HEALTH CARE
An Industry Analysis and Strategic Recommendations for the Future

Final Report

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HEALTH CARE 2011

ABSTRACT: The continuing cost growth of the fragmented US health care system is unsustainable. The Patient Protection and Affordable Care Act (PPACA) law is a historic first step at health care reform but does not go nearly far enough. Without additional changes to legislation and modifying the incentives for all players, health care could become the largest contributor to the national debt. Not getting the health care system under control threatens to diminish National Security by crowding out investments in other areas and contributes to an unhealthy population not ready to serve if called upon.

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INTRODUCTION

"The most significant threat to our national security is our debt."[1]
- ADM Mike Mullen, Chairman of the Joint Chiefs of Staff

The sustainability of the United States (US) Health Care industry has rapidly emerged as one of the foremost national concerns and priorities spanning political, social, informational, technological, military, and economic fronts. US spending on health care at 17.6% of gross domestic product greatly surpass the remainder of industrialized nations' spending worldwide with no signs of abating in the future. Projected health care expenditures are forecasted to grow from $2.5 trillion to approximately $4.5 trillion by the year 2019.[2] This poses a great risk of crowding out federal discretionary spending in areas such as defense, education, and foreign aid. Despite the massive investments in health care, the US continues to fall behind on health indicators such as obesity, chronic illness, and life expectancy. National-level decisions dealing with fundamental healthcare issues in the areas of cost, quality, and access impact every individual, every organization and every country in the world.

The US health care industry has come to a critical and historic crossroads within the national security strategy context. At the center of the health care debate is the Patient Protection and Affordable Care Act (PPACA) signed into law by President Obama on March 23, 2010. It represents the largest comprehensive national health care reform law for the world's richest country. The law impacts nearly every sector of the health care industry and remains a highly contentious solution to addressing basic health care sustainability issues. As Congress and individual states continue to debate parts of the law, questions remain about the effects this legislation will have on addressing the issues of cost, quality and access within our current health care system.

The purpose of this report is to provide an analysis of the health care industry that identifies challenges with the current system; evaluates current reform initiatives; compares international systems to the US; proposes recommended policy and legislative changes; and discusses resource options from a National Security Strategy (NSS) perspective. The data will be presented through a framework of cost, quality, and access. Each initiative and participant in the industry affects, and is affected by each of these categories, the variance is how large the effect is.

The methodology of analysis is based on individual research conducted by each member of the ICAF Health Care Industry Studies team, presentations and dialogue with experts from major sectors within the health care industry, visits to both domestic and international organizations, and candid internal team discussion using the Socratic method of learning.

THE HEALTH CARE INDUSTRY DEFINED

Health care is one of the largest and most fragmented industries in the US with almost 600,000 different providers of diagnostic, preventive, remedial, emergency, and therapeutic services through doctors, nurses, hospitals and other private, public, and voluntary organizations that vary greatly in terms of size, staffing patterns, and organizational structures.[3] Understanding the players throughout the entire supply chain represents a major challenge. The delivery of health care alone provides over 14 million jobs, 40% of which are in hospitals, 21% in nursing and residential care facilities, and 16% in physician offices.[4] This industry study team focused

on the key segments of providers, hospitals, payers, suppliers, and regulators. This narrower scope allowed the team to provide a more in depth assessment of each segment, and kept the analysis and recommendations at the strategic level where change would have the greatest impact. The successful implementation of policies formulated at this high level tends to result in cascading effects throughout the entire industry.

Providers

Health care providers in the US encompass a broad range of occupations and facilities. Among them are physicians, dentists, nurses, pharmacists, medical technicians, radiological technicians, emergency medical technicians, mental health workers, chiropractors, optometrists, therapists, hospitals, clinics, nursing homes, and rehabilitation centers. About 76% of healthcare establishments are offices of physicians, dentists, or other health practitioners.

Hospitals

Today, hospitals constitute only 1% of all healthcare organizations yet they employ 35% of all healthcare workers.[5] The US currently has 5,815 hospitals comprised of federal hospitals (213), not-for-profit hospitals (3,063), for-profit hospitals (1,179), and state/local government run hospitals (1,360). Hospitals often merge into integrated health provider systems such as the Veterans Health Administration which encompasses 135 hospitals. There are 366 major academic teaching hospitals and 1,104 minor teaching hospitals.

Third Party Payers

The current system can be described as predominately a third party payer model where entities other than the patient pay the medical provider with minimal immediate out of pocket patient contribution. Within the current third party payer system, patients have little knowledge or visibility of the actual costs for health services received. Of those covered, approximately 95% all patients are handled by the federal government and private employer-sponsored insurers.[6] The Center for Medicare and Medicaid Services (CMS) covers federally managed health insurance systems of Medicare, Medicaid, and Children's Health Insurance Program (CHIP). The Department of Veterans Affairs covers military veterans and the Department of Defense (DOD) covers military members, retirees and family members. Private payers include for profit and non-profit insurers, health maintenance organizations (HMO) and Preferred Provider Organizations (PPOs).

Suppliers

A major supplier in the health care system is the pharmaceutical industry. It is currently estimated that nearly 65% of Americans take prescription drugs at a cost of approximately $200 billion a year[7] and this number is projected to grow at a rate of 12%, annually.[8] Other suppliers include manufacturers, wholesalers, and distributors of medical equipment and supplies.

Regulators

The healthcare system is highly regulated by both public and private entities. The primary health care regulator and principle agency for Federal government is the US Department of Health and Human Services (HHS).[9] Within HHS, the CMS sets policy and prices for health care services.[10] The Food and Drug Administration (FDA) ensures the safety and efficacy of the food

supply, pharmaceuticals, medical devices and biological products.[11] The Agency for Health Care Research & Quality (AHRQ) works to improve the quality, effectiveness, safety and provides evidence-based practice guidelines for health care practitioners.[12] Private regulators include non-profit accrediting organizations such as The Joint Commission (TJC) and National Committee for Quality Assurance (NCQA). Also, professional boards, associations, and societies play a key role in regulating through training and certification of the workforce within the health care industry. These organizations will also play significant roles in the success or failure of health care reform initiatives.

THE CURRENT CONDITION OF THE HEALTH CARE INDUSTRY

The current condition of the US health care industry can be described as a highly heterogeneous and fragmented system that is overly complex, non-transparent, profit oriented and unsustainable. It does not deliver value in terms of access or quality when compared to total cost. The escalating cost of the health care industry poses a strategic threat to national security and to the economic viability of employers and individuals at all levels by crowding out other competing resources. Of the estimated $2.5 trillion of U.S. health care expenditures in 2009, approximately $1.27 trillion (51%) is attributed to the private sector while the remaining $1.23 trillion (49%) is from the public sector making the US government a dominant force in the health care industry.[13]

The threat to national security arises with the increasing rate of mandatory entitlement spending that includes Medicare, Medicaid and CHIP that is rising at a faster rate five times greater than federal discretionary spending (including defense).[14]

The Medicare program covers 95% of our nation's aged population, as well as many people who are on Social Security because of disability. In 2009, Part A (Hospital) covered almost 46 million enrollees with benefit payments of $239 billion, Part B (Outpatient) covered almost 43 million enrollees with benefit payments of $202 billion, and Part D (Drug) covered over 33 million enrollees with benefit payments of $60 billion. Total expenditures for Medicare in 2009 were $509 billion.[15] Combined with expenditures for the Medicaid program ($384 billion) and CHIP ($10 billion), the mandatory health entitlements make up approximately 21% of the Federal budget and 6.4% of the GDP.

Within the DOD, the rising costs of health care have become a concern for the Secretary of Defense as the Defense Health Program (DHP) has more than doubled over the past ten years from $19 billion in 2001 to a projected $55 billion in 2011.[16] The DHP includes funding for all military treatments and purchased care from the commercial sector through the TRICARE and the TRICARE for Life programs. Currently retired families pay a premium of $460 a year for comprehensive TRICARE benefits. Since these rates have not changed over the past 15 years, the Secretary of Defense is looking at increasing these premiums to between $1,260 and $2,460 a year depending on income.[17]

The steady growth in health care spending has placed an increasingly heavy financial burden on individuals and families, with an increasing share of workers' total compensation going to health care costs. According to the most recent data from the U.S. Census Bureau, inflation-adjusted median household income in the United States declined 4.3% from 1999 to 2008 (from $52,587 to $50,303), and real weekly median earnings for full-time workers increased just 1.8%. During that same period, the real average total cost of employer-sponsored health insurance for a family policy rose by more than 69%.[18] Because firms choose to

compensate workers with either wages or benefits such as employer-sponsored health insurance, increasing health care costs are crowding out increases in wages.[19]

In terms of costs, hospitals accounted for the largest portion of health care expenditures generating approximately $736 billion in revenue in 2010.[20] Although the largest segment in terms of revenues, this sector only generated approximately $20 billion in total profits and averaged an annual growth rate of 2.8% since 2005.[21] The US government is the primary source of revenue for hospitals (~59%) followed by private insurers ~35%).[22] Only 3% of hospital revenues come from out-of-pocket payers.[23] With increasing costs, low government reimbursement rates, and the recent economic downturn that reduced the demand from insured patients, mergers and consolidations dominate business strategies in this sector. Coupled with a decrease in the hospitals, competition for patients is low due to low concentration of hospitals in many areas and barriers to entry remain high. These factors allow hospitals to maintain considerable pricing power in the market. The fee for service arrangements, pricing power, and almost non-existent cost transparency contribute to escalating overall costs, skewed incentives on how to treat a patient's condition, and lack of consumer power to determine and negotiate value.

Another significant segment is physician services which generated approximately $567 billion in revenue in 2010.[24] Physician services contain two main categories of physicians – primary care physicians and specialists. Primary care generated approximately $162 billion compared to $405 billion from specialists.[25] Specialists outnumber primary care physicians by just over a two to one ratio. Primary care physicians generated a low operating profit margin of just 3% in 2010 whereas specialists enjoyed a much higher profit margin of approximately 15%. Both categories saw an average annual growth of 2.2% for primary care and 2.6% for specialty physicians. While there has been a long standing shortage of primary care physicians in the US, the number per 100,000 has increased from 118 in the year 2006 to 120 in 2010.[26] The demand for specialists has been on the rise causing an increase in the number of specialists followed by higher incomes. Outpatient visits make up 79% of the specialists revenue.[27] Both groups derive the majority of their revenues, approximately 55%, from private insurance and only about 20% from Medicare.[28] Like the hospitals, the current business strategy of physicians leans towards consolidation where more and more physicians are joining medical groups or hospitals to reduce the administrative overhead.

