproportionate share hospitals serving low income patients (\$2.2 billion / year); modifications to the high income adjustment to Part B premiums (\$2.5 billion / year); and the creation of an Independent Payment Advisory Board (\$1.6 billion / year).

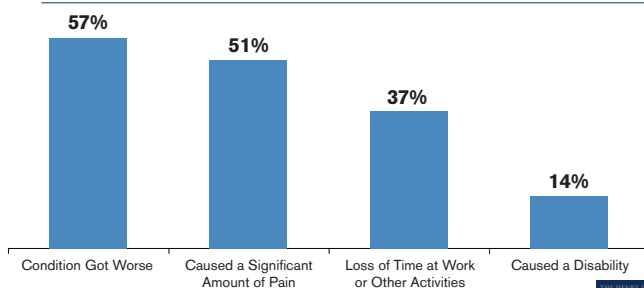
The PPACA also raises revenue to pay for expanded health coverage. New taxes raise \$392 billion in 2010-2019. Provisions affecting firms generate \$147 billion and include taxes on high cost plans (\$32 billion); and annual fees on pharmaceutical companies (\$27 billion), device companies (\$20 billion) and health insurance providers (\$60 billion). Provisions affecting individuals include a Medicare payroll tax (\$87 billion), a Medicare contribution on investment income (\$123 billion) and modifications to tax advantaged accounts and itemized deductions (\$35 billion). The majority of taxes become effective in 2013.³⁶

THE PPACA DOES NOT BEND THE COST CURVE. WE BELIEVE THE CBO ESTIMATE IS UNREALISTIC GIVEN THE GROWING DEMAND FOR SERVICES.

The CBO projects the positive net budget impact of the PPACA on the Federal deficit between FY2010-2019 to be \$143 billion.³⁷ Nearly the entire savings begins in 2013, implying an average annual reduction in the projected spending of \$20.4 billion. This represents 2.3% to 1.5% of federal healthcare spending.^{38, 39} Execution risks are significant.

National health expenditures increased 3.8% in 2009 and 3.9% in 2010, “slower than any year in the fifty-one year history of the National Health Expenditure Accounts.”⁴⁰ However, personal health expenditures, a figure excluding administrative expenses and public health increased at a higher rate than the overall figure for Medicare (2009: 6.9%; 2010: 4.5%) and Medicaid (2009: 9.2%; 2010: 7.0%), respectively.⁴¹ Although positively impacting the short-term health care expenditure growth rate, the deferral of health resource utilization by individual patients, especially those with chronic disease, is likely to have negative health consequences.

FIGURE 16: REPORTED CONSEQUENCES OF POSTPONING OR FORGOING CARE FOR LOW-INCOME ADULTS, 2005



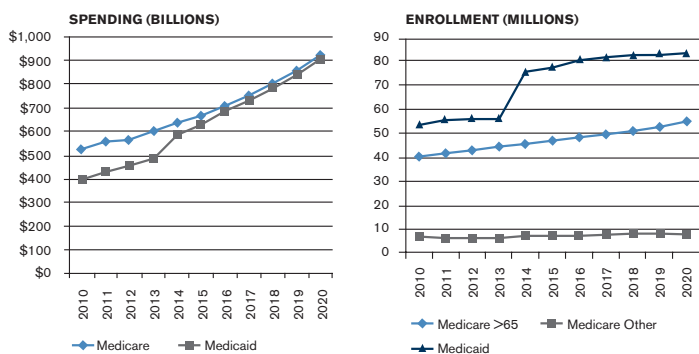
Source: Kaiser Commission on Medicaid and the Uninsured analysis of the 2005 Kaiser Low-Income Coverage and Access Survey.



We consider the CBO spending estimates unrealistic for several reasons: (a) Medicare spending is forecast to increase from \$524.6 billion in 2010 to \$922.0 billion in 2020, reflecting a 5.8% compound annual rate of growth (CAGR); comparable growth in spending between 2000 and 2010 was 8.9%. Applying a 7.5% CAGR to baseline Medicare spending of \$524.6 billion in 2010 implies expenditures of \$1,081.2 billion or approximately \$250 billion more than the CBO forecast.

The far lower growth rate is forecast by CBO despite an increase in the number of Medicare beneficiaries over the age of 65 years from 40.2 to 54.8 million - 3.9 million of whom are in the very expensive 75+ cohort.⁴² In comparison, the number of Medicare beneficiaries increased by 5.2 million during 2000-2010. (b) Medicaid spending is forecast to increase from \$401.4 billion in 2010 to \$908.0 billion in 2020, reflecting an acceleration of spending growth from 7.2% to 8.5% per annum. Medicaid enrollment increases from 53.7 to 83.5 million, +55.5% during the decade; an increase of 19.3 million, 34.3% is projected for 2014 alone. Despite the “bump” in 2014 enrollment, Medicaid spending is forecast to increase only by 20.3% that year. (c) The number of dual-eligible (elderly, disabled low income) recipients continues to grow at 200-400,000 per annum. Medicare pays for acute care spending, whereas Medicaid finances long term care. Healthcare expenditures for dual eligible recipients are nearly five times those of other Medicaid recipients.⁴³

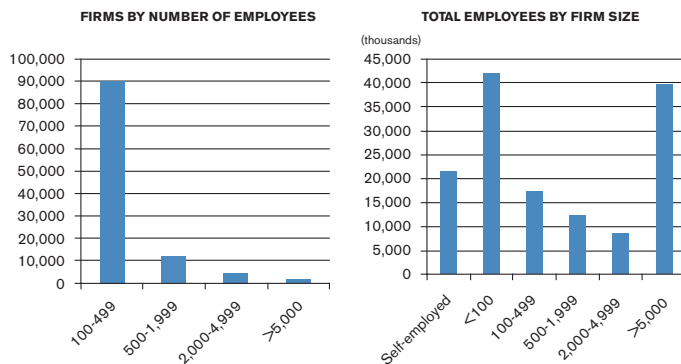
FIGURE 17: MEDICARE AND MEDICAID TRENDS



THE PPACA CREATES UNCERTAINTY REGARDING EMPLOYER INTENTIONS. WE BELIEVE COMPANIES WITH HIGH MEDICAL COSTS WOULD ABSORB PENALTIES TO SAVE MONEY, THEREBY TRANSFERRING EMPLOYEE COVERAGE TO HEALTH EXCHANGES; AND INDIRECTLY TO THE FEDERAL GOVERNMENT FOR TAX SUBSIDIES.

U.S. employers are challenged by rising healthcare insurance premiums. According to the U.S. Census Bureau, there are 142.6 million Americans that are either self-employed (21.7 million) or working at firms (120.9 million). 19,000 firms, those with more than 500 employees, account for one-half of firm employment; 5.8 million smaller firms account for the remainder. The vast majority of very large firms are self-insured, whereby the plan sponsor retains risk and pays the cost of health insurance claims.

FIGURE 18: U.S. EMPLOYMENT BY FIRM SIZE



Source: U.S. Census Bureau, 2007. There are also 5,821,277 firms with <100 employees

Health insurance exchanges were created by the PPACA to provide a “more organized and competitive market for health insurance by offering a choice of plans, establish common rules regarding the offering and pricing of insurance, provide information to help consumers better understand the options available to them and create an administrative mechanism for enrollment.”⁴⁴ Health exchanges will improve access to the uninsured, self-insured and employees receiving tax credits. They will initially be open to employers with less than 50-100 employees; beginning 2017, states can individually open the exchanges to larger companies. States will have broad operational discretion regarding implementation.⁴⁵

Employers with 50 or more full-time employees must “pay or play”; i.e., provide specified minimum levels of coverage to their employees or pay an excise tax. Employers who offer more than minimal coverage must provide a “free choice voucher” allowing eligible employees to utilize the company health plan or purchase coverage via the health exchange.

A major uncertainty exists as to whether employers currently offering health insurance to their employees will drop coverage for all their employees or only “sicker-than average” employee populations. This uncertainty applies especially to the 5.8 million firms employing 60 million Americans, an average of 10.3 employees per firm. A federal health insurance tax subsidy would significantly enhance firm profitability by reducing healthcare expenditures.

Will the availability of health exchanges accelerate the decline of the commercial health insurance market? Will health exchanges become the safety net for employer health insurance coverage and “drive” adverse selection to the federal government?

In mid-2011, McKinsey & Company released its findings from an attitude survey of 1,329 employers: “30 percent of respondents who said their companies offered employer sponsored health insurance said they would “definitely” [9%] or “probably” [21%] drop coverage in the years following 2014, the year the Affordable Care Act takes full effect.”⁴⁶ These results suggest a far greater willingness by employers to pay penalties than prior dropped coverage estimates from the CBO (1.0-2.0 million), CMS Office of the Actuary (1.0 million), the Urban Institute (0.5 million) and Lewin (3.0 million). RAND estimated that employer-based coverage could potentially increase by a maximum of 14.0 million employees; likely enrollment would actually be less.⁴⁷ If McKinsey is correct, the cost to the Federal government of exchange subsidies and related spending will be far higher than the CBO estimate of \$777 billion during 2012-2021.⁴⁸

FIGURE 19: FINANCIAL INCENTIVE TO DROP EMPLOYEE COVERAGE

	Employer Cost	Member Cost	U.S. Govt. Cost	Total Cost
As Is:				
Insurance premium (1)	\$10,944	\$4,129	\$0	\$15,073
Co-payments, deductibles and other out-of-pocket expenses (2)	NA	2,007	NA	2,007
Total	\$10,944	\$6,136		\$17,080
Via Health Insurance Exchange:				
Insurance premium	\$1,264	\$4,129	\$9,680	\$15,073
Penalty (3)	\$2,000		(\$2,000)	
Co-payments, deductibles and other out-of-pocket expenses (2)	NA	2,007	NA	2,007
Total	\$3,264	\$6,136	\$7,680	\$17,080

Source: Reschovsky J, Cassil A, Pham H. Center for Studying Health System Changes. Physician Ownership of Medical Equipment. Data Bulletin #36; December 2010

Our analysis suggests a high likelihood for smaller employers with a high percentage of employees eligible for tax credits to drop coverage in favor of health exchanges.

For example, let's assume the insurance premium for a family of four is \$15,073, the amount identified by the Kaiser Family Foundation for 2011. An employee earning \$61,463 or 2.75x the Federal Poverty Limit is eligible to receive a Federal tax credit of \$9,680 and have a maximum co-insurance cost of \$5,393. This would require the employer to pay an additional \$1,264 to ensure the employee does not pay more than their current insurance premium share or \$4,129. Adding the former figure, \$1,264 to a penalty of \$2,000 results in an employer healthcare cost of \$3,264 – 70% less than the \$10,944 paid prior to the advent of health exchanges and tax subsidies. In summary, the employer pays \$3,264, the employee \$4,129 and the Federal government via a tax subsidy \$7,680 for a total of \$15,073.

THE MASSACHUSETTS HEALTHCARE INSURANCE REFORM LAW CONTAINS AN INDIVIDUAL MANDATE. MASSACHUSETTS STARTED FROM A FAR LOWER PERCENTAGE OF UNINSURED AND A HIGHER LEVEL OF PER CAPITA PERSONAL CARE SPENDING THAN THE U.S. OVERALL. THE LAW FOCUSED ONLY ON INCREASING INSURANCE COVERAGE, AND NOT COST CONTAINMENT.