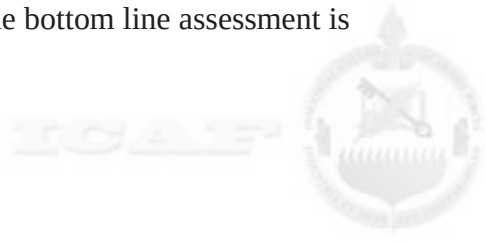
The third party payers to include medical insurers generated approximately $677 billion in revenue in 2010.[29] According to the US Census Bureau, approximately 85% of the US population is covered by health insurance. Of those insured, approximately 69% are covered by employment-based or group-sponsored health insurance. Insurance premiums are the largest source of industry revenue, but premium payments are often dependent on the type of plan being offered. For employer-sponsored health plans, 57% of the enrollment is in preferred provider organization (PPO) plans and 21% are in health maintenance organizations (HMOs). This sector is dominated by four companies (United Healthcare, Wellpoint, Aetna, and Humana) that insure 91.5 million beneficiaries, or approximate 45% of the private insurance market.[30] The profits of this sector totaled $47 billion and have been offset by the rising medical costs and lower payments by government sponsored programs such as Medicare and Medicaid. Barriers to entry are high in this sector as well with the strict regulatory compliance requirements and the ongoing consolidation of companies.

The importance of insurance companies as the third party payer can not be overstated. As the leading piece of the 'payment' healthcare sector, insurance has a significant force. The problem with health care insurance is the incentives within this industry are misaligned with

improving health care. Insurance companies have little incentive for health care prevention costs and additionally, in a fee for service system, they have little concern over the 'value' they receive for payment. The 'value' the insurance company seeks is indirectly via 'customer satisfaction' of their insured member's service received. In essence, the construct has minimal if any 'quality control.' Additionally, insurance companies are not incentivized to promote preventive health. Preventive health measures usually equate to lower medical costs over the long run. However, since insurance companies have no guarantee they will keep a policy long, there is little value in utilizing funds for preventive care.

Finally, among the suppliers, the pharmaceutical companies generated approximately $276 billion in revenue in 2010. Brand name pharmaceuticals generate $165 billion within the US and an additional $42 billion in exports compared to generic pharmaceuticals with $48 billion in the US and $20 billion in exports.[31] Many view the perceived high cost of pharmaceuticals as a negative. According to Pharmaceutical Research and Manufacturers of America (PhRMA), the generic drug market share was between 42% and 58% of the market in 2006. The increasing number of generics means that more drugs are available to consumers at a reduced cost. This competition ultimately drives the overall cost of drugs down.[32] While driving down cost is good for the consumer, the same is not true for drug companies. The increased competition from generics reduces the opportunity for many companies to recover money spent on developing a brand name pharmaceutical. As a result, the pharmaceutical sector is in a slight decline. In 1999, the FDA approved 38 drug applications while in 2010 there were only 21 approved with similar submission numbers.[33] Additionally, a record number of drugs were recalled, and a large number face patent expiration with little optimism for a 'new drug' breakthrough on the near horizon.[34] Barrier to entry is high in the brand name sector due to the time and costs to bring a new drug to market. In 1960, it took roughly eight years from development, through trials, to FDA approval. Today, the average is 15 years.[35] Additionally, the average cost to bring a drug market today has ballooned to $1.2 billion today.[36] The industry is moderately concentrated, as the top four players account for approximately 53% of industry sales.[37] Consolidation in the sector has been occurring for more than five years, but a marked increase has occurred more recently.

Overall, rising medical costs are crowding out discretionary resources within the Federal budget and have reduced the profit margins within the competing sectors. As a result, the one common strategy across the industry is consolidation. Consolidation is touted to bring economies of scale; however, this has not resulted in downward pressure on overall pricing or costs. Rather, consolidation and tighter regulations have raised significant barriers to entry for potential substitutes, competitors, suppliers and customers that would foster disruptive innovation, force transparency and pricing competition. Nor has it improved the quality or access of the health care industry. While the US tops the global scale at $8,086 per capita spending on health care, it ranks poorly among other nations in quality measures. The US ranks last in deaths from curable illness among developed nations. It ranks #50 in life expectancy[38] and #29 in infant mortality.[39] Chronic health conditions have surpassed infectious diseases and acute conditions as the leading cause of death among all age groups in the US. In 2007, the US spent $594 billion on chronic and catastrophic care due to chronic conditions which represented 32% of all health care expenditures that year. Regarding access, the US is the only developed country that does not cover 100% of its population for health care. Currently, it is estimated that there are 47 million people in the US without health insurance. The bottom line assessment is



that the health care industry, as a whole, is not producing the expected value given the level of health care expenditure.

CURRENT CHALLENGES WITH THE US HEALTH CARE SYSTEM

Bending the Cost Curve

Demographic changes along with the reduced availability of ever scarce resources will exacerbate the current cost growth curve unless targeted mitigation efforts are taken. The US census registered a population of over 308 million in 2010 and is projected to grow to almost 440 million by 2050.[40] The health of the population is a primary cost driver in the health care industry. Lifestyle, culture, education, and wealth play key roles in patient needs and demands on the health care industry. The current third party payer system within the US does not adequately address several fundamental challenges with keeping people healthy and curbing their demand on the system. Moral hazard is highly prevalent with both the patient and the provider under the current system. Moral hazard is defined as the tendency for some people to use more health care than they would otherwise because they are insulated from knowing the price. When individuals purchase insurance, they no longer pay the full cost of their medical care. As a result, having insurance may induce people to consume health care services on which they place much less value than the actual cost of this care or discourage patients and their doctors from choosing the most efficient treatment. This extra consumption increases average medical costs and, ultimately, insurance premiums.[41] Another major challenge is shifting away from a fragmented, fee-for-service (FFS) model. In 2008, approximately 92% of reimbursements to physicians were from FFS.[42] With FFS, there is very little incentive to coordinate care and manage the overall health of the patient.

Preventive Medicine

Treating chronic illnesses currently accounts for two-thirds of total health care costs and patient contact time. Preventing people from getting sick in the first place must be a fundamental aspect of solving the health care crisis. Yet there are several challenges to overcome to make an emphasis on preventive medicine a reality.

First, there is a debate regarding whether the cost outweighs the benefits derived from the additional expenditure. As the category of prevention increases from primary (i.e., vaccines, nutritional counseling, mammograms) to tertiary (implanting stents or pacemaker, for example), so does the cost. As these costs increase, the return on investment diminishes.[43] Few would dispute the cost effectiveness of vaccinating against tetanus or screening for breast cancer, but even the CBO states: "…the widespread use of preventive services tends to exceed the savings from averted illness."[44] In fact, scoring rules prevent CBO from considering "hoped-for, but quite uncertain savings….[that would] offset near-term, certain spending increases" in the same legislation.[45] Thus, there is reluctance among the electorate to pay for services when the savings are hard to gauge and will likely not be realized until sometime in the distant future.

Second, there is a question of access, both in terms of sufficient health care providers and to the disadvantaged population. With respect to the latter, the reasons vary: lack of transportation; inability to schedule appointments during normal business hours (many have low-skill, low-paying jobs without paid time-off), or they may live in rural areas without local services.

Finally, even when patients have access to preventive care, there is the issue of "adherence", meaning complying with the treatment regimen. Estimates of "non-adherence" average around 25% across all chronic diseases, but is especially high for some, such as hypertension, which hovers around 51%.[46/47] The reasons for this are well-known: cost of the therapies (e.g., medication); complexity of the regimen (e.g., multiple doses of various medications taken at differing intervals during the day), and the psychological barriers associated with a patient's fear of losing independence.

Quality

Transparency in the overall system is lacking. From a quality perspective, medical errors are still kept mainly hidden. In 1999, the Institute of Medicine (IOM) issued a report on the occurrence of medical errors in the US that states between 44,000 and 98,000 people die each year in the US from preventable medical errors.[48] The cost of these deaths resulting from errors was estimated at $17-29 billion.[49] Identifying medical errors, preventing their occurrence, and incorporating technology will increase patient safety and likely reduce the overall cost of health care. After more than 10 years since the issue has been brought to public attention, only 22 states have legislation requiring reporting systems, and even those are not standardized or easy to compare but some public data is available.[50] Any effort beyond legislated activities are all voluntary, non-standard, and not regulated. Transparency throughout the system is the only way to move to a pay-for-performance health care model.

Some hospitals have implemented recommendations made by the Agency for Healthcare Research and Quality within the Department of Health and Human Services such as instituting checklists, requiring medical staff to wash their hands before procedures, and offering training classes.[51] Other ways to reduce errors and integrate technology in hospitals are through the use of barcodes and EHRs. These technologies track patient treatment, medical information, provider notes, and medication movement throughout the care facility. For example, the Veterans Administration matches the bar code of the patient wristband to the medication that is being administered. The bar codes, along with computerized orders for the medicine have reduced medication errors by up to 75%.[52]

The Center for Medicare and Medicaid Services (CMS) began developing a public reporting program called Hospital Compare in the early 2000s to align payments with performance.[53] In 2008, Medicare compiled a list of "never events," that is, events that should never happen in a hospital such as a wrong site surgery. It is estimated that in 2007 the expenses associated for paying for these 'never events' totaled $22 billion.[54] In order to track 'never events', 27 states require reporting however, most do not make the data public.[55] Medicare will not pay for the additional costs incurred by the provider for the treatment of these acquired conditions. It is likely that Medicare is bringing attention to this issue in part to avoid an estimated $30 billion annually to treat hospital-associated infections.

As highlighted by their culpability in contributing to some medical errors, the continued use of paper medical records adds cost, time, and unnecessary overhead. Electronic Health Records (EHRs) will help empower patients to take a more active role in their healthcare and in the healthcare of their families. Patients will be able to receive electronic copies of their medical records and share this information securely over the internet with their families. The ability to access medical records from anywhere in the country will allow for better coordination of health care. This kind of speed in access to data will greatly reduce the wait time for patients to receive needed care. EHR computer programs will automatically cross check any new prescription

against a patient's known conditions and other medications to look for potential problems such as drug allergies and a drug interaction that could be dangerous for the patient.

Access

Demand for healthcare will continue to outpace the available domestic supply of qualified providers without positive action. The workforce continues to age, and the cost of education is also increasing. Among the front-line healthcare providers, the current doctor and registered nurse (RN) inventory is approximately 784,000 and 2.6 million respectively.[56] As addressed earlier, over one-third of these physicians are general practitioners with the remaining two-thirds practicing in specialized fields. Congress capped Medicare (the single largest source of Graduate Medical Education (GME) funding) support for the total number of residency positions in the 1997 Balanced Budget Act (BBA). This cap initially led to a "choke point" in production of qualified physicians for the workforce that is still felt within the industry today. As a result of domestic economic downturns, older RNs (age 50+) have remained in the workforce and filled the majority of available employment positions in the hospital (59% of total growth) and non-hospital settings.[57] During the same period, the net employment growth of middle-aged RNs (ages 35–49) was negative.

Consolidation of hospitals and the declining number overall poses an access risk to patients unless other facilities become available. With hospitals providing the largest amount of care, other resources like "minute clinics," mobile care vehicles, and specialty care clinics present an opportunity to improve access to more individuals. A comprehensive strategy to provide physical address has not been addressed.

OUTLOOK

The overall outlook for the health care industry is a cause for concern. One factor that can have the largest impact on the future of the industry is the PPACA, a federal law signed into effect by President Barack Obama on March 23, 1010. It and the subsequent Health Care and Education Reconciliation Act of 2010 comprise the most significant change in America's health care system since the Medicare and Medicaid mandates during the Johnson Administration in the 1960s. The key foci of PPACA are to reform the private health insurance industry; reduce the health disparities of America's low-income and minority population; provide increased coverage for individuals with pre-existing conditions; improve prescription drug coverage under Medicare; and strengthen the funding position of the Medicare Trust Fund to extend its solvency by 12 years.[58] However, even with the implementation of this act, the CBO forecasts Medicare to grow an average 6.8% from 2012 – 2021 and overall Medicare spending to cross the trillion dollar threshold by the year 2021.[59] The major concern is that the PPACA will not do enough to prevent health care from crowding out other critical national security resource requirements in the long run.

Also, given the fact that the PPACA does not fully go into effect until the year 2014, some sectors of the industry are likely to continue consolidation, and adjust to maintain or increase their profit margins in the short-run.

Over the medium term horizon, one key factor determining the future of the health care system will be the influx of 32 million previously uninsured or underinsured. While this population will gain access to health insurance, access into the actual health care system will still be a challenge given the current shortage of primary care physicians and nurses. Increasing

demand with a limited supply of providers increases the pricing power of the providers and therefore may not slow further escalation of costs. There is also the lingering question of those additional 15 million uninsured who are not addressed under the current PPACA.

The increasing role of the US Government in the health care sector may continue to distort the open market forces, stifle innovation, and create artificial price controls that could ultimately lead to rationing health care as seen in other nations where the government controls the majority of the health system. One potential negative outcome may be a decrease in access to care, especially for the lower to middle class that can only afford to purchase a basic health insurance plan. In an effort to curb costs, physician reimbursements remain a primary target. With the potential for lower incomes, prospective medical students may become discouraged and choose other career fields.

On the positive side, the industry is still well positioned to maintain a preeminent position in the global market place. Through its consolidation activities over the past several years, the industry is getting closer to leveraging technology to better coordinate care and outcomes of the patient. The US still leads in many technological innovations and provides incredibly high quality of care.

THE ROLE OF THE US GOVERNMENT IN HEALTH CARE

The role of the US government changed dramatically with the passage of the Patient Protection and Affordable Care Act (PPACA) of 2010. The law impacts nearly every sector of the health care industry and remains a highly contentious solution to issues and problems of America's health care system.

Key PPACA Provisions

The law went into effect in 2010, many provisions will be phased-in through 2015. Key provisions include:

- Provide health insurance to an applicant regardless of their health status as well as offer of health insurance policies to all persons in a given territory at the same price regardless of their medical or health status[60]
- Expand Medicaid eligibility to include all individuals and families with incomes up to 133% of the poverty level (just over $22,000 for a family of four) [61]
- Commence the operation of health insurance exchanges in each state where individuals and small businesses can compare policies and premiums, and buy insurance [62]
- Subsidize low income individuals and families (above 400% of the poverty level) through a sliding scale of subsidies system using health insurance exchanges[63]
- Allow businesses with 50 or more people that do not offer health insurance to pay a "shared responsibility payment" with the government in subsidizing employee health care plans[64]
- Fine non-exempt individuals from securing minimum health insurance coverage (A.K.A. the individual mandate) [65]
- Implement Medicare prescription drug coverage reducing the drug "doughnut hole" (recipients pay full costs of drugs between the initial and ending coverage stages of the plan)[66]
- Restructure Medicare reimbursement from "fee-for-service" to "bundled payments"[67]
- Establishment of a national voluntary insurance program for purchasing community living assistance services and support[68]

- Introduce minimum health insurance policies standards along with the removal of all annual and lifetime coverage caps[69]
- Mandates insurance companies spend 80% of premiums on medical claims and quality.[70]

Electronic health records

Beginning 1 October 2012, the PPACA will institute a series of changes calling for standardized billing and will require health plans to begin implementing rules for a secure, confidential, electronic exchange of health information. The law supports the use of electronic health records in support of an effort to reduce paperwork and administrative burdens, cut costs, reduce medical errors and, most importantly, improve the quality of care. The Office of the National Coordinator for Health Information Technology has issued a rule for standardization and certification. This rule identifies the standards and certification criteria for the certification of EHR technology; so that eligible healthcare providers in clinics, hospitals and doctors in private practices can be assured that the systems they adopt will be capable of performing the required functions.

Proposed PPACA Funding

CBO estimates the Federal cost of coverage expansion to be just under $800 Billion.[71] The PPACA is envisaged being funded by a variety of taxes and other funding offsets. Multiple revenue sources will be used including extending the Medicare tax to $200,000 and $250,000 individual and joint incomes; increasing insurance providers' annual fees; introducing a 40% tax on unusually expensive insurance (Cadillac) policies; and increasing taxes on pharmaceuticals and high-cost diagnostic equipment.[72] New tax revenue from the Act will amount to $409 billion over the next 10 years. $78 billion will be realized before the end of fiscal 2014.[73]

Key Issues and Problem Areas

Like all legislation, the PPACA was a compromise of divergent political and professional interests. Although it attempted to provide a workable solution to the continuing debate on how to fix America's health care system, it only addresses two out of the three areas of the access-cost-quality triad. Many of the act's provisions are juxtapositions in providing a "plus" in one area such as access or quality, but are viewed as a "minus" at the same time in another area such as long-term costs.

Cost

Regarding the cost component, a key component of PPACA is to control and mitigate the spiraling cost of health care in America; however, the message is conflicting regarding long-term costs. One the most seemingly popular provisions is to phase in the coverage of the Medicare Part D drug benefit coverage gap; i.e., the "doughnut hole." The current benefit includes a $310 deductible and a 25% coinsurance until the enrollee reaches $2,830 in total covered drug spending. After this, the enrollee is responsible for the full cost of the drugs until reaching the catastrophic cap of $6,440. Overall, the enrollee has a potential total of $4,550 in out-of-pocket costs.[74] Although the PPACA Medicare Part D enrollees will have greater access through rebates and discounts, these increases are estimated by the CBO to increase the total cost of health care by $42 billion over 10 years.[75]

Other provisions of the PPACA address costs associated with medical errors incentivize hospitals with better outcomes related to the care of strokes and heart attacks, and prevention of infections through higher payments while hospitals with high readmission rates for heart failure

and high rates of hospital-acquired conditions such as infections, bed sores, and falls will be penalized with reduced payments and Medicare will track a hospital's error rates and in 2014 will cut payment by 1% to hospitals with the highest rates of patient safety issues.[27]

Still another provision targets provider payment reforms aimed at reducing annual "market basket updates" for inpatient and outpatient hospital services, long-term care hospitals, and inpatient rehabilitation facilities and psychiatric hospitals. The problem is that this provision does not address the sustainable growth rate (SGR) formula that determines physician payments.[76]

The PPACA does not mandate pay-for-performance or "bundling" for institutions outside of Medicare. This omission allows insurance companies and medical service providers to continue along the misaligned incentives path. With a large portion of the system remaining on a fee-for-service model, the estimated cost containment will not be fully realized.

Quality

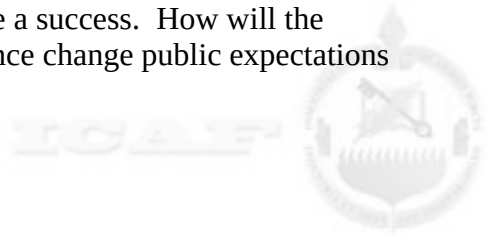
Although at first blush it appears that PPACA does not address the quality component of the triad, PPACA does attempt to establish procedures that will eventually improve the quality of health care provided. For example, PPACA will require Medicare to publish each hospital's medical error track record as well as establish a *Center for Quality Improvement and Patient Safety* to research improvements in patient safety.[77] To this, PPACA will implement several new payment and delivery system innovations focused on post-acute care and value-based purchasing through new Accountable Care Organizations (ACOs).[78] The problem with ACOs lies in exactly what this organization will focus on and do in balancing results with costs which is compounded by the negative perceptions that an ACO is a Healthcare Management Organization (HMO) by another name. Like other provisions, the SGR formula of the "market basket updates" provision is perceived as being costly. CBO assumes nearly half of the Medicare savings ($196 billion) over the next ten years will stem from these provisions. Health care economists do not believe that providers can improve their productivity as well as other industries have done, nor do they believe Congress has the political will to enforce the payment reductions. If they do reduce payments, then the same health care economists believe that providers and organizations can once again cost shift to commercial payers and negate the forecasted reductions.[79]

Access

PPACA is very effective in expanding the access and eligibility to health care insurance. However, although 32 million will be covered, 15 million are left unaddressed. While the PPACA expands the coverage of Americans, the law does little to address the additional numbers of medical professionals and facilities needed to service these additional customers. Another provision allots Medicare Part D enrollees a $250 rebate beginning in 2011 on any spending in the coverage gap. They will also receive a 50% discount, provided by the pharmaceutical industry, on brand-name drugs. The law phases the Medicare coverage up to 75% of gap costs for enrollees for both brand names and generic drugs by the year 2020.[80]

PPACA Summary

The PPACA is viewed as a positive first step despite its contradictions and potential for not resolving the balance of access-cost-quality. Several unknowns still exist that will determine if the health care reform initiatives called for in the PPACA will be a success. How will the industry adapt to and operate ACOs? How will the industry influence change public expectations



and behavior about health care? How accurate are the cost estimates for the additional participants in the health care system? What is the ability of Medicare to contain costs while servicing more patients and the ability of states to fund Medicaid in a fiscally constrained environment? What is the relationship among the government, insurance providers, and health care providers? Two external issues that must also be addressed include tort reform and political campaign financing which are beyond the scope of the current debate and this investigation.