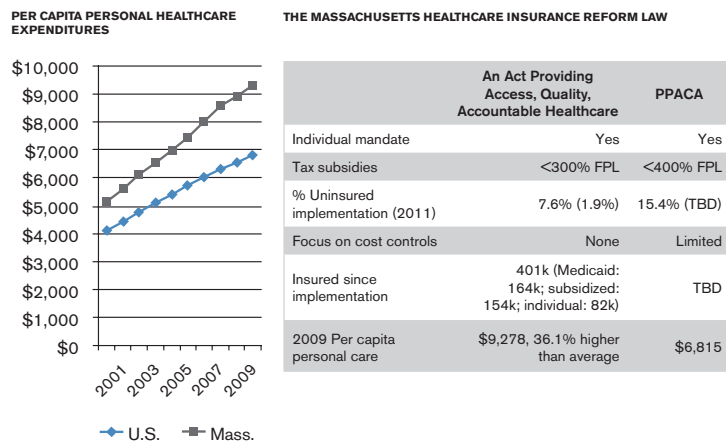
The Massachusetts Healthcare Insurance Reform Law, formally known as “An Act Providing Access, Quality, Accountable Healthcare,” was passed in April 2006 and

(a) mandates health insurance coverage, or a penalty for those without coverage (b) provides free coverage to residents ineligible for Medicaid and earning 100-150% of the federal poverty level (c) offers insurance premium subsidies to people earning between 150-300% of the FPL (d) and establishes a Health Connector, a health exchange connecting people with plans. The law started from a far lower percentage of uninsured and a higher level of per capita personal care spending than the U.S. overall. Preliminary data suggests it does not contain healthcare costs.

Nearly 125,000 people or 1.9% of the Massachusetts population did not have insurance coverage in 2010. These figures compare favorably with 48.5 million or 15.6% of the U.S. population not being insured. In 2006, at the time of the Massachusetts Healthcare Insurance Reform Law implementation, nearly 500,000 people, or 7.6% of the local population, was uninsured. Medicaid enrollees accounted for 44% of the increase, whereas those using the Connector (health exchange) accounted for the remainder.

Per capita personal care spending in Massachusetts of \$9,278 in 2009 was 36.1% higher than the U.S. average. The gap has widened somewhat since 2006. A focus on cost control was not an original component of the law; cost containment would be considered at a later point in time. In May 2012, Governor Patrick will submit a bill to the legislature for a global payment system based on risk adjusted annual fees for each patient enrolled in Medicaid or other state subsidized programs; state employees are also included.

FIGURE 20: MASSACHUSETTS HEALTHCARE INSURANCE REFORM LAW - ACCESS WITHOUT COST CONTROL



Source: Census, CMS and FactCheck.org

U.S. CARE DELIVERY: INEFFICIENT AND INEFFECTIVE

The U.S. healthcare delivery care system is inefficient. Care delivery is constructed to treat acute events in newly diagnosed patients or treat exacerbations in patients with an underlying chronic condition; 84% of all healthcare costs occur in patients with chronic conditions.⁴⁹ Primary and secondary prevention, key elements of chronic care management are not rewarded. Site and specialist transitions are poorly coordinated. Fee for service reimbursement encourages utilization. Misaligned stakeholders utilize lobbying effectively to influence public policy and regulation. Limited competition and transparency minimize price competition. Excessive fraud and abuse, and malpractice premiums and awards raise costs. Annual price increases by commercial insurers, Medicare and Medicaid are based on embedded inefficiencies, and thus perpetuate the current system.

The U.S. healthcare delivery system is also ineffective. A rapidly aging Baby Boomer and elderly population will significantly increase demand for healthcare services. Focus is not being provided to the 5% of the population accounting for nearly 50% of healthcare costs. Primary care physicians, the linchpin of chronic disease management remain underpaid, overworked and in short supply. Patients are people, not diseases or conditions carved up by specialists or insurance companies with limited care coordination, collaboration or continuity. Treatment adherence, resource utilization and lifestyle decisions are being affected by under-diagnosed and under-treated mood and anxiety disorders. Significant geographic and local variation in care delivery exists. End-of-life care received by dying patients is often inconsistent with their wishes. And, the lack of personal accountability affects the ability to make lifestyle changes and influence self-management.

The healthcare system, with exception, is broken and beyond repair. Disruptive transformation is required.

Inefficient Care Delivery

Embedded inefficiencies (sustained one year at a time)

The U.S. has a global reputation for healthcare research, physician excellence and facility comfort. Its academic medical centers are among the best in the world. The

majority of leading pharmaceutical, biotechnology, medical device and diagnostic companies have their headquarters in the U.S. Affluent patients from many countries come to the U.S. for treatment.

Satisfaction surveys of patient experience, such as the Consumer Assessment of Health Plans Survey (CAHPS) do not imply effective or efficient care. A recently published study found that “higher patient satisfaction was associated with lower emergency department utilization, higher inpatient utilization, greater total health care expenditures, and higher expenditures on prescription drugs. The most satisfied patients also had statistically significantly greater mortality risk compared with the least satisfied patients.”⁵⁰

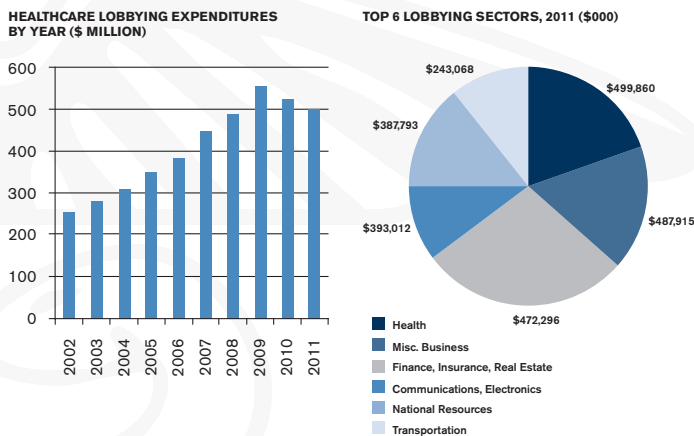
The U.S. has, by far, the most expensive healthcare system in the world. Inefficiencies in care delivery, especially during transitions from physician-to-physician and site-to-site are exacerbated by a fee-for-service model promoting volume not outcomes. The healthcare industry is comprised of a disparate group of stakeholders, many driven by revenue and profit growth.

FIGURE 21: HEALTHCARE STAKEHOLDERS

Patients and their caregivers	Employers	Government	Providers	Insurance companies	Suppliers
	Self-insured	Federal	Hospitals		Pharmaceutical
	Small-to-mid size companies	State	Nursing homes		Devices
		Local	Home care		Medical and surgical supplies
			Physicians Nurses and other professionals		Durable medical equipment

Government cost containment strategies have focused on a reduction in Medicare and Medicaid payment to physicians, hospitals and other providers; it has not facilitated a transformation in care delivery. Cost shifting to private payers has increased. Network contracting remains a tactical focus for insurers. Healthcare lobbying exceeds that of all other industries and has affected policy and regulations.

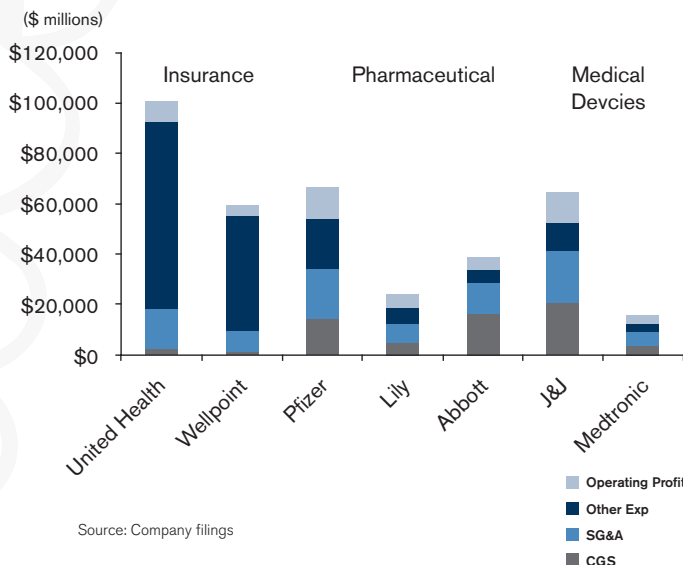
FIGURE 22: HEALTHCARE LOBBYING EXPENDITURES



Source: Center for Responsive Politics. OpenSecrets.org

Healthcare remains among the most profitable industries in the U.S. Operating profits as a percentage of sales range from a low of 6.6% (Wellpoint) to a high of 24.3% (Medtronic). Selling, general and administrative expenses (SG&A) range from 14.1-15.3% for the insurers to 28.9-34.7% for suppliers, and exceed R&D investment levels for all companies – even pharmaceuticals.

FIGURE 23: COMPANY EXPENSE ANALYSIS



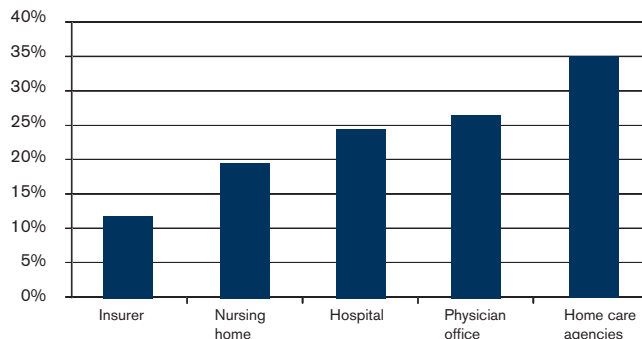
Source: Company filings

Maintaining the status quo (i.e., a fragmented care delivery system) remains desirable for many stakeholders. Transforming care delivery requires a multi-year strategic effort by payers demanding change. It requires persistence, risk taking, a team-based approach and the need to overcome an innate and system wide resistance to change. Visionary leadership, combined with an ability to execute in an effective and efficient manner, remains in short supply.

Federal and state governments, as well as for-profit healthcare companies generate annual budgets assuming efficient spending; financial analyses focus on year-to-year changes and not the absolute level of spending. Zero-based budgeting represents an alternative approach to the current financing methodology. It requires approval of each line item; reviews usually include a detailed analysis of cost drivers and the identification of inefficiencies. Justification is required for continuation of an inefficient approach, process or output. Given the level of inefficiency, zero-based budget would reinforce the need for disruptive transformation.

Administrative expenses remain difficult to measure. Reported figures include 10-14% for private insurer non-medical costs, excluding profits (14-22% with profits) and 3-8% for Medicare.⁵¹ Administrative costs per enrollee are dependent upon the leverage of fixed costs across a large number of enrollees, as well as high medical costs per enrollee. Medicare has a large number of high cost (older) enrollees administered by relatively few subcontractors. The comparatively low internal administrative insurance costs must be considered in the context of the imposed external administrative burden placed on patients and providers.

FIGURE 24: COSTS OF HEALTH ADMINISTRATION



Source: Woolhandler S, et al. Costs of Health Care Administration in the U.S. and Canada. NEJM 349 (8); p768-775. August 21, 2003

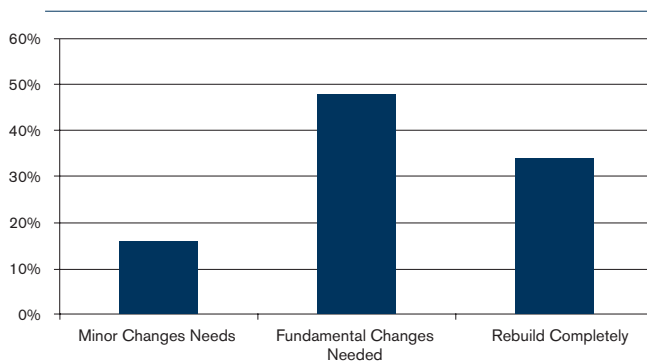
In 2003, the New England Journal of Medicine published an article entitled, “Costs of Health Care Administration in the U.S. and Canada” that estimated a gap of 14.3 percentage points in administrative spending between the respective nations. The data, though somewhat dated, is still relevant as the penetration of information technology within physician offices and other providers has been extremely limited until passage of the HITECH Act in 2009.