DOD/VA- A PARTNERSHIP FOR THE FUTURE

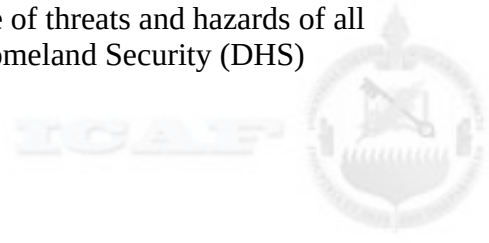
One bright spot that can serve as a model for collaboration between two large agencies to take advantage of cost savings and benefits of technological integration is the partnership between the DOD and the VA. A Memorandum of Understanding (MOU) for health sharing guidelines between the VA and the DOD was signed in 1982 by the Deputy Secretary of Veteran Affairs and the Deputy Secretary of Defense to support the "DOD Health Resources Sharing and Emergency Operations Act of 1982 (Sharing Act) which encouraged the DOD and VA, collectively known as the federal health care system, to seek efficiencies by finding 'common ground' between these initially disparate organizations."[81] In 2003, the Deputy Secretary of Defense & Deputy Secretary for Veterans Affairs established a Joint Executive Council (JEC) which they both Co-Chair. Each year, the JEC submits an annual report to the Secretaries of Defense, Veterans Affairs, and Congress that details the accomplishments of the councils and work groups that support the integration goals, such as VA/DOD collaboration results, information technology advancements, and healthcare resource sharing.

On October 1, 2010, several civic leaders along with leaders from the VA and the Department of the Navy gathered to open the Captain James A. Lovell Federal Health Care Center in North Chicago, Illinois. "The Lovell FHCC is the nation's first fully integrated VA and DOD entity, combining manpower and resources from the North Chicago VA Medical Center and Naval Health Clinic Great Lakes."[82] The Captain James A. Lovell Federal Health Care Center is considered the first federal health care facility with a single management structure to integrate all DOD and VA clinical and administrative services under one line of authority. Other sites have been identified for increased integration and service sharing at Tripler Army Medical Center--VA Pacific Island Health Care System, Mike O'Callaghan Federal Hospital--Nellis Air Force Base, Keesler Air Force Base--Biloxi VA Medical Center, and Buckley Air Force Base--Denver VA Medical Center.

The VA and DOD work groups continue to collaborate on joint capital asset construction projects and opportunities to improve the effectiveness of the Construction Planning Committee structure. Another noteworthy endeavor underway is the Fort Belvoir, Virginia, replacement hospital. This Joint services hospital will house a VA Community Based Outpatient Clinic. The Fort Bliss, Texas, hospital replacement project was awarded in 2009 with completion of construction targeted for March 2015. Planning was initiated to expand sharing and selective integration of services between VA and DOD, as well as, enhanced VA patient access to tertiary care inpatient facilities and emergency services.

EMERGENCY PREPAREDNESS, HEATH CARE AND NATIONAL SECURITY

Emergency preparedness and national resilience in the face of threats and hazards of all sizes is critical to US national security. The US Department of Homeland Security (DHS)



developed the National Response Framework (NRF) as the guide to how the nation conducts response to all hazards and the National Incident Management System (NIMS) as the template for management of all incidents.[83] The medical aspect of emergency preparedness is a critical element of the NRF. Medical emergency preparedness is a complex system of policies, directives, plans and guides that attempt to build a systematic framework for medical emergencies. In order to be effective, emergency preparedness requires focus of effort across all levels of government (national, state, tribal, local, non-governmental organizations), public/private sectors, and must include personal preparedness.

The Pandemic and All-Hazards Preparedness Act (PAHPA) was signed into law to "improve the Nation's public health and medical preparedness and response capabilities for emergencies, whether deliberate, accidental, or natural." PAHPA codified the medical aspects of emergency preparedness within the context of the NRF and chartered development of a National Health Security Strategy (NHSS)[84] which focuses specifically on protecting people's health prior to, during, and after an incident through building community resilience and strengthening/sustaining health and emergency response systems.[85] Homeland Security Presidential Directive/HSPD-21 established a National Strategy for Public Health and Medical Preparedness which identified Biosurveillance, Countermeasure Distribution, Mass Casualty Care, and Community Resilience as the four most critical components of public health and medical preparedness during a catastrophic health event and tasked specific actions linked to the surge aspects of preparedness.[86]

National emergency medical preparedness is contingent on actions taken now to enable existing systems to surge to meet medical needs during a crisis. The most common measure of medical preparedness is surge capability which is commonly assessed through any one of multiple lenses (beds, staffing, etc.). Unfortunately, these metric typically fail to accurately capture the complexity of healthcare surge. Consider only beds and Emergency Departments (EDs):

- Despite decreases in the numbers of hospitals and beds between 1990 and 2009, the national average daily census has remained fairly constant at approximately 68% of the total staffed beds.[87,88] Viewed nationally, it would appear there are sufficient beds to support emergency surge requirements. At the county level however, those counties with larger populations (i.e. most of the Southwest and Eastern seaboard which houses over 30% of the U.S. population) have significantly fewer surge beds, for the corresponding population, than required by the Health Resources and Services Administration's benchmark surge requirements for emergencies.[89]
- A study of 41 Level I trauma centers across seven major US cities to assess ED capacity and ability to handle a mass influx of patients coincident with a major crisis indicated the average emergency room was operating at 115% capacity with no surge capability.[90]

Similar to the rest of the healthcare industry in the US, there is no lack of policies and supporting regulations concerning emergency medical preparedness. The complexity of the medical system and breadth of stakeholders involved (national to personal levels across both public and private sectors) sets a stage for significant bureaucracy and cost without significant returns. Despite the bureaucracy, there are numerous ongoing actions at all levels designed to improve preparedness such as: the establishment of the National Disaster Medical System (NDMS);[91] the creation of the Hospital Preparedness Program (HPP);[92] the creation of Preparedness Centers of Excellence like DHS' National Center for the Study of Preparedness and Catastrophic Event Response (PACER);[93] development of various software programs such

as the Electronic Mass Casualty and Planning Scenarios (EMCAPS) that models casualty estimates arising from 15 different attack and natural disaster related scenarios;[94] and finally the development of healthcare coalitions, collaborative groups of local healthcare institutions and response agencies that work together to prepare for and respond to emergencies.[95,96]

Success in emergency medical preparedness will only be achieved through policies that promote transparent coordination across diverse organizations. Development of a comprehensive transparent clearinghouse of initiatives and lessons learned is needed to focus limited resources towards making meaningful progress towards national emergency medical preparedness.

INTERNATIONAL HEALTH CARE COMPARATIVE ANALYSIS

The US health care system does not operate in a vacuum. As with many other industries, other nations around the globe have significant impact on US industry. The ICAF health care industry study team performed an in depth look at the Hungarian, Swiss and UK health care systems and identified some key themes across the three, data was also included about Jordan and Yemen based on personal experiences from two of the team members.

Coverage for All. All countries studied perceive provided health care as a public good. More specifically, all health care systems appeared to be a reflection of societal values; in each case the strong sense of solidarity and nationalism is exhibited by their health system.. This was understandable given these societies have a strong sense of solidarity. Additionally, it is also helps to explain why the US public struggles with the concept of health care as a public good given its individual liberties societal foundation.

Disparities within the 'Universal' Coverage. While all countries provided health care as a public good, it was apparent the health care provided was stratified – mainly based on income and opportunity. Some offered 'boutique' insurance opportunities while other countries enabled better access and quality to the privileged.

No Perfect System. Throughout the five systems studied, there was no single one that addressed all the issues of health care and provided a perfect solution. While there is no question some systems were better than others, numerous factors impacted the cost, quality and access of each system. No country achieved the optimal balance of providing high quality and widespread access at a contained cost level.

Uncontrolled Cost. As demonstrated in this report, the US spends more on health care than any other nation. That said, it became apparent no nation has curbed the staggering rise in health care costs. Each country studied has health care costs which out pace GDP growth. Because of this, each country will be forced to face controlling cost at some point in the future much like the US is facing now.

Health Care Workers Chase Money. In an effort to attain a better quality of life, health care workers are willing to leave their homeland. Hungarian workers sought work in Western Europe for more pay while western European workers sought opportunities in the US. Hungary suffers the most negative impact given it has little opportunity to attract talent from other foreign

nations with their low wages. However, this migration of workforce does have some ability to curb US health care worker shortages.

Medical Education. Within the studied countries, there is great opportunity for health care professional education. Many provide free training while others that charge some tuition are heavily subsidized. While the governments fund a great burden to train health care professionals, it mandates no 'return on investment' to keep the newly educated professional in their respective country.

RECOMMENDATIONS

After careful analysis of the US health care industry, the PPACA and the global comparisons of US health care system, it is clear that many challenges remain. But the question of the appropriate direction and courses of actions remains a contentious debate. Below are recommendations categorized by those overarching to the industry followed by recommendations grouped in the areas concerning bending the cost curve, improving the quality of care, and increasing access.

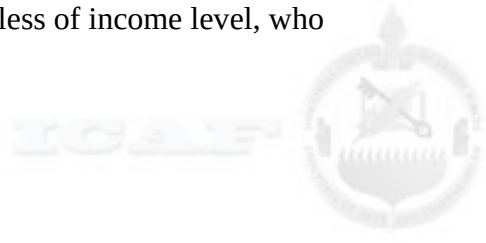
Overarching

Mandate national health quality standards. In order to reduce the number of medical errors, standardize access and quality, regulate insurance companies that occur, and in turn reducing cost the government should take a lesson from the Swiss and establish national level standards. While this will remove some flexibility for the states, the benefits to standardization will outweigh the loss the states may feel. The disparate level of quality among the states is staggering. With states in financial crisis, the national standards should begin to even out the disparity of quality and shift some cost burden to the federal government that has the ability to realize economies of scale.

Strategic Communications The Administration should also develop and implement educational and strategic communications plans to better promote health awareness and the new benefits afforded by PACA. The law is so complex and voluminous that the average American is unaware of all it entails.

Cost

Establish long term incentives for preventive medicine. Investment into preventive care services is absolutely essential. Since the government has a vested interest in the long term health of every US citizen, it should not only pay for preventive care services once an individual becomes eligible for Medicare, but should target compliance in preventive care services from cradle to grave. To do this, the government could provide incentives for every one who pays taxes by providing a tax deduction based on yearly compliance with standardized preventive and wellness goals for each family member. Additionally, the government can mandate preventive care and provide monetary incentives to the ACO's for compliance. The PPACA provisions regarding prevention and wellness target federal agencies, states, local governments, and employers. The Administration should also consider incentives addressed at individual taxpayer. For example, only medical expenses above 7.5%[97] of adjusted gross income is tax deductible. The tax code could be modified to provide a credit to filers, regardless of income level, who



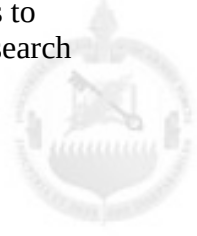
submit evidence of receiving preventive care, e.g., annual physical, dental exams, and prescribed follow-up.

Restructure Health Insurance Regulation within the PPACA. The intent of the PPACA's efforts on insurance companies was to ensure funding of claims. Unfortunately, the law will have unintended effects. Given more insurance companies are for profit corporations, they will cut administrative costs (the only opportunity for discretionary spending) to ensure profits to investors are competitive with the market. Additionally, the law does nothing to address fee for service and the lack of mismatched incentives on improving health care quality. Efforts need to be made to align incentives between cost, quality and profit for the insurance companies. To do this, insurance companies should move to pay for performance metrics.

Establish a cost sharing plan with higher deductibles and capitation. Efforts must be taken to reduce the moral hazard for both the patient and the provider of medical services. What the PPACA lacks are consumer-driven initiatives. One way to reduce moral hazard is if each entity has a cost-share. Shifting Medicare beneficiaries into high deductible plans would increase consumer choice and reduce consumption in both high cost procedures and elective services. To reduce the moral hazard for the provider, utilize the capitation model where either the individual provider or the ACO receives a set amount per Medicare beneficiary, but is eligible for additional Medicare funds based on performance and outcomes, i.e., pay-for-performance. The Military Health System is a great model that has demonstrated the benefits of single capitation and pay-for-performance which is tied to provider productivity, inpatient, and preventive measures. When facilities exceed certain benchmarks, they are rewarded with additional operational funding. This sensitizes the leadership and the providers to the utilization patterns and the coordination of care.

Implement a means test for Medicare. While the Independent Payment Advisory Board is a solid attempt to reduce rates on Medicare payments, the issue of patient volume remains. The PPACA only slows the rate of growth which the government translates as a "savings" when it takes the difference between say a reduction of a forecasted growth rate of 7% down to 6%. While this in fact avoids costs, it does not do much to reduce the percentage of GDP that Medicare consumes. To make significant reform and savings, Medicare must reduce the demand of the beneficiary population onto the system. To do this, the government should move towards means test which would adjust the government support based on income and wealth. Higher income and wealthier citizens would receive less from the government than lower income citizens. The Department of Veterans Affairs operates under such a model where the priority goes to the underserved and disadvantaged as opposed to the wealthy and well population. Phasing this over the next generation would condition them on the real purpose of government – to take care of the truly underserved. The wealthier citizens would rely more on private insurance.

Require royalty payments from generic pharmaceuticals to level competition. Increased competition of generics in the marketplace is happening even before the patent has expired. The elimination of state anti-substitutes laws and the enactment of the Hatch-Waxman Act in 1984 spurred such competition. Additionally, require drug companies producing generic drugs to provide a monetary payment to the brand name manufacturer to cover a portion of the research



and development which produced the drug in the first place. Since it takes approximately a $1 billion dollars to bring a drug to market, subsidizing the initial investment with some proceeds from generic drug sales would off-set the investment.

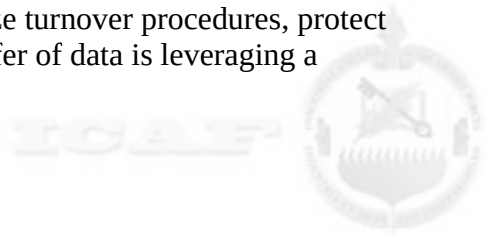
Redefine patent laws as they relate to pharmaceuticals. While using an across-the-board standard of 20 years for all inventions may have seemed adequate 60 years ago, it hardly seems apparent now. Changing the patent length to something more than the current twenty years would allow the drug companies additional time to recoup their investment costs and should renew interest in bringing new innovative drugs to market. While the efforts to make this happen will receive adverse pressures from the generic manufacturers, ultimately, it will benefit the consumer through increased opportunities for brand name manufacturers to invest in innovations and lower costs as the pharmaceutical company would have a longer exclusivity time for market share, revenue, and profit.

Quality

Establish a national level error event disclosure entity. The PPACA will start to require medical error reporting information for Medicare. However, the legislation needs to be more comprehensive. In coordination with the collection body, requirements for error/adverse event disclosure must be standardized nationwide, and across care-giving institutions. This data must be available publicly, easy to find, and easy to use. Currently only about half of US states have begun reporting hospital quality and performance.[98] Many states do not make the data easy to find, nor are many of the disclosures tied to specific hospitals or doctors.[99] Near misses should be recorded and reported in order to track trends and identify root cause solutions for training and educational purposes. Having this data available will allow patients to better choose their care practitioner and facility, and understand more clearly the risks associated with their choice.

"Medical boards in 32 states over the past two decades failed to administer follow-up disciplinary measures against more than 55% of physicians whose privileges were restricted or revoked" between 1990 and 2009.[100] Implementing a web-based system to track numbers of errors and 'adverse events' brings visibility to repeat offenders. States must set strict punishment guidelines, complete investigations in a timely manner, and share data across state lines to ensure safety for their residents.

Create and mandate the use of Nationally standardized Electronic Health Records. Implementing nationwide EHR will help improve patient safety, provide security for patient information, make transferring doctors and information interoperable, and help standardize policies and procedures. How? Instead of clumsy and outdated paper charts, each patient or professional could have a networked tablet computer such as an iPad or similar enabled device. With all the medical information in one place, turnover between shifts and a comprehensive record of care will be easily accessible to the patient being discharged. Once the full electronic heath record system is nationwide, access to prior history, and ease of transfer from one doctor, specialist, or primary care physician to another should become the industry standard. As only 17% of hospitals have computerized order entry, mandating incorporation of information technology into the remaining hospitals should lead quickly to reduced medical errors from poor handwriting and lost chart pages.[101] Leveraging the funding already included in the PPACA to update IT to promote efficiencies, reduce written errors, standardize turnover procedures, protect patient information, pharmaceutical administration, and ease transfer of data is leveraging a



government funded initiative to improve the safety records of hospitals. A regulating body (HHS, professional organizations, etc.) must also conduct regular inspections of the security features of the EHR systems to ensure compliance and upgrades to the latest standards. To be successful, the appropriate level of training must be included in individual implementation plans.

Access

Preventive Incentive. Mandate minimum standards that every private health plan must provide tax break incentives for preventive and wellness compliance. The health plan would send out a predetermined compliant score on a form similar to a 1099 Form to both the government for audit purposes and the individual taxpayer. Based on the score, the taxpayer could receive a deduction from the Medicare tax for that year. This would increase the awareness and importance of yearly preventive and wellness checks for the entire family.

Workforce

Health care is experiencing a dwindling workforce and something must be done to curb this trend. The PPACA has made some efforts to this end; however, more must be done. The following recommendations address these workforce challenges:

Incentivize critically manned career fields based on provider requirements. While the PPACA seeks to mitigate provider shortage issues through an incentives-based approach, it falls short. These incentives still rely far too heavily upon individual choice of provider career field once already enrolled within medical school. Incentives should be apportioned based upon a determination of aggregate national provider requirements and then offered prior to acceptance into a medical training program as a condition of that acceptance.

International Medical Graduates (IMG). Over 5,000 IMGs are accepted into US GME programs each year with the vast majority of them opting to enter the workforce as primary care providers.[102] Projections for the use of IMGs as primary care providers place them at almost 10% of the workforce by 2025, up from 6% in 2005, and a workforce growth rate ahead of US trained physicians.[103] The current use of IMGs to satisfy workforce provider shortages should be modified to serve as a workforce safety valve that would allow for relatively rapid expansion of the workforce in the near-term to counter the length of time involved in expanding domestic capacity. This lever could also be employed to rapidly contract the workforce when an adequate level of supply is reached. The policies regarding granting of visas to this segment of the workforce should be tailored to fill shortages in rural communities and underserved areas.

Register Nurses (RNs). The PPACA focuses heavily upon financial incentives in the form of RN student loan amount increases, grants that encourage workforce retention, and funding for demonstration programs for advancing nursing specialties. The RN workforce appears to be stabilizing in terms of demographics and is enjoying an infusion of younger members in the workforce. A long-term federally funded program that increases incentives and opportunities for the certification of alternative primary care providers, such as physician assistants and nurse practitioners, would be the most cost effective means of emphasizing the importance of continued advancement within RN graduate education, encouraging progressive vacancies within entry level positions of the RN career field, and aid in addressing the shortages of primary care providers.

'Pay for Performance' grants to schools producing quality medical professionals. The general PPACA provisions for five year grants to medical education institutions for increasing or establishing new capacity in primary care fail to link the funding to results. Policies supporting implementation the current law should be enacted that progressively increase grants to those institutions that show consistent progress in producing primary care providers for the workforce. The regulations on redistribution of Medicare funded residency positions do contain enough specificity to ensure unused positions do not equate to missed training opportunities and redistributed slots must largely be used for training in primary care or general surgery. Grants to qualifying teaching health centers that expand existing or establish new graduate medical residency training programs are too limited in duration (FY2011-15) and do not adequately address the underlying issue of reforming graduate medical education reimbursements for increased capacity for residency training. Congress should revisit the existing cap on Medicare funding of residency programs enacted under the Balanced Budget Act of 1997 and as modified under subsequent legislation.[104]

RESOURCING

Finally, with the escalation of costs, resourcing the many recommendations becomes a challenge. One of the major resource challenges within he PPACA will be to subsidize healthcare coverage for the projected 32 million uninsured people. That is more than one-tenth of the entire population of the US. There are few choices available to pay for this reform: increase taxes; reduce spending; increase contributions under individual plans; carve out savings by reducing inefficiencies; or more likely a combination of all options.

One possible choice to resource this monumental task of system reform may include imposing an excise tax on insurers of employer-sponsored health plans that cost more than $10,200 annually for individual coverage, or $27,500 annually for family coverage. This tax would be 40% of the cost of the plan that exceeds those dollar thresholds; it will not take affect until 2018. It is projected to bring in around $32 billion in the first two years.