Canada has a single-payer system, whereas the U.S. does not. Note, however, the U.S. is already a one-half single payer system via Medicare and Medicaid expenditures accounting for > 50% of health insurance payments (excluding out-of-pocket payments, workers compensation and other state and local programs).⁵²

The high cost of health administration in the U.S. reflects a highly fragmented care delivery system driven by volume without adequate care coordination and information liquidity. Paperwork remains excessive; revenue cycle management a growth industry. The percentage of the health labor force involved in administrative or clerical activities, excluding insurance company personnel was estimated at 27.3% in 1999.⁵³

A Commonwealth Fund International Health Policy survey from 2007 found the U.S. lagging other nations in terms of (a) administrative errors; i.e., 32% of adults with chronic conditions reported a medical, medication or lab test error in past two years (b) physician access; i.e., 30% of respondents report not being able to get same day appointments and 67% cannot get appointments on nights, weekends and holidays (c) physician comprehension and time constraints (d) care coordination problems and (e) paperwork, insurance and billing disputes. One-third of U.S. respondents believe the healthcare delivery system needs to be completely re-built; i.e., transformed.⁵⁴

FIGURE 25: OVERALL VIEWS OF HEALTHCARE SYSTEM



Source: 2007 Commonwealth Fund International Health Policy Survey. The margin of sample error for the U.S. is approximately ±2 percent (n=2,500)

Reimbursement complexity and financial incentive for volume

Reimbursement is defined as a “payment made by a third party, usually an insurance company to a hospital, physician, or other health care provider for services rendered to an insured/beneficiary”.⁵⁵ The reimbursement is (a) established by the government for Medicare and Medicaid or (b) negotiated by an insurance company with its networks of providers; e.g., physicians, hospitals, diagnostic and imaging labs. Medicare, and in particular, Medicaid rates are usually below those of commercial insurers.

Healthcare is one of the only industries where beneficiaries have exceedingly limited knowledge of actual costs; price negotiation, with rare exception, does not occur at the consumer level. The value proposition is not understood. Similar to the airline industry, the level of payment may vary dramatically from payer to payer for the same service. And lastly, determinants encompassed in payment formulas are complex, and may be subjective and susceptible to lobbying efforts by special interest groups.

Diagnostic Related Groups (DRG’s), prospective payments, per diem payments, carve outs, stop loss provisions, case rates, risk-adjustments, fee schedules and discounted bill-to-charge ratios are part of the insurance vernacular. Consumers are also extremely confused with separate bills from the hospital, laboratories, imaging centers, physicians and others for each distinct activity; aggregate treatment costs are nearly impossible to ascertain.

Every year, the American Medical Association issues the National Health Insurer Report Card, a composite analysis of insurance company performance inclusive of claim accuracy, cash flow, and administrative requirements - prior authorization, denials and payment timeliness.⁵⁶ Accurate coding “capture” is essential for provider revenue enhancement. In 2011, the reported average claims processing error by commercial insurers for physician submissions was 19.3%, a figure that is exceedingly high and unsustainable for most other industries.⁵⁷

Fee-for-service (FFS) reimbursement is a “healthcare payment method in which providers receive payment for each service rendered. Sometimes, there is little relationship between the actual costs to provide a service and its charge.”⁵⁸ Fee-for-service reimbursement fosters the utilization of healthcare services and fragmentation of the care delivery process. Care delivery, with its requirement for transitions among providers and across sites is a team activity that is not rewarded until recently, with the advent of the patient centered medical home and episodes of care pilots.

Fee-for-service reimbursement begets volume growth. For example, the cumulative volume of Medicare imaging procedures increased 85% in 2000-2009, a figure nearly double the growth of all physician services (47%).⁵⁹ The ownership and/or leasing of medical equipment among physicians is a contributor to the volume growth, especially for high cost, non-routine advanced imaging, non-invasive and invasive procedures.⁶⁰ In-office self-referral for imaging tests is allowed under an exception from the Stark Law.

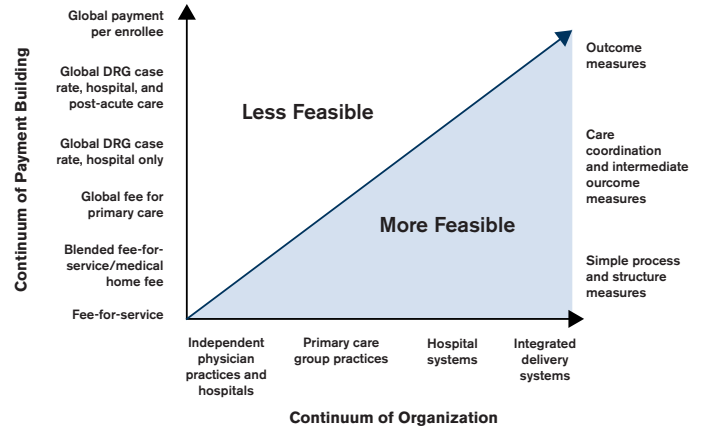
FIGURE 26: OWNERSHIP / LEASING OF MEDICAL EQUIPMENT BY SPECIALTY

		Clinical Lab	X-Ray	Advanced Imaging	Non-Invasive Procedures	Invasive Procedures
All Physicians	100%	25.2%	22.7%	17.4%	28.9%	11.4%
Adult primary care	30.0	35.2	27.1	10.6	39.9	6.3
Pediatricians	7.8	46.2	14.5	4.8	16.6	2.7
Non-procedure based specialists	18.3	18.5	17.4	13.5	19.7	6.7
Procedure based specialists	13.0	18.6	15.1	15.7	43.9	20.9
Surgical specialists	30.9	16.8	27	30.3	20.5	17.5

Source: Reschovsky J, Cassil A, Pham H. Center for Studying Health System Changes. Physician Ownership of Medical Equipment. Data Bulletin #36; December 2010

We believe prospective reimbursement methods, based on establishing payment rates for pre-specified services and time periods, will be required to improve efficiency; average levels of resource use by clinical risk groups based on condition severity and complexity can be calculated to estimate costs.⁶¹ Shared financial risk represents a strong incentive for cost management. Quality and outcome measures are needed to also ensure clinical effectiveness. Adequate compensation for primary care physicians is essential.

FIGURE 27: ORGANIZATION AND PAYMENT METHODS

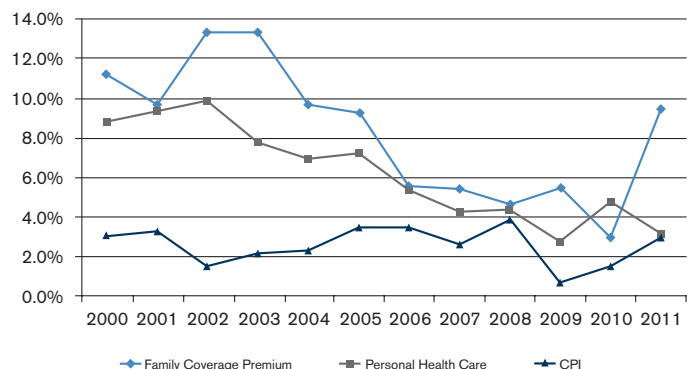


Source: The Path to a High Performance U.S. Health System: A 2020 Vision and the Policies to Pave the Way, Commonwealth Fund, February 2009

Oligopolistic price competition, combined with lack of price transparency

During the past decade, the growth of family and individual coverage premiums has exceeded those of personal health care expenditures and the Consumer Price Index every year except 2010. Insurance premiums that year reflected the impact of the healthcare reform debate in Washington that occurred the prior year. The 2011 spike in insurance premiums generated inordinate profits based on continued medical cost trend moderation. In 2012, in New York State, insurance premiums increased another 8.2%, far beyond the healthcare inflation rate. More broadly, the Health and Human Services reported excessive health insurance spikes in nine states, as high as 24%.^{62, 63}

FIGURE 28: SUSTAINABLE PRICING FOR PROFIT GROWTH



Price competition within the insurance industry is limited. A large number of plans are available from only a few companies based on a variable array of benefits, deductibles and co-payments that are difficult for the majority of Americans to understand. Price transparency at the physician, procedure and hospital level is non-existent; comparison shopping cannot occur. A well-respected analysis from 2002-3 suggested that the largest three plans in any given market control >50% market share, and in only fourteen states do they control less than 65%.⁶⁴ Significant industry consolidation has occurred within the past ten years. A hearing was held by the House Ways and Means Health Subcommittee on September 9, 2011 “to examine how private health insurance costs, Medicare spending, and beneficiary costs are impacted by mergers and acquisitions in the health care sector”.⁶⁵ The largest twenty-five companies account for two-thirds of insurance premiums.⁶⁶

FIGURE 29: TOP 25 HEALTH INSURANCE COMPANIES

- | | |
|--------------------------------------|--|
| ▪ United Healthcare | ▪ Blue Cross Blue Shield of NJ |
| ▪ Wellpoint | ▪ Blue Cross Blue Shield of Florida |
| ▪ Kaiser Foundation | ▪ Regence |
| ▪ Aetna | ▪ Blue Cross Blue Shield of Massachusetts |
| ▪ Humana | ▪ Carefirst |
| ▪ HCSC | ▪ Wellcare |
| ▪ Coventry Corp | ▪ HIP Insurance |
| ▪ Highmark | ▪ Metropolitan |
| ▪ Independence Blue Cross | ▪ Unumprovident |
| ▪ Cigna | ▪ Universal American Financial Corp |
| ▪ Blue Cross Blue Shield of Michigan | ▪ Lifetime Healthcare |
| ▪ HealthNet of California | ▪ Blue Cross Blue Shield of North Carolina |

Source: National Association of Insurance Commissioners

Commercial insurance companies recognize the growth opportunities associated with the “reimbursement constrained” government funded sectors. Medicaid Managed Care penetration rates were 72% in 2010; significant variation exists by state.⁶⁷

Enrollment in Medicare Advantage is only 25%, though growing rapidly.⁶⁸ Medicare has been reducing Medicare Advantage payments, largely offset by commercial insurers via provider contracting, more efficient claims management and enhanced clinical integration.⁶⁹

Oligopolistic competition also exists in most pharmaceutical, medical device and diagnostic product segments. Pharmaceutical companies have introduced an increasing number of high cost specialty biologic products targeting

relatively small patient populations. Lobbying efforts on behalf of patient advocacy groups have been extremely successful in mobilizing public support and negating the potential impact of comparative effectiveness data and cost constraints. Oncology drugs remain sacrosanct despite limited extensions to median survival; i.e., many drugs “work” in a relatively few patients and have minimal, if any impact in most others.