Another choice is a consumption tax. One of the most controversial options under consideration for funding reform initiatives is the proposal of a new value-added tax (VAT). A number of other developed countries rely heavily on VAT revenues to fund their social program. An earmarked VAT, even at modest rates could easily pay for health care reform. Among the options for tax increases are placing a tax on sweetened beverages and capping exclusion of employer-financed health insurance premiums. Arguments against a VAT state the burden would fall unevenly on those with less income. Many live in rural areas and don't have access to the freshest foods and their diets consist largely on products under consideration for taxation.

CONCLUSION

Today, the US health care industry thrives by providing premiere acute episodic treatment to those consumers who can afford access. It is able to accomplish this through an impressive approach to innovative and high-end technological procedures. The cost of operating such a healthcare model has been financed primarily through health insurance obtained as a

provision of employment, privately purchased insurance and government payments. The current model supports an industry that is ill equipped to weather significant national economic disruptions. The ability of the nation to sustain this industry at the current and increasing cost levels is in question, and the possible inability poses a future threat to national security. America is getting older, but not necessarily healthier. Current attempts to enact policy and regulatory requirements will increase access to health care, but do not adequately address balancing the cost and quality aspects of the triad with increased access. The current model must be restructured and regulated based on individual health outcomes in order to achieve parity between the sizeable investments in healthcare and the value it should provide. To achieve this end, the approach to health care reform must be like that of treating a patient - holistic, transparent, and comprehensive among the complex, interdependent systems. The incentives for the health care industry should be centered on the healthy outcomes of the patient rather than rewarding providers for the quantity of service instead of quality.

APPENDIX A –NATIONAL HEALTH SECURITY STRATEGY: MAKING HEALTH SECURITY A KEY INTERAGENCY PILLAR OF U.S. NATIONAL SECURITY STRATEGY

A review of all publically available national strategies dealing with health threats and security revealed a sever lack of coordination regarding the severity and types of health threats and how to mitigate them. For example, the *National Security Strategy* (2010) highlights pandemics and infectious disease and outlines broad US response as part of its "Sustain Broad Cooperation on Key Global Challenges" section. In contrast the Department of Homeland Security's *National Strategy for Homeland Security* (2007) recognizes natural health threats as part of a greater matrix of threats, and treats them only a response and recovery perspective. To this, the Department of Health and Human Services' *National Health Security of the USA* (2009) sees pandemic threats as part of the myriad of health threats; however, the strategy addresses alleviating them from the twin goals of building community resilience, and strengthening and sustaining health and emergency response systems. Finally of interest, the Department of Defense's *National Military Strategy* (2011) only addresses pandemics as part of the transnational threats faced by US military planners and forces, and the Director of National Intelligence's *National Intelligence Strategy* (2009) does not address disease threats at all.

If the US is to have a comprehensive response to health threats it must have a comprehensive national health security strategy. To do this first requires making health security a key pillar in the *National Security Strategy*; and, second, to promulgate a new ***Interagency*** *National Health Security Strategy* between the Department of Health and Human Services (DHHS), the Department of Homeland Security (DHS), and the Department of Defense (DOD).

Make Health Security a Key Pillar to the *National Security Strategy*. Because of the criticality of assuring the nation's health, the *National Security Strategy* must be modified to highlight "Health Security" as the fifth national interest. National health security must equal in importance to the listed national interests of Security, Prosperity, Values, and International Order. This Health Security component should stress seven inter-linked objectives: (1) harmonizing national and international health threat policies and practices; (2) bolstering national, state, and tribal law and health enforcement capacities into unified command and control structure; (3) standardizing and strengthening a national disease surveillance, monitoring, and warning system; (4) reinforcing cooperation with global, regional and national health warning organizations across the world; (5) developing a national medical response corps and surge capacity in cooperation with national, state, local and tribal authorities and capabilities; (6) fostering innovation, integration and sustainment of a national medical health information exchange system; and (7) promoting public awareness of the relationships of individual health to national health, national health to global health, global health threats, and willingness to help fellow citizens in need of health assistance.

Promulgate an "Interagency" *National Health Security Strategy*. Although the current DHHS *National Health Security Strategy of the United States of America* is positive step forward, it needs robust authority to over come the challenges in preparing for and overcoming health threats to the US. Two critical actions are needed: directly linking the new strategy with the *National Security Strategy*; and making the strategy as an "interagency" strategy. The key agencies of this new strategy would be DHHS, DHS and DOD; however, the strategy would also

reach out to other agencies and federal organizations such as the Director of National Intelligence, the Department of the Interior, the Department of Commerce, etc. This new strategy would stress a whole-of-government approach in addressing health security threats.

The new strategy would be built on key principles of the aforementioned strategies, but in a "two-tier-plus" construct. The first tier is focused on *national preparation and regional prevention and response* with the second tier centered on *fighting health threats at the source and at US "points-of-entry."* The "plus" component is a *strategic communication campaign* centered on heightening public awareness of the threats and the linkages of health security.

Tier One (National Preparation, and Regional Prevention and Response) Goals:

1. Create a National Health Security Steering Committee with Departmental Senior Executive Service representation from the DHHS, DHS and DOD.

2. Formulate and publish an overarching Interagency National Health Security Strategy to guide national, state and tribal health security organizations, preparations and reactions.

3. Synchronize U.S. health security policies as an integral, coherence component of U.S. foreign, international aid, and military assistance policies.

4. Establish organizational and procedural standards for U.S. actions in response to local, national, regional, and inter-regional health emergencies.

5. Build and align initial and back-up national, state and tribal health and medical capabilities to rapid and reliable respond to public health threats.

6. Foster a national-level health security response teams integrating medical and other related health security specialties with organizational, administrative and security experts.

7. Standardize national, state and tribal health response initial and continuation proficiency training and education of specialized health security personnel and support activities.

8. Promote the U.S. as an international leadership in promoting greater international cooperation and sharing of health security information, and other problem areas such as global vaccine production and emergent and re-emergent disease threat in poorly governed states.

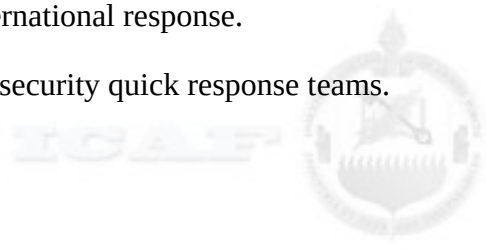
Tier Two (Fighting Health Threats at the Source and at U.S. Points-of-Entry) Goals.

1. Create an integrated health security monitoring, surveillance and warning system integrating DHHS, DHS and DOD capabilities with state and tribal capacities.

2. Increase the cooperation and interaction with international organizations (e.g., World Health Organization, World Bank, etc.) focused global and regional health security issues.

3. Build combined U.S. and international partners health security centers focused on mitigating and containing infectious diseases as a regional and international response.

4. Organize and employ U.S.-International Partner health security quick response teams.



5. Establish U.S. border health security forces and centers in conjunction with DHS to screen test and treat people illegally entering the U.S.

6. Foster monitoring, screening, testing and treatment of Neglected Topical Diseases (NTDs) in key global areas and U.S. poverty belt.

Health Security Strategic Communication Campaign Goals.

1. Create greater public awareness of infectious and non-communicable disease threats to the U.S. and their impact on social and economic health of the nation.

2. Build support for active U.S. leadership and participation in addressing health security threats at their source in cooperation with other nations and international organizations

3. Heighten professional and volunteer participation in national, state and tribal health security organizations and associated activities

4. Create a national consciousness that U.S. health security in directly linked with global health security and that an individual's health can and does directly affect national security.

Bibliography

Alan Cordesman, "Rethinking a Resource-Based Strategy" (powerpoint presentation to the Industrial College of the Armed Forces, February 28, 2011; slide 13.

American Hospital Association. *Fast Facts on US Hospitals: 2009 Annual Survey Data*, 2011.

Courtney, Brooke and Eric Toner, Richard Waldhorn, Crystal Franco, Kunal Rambhia, Ann Norwood, Thomas V. Inglesby, Tara O'Toole. "Healthcare Coalitions: The New Foundation for National Healthcare Preparedness and Response for Catastrophic Health Emergencies." *Biosecurity and Bioterrorism © Mary Ann Liebert, Inc.* 7, no. 2 (2009): 153, http://www.upmc-biosecurity.org/website/resources/publications/2009/2009-08-06-healthcare_coalitions.html.

Angell, Marcia, "The Truth About the Drug Companies," The New York Review of Books, July 15, 2004. http://www.nybooks,com/articles/2004/jul/15/the-truth-about-drug-companies

Bailey, Edward W., A Joy Arnold and Thomas D. Lynford. "Recent Hatch-Waxman reform: balancing innovation, competition and affordability," New York, NY, http://www.buildingipvalue.com/05_NA/107_110.htm

Berg, Jill,; Evangelista, Lorraine S.; Carruthers, Donna ; and Jacob, Dunabar, Jacqueline M. "Adherence," in *Chronic Illness: Impact and Intervention*. edited by. Pamela D. Laren and Ilene Morof Lubkin; pp. 162-183. Sudbury, MA: Jones and Barlett Publishers, 2009

Centers for Disease Control, "The State of Aging and Health in America, 2007", Executive Summary, p. III

Christ, Scott. "The Benefits of the Pharmaceutical Industry," *ehow.com,*. July 8, 2010. http://www.ehow.com/list_6710523_benefits-pharmaceutical-industry.html

Clifton, Guy L. *Flatlined.* New Brunswick, NJ: Rutgers University Press, 2009

CNN, "Mullen: Debt is Top National Security Threat," August 27, 2010. Accessed March 24, 2011 http://articles.cnn.com/2010-08-27/us/debt.security.mullen_1_pentagon-budget-national-debt-michael-mullen?_s=PM:US;

DC Healthcare For You," (website) last modified March 27, 2011; accessed March 27, 2011

DeLia, Derek and Elizabeth Wood. "The Dwindling Supply of Empty Beds: Implications for Hospital Surge Capacity." *Health Affair*s 27, no. 6 (November 01, 2008): 1688-1694.

DiMasi, Joseph A., Ronald W. Hansen, Henry G. Grabowski. "The Price of innovation: new estimates of drug development costs." *Journal of Health Economics 22*, 2003. http://www.sciencedirect.com

Epstein, Richard A.. *Overdose: How Excessive Government Regulation Stifles Pharmaceutical Innovation*, Yale University Press. New Haven and London, 2006.