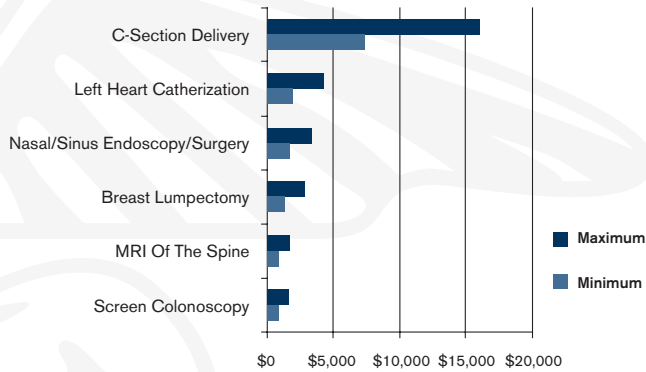
The medical device and diagnostic sectors have consolidated during the past 10-20 years; the majority of high-end market segments such as orthopedic implants, coronary stents and defibrillators have only 3-5 major competitors. New products are often introduced to gain market share or sustain prices. Price competition is limited due to a lack of comparable product offerings on a discounted basis. The use of physician consulting arrangements to support specific manufacturer offerings has declined during the past few years following increased regulatory scrutiny. The strategic quandary for medical device and diagnostic companies is the potential for a product mix downgrade (i.e., lower profitability) if they introduce lower priced, value-based products that cannibalize their own higher priced offerings.

High prices are sustainable given high barriers to competitive entry, such as R&D investment and sales force coverage requirements.

Unlike other consumer markets, price transparency in healthcare does not exist. Insurance typically covers 80% of in-network and 60% of out-of-network costs. Allowable charges reflecting the commercial insurer network discounts are based off billable charges – itself a source of uncertainty. Copayments and deductibles add confusion. Distinct physician and facility fees exist. A consumer price list comparing specific physician services i.e., cognitive, diagnostic, and procedural across various settings does not exist.

In March 2011, The Detroit Free Press provided examples of significant procedural price disparity within the Detroit metropolitan area.⁷⁰ The minimum reflects the best negotiated discounts by insurers, whereas the maximum is charged to patients paying cash for services.

FIGURE 30: OWNERSHIP / LEASING OF MEDICAL EQUIPMENT BY SPECIALTY



Source: Patricia Anstett. Shopping Comes to Healthcare: More Hospitals Post Prices, Negotiate Costs. Detroit Free Press; March 4, 2011

Infatuation with technology (if reimbursed)

Healthcare technology has been re-defined with passage of the Health Information Technology for Economic and Clinical Health (HITECH) Act in February, 2009. According to the Office of the National Coordinator for Health Information Technology, “the provisions of the HITECH Act are specifically designed to work together to provide the necessary [financial] assistance and technical support to providers, enable coordination and alignment within and among states, establish connectivity to the public health community in case of emergencies, and assure the workforce is properly trained and equipped to be meaningful users of electronic health records. Combined, these programs build the foundation for every American to benefit from an electronic health record, as part of a modernized, interconnected, and vastly improved system of care delivery”.⁷¹ Unfortunately, ease-of-use issues, interoperability constraints and a shortage of skilled healthcare IT personnel will hinder Federal goal attainment.

FIGURE 31: IMPACT OF HITECH ACT

Stage	Cumulative Capabilities	Stage	2007	2008	2009	3Q10	3Q11
7	Medical record fully electronic; HCO able to contribute CCD as byproduct of EMR; data warehousing in use	7	0.0%	0.3%	0.7%	1.0%	1.1%
		6	0.3	0.5	1.6	2.8	4.4
6	Physician documentation (structured templates), full CDSS (variance, compliance), full R-PACS	5	1.9	2.5	3.8	3.7	7.1
		4	2.2	2.5	7.4	10.3	13.2
		3	25.1	35.7	50.9	49.7	46.1
5	Closed loop medication administration	2	37.2	31.4	16.9	15.4	12.6
4	CPOE, CDSS (clinical protocols)	1	14.0	11.5	7.2	6.7	5.9
3	Clinical documentation (flow sheets), CDSS (error checking), PACS outside radiology	0	19.3	15.6	11.5	10.5	9.6
		Survey Hospital	5,073	5,166	5,235	5,233	5,299
2	Ancillaries - Lab, Radiology, Pharmacy - installed						
1	All three ancillaries not installed						
0	Medical record fully						

Source: HIMSS Analytics

Pharmacogenomic studies determine the variation of drug response based on the genetic profile of a specific patient. Herceptin, a drug for breast cancer is only administered to patients with HER2 receptors found on the tumor sample extracted during biopsy. The promise of genomics, also known as personalized medicine surpasses the reality of understanding as quoted by George Church, “zero dollar sequencing and a million dollar interpretation”. A lot of sequenced DNA exists within research labs that have little meaning, at least for now.

Innovations in medical devices are often driven by entrepreneurial companies that are subsequently purchased by larger, better capitalized entities. Approximately 6,000 companies, many having fewer than 100 employees, comprise the industry.⁷² Established technologies includes implantable devices such as defibrillators, pacemakers, stents, hips and knees; catheters, such as those used in cardiovascular, peripheral vascular and urological procedures; diagnostics for blood, urine and body fluid testing; and capital equipment used in robotic surgery and radiotherapy. Technological progress has led to a reduction in mortality, morbidity and disability in targeted indication, though often at a high price. Many devices cost hundreds, if not thousands or tens of thousands of dollars. Robotic and radiotherapy technology platforms may cost millions of dollars.

The FDA classifies medical devices into three categories based on risk and the need to prove effectiveness. However, FDA approval does not guarantee safety and effectiveness in the broader medical community or in the hands of less-skilled practitioners. At times, a larger number of patients are required to identify problems that occur infrequently or after a period of several years.

For example, percutaneous vertebroplasty, a minimally-invasive image guided procedure involving the injection of medical cement (PMMA) into the vertebral bodies was used for the treatment of spinal compression fractures for nearly ten years without adequate evidence that it was effective. Approximately 750,000 Americans suffer from this painful condition each year.

A four-year clinical trial completed in 2008 showed no difference in pain and pain-related disability improvements in patients with osteoporotic compression fractures treated with vertebroplasty and the “sham” control group (i.e., that did not have an injection).⁷⁴ Until the study results were released, Medicare was spending \$120 million (\$3,000 x 40,000 procedures/year) for a procedure that was ineffective. Despite the results, the procedure remains reimbursed by Medicare.

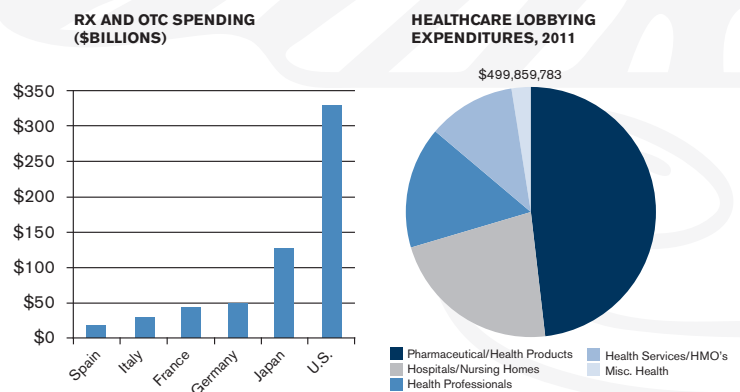
A more complex example involves the common practice of stent implementation rather than standard medical (pharmaceutical) therapy for the treatment of stable (non-acute) coronary artery disease. Approximately 1.0 million stents are implanted each year at the cost of \$30-50,000 per procedure.⁷⁵ In a meta-analysis of eight clinical trials comparing stent implantation with standard medical therapy (beta blockers, statins, ACE inhibitors and daily aspirin), there was no difference in the prevention of chest pain, heart attack, unplanned revascularization and death.⁷⁶ Treatment with medicine is a far more cost-effective approach.

High pharmaceutical prices and inadequate drug adherence

U.S. drug spending far exceeds that of other developed markets despite the widespread availability of generics accounting for 75-80% of prescriptions.⁷⁷ Pharmaceutical prices in the U.S., especially for new biologics and cancer drugs, are exceedingly high; constraints to utilization are also far lower. For example, the cost of Novartis’ Afinitor for kidney and pancreatic cancer is \$10,000 per month.⁷⁸ Oncology drug spending increased fourfold from \$5.0 billion in 1998 to \$19.2 billion in only ten years.⁷⁹ The U.K. National Institute for Health and Clinical Excellence (NICE) recently rejected (provisionally) the J&J drug abiraterone, shown to extend the life of advanced prostate cancer patients by three months

due to insufficient value; i.e., “the drug benefits are insufficient to justify the price”.⁸⁰ Germany requires comparative effectiveness data to justify higher prices for new products.⁸¹

FIGURE 32: PHARMACEUTICAL SPENDING



Source: NY Times, February 24, 2012. Business Monitor International

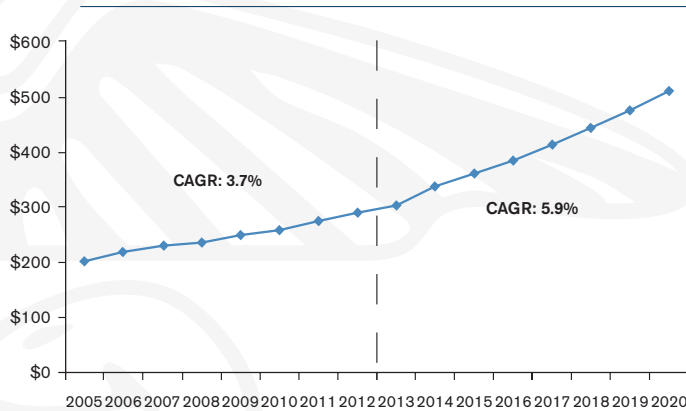
Source: Senate Office of Public Records. Center for Responsive Politics

Spending is driven by differences in population, and more importantly, the premium prices paid in the U.S. relative to other countries. Drug costs in Europe are 40% below those in the U.S. for the most popular drugs.⁸² Drug re-importation, currently banned in the US, would facilitate lower prices and reduce the price differential among global markets.

Generic drugs dispensed in retail drug stores and long-term care settings account for 78% of all prescriptions, but a far lower percentage on a dollar basis.⁸³ Difficult to manufacture generic oncology drugs, such as Doxil and Methotrexate, and regulated generic ADHD drugs, such as Adderall, are in short supply. According to the Bergen Record, a local newspaper serving an area adjacent to New York City, “a record 267 drugs were in short supply or completely unavailable in 2011, affecting 550,000 patients nationwide.”⁸⁴ Generic drugs, unlike branded products have lost their patent protection, and thus pricing power. Financial incentives, combined with strict quality standards are required to ensure an adequate and safe supply.

Opportunities also exist to facilitate the introduction of generic biosimilars, products generated by a biologic, recombinant DNA process rather than chemical synthesis. Examples include erythropoietin, growth hormone, monoclonal antibodies and immunoglobulins. Estimates of potential ten year cost savings range from \$42-108 billion. The FDA is still grappling with the generation of appropriate regulations, thereby delaying the introduction of competitive products to existing high cost biologics.⁸⁵

FIGURE 33: RETAIL OUTLET SALES OF PRESCRIPTION DRUGS

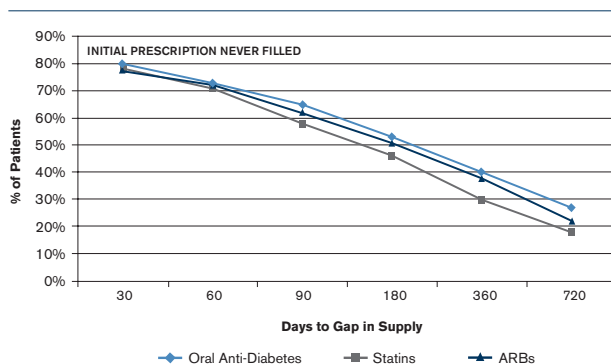


Source: CMS Office of the Actuary, Table 11. Projections include impact from the Affordable Care Act

The CMS Office of the Actuary forecast the prescription drug market to double and reach \$513 billion by 2020. A larger insured population, combined with fewer patent expirations and the introduction of expensive new drugs drive growth. Pharmaceutical companies derive the majority of their profits from the U.S. market.

Patient medication adherence is essential for primary and secondary prevention; i.e., preventing disease onset and / or reducing the severity complications associated with the condition. Twenty percent of patients on a new medication do not fill their prescription; only 50% are adherent at six months. Opportunities exist to improve adherence and reduce overall medical costs by providing low cost generic drugs at no charge or at a significant discount. Targeted drugs include anti-hypertensives to reduce blood pressure, statins to lower cholesterol levels, and beta blockers, aspirin, and calcium channel blockers to better manage congestive heart failure outcomes.⁸⁶

FIGURE 34: MEDICATION ADHERENCE



Source: Yeaw J, Benner et al. Comparing Adherence and Persistence Across 6 Chronic Medication Classes. Journal of Managed care Pharmacy, Nov / Dec 2009; Volume 15(9): 728-40

Excessive fraud and abuse

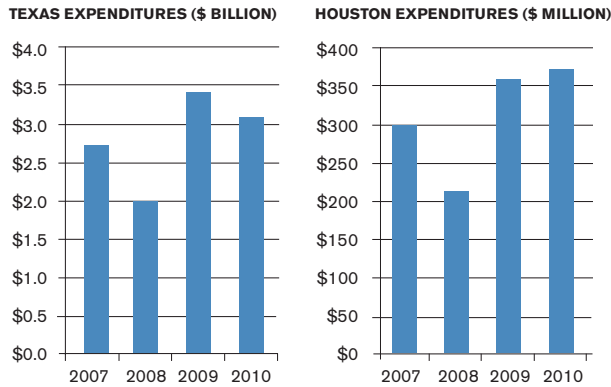
In March 2011, Kathleen King, Director, Health Care and Kay Daly, Director, Financial Management and Assurance testified in Congress that the Government Accounting Office (GOA) had “designated Medicare and Medicaid as high-risk programs because they are particularly vulnerable to fraud, waste, abuse and improper payments (payments that should have not been made or were made in an incorrect amount).”⁸⁷ Over 1.2 billion Medicare claims are processed each year, with no “human involvement.”⁸⁸ In fiscal 2010 (ending in October), CMS estimated Medicare and Medicaid had made over \$70 billion in improper payments.¹¹⁶

The FY2011 Federal budget, ending October, included “a record \$1.7 billion to fight waste, fraud, and other improper payments”; recoveries totaled \$4.1 billion.⁸⁹ Recoveries included \$1.3 billion in “criminal fines, forfeitures, restitution and disgorgement” from the pharmaceutical and device manufacturing industry, more than \$1.0 billion from criminals “masquerading as health care providers or suppliers” and \$1.7 billion elsewhere.⁹⁰

In June 2009, President Obama highlighted McAllen, Texas as a high cost healthcare market. Medicare reimbursement in Texas, as elsewhere varies widely by region from \$7,774 per annum in Temple, home of Scott & White Healthcare to \$15,695 in McAllen. The disparity in spending for home care is even greater, 7.3x; i.e., \$579 as compared to \$4,233.⁹¹ A Healthcare Fraud Working Group was operational in McAllen in 2009.⁹²

In December 2011, the Houston Chronicle reported, “The nation’s Medicare program has dished out \$1.25 billion for home-based health care in Houston over four years - and yet nearly every agency that provides nurses, therapists and drugs for the elderly and disabled has violated state and federal standards, an [internal] investigation has found.”⁹³ Houston with a population of 2.1 million is a relatively young city, with only 9.0% of the population > 65 years.⁹⁴ Assuming 31.2% of the elderly in Houston receive home care services, a figure in-line with published data implies a recipients cost of \$6,327; if all elderly residents receive home care, the recipient cost is \$1,974.⁹⁵ Both these figures are far higher than the U.S. average.⁹⁶ In 2010, there were 468 home health agencies in Houston, with nearly 28% receiving >\$1.0 million from Medicare.

FIGURE 35: HOME HEALTH CARE PAYMENTS: MEDICARE

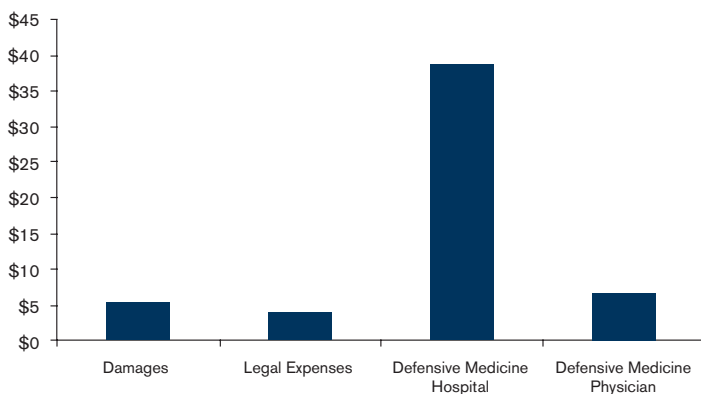


Medicare fraud and abuse occurs throughout the U.S. Florida, Nevada, Oklahoma and Illinois were states cited by the Government Accountability Office and Senator Charles Grassley for its high rate of growth in Medicare home health spending in 2002-06.⁹⁷ In 2006, First American Health Care of Georgia, a home health care agency agreed to reimburse the government for \$255 million in fraudulent claims; only \$19.1 million was collected due to bankruptcy.⁹⁸ Fraud and abuse also occurs in areas outside of home care, as well as within the commercial insurance sector.

Medical malpractice, product liability and patient safety

The cost of medical malpractice has been estimated at \$55.6 billion, with eighty percent of the costs related to defensive medicine; i.e., unnecessary tests and procedures.⁹⁹ Data suggests that the physician perception of risk actually exceeds its reality.¹⁰⁰

FIGURE 36: COST OF MEDICAL MALPRACTICE



Source: Mello M et al. National Costs of the Medical Liability. Health Affairs. September 2010; Vol. 29(9): 1569-1577. Malpractice premium costs are included in damages and legal expenses

The Obama administration has provided \$25 million in funding to seven states for a Medical Liability Reform and Patient Safety Demonstration, beginning June 2010. Goals include taking “steps to ward off lawsuits: reducing preventable instances of harm in hospitals; informing patients promptly when they've been injured; providing prompt compensation; and engaging in court-directed dispute resolution to achieve rapid settlements in cases of injury.”¹⁰¹ Open and timely communications are essential.

Pharmaceutical, device and diagnostic companies are also subject to liability risk and class action suits, even when supporting scientific and clinical evidence does not exist. For example, in May 1995, Dow Corning declared bankruptcy after agreeing the previous year to contribute nearly 50% of a \$4.2 billion pool to compensate women who received silicone gel breast implants.¹⁰² Dow Corning subsequently exited bankruptcy after agreeing to contribute \$3.2 billion for settlement. In June 1999, the Institute of Medicine released an independent report concluding “that although silicone breast implants may be responsible for localized problems such as hardening or scarring of breast tissue, implants do not cause any major diseases such as lupus or rheumatoid arthritis.”¹⁰³ Billions were spent for a case unsupported by the evidence.

The U.S. silicone breast implant situation is far different than the ongoing Poly Implant Prosthesis S.A. litigation in Europe and elsewhere involving an unscrupulous company substituting medical-grade with commercial-grade silicone, leading to a propensity for early rupture.¹⁰⁴

A more typical product liability case involves J&J’s Depuy ASR, metal-on-metal hip that was marketed on a global basis despite growing evidence of severe injuries and in many instances, premature failure necessitating removal; 93,000 patients worldwide received the implant.¹⁰⁵ The FDA approved the ASR in 2005 without supporting clinical trial data. The ASR was voluntarily withdrawn from the US market more than one year after the FDA rejected a related hip resurfacing product in August 2009.

Malpractice and product liability are a complex issue; patient safety remains a concern. A few disheartening statistics: (a) between 44,000 and 98,000 Americans die each year in U.S. hospitals due to preventable medical errors (b) 99,000 patients die as a result of hospital-acquired infections (HAI) each year and (c) at least 1.5 million Americans are sickened, injured or killed each year by medication related errors.^{106, 107, 108}

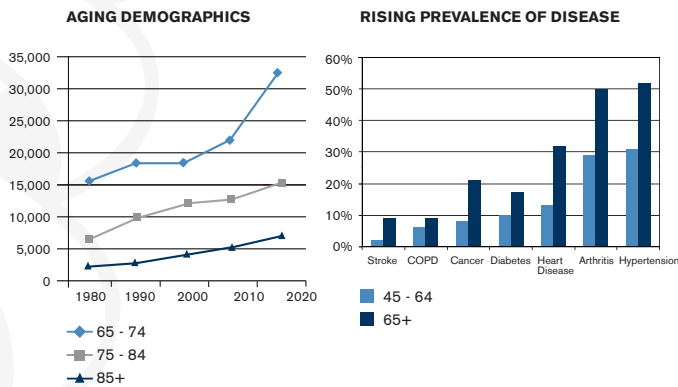
Malpractice reform was not included in the PPACA. A penalty for hospital acquired infections was included; additional patient safety initiatives are possible

Ineffective Care Delivery

Aging demographics and chronic disease

During the next ten years, the Census Bureau projects an increase in the population > 65 years old from 40.2 million to 54.8 million; from 12.9% to 16.1% of the total population.¹⁰⁹ Population growth is being driven by aging Baby Boomers and those >75+ years old. Disease prevalence, as well as condition severity and complexity increase with age.

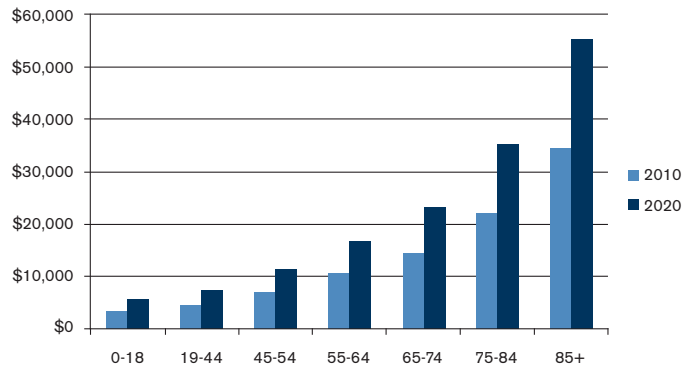
FIGURE 37: AGING AND DISEASE



Source: U.S. Census Bureau

Healthcare costs increase with age, especially for those >75 years. Per capita personal health care spending is forecast to increase from \$7,080 in 2010 to \$11,351 in 2020, reflecting a 4.8% compound annual growth rate. Despite the aging population, CMS projects a declining compound annual rate of Medicare healthcare spending growth, in 2010-2020 (5.8%) relative to the prior decade (8.9%).