Elmendorf, Douglas W. Letter to Nathan Deal, August 7, 2009. Accessed March 23, 2011 http://www.cbo.gov/ftpdocs/104xx/doc10492/08-07-Prevention.pdf;

"EMCAPS: Electronic Mass Casualty Assessment and Planning Scenarios." http://www.pacercenter.org/pages/about_emcaps.aspx.

Farley, Thomas A.; Dalal, Mehul A.; Mostashari, Farzad;, and Thomas R. Frieden. "Deaths Preventable in the U.S. by Improvements in Use of Clinical Preventive Services" in *American Journal of Preventive Medicine*, 38 (2010) pp. 600-609

Glick, Michael E., Ph.D. "Federal Policies Affecting the Cost and Availability of New Pharmaceuticals," *Kaiser Family Foundation*. Georgetown University Institute for Health Care Research and Policy, July 2002

House Committee on Oversight and Government Reform. *Hospital Emergency Surge Capacity: Not Ready for the "Predictable Surprise*": United States House of Representatives, May 2008.

Humana-Discovery Holdings Press Release, February 22, 2011. Accessed March 27, 2011 http://www.thevitalitygroup.com/sites/default/files/Humana_Vitality_Joint_Venture_NEWS_RELEASE_--_02_22_11__2__FINAL.pdf; Kumar, Anita. "Virginia Gov. Rober McDonnell Vetoes

Kaiser Family Foundation, "Summary of New Health Reform Law", June 18, 2010; p. 11. Accessed December 14, 2010 http://www.kff.org/healthreform/upload/8061.pdf;

Lemov, Penelope. "Defining Prevention," in *Governing Magazine*, August 2009: p. 17. Aaccessed February 23, 2011 http://www.lexisnexis.com/hottopics/lnacademic/;

Milstein, Bobby Milstein; Horner, Jack; and Hirsch, Gary. "Analyzing National Health Reform Strategies with a Dynamic Simulation Model," in *American Journal of Public Health*, 100 (2010), pp. 811-819

Mission Readiness: Military Leaders for Kids, "To Fat to Fight: Retired Military Leaders Want Junk Food Out of America's Schools", 2010; Accessed March 23, 2011 http://cdn.missionreadiness.org/MR_Too_Fat_to_Fight-1.pdf,

Monroe, Judy. "Prevention" (powerpoint presentation given at a conference hosted by the Alliance for Health Reform entitled *Making the Case for Prevention: Tales from the Field*, Washington, DC, June 19, 2009)

National Center for the Study of Preparedness & Catastrophic Event Response. "Center of Excellence for the Study of Preparedness and Catastrophic Event Response (PACER)." http://www.pacercenter.org/pages/about.aspx.

Niederman, Dan. "The National Disaster Medical System, can it Respond to a Major Southern California Earthquake?" *EzineArticles.Com*, November 11, 2008. http://ezinearticles.com/?The-Natural-Disaster-Medical-System,-Can-it-Respond-to-a-Major-Southern-California-Earthquake?&id=1677932.

Noonan, Kevin E. "Maybe Hatch-Waxman Data Exclusivity Isn't So Good for Traditional Drugs After All," *Patent Docs*, October 18, 2009. http://www.patentdocs.org./2009/10/maybe-hatchwaxman-data-exclusivity-isnt-so-good-for-traditional-drugs-after-all.html

Pane, Gregg A. *Is the Medical Community Ready if Disaster Or Terrorism Strikes: Closing the Gap in Medical Surge Capacity*, Statement given to the House Committee on Homeland Security, Subcommittee on Management, Investigations, and Oversight, January 25, 2010. http://www.hhs.gov/asl/testify/2010/01/t20100125a.html.

P.E. Bill," *Washington Post*, March 25, 2011. Accessed March 25, 2011 http://www.washingtonpost.com/local/politics/virginia-gov-mcdonnell-vetoes-pe-bill/2011/03/24/ABzY8USB_print.html;

Petersen, Melody. *Our Daily Meds*, Picador, New York, NY, 2008.

Phillips, S., G. Worthington, and J. Howe. "When DISASTER STRIKES." *United States Naval Institute Proceedings* 135, no. 10 (Oct, 2009): 32.

Reid, T. R. The Healing of America: A Global Quest for Better, Cheaper, and Fairer Health Care. New York: Penguin Press, 2009.

S.3678: Pandemic and all-Hazards Preparedness Act, (December 19, 2006): , http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109%5Fcong%5Freports&docid=f:sr319.109 (text version) and http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109%5Fcong%5Freports&docid=f:sr319.109.pdf.

Sandler, Kevin. "What are the Benefits of Pharmaceutical Companies?" *ehow.com*, July 6, 2010. .http://www.ehow.com/list_6704561_benefits-pharmaceutical-companies_.html

Their, Sara L.; Yu-Eisenberg, Kristina S.; Leas, Brian F.; Cantrell, C. Ron; DeBussey, Sandra; Goldbarf, Neil I.; and Nash, David B. "In Chronic Disease, Nationwide Data Show Poor Adherence by Patients to Medication And by Physicians to Guidelines," in *Managed Care;* February (2008), pp.. 48-57. Accessed March 23, 2011 http://www.managedcaremag.com/archives/0802/0802.peer_evidence.pdf;

US Census Bureau. "Statistical Abstract of the United States: 2011, Health and Nutrition, Table 168. Hospitals-Summary Characteristics: 1990 to 2008." http://www.census.gov/compendia/statab/2011/tables/11s0168.pdf.

US Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. "National Health Security Strategy." http://www.phe.gov/Preparedness/planning/authority/nhss/Pages/default.aspx.

US Department of Homeland Security. "Homeland Security Presidential Directive/HSPD-5: Management of Domestic Incidents." (February 28, 2003).
———. "Homeland Security Presidential Directive/HSPD-21: Public Health And Medical Preparedness." (October 16, 2007).

U.S. Preventative Services Task Force, *USPSTF A and B Recommendations,* August 2010. Accessed March 23, 2011 http://www.uspreventiveservicestaskforce.org/uspstf/uspsabrecs.htm;

Wells, Susan J. "Finding Wellness's Return on Investment," in *HR Magazine*, June 2008; pp. 75-84. Accessed March 18, 2011 http://findarticles.com/p/articles/mi_m3495/is_6_53/ai_n27503948/;

[1] CNN, "Mullen: Debt is Top National Security Threat," August 27, 2010. http://articles.cnn.com/2010-08-27/us/debt.security.mullen_1_pentagon-budget-national-debt-michael-mullen?_s=PM:US; accessed March 24, 2011

[2] Centers for Medicare and Medicaid Services, National Healthcare Estimate, 2010, https://www.cms.gov/NationalHealthExpendData/downloads/NHEProjections2009to2019.pdf accessed 17 May 2011.
[3] Bureau of Labor and Statistics, http://www.bls.gov/oco/cg/cgs035.htm, accessed 17 May 2011
[4] Bureau of Labor and Statistics, http://www.bls.gov/oco/cg/cgs035.htm, accessed 17 May 2011

[5] Ibid.
[6] http://www.census.gov/hhes/www/hlthins/data/incpovhlth/2009/highlights.html
[7]Petersen, Melody. *Our Daily Meds*, Picador, New York, NY, 2008, p5.
[8] Angell, Marcia, *The Truth About Drug Companies*, Random House, New York, NY, August 2004, p1.
[9] US Department of Health and Human Services, http://www.hhs.gov/about/, accessed 16 May 2011
[10] Centers for Medicare and Medicaid Services, https://www.cms.gov/MissionVisionGoals/, accessed 16 May 2011
[11] U.S. Food and Drug Administration, http://www.fda.gov/ICECI/Inspections/IOM/ucm124442.htm, accessed 16 May 2011
[12] Agency for Healthcare Research and Quality, http://www.ahrq.gov/about/ataglance.htm, access 16 May 2011
[13] Historical Tables Budget of the U.S. Government, Office of Management and Budget, Fiscal Year 2010, http://www.gpoaccess.gov/usbudget/fy10/pdf/hist.pdf

[14] Heritage Organization, 2010 Budget Chart Book, Federal Spending Chart 6, ICAF Economics Handout.
[15]https://www.cms.gov/MedicareProgramRatesStats/downloads/MedicareMedicaidSummaries2010.pdf

[16] Fenn, Peter, *Robert Gates Says Healthcare Costs Hurt Defense*, US News and World Report, 24 Feb 2011, www.usnews.com/opinion/blogs/Peter-Fenn/2011/02/24/robert-gates-says-healthcare-costs-hurt-defense-budget

[17] Ibid.
[18] Kaiser Family Foundation and Health Research and Educational Trust 2009.
[19] Ibid.
[20] IBISWorld Industry Report 62211, Hospitals in the US, October 2010. pages 3 -5.
[21] Ibid. page 4.
[22] Ibid. page 19.
[23] Ibid. page 19.

[24] IBISWorld Industry Report 62111a, Primary Care Doctors in the US, December 2010 and IBISWorld Industry Report 62111b, Specialists in the US, December 2010
[25] Ibid.
[26] Ibid.
[27] IBISWorld Industry Report 62111b, Specialists in the US, December 2010. page 20.
[28] Ibid, page 20.
[29] IBISWorld Industry Report 52411b, Health and Medical Insurers in the US, October 2010
[30] Ibid.
[31] IBISWorld Industry Report 32541a, Brand Name Pharmaceuticals in the US, February 2011 and IBISWorld Industry Report 32541b, Generic Pharmaceuticals in the US, March 2010
[32] Christ, The Benefits of the Pharmaceutical Industry, 1.
[33] Snyder, Sophia. *Good Prognosis: New Drugs and Greater Healthcare Coverage Keep Demand Healthy*. IbisWorld. IbisWorld Industry Report 32541a. February 2011. Accessed March 1, 2011. www.ibisworld.com. Pg 50, 8, 9.
[34] Ibid.
[35] Snyder, Sophia. *Good Prognosis: New Drugs and Greater Healthcare Coverage Keep Demand Healthy*. IbisWorld. IbisWorld Industry Report 32541a. February 2011. Accessed March 1, 2011. www.ibisworld.com. Pg 15.
[36] Pharmaceuticals Lecture, Industrial Colleges of the Armed Forces, National Defense University, Washington, D.C., 17 February 2011.
[37] IBISWorld Industry Report 32541a, Brand Name Pharmaceuticals in the US, February 2011
[38] CIA Factbook, https://www.cia.gov/library/publications/the-world-factbook/rankorder/2102rank.html#, accessed 18 May 2011.
[39] MacDorman, M.F. and Mathews, T.J. NCHS Data Brief, "Recent Trends in Infant Mortality in the United States," October 2008. http://www.webmd.com/parenting/baby/news/20081015/infant-mortality-us-ranks-29th
[40] U.S. Census, 2010, http://2010.census.gov/2010census/data/apportionment-pop-text.php, accessed 17 May 2011
[41] GPO, ERP-2010-Reforming Healthcare, Chapter 8.
[42] NHE, MEPS, CMS; Office of the Actuary; MGMA Cost Survey; McKinsey analysis
[43] Douglas W. Elmendorf, letter to Nathan Deal, August 7, 2009; p. 1 http://www.cbo.gov/ftpdocs/104xx/doc10492/08-07-Prevention.pdf; accessed March 23, 2011

[44] Ibid, page 8.
[45] Ibid, page 8.
[46] Sara L. Thier, Kristina S. Yu-Isenberg, Brian F. Leas, C. Ron Cantrell, Sandra DeBussey, Neil I. Goldfarb, and David B. Nash, "In Chronic Disease, Nationwide Data Show Poor Adherence by Patients to Medication And by Physicians to Guidelines," *Managed Care;* February (2008), p. 48 http://www.managedcaremag.com/archives/0802/0802.peer_evidence.pdf; accessed March 23, 2011

[47] Jill Berg, Lorraine S. Evangelista, Donna Carruthers, and Jacqueline M. Dunabar-Jacob. "Adherence," in *Chronic Illness: Impact and Intervention*, ed. Pamela D. Laren and Ilene Morof Lubkin (Sudbury, MA: Jones and Barlett Publishers, 2009) p. 162

[48] T. Kohn., Janet M. Corrigan, and Molla S. Donaldson. *To Err Is Human: Executive Summary*, National Academy of Sciences, 2000, www.nap.edu/catalog/9728.html.
[49] Ibid.
[50] Peter J. Pronovost, Laura L. Morlock, et al. "Improving the Value of Patient Safety Reporting Systems", www.ncbi.nlm.nih.gov/books/NBK43621/pdf/advances-pronovost_95.pdf, p1.

[51] Agency for Healthcare Research and Quality, "10 Patient Safety Tips for Hospitals", http://www.ahrq.gov/qual/10tips.htm, accessed March 7, 2011.

[52] Guy Clifton"Dangerous Hospitals", *Flatlined*, Rutgers University Press, New Brunswick, 2009, p. 92.
[53] Joseph S. Ross, Sameer Sheth, and Harlan Krumholz"State-Sponsored Public Reporting of Hospital Quality: Results are Hard to Find and Lack Uniformity", *Health Affairs.org*, http://www.ahrq.gov/qual/psoact.htm, accessed March 9, 2011.
[54] Trisha Torrey, "Learn About Medicare's Never Events Policy There's More To It Than Just Patient Safety", *about.com*, http://patients.about.com/od/patientempowermentissues/a/medicare08never.htm, accessed March 26, 2011.
[55] Ibid.

[56] American Medical Association, ""Physicians Characteristics and Distribution in the US, 2010 Edition," 439.

[57] Peter I. Buerhaus, David I. Auerbach and Douglas O. Staiger, "The Recent Surge In Nurse Employment: Causes And Implications," *Health Affairs* 28, no.4 (2009):657-668.

[58] U.S. Department of Health and Human Services, http://www.healthcare.gov/law/introduction/index.html, accessed 18 May 2011
[59] Ibid, pgs 56-58.
[60] Kaiser Family Foundation, Focus on Health Reform, 15 June 2010, www.kff.org
[61] U.S. Department of Health and Human Services, http://aspe.hhs.gov/poverty/figures-fed-reg.shtml, accessed 18 May 2011.
[62] Kaiser Family Foundation, Focus on Health Reform, 15 June 2010, www.kff.org
[63] Ibid.
[64] Ibid.
[65] Ibid.
[66] Ibid.
[67] Ibid.
[68] Ibid.
[69] Ibid.
[70] Ibid.
[71] Congressional Budget Office, Potential Effects of the Patient Protection and Affordable Care Act on Discretionary Spending, http://www.cbo.gov/ftpdocs/113xx/doc11307/Specified_Authorizations_HR3590.pdf, accessed 17 May 2011.
[72] Ibid.
[73] Ibid.

[74] Davis, Patricia A., Hahn, Jim, Morgan, Paulette C., Stone, Julie, and Tilson, Sibyl, Congressional Research Services, "Medicare Provisions in the PPACA: Summary and Timeline," January 24, 2011, pg 58
[75] Kaiser Family Foundation, Focus on Health Reform, 15 June 2010, www.kff.org
[76] Kaiser Family Foundation, Focus on Health Reform, 15 June 2010, www.kff.org
[77] Davis, Patricia A., Hahn, Jim, Morgan, Paulette C., Stone, Julie, and Tilson, Sibyl, Congressional Research Services, "Medicare Provisions in the PPACA: Summary and Timeline," January 24, 2011, pg 58
[78] Kaiser Family Foundation, Focus on Health Reform, www.kff.org
[79] Berenson, R.. 2010. Implementing Health Care Reform -- Why Medicare Matters. *The New England Journal of Medicine* 363, no. 2, (July 8): 101-3. pg 101.
[80] Ibid, pg 59.
[81] U.S. General Accountability Office, "VA and DOD Health Care Resource Sharing: Opportunities to Maximize Resource Sharing Remain" (Washington, D.C.: U.S. Government Accountability Office, March 2006), p.6, available from http://www.gao.gov/new.items/d06315.
[82] *The Apollo*, October 2010, accessed on http://www.lovell.fhcc.va.gov/MediaCenter/Newsletter/ApolloOctober2010.pdf
[83] *Homeland Security Presidential Directive/HSPD-5: Management of Domestic Incidents*, (February 28, 2003).
[84] *S.3678: Pandemic and all-Hazards Preparedness Act*, (December 19, 2006), http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109%5Fcong%5Freports&docid=f:sr319.109 (text version) and http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109%5Fcong%5Freports&docid=f:sr319.109.pdf.
[85] US Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response, "National Health Security Strategy," http://www.phe.gov/Preparedness/planning/authority/nhss/Pages/default.aspx.
[86] *Homeland Security Presidential Directive/HSPD-21: Public Health And Medical Preparedness*, (October 16, 2007).
[87] US Census Bureau, "Statistical Abstract of the United States: 2011, Health and Nutrition, Table 168. Hospitals-Summary Characteristics: 1990 to 2008," http://www.census.gov/compendia/statab/2011/tables/11s0168.pdf
[88] American Hospital Association, *Fast Facts on US Hospitals: 2009 Annual Survey Data*, (January 2011), http://www.aha.org/aha/resource-center/Statistics-and-Studies/fast-facts.html.
[89] Derek DeLia and Elizabeth Wood, "The Dwindling Supply of Empty Beds: Implications for Hospital Surge Capacity," *Health Affairs* 27, no. 6 (November 01, 2008), 1688-1694.
[90] House Committee on Oversight and Government Reform, *Hospital Emergency Surge Capacity: Not Ready for the "Predictable Surprise"*, (May 2008), http://cdrp.net/amts/docs/HospitalEmergencySurgeCapacityReport.pdf.
[91] Dan Niederman, "The National Disaster Medical System, can it Respond to a Major Southern California Earthquake?" *EzineArticles.Com*, November 11, 2008, http://ezinearticles.com/?The-Natural-Disaster-Medical-System,-Can-it-Respond-to-a-Major-Southern-California-Earthquake?&id=1677932.
[92] Gregg A. Pane, *Is the Medical Community Ready if Disaster Or Terrorism Strikes: Closing the Gap in Medical Surge Capacity*, Statement given to the House Committee on Homeland

Security, Subcommittee on Management, Investigations, and Oversight, (January 25, 2010), http://www.hhs.gov/asl/testify/2010/01/t20100125a.html.

[93] National Center for the Study of Preparedness & Catastrophic Event Response, "Center of Excellence for the Study of Preparedness and Catastrophic Event Response (PACER)," http://www.pacercenter.org/pages/about.aspx

[94] National Center for the Study of Preparedness & Catastrophic Event Response, "EMCAPS: Electronic Mass Casualty Assessment and Planning Scenarios," http://www.pacercenter.org/pages/about_emcaps.aspx

[95] Brooke Courtney, Eric Toner, Richard Waldhorn, Crystal Franco, Kunal Rambhia, Ann Norwood, Thomas V. Inglesby, and Tara O'Toole, "Healthcare Coalitions: The New Foundation for National Healthcare Preparedness and Response for Catastrophic Health Emergencies," *Biosecurity and Bioterrorism © Mary Ann Liebert, Inc.*, 7, no. 2 (2009), 153, http://www.upmc-biosecurity.org/website/resources/publications/2009/2009-08-06-healthcare_coalitions.html.

[96] S. Phillips, G. Worthington and J. Howe, "When DISASTER STRIKES," *United States Naval Institute Proceedings* 135, no. 10 (Oct, 2009), http://ezproxy6.ndu.edu/login?url=http://proquest.umi.com/pqdweb?did=1899607021&Fmt=7&clientId=3921&RQT=309&VName=PQD.

[97] PACA cites a 10% threshold

[98] Joseph S. Ross, Sameer Sheth, and Harlan Krumholz, "State-Sponsored Public Reporting of Hospital Quality: Results are Hard to Find and Lack Uniformity", *Health Affairs.org*, accessed March 9, 2011.

[99] Ibid.

[100] Linda Shrieves, "Report: States fail to discipline rogue doctors**",** *Orlando Sentinel*, March 15, 2011, http://articles.orlandosentinel.com/2011-03-15/health/os-medical-boards-discipline-doctor-20110315_1_clinical-privileges-state-medical-boards-licensing-boards.

[101] Agency for Healthcare Research and Quality, "Patient Safety/Medical Errors**"** http://www.ahrq.gov/news/pubcat/c_pasa.htm, accessed March 9, 2011.

[102] American College of Physicians, "*A System in Need of Change: Restructuring Payment Policies to Support Patient-Centered Care (A New Physician Payment and Delivery Model),*" (Philadelphia: American College of Physicians: 2007): 1-4.

[103] Michael Dill and Edward Salsberg, "*The Complexities of Physician Supply and Demand: Projections Through 2025*," 26.

[104] American Association of Medical Colleges, "*Medicare Direct Graduate Medical Education (DGME) Payments*," American Association of Medical Colleges information paper, December 2010, 2.