FIGURE 38: PER CAPITA PERSONAL HEALTH EXPENDITURES BY AGE



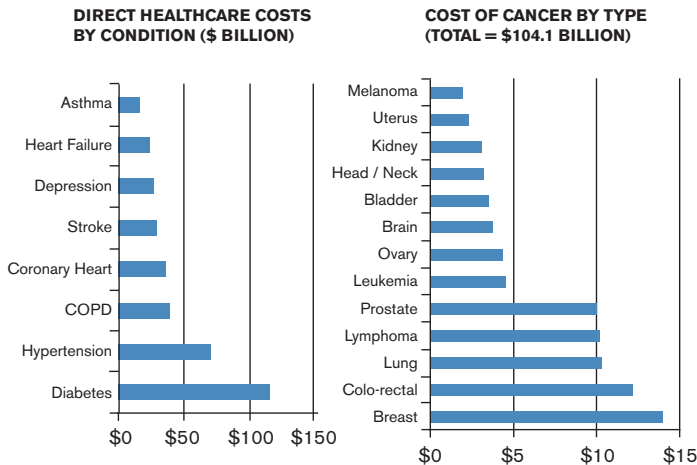
Source: 2020 estimates based on the National Health Expenditures released January 2011; projections include impact of the Affordable care Act. Note: Per capita costs in 2010 and 2020 by age cohort based on 2004 CMS data; i.e., ratio of per capita costs by age relative to the total per capita estimates by CMS

THE SICKEST FEW: 5% OF AMERICANS ACCOUNT FOR 49% OF EXPENDITURES

Healthcare spending is highly concentrated; 5% of the population account for 49% of total expenditures. Conversely, 50% of the population account for only 3% of spending.¹¹⁰ Based on Agency for Healthcare Research and Quality (AHRQ) data being applied to 2010, the highest spending 1% of the population or 3.1 million people account for 22% of total Personal Health Care Expenditures (\$477 billion) or \$153,643 per person. A similar analysis for the next highest spending cohort, 2-5% of the population suggests spending of \$47,141 per person. These results are approximations and reinforce the perception of “out-of-control” spending in the U.S.

Spending is highest among those with several co-morbid chronic medical conditions driven by re-current hospitalization, primary care and specialty visits, extensive testing, multiple prescriptions and home care services. Cancer, with the use of extensive diagnostic testing, expensive anti-neoplastic drugs, and other life prolonging interventions represents another source of concentrated spending. Approximately 1.6 million people were diagnosed and 570,000 died from cancer in 2011.¹¹¹

FIGURE 39: HEALTHCARE SPENDING BY CONDITION



Source: (1) National Diabetes Fact Sheet, 2011 (2) Circulation 2011 March; 123(8): 933-944 (3) Foster TS, et al. COPD 2006 Dec; 3(4): 211-8 (4) Greenberg P, et al. J Clin Psychiatry 2006 Dec, 64: 12 (5) National Cancer Institute. Cancer Trend Progress Report: 2005-10 Update

Healthcare costs can be direct, related to patient care and indirect, associated with productivity losses. For example, investigators estimated the direct costs of depression in 2000 at \$26.1 billion, and indirect costs of \$56.9 billion, primarily related to lost workplace productivity.¹¹² Employers as well as patients are increasingly interested in an accelerated rehabilitation, minimal disability and an enhanced quality of life - factors not always captured in a cost analysis.

Shortage of empowered primary care physicians

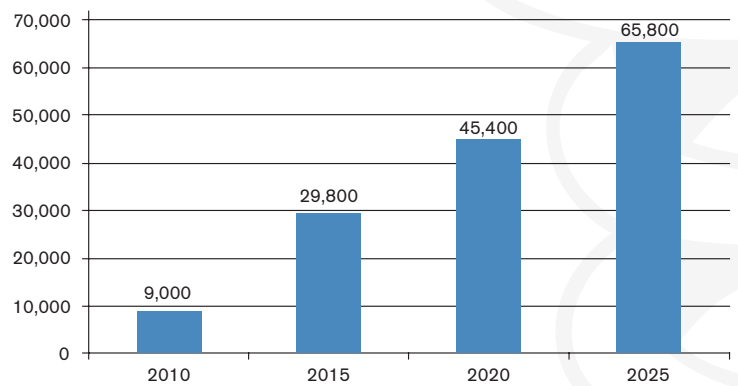
Primary care physicians, a term including internists, family practitioners and pediatricians usually serve as the initial source of diagnosis, treatment and depending upon the health plan, “gatekeeper” to specialist consultation. They also collaborate with specialists and attempt to coordinate care delivery. According to the Bureau of Labor Statistics, the mean wage of primary care physicians is \$189,480, a figure substantially below that of procedure-oriented medical specialists and surgeons.¹¹³

Due to supply and reimbursement constraints, primary care physicians have a limited amount of time to address the chronic care needs of most patients, i.e., lifestyle issues, risk factors, co-morbidities, medications and mental health concerns. The actual time spent by primary care physicians in face-to-face consultation and on visit-specific work outside the examination room has been reported to range from 13.3 to 18.7 minutes.¹¹⁴

In 2005, there were 264,086 primary care physicians. The U.S. Department of Health and Human Services prior to the PPACA, forecasts the number of primary care physicians to reach 271,440 by 2020, compared to a projected need of 337,400.¹¹⁵

A more recent forecast generated by the American Association of Medical Colleges Center for Workforce Studies in June 2010, inclusive of the PPACA, suggested equivalent shortage is suggested, though paradoxically five years later in 2025.¹¹⁶ The PPACA will increase the number of insured Americans by 32 to 34 million, thereby increasing the demand for primary care services; its impact will vary by market.

FIGURE 40: SHORTAGE OF PRIMARY CARE PHYSICIANS



Source: AAMC. The Impact of health care reform on the future supply and demand for physicians: Updated projections through 2025. June 2010

The shortage of primary care physicians is also occurring during a period of rapid population growth for those over 65 years of age. Its impact will vary by state, locale (urban, rural) and year. The number of people over 65 years per primary care physician increases from 145 to 197 between 2010 and 2020, respectively, with the largest and most rapidly aging populations, such as those in Arizona and Florida, exhibiting the greatest shortage. Physician extenders such as nurse practitioners and physician assistants combined with the use of telehealth and other enabling technologies will be necessary to fill the gap.

FIGURE 41: PRIMARY CARE SHORTAGE BY STATE

Population >65 to Primary Care Physicians	2010	2020
<125	AK, CO, MD, MI, NH, NY, VT	
125-149	CA, CT, GA, HI, IL, ME, MI, MN, NJ, AK, OR, RI, UT, VA, WA, WI	AK
150-174	AZ, DE, IN, KS, KY, LA, MO, NE, NV, NM, NC, ND, OH, PA, SD, TN, TX, WY	CO, CT, HI, IL, MD, MI, MN, NJ, NY, RI
175-199	AL, FL, ID, IA, MS, OK, SC, WV	CA, GA, IN, ME, NH, OH, OR, PA, UT, VT, VA, WA, WI
200-224		DE, KS, KY, LA, MO, NE, NC, ND, OK, SD, TN, TX, WV
225-249		AL, ID, IA, MS, NM, SC
250-299		NV, WY
>300		AZ, FL

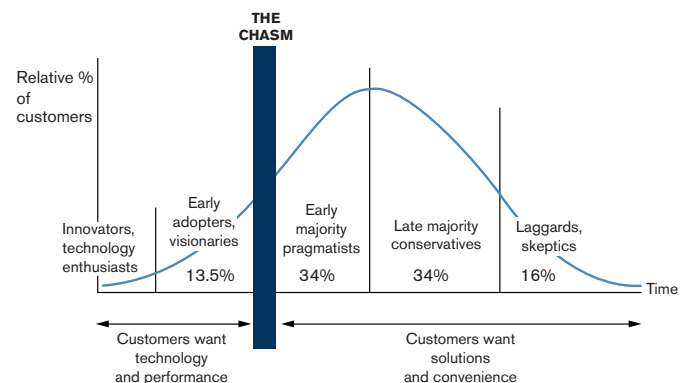
Physician empowerment implies the ability to practice medicine as originally trained; i.e., as a clinician holistically treating the patient and not only the disease. The Physician Group Practice Demonstration sponsored by CMS in 2005 highlighted the potential for freestanding group practices, integrated delivery networks and other collaborative organization to reduce costs and improve care quality. Common themes among participants focused on (a) improving care management, patient safety, post-emergency department and hospital discharge transitions, care coordination, and home care (b) enhancing self-management, if necessary with the assistance of trained health coaches (c) implementing high cost/high risk patient management programs based on risk stratification (d) expanding palliative and hospice care (e) modifying physician practice patterns, and workflow behavior; and (f) increasing the use of information technology.¹¹⁷ CMS made available financial incentives linked to performance goals.

Many of the participating Group Practices were located in small cities or rural areas; had at least 200 physicians, the majority in primary care; and were part of an integrated care delivery system with a hospital. Participants included the Geisinger Health System (Pennsylvania), Marshfield Clinic (Wisconsin), Forsyth Medical Group (North Carolina), Dartmouth-Hitchcock Clinic (Vermont), Park Nicollet Clinic (Minnesota), Billings Clinic (Montana), Everett Clinic (Washington), St. Johns Clinic (Missouri), Middlesex Health System (Connecticut) and the University of Michigan Faculty Group Practice (Michigan). The HMO

Research Network, a consortium of 13 leading healthcare organizations including Kaiser Permanente, Lovelace Health System, Henry Ford, and HealthPartners, has also been successful in delivering cost-effective care. They, along with the Physician Group Practice Demonstration participants, represent the leading edge of the inevitable physician-led care delivery transformation necessary to reduce healthcare spending.

The “chasm” to care delivery transformation has not yet been crossed by the vast majority of stakeholders. Current approaches will not significantly alter the healthcare cost trend line.

FIGURE 42: POTENTIAL WAVE OF CARE TRANSFORMATION



Focus on treating diseases and conditions, not people

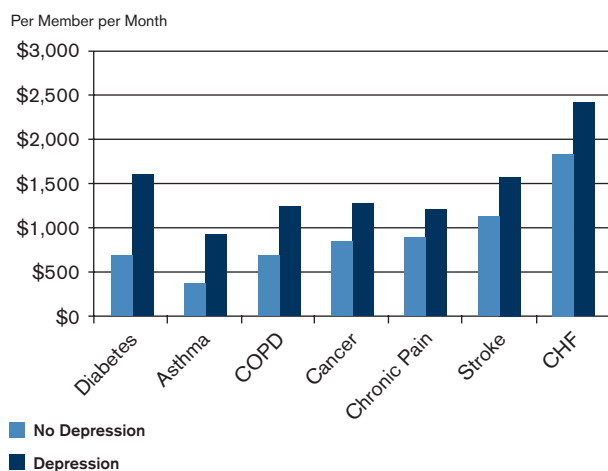
Healthcare payers and providers often view patients as a collection of conditions or diseases (e.g., diabetes, heart failure, arthritis) and/or patho-physiologic systems (e.g., cardiovascular, orthopedic, neurological) rather than a whole person desirous of a relationship with their primary care physician. Behavioral health issues are particularly common in those with chronic disease, cancer or experiencing an acute episode of illness.

Patient fears associated with chronic illness include loss of control and self image, dependency, stigma, abandonment, anger, isolation and death.¹¹⁸

Mood (i.e., depression, dysthymic, bipolar) and anxiety disorders are exceedingly common affecting 9.5% and 18.1%, respectively, of the adult U.S. population in any given year; it is exceedingly common to have both conditions.¹¹⁹ Despite being highly treatable, 60-80% of people with depression are not being treated due to a lack of

self-awareness, the associated stigma, a belief that treatment would not work and the cost of care. Patients with behavioral health issues (a) tend to be less compliant with treatment plans, including medication adherence (b) have poorer lifestyles; i.e. less activity and worse nutrition (c) often report MUPS, medically undiagnosed physical symptoms (e.g., abdominal or chest pain, fatigue, dizziness, shortness of breath, headache) requiring unnecessary resource utilization, and (d) have significant absenteeism and presenteeism.¹²⁰ Medical costs are significantly higher in patients with co-morbid depression and / or anxiety.¹²¹

FIGURE 43: HEALTHCARE SPENDING INCREASES WITH CO-MORBID DEPRESSION AND/OR ANXIETY



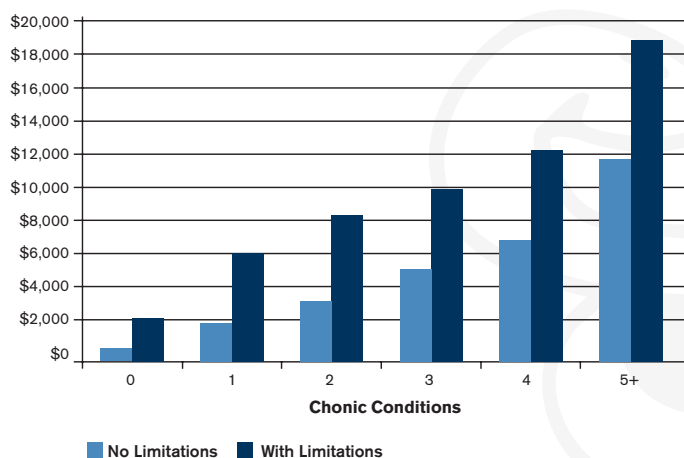
Source: Milliman Research Report. Chronic conditions and co-morbid psychological disorders, July 2008. Excludes incremental behavioral health treatment costs of \$90-170 per condition

Co-morbid depression is very common in patients with chronic disease. Approximately 20% of patients hospitalized for a heart attack have major depression; the reported prevalence of significant depressive symptoms range from 10-47%.¹²² Comparable figures for stroke survivors are 20% with major depression, and 40-50% with depressive symptoms.¹²³

High rates of depression have also been reported in COPD patients, as well as those with chronic pain (25-50%).¹²⁴ Co-morbid depression negatively affects outcomes as evidenced by depressed patients with congestive heart failure (CHF) being more than twice as likely to die or be admitted to a hospital within 3-12 months than non-depressed CHF patients.¹²⁵

Depression may also affect functional status; i.e., the ability to perform activities of daily living such as traveling, getting dressed, feeding, bathing, housework, and taking medications as prescribed. Activity limitations have been associated with higher medical spending, irrespective of the number of chronic conditions.

FIGURE 44: FINANCIAL IMPACT OF ACTIVITY LIMITATIONS

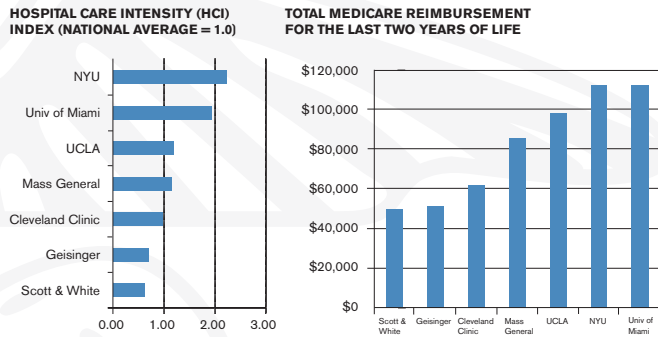


Source: Medical Expenditures Panel Survey, 2004

Excessive local variation in healthcare delivery and cost

The Dartmouth Atlas of Health Care has used “Medicare data to provide information and analysis about national, regional, and local markets, as well as hospitals and their affiliated physicians”.¹²⁶ They have identified significant regional and local variations in the cost of treating Medicare patients.¹²⁷ Resource utilization, rather than pricing is the primary cause of the variation. A 3-4x variation in the Hospital Care Intensity Index, a metric incorporating length of stay and the number of in-hospital physician visits, exists among NYU and the University of Miami, well-respected academic institutions and Scott & White and Geisinger, well-respected physician-led group practices. Total Medicare reimbursement, during the last two years of life, based on a “population of beneficiaries with one of nine chronic conditions,” range from \$50,263 to \$112,044.

FIGURE 45: LOCAL VARIATION IN CARE AND COST



Source: The Dartmouth Atlas of Health, 2003-07. The Hospital Care Intensity (HCI) index "is based on two variables: the number of days patients spent in the hospital and the number of physician encounters (visits) they experienced as inpatients. Total Medicare reimbursement based on population of beneficiaries with one of nine chronic conditions."

Evidence-based practice is defined by David Sackett MD, a pioneer in the field, as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient."¹²⁸ Its use varies dramatically by condition and specialty. Physicians are not interchangeable commodities as priced by insurers; patient outcomes vary with experience and skill levels. Financial incentives, patient preferences and concerns regarding malpractice also influence resource utilization.

In October 2007, the Institute of Medicine convened a roundtable to discuss the importance of evidence to substantiate the value of new discoveries and technological innovation.¹²⁹ A comparison of Medicare's highest and lowest quartile spending regions highlighted slightly worse outcomes, including mortality for areas with higher levels of spending.¹³⁰ Higher levels of resource utilization (e.g., hospitalization, specialist care, tests and procedures) were also associated with less care coordination, worse communication and longer waiting times.

FIGURE 46: RELATIONSHIP BETWEEN SPENDING AND OUTCOMES

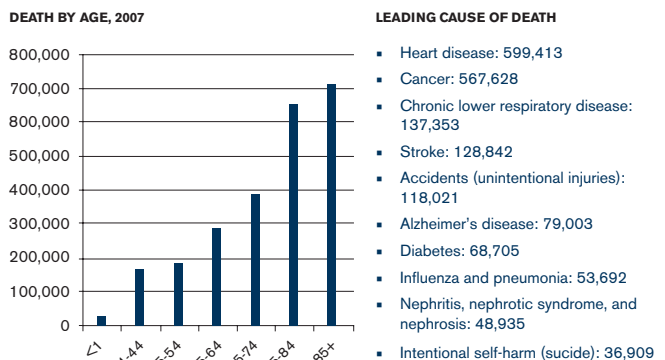
Healthcare resources	<ul style="list-style-type: none"> Per capita supply of hospital beds 32% higher Per capita supply of physicians 31% higher overall: 65% more medical specialists, 75% more general internists, 29% more surgeons, and 26% fewer family practitioners
Content and quality of care	<ul style="list-style-type: none"> Adherence to process-based measures of quality lower (quality worse) Little difference in rates of major elective surgery More hospital stays, physician visits, specialist referrals, imaging, and minor tests and procedures
Health outcomes	<ul style="list-style-type: none"> Mortality up to 5 years slightly higher following acute myocardial infarction, hip fracture, and colorectal cancer diagnosis No difference in functional status
Physician perceptions of quality	<ul style="list-style-type: none"> More likely to report poor communications among physicians and inadequate continuity of patient care Greater difficulty obtaining inpatient admissions or high-quality specialist referrals
Patient-reported quality of care	<ul style="list-style-type: none"> Worse access to care and longer waiting times No difference in patient-reported satisfaction with care
Trends over time	<p>Although all U.S. regions experienced improvements in acute myocardial infarction survival between 1986 and 2002, regions with greater growth in spending had smaller gains in survival than those with less growth in spending</p>

Source: McClellan M, McGinnis JM, Nabel J, Olsen L. Institute of Medicine. Evidence-Based Medicine and the Changing Nature of Healthcare: Meeting Summary (IOM Roundtable on Evidence-Based Medicine); 2008. Table S-1, page 10

End-of-life care quantity, not quality

Approximately 2.4 million Americans died in 2007, primarily caused by chronic diseases. Nearly 75% of deaths occur in those over 65 years.

FIGURE 47: MORTALITY DATA



Source: CDC FastStats

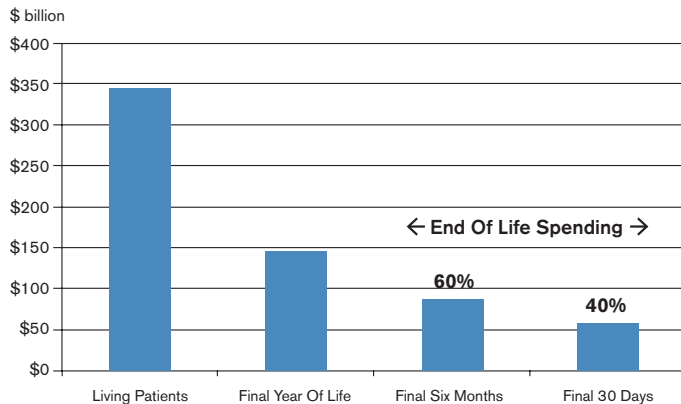
Source: CDC; American Cancer Society Surveillance Research, 2012. Nearly 70% of cancer deaths in those >65 years old

End-of-life is an extremely personal experience for the patient, family and friends. Treatment objectives include "respecting patient preferences; providing comprehensive care; maximizing interdisciplinary resources; acknowledging caregiver concerns; and creating a health care system flexible enough to support these goals."¹³¹ Patients who discussed end-of-life care preferences had less fear and anxiety, and were better able to influence and direct their own care.¹³²

According to a recent report to Congress, “there is substantial evidence that the treatment people would choose at the end of life commonly is different from the treatment they receive. Too often individuals receive more aggressive care than they desire.”¹³³

Aggressive care can negatively impact quality of life, affect caregivers and result in unnecessary hospitalizations, tests and procedures. The financial implications are substantial. Medicare patients in the last year of life, 5% of program enrollees account for 30% of expenditures, or \$150 billion.

FIGURE 48: PERSONAL HEALTH EXPENDITURES: MEDICARE



Source: Calfo S, Smith J, Zezza M. Last Year of Life Study. CMS, Office of the Actuary

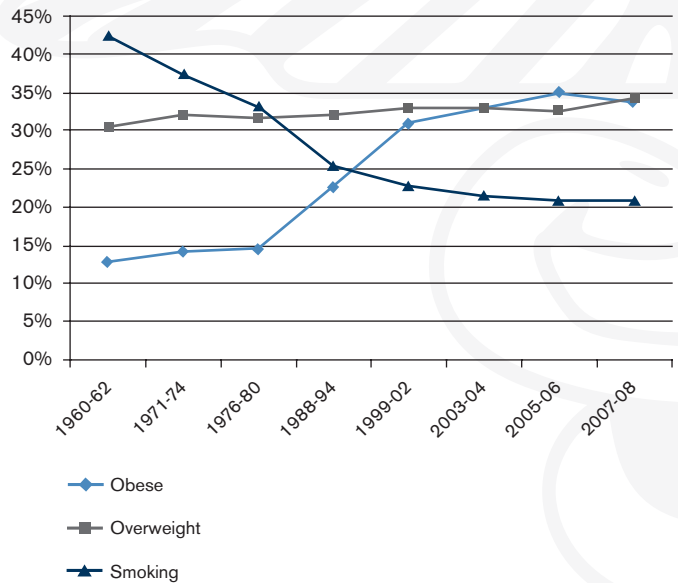
Lack of personal accountability

Lifestyle choices are the leading contributor to premature mortality, morbidity and disability.¹³⁴ Choices include a poor diet and/or a sedentary lifestyle (obesity: 72.0 million), cigarette smoking (45.3 million), illicit drug use, excluding marijuana (16.4 million) and “heavy” alcohol ingestion (15.0 million).^{135, 136, 137} The aggregate number of at-risk Americans is staggering, with many of the same people having multiple lifestyle risk factors.

According to the CDC, one-third of American adults are obese; the comparable figure in 1980 was 15%.¹³⁸ During the same period, the obesity rate in children and adolescents has nearly tripled to 17% (13 million).¹³⁹ Associated health risks include heart disease, stroke, high blood pressure, Type II diabetes, sleep apnea, osteoarthritis, certain types of cancer and complications with pregnancy. The medical costs associated with obesity have increased from \$79 to \$147 billion in 1998-2008 and

are forecast to reach \$344 billion by 2018.^{140, 141} Obesity is a preventable medical condition.

FIGURE 49: SMOKING CESSATION AND WEIGHT GAIN TRENDS 1960 - 2010



Source: CDC, National Health and Nutrition Examination Surveys (NHANES). Overweight: BMI 25.0-29.9, obesity: BMI > 30, extreme obesity: BMI > 40. BMI = weight / height²

Despite the declining rate of tobacco usage, there are still 45.3 million smokers, 19.3% of the adult population.¹⁴² Smokers have a shortened life expectancy – an average of thirteen years primarily due to lung cancer, emphysema, COPD and cardiovascular disease.¹⁴³ Cigarette companies in the U.S. spent \$12.4 billion in advertising and promotion expenses in 2006, mostly targeting adolescents and young adults.¹⁴⁴ Consumers spent an estimated \$90 billion.¹⁴⁵

Many Americans have periodically tried to improve their diets, increase their amount of exercise and quit cigarette smoking. Lifestyle change is difficult and requires several stages of evolution.¹⁴⁶ Self-management of health, and related risk factors is complex and reflects the interplay of knowledge; psychosocial mediators such as self-efficacy, attitudes, health beliefs, mood, motivation and coping skills; and social support.^{147, 148} Ongoing health and wellness efforts are failing to fully engage the people most in need of risk reduction.



OPPORTUNITIES FOR MARKET LEADERSHIP

The future of healthcare requires strategic and enterprise-wide approaches to cost containment. Rationing will not be necessary if operational and process-of-care efficiencies are focused on major cost drivers. Traditional approaches, such as provider discounts and cost shifting, will not suffice. Strategic focus needs to be combined with the execution capabilities found within entrepreneurial organizations. Benchmark performers already exist and are readily identifiable; the need for pilot studies and related deliberations is over. Change management is essential for organizations and systems embedded with inefficiencies. A multi-year effort is required.

The provision of healthcare services remains, with exception, a small scale “cottage industry.” Consolidation would generate economies of scale.

Performance improvement has traditionally focused on financial metrics: revenue cycle, budgeting and financial planning, capital expenditures, labor productivity, supply chain, risk management and third-party contracting and reimbursement. Patient access, throughput and level of care, combined with work flow analytics and re-design, have also entered the vernacular. Zero-based budgeting will help to identify embedded inefficiencies.

Clinical process redesign, incorporating evidence-based care and patient safety factors are essential. The PPACA pilots episodes-of-care payment models, but not the full continuum of care associated with chronic disease management. Primary and secondary prevention activities need to be adequately reimbursed.

The latter is critical to avoiding episodes-of-care and reducing their severity, should they occur. Unnecessary emergency department and hospital visits require elimination. Concepts incorporated into the medical home, such as continuity of care services (coordination, collaboration and transition management), team-based care, case management and timely access to providers, need to be widely adopted. Patients need to be treated for all their co-morbid medical and behavioral issues holistically and not carved into specialty or provider segments. The productivity enhancing and engagement potential of emerging information technology, communications and mobile phones must be integrated into care delivery.

Consumer engagement impacts lifestyle and treatment adherence, major determinants of health outcomes. Medicine remains transactional and not based on relationships. Physicians and other providers must engage in a shared decision making process. Technology supported self-care, inclusive of telehealth, the Internet, and social media, are potential scalable and impactful solutions for rising healthcare costs.

Efficient and effective healthcare delivery are clearly possible.

“ You can never solve a problem with the same kind of thinking that created the problem in the first place. ”

ALBERT EINSTEIN

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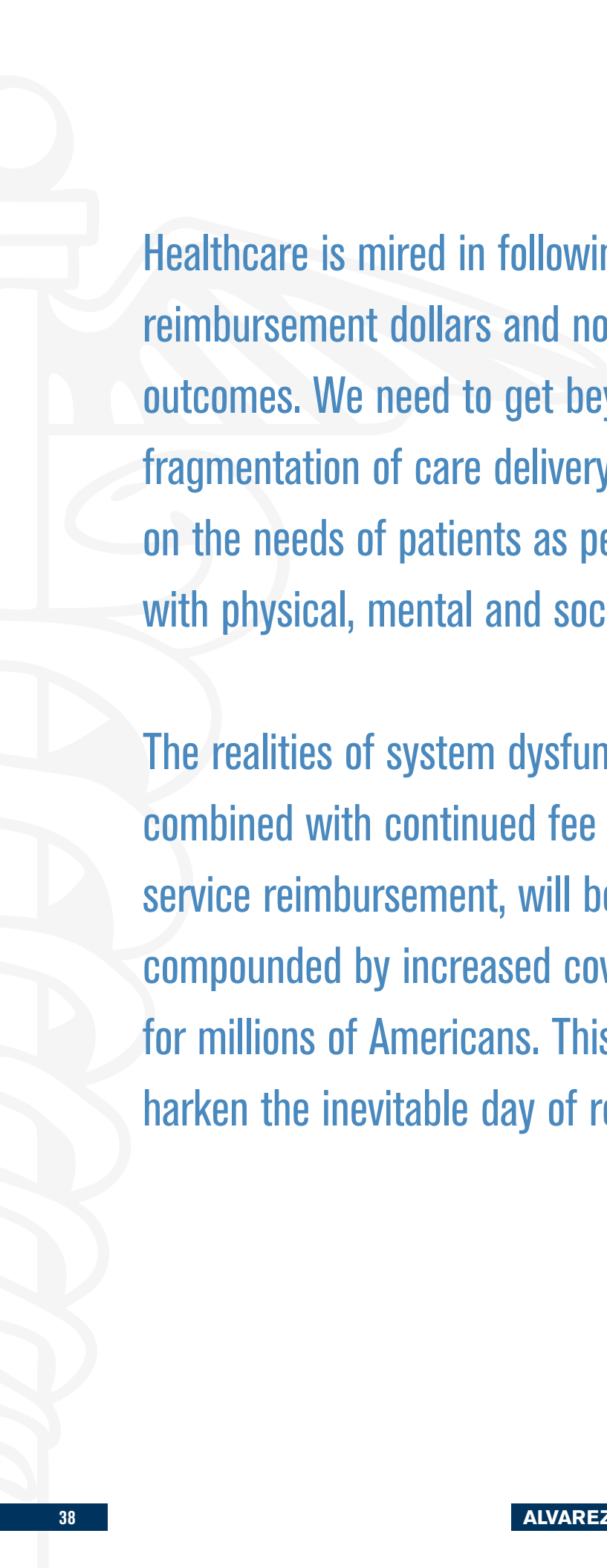
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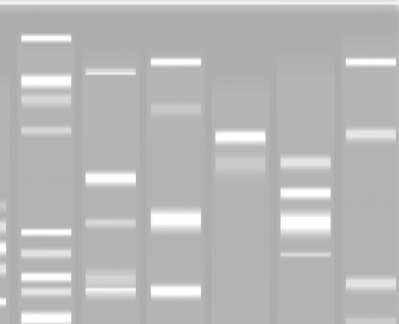
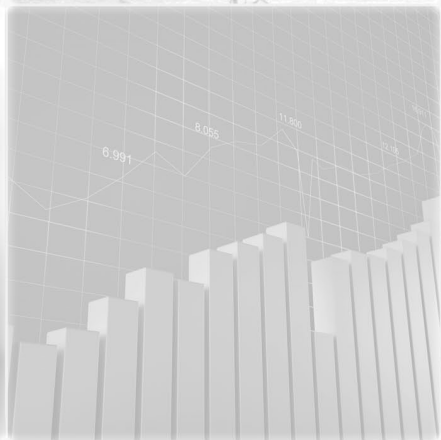
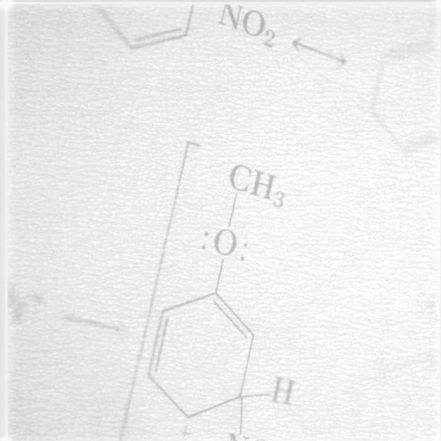
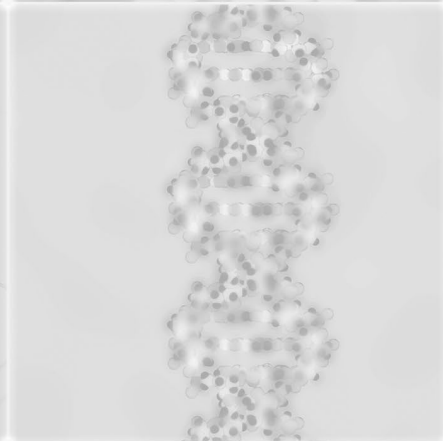
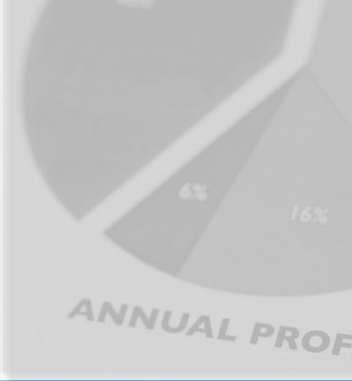
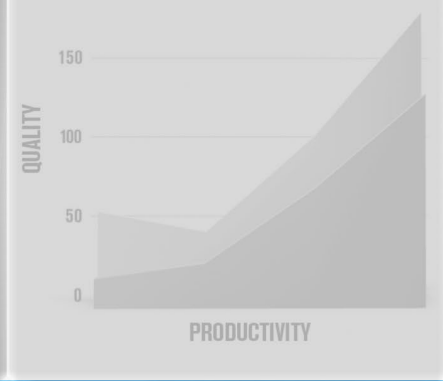
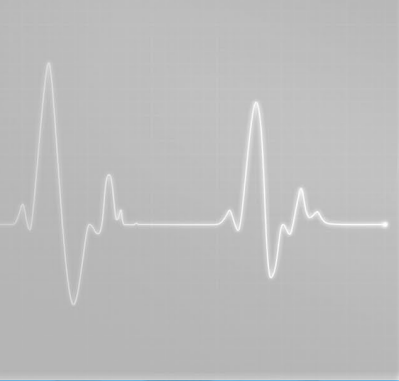
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Healthcare is mired in following reimbursement dollars and not patient outcomes. We need to get beyond the fragmentation of care delivery to focus on the needs of patients as people, with physical, mental and social needs.

The realities of system dysfunction, combined with continued fee for service reimbursement, will be compounded by increased coverage for millions of Americans. This will only harken the inevitable day of reckoning.



GETTING MUCH CLOSER TO THE PRECIPICE

About Alvarez & Marsal: Changing the Business of Healthcare™

With nearly three decades of experience providing hands-on support and results to organizations navigating times of change and challenge, Alvarez & Marsal is a global professional services firm that specializes in turnaround management, operational performance improvement and business advisory services. With a distinctive combination of experienced healthcare industry practitioners and world-class activist consultants, A&M works with management, boards of directors and stakeholders of not-for-profit and investor-owned healthcare providers, biopharmaceutical companies, payors, suppliers and others to improve operational, financial and clinical performance. A&M professionals bring a proven execution-oriented approach focused on delivering results through strategic advisory; financial, operational and clinical performance improvement; interim, crisis and contract management; turnaround and restructuring, mergers and acquisitions transaction and financial advisory; and compliance, governance and investigations.



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