

**Spring 2006
Industry Study**

Final Report
Health Care Industry



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HEALTH CARE 2006

ABSTRACT: Despite the trillions of dollars spent on the United States health care industry, there are major systemic problems. For many Americans, the health care industry is a disorganized and complicated array of systems and processes that are inaccessible, unaffordable, and of low quality. With increasing technological change, Americans expect more out of the health care delivery system. The lessons learned from this report are that there is an urgent need to develop a national health care strategy, a rationale for health care spending, and a system that provides some level of health care for everyone.

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Washington Hospital Center, Washington, DC
La Clinica del Pueblo, Washington, DC
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Johns Hopkins University Medical Center, Baltimore, MD
USNS Comfort, Hospital Ship, Baltimore, MD
U.S. Army Medical Research and Materiel Command, Fort Detrick, MD
Veterans Administration Medical Center, San Francisco, CA
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Polyclinic La Marsa, Tunis, Tunisia
Ibn El-Jazzar Hospital, Kairouan, Tunisia
Military Medical Department and Hospital, Tunis, Tunisia
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Introduction

The United States has the most expensive health care system in the world, based on data from the Organization for Economic Cooperation and Development (OECD) (Anderson and Hussey, 2001). In 2005, Americans spent 1.9 trillion dollars on health care (Plunkett Research, 2006). By 2015, U.S. spending for health care will likely make up 20% of the GDP, about 4 trillion dollars.

The U.S. health care industry leads the way in technological advancements in medicine. In the past thirty years, eight out of the ten most important medical breakthroughs originated in America. Americans received 50% of the Nobel Peace Prize awards in Medicine (Satcher, 2006). These new technological breakthroughs contribute to significantly improved care for the elderly and increased life expectancies. Yet although the U.S. health care system may be considered, by some, to be the best in the world, not everyone in the United States receives the best care.

America may be the world's superpower, but the statistics on health care are both puzzling and troubling. The good news is that, according to the World Health Organization (WHO), the United States ranks first among 191 member countries in the extent to which caregivers are responsive to a patient's expectations of receiving treatment with dignity and respect (WHO, 2000). The bad news is that WHO also ranks the United States as 37th out of 191 countries in its overall health system performance and 72nd based on comparisons of disease-adjusted life expectancies (Luce & Rubenfeld, 2002).

Given the somewhat impressive technological advantage and level of financial expenditure, one would reasonably expect the United States to be the healthiest country in the world. Despite the trillions of dollars spent on the U.S. health care industry, there are major systemic problems. For many Americans, the health care industry is a disorganized and complicated array of systems that are inaccessible, unaffordable, and of low quality. There are shortages and imbalances in the availability of medical professionals. Prescription drug costs are unaffordable for many. A large number of Americans have raised this question: in this age of "managed" health care, is managed care really managing our health, or managing the costs?

With the amount of money spent on health care, Americans expect and deserve a health care system that is accessible, of high quality, and affordable for everyone. In thinking about the elements of a successful health care system, two key questions remain: what are the health care obligations and responsibilities of the United States towards its citizens, and how can the nation achieve better health care outcomes, with an improved health for all?

Solving the health care crisis of today is of strategic importance to both policymakers and taxpayers. The overall health of the nation affects national security. Who will be healthy enough "to serve and protect" the nation? Rising health care costs pose a financial burden on the federal budget, and the projected cost increases are unsustainable. Taxpayers bear the brunt of costs for the uninsured. The cost, quality, and access to health care are disparate based on a myriad of socioeconomic factors. These disparities may reveal a weakness in the nation's ability to protect its citizens.

The manner in which the federal, state, and local governments responded to Hurricane Katrina exposed weaknesses and posed new challenges to the health care delivery system. Prior to Hurricane Katrina, many believed that America had a better public health emergency response system. Future public catastrophes, such as pandemics, may pose a challenge; the last pandemic occurred in 1968 and resulted in approximately one million deaths. If predictions about the Avian Influenza Pandemic become a reality, every American community will feel the effects. Millions of Americans may contract the virus and seek medical attention. In the case of a pandemic or bioterrorist attack, enemies of the United States could exploit weaknesses in the health care delivery system. Weaknesses in the current system could result in an unchecked spread of disease and infection, and inhibit the nation's ability to give and receive timely preventative care.

This paper will examine U.S. health care industry trends using the following methodology: define the industry, highlight its major components, discuss current state of the industry and the role of government, identify key challenges, describe trends and the outlook for 2006-2016, and present recommendations and solutions. The paper will advocate for the development of a national health care strategy. Finally, the paper will conclude with a summary.

It is the goal of this paper to raise issues, challenge assumptions, and develop recommendations and solutions for better health care delivery in America.

Defining the Industry

The U.S. health care industry is a large, diverse mix of organizations which comprise a major employer in the United States. According to the Bureau of Labor Statistics, health care provided about 13.5 million jobs—13.1 million jobs for wage and salary workers, and about 411,000 jobs for the self-employed (Bureau of Labor Statistics, 2006).

Major health care industry participants include:

Hospitals. Hospitals can be for-profit and not-for-profit. They provide complete medical care ranging from diagnostic services and surgery to continuous nursing care. Hospital-based care may be delivered on an inpatient or outpatient basis (Bureau of Labor Statistics, 2006).

Nursing and residential care facilities. Nursing care facilities provide inpatient nursing, rehabilitation, and health-related personal care to those who need continuous care but do not require hospital services (Bureau of Labor Statistics, 2006).

Offices of physicians. About 37 percent of all health care establishments fall into this industry segment. Physicians and surgeons practice privately, or in groups, with those who have the same or different specialties. Many physicians and surgeons prefer to join group practices because they afford backup coverage, reduce overhead expenses, and facilitate consultation with peers. Increasingly, physicians and surgeons work as salaried employees of group medical practices, clinics, or integrated health systems (Bureau of Labor Statistics, 2006).

Offices of dentists. Dental offices make up about one-fifth of all health care establishments. Most employ a few workers who provide general or specialized dental care, including dental surgery (Bureau of Labor Statistics, 2006).

Home health care services. Skilled nursing or medical care is sometimes provided in the home, under a physician's supervision. Home health care services are provided mainly to the elderly, and have become one of the fastest growing segments of the economy (Bureau of Labor Statistics, 2006).

Offices of other health practitioners. This segment of the industry includes the offices of chiropractors, optometrists, podiatrists, occupational and physical therapists, psychologists, audiologists, speech-language pathologists, dietitians, and other health practitioners. Demand for the services of this segment is related to the patient's ability to pay, either directly or through health insurance (Bureau of Labor Statistics, 2006).

Outpatient care centers. The diverse establishments in this group include kidney dialysis centers, outpatient mental health and substance abuse centers, health maintenance organization medical centers, and freestanding, ambulatory surgical and emergency centers (Bureau of Labor Statistics, 2006).

Other ambulatory care services. This relatively small industry segment includes ambulance and helicopter transport services, blood and organ banks, and services such as pacemaker monitoring and smoking cessation programs (Bureau of Labor Statistics, 2006).

Medical and diagnostic laboratories. Medical and diagnostic laboratories provide analytical services to medical professionals and patients following a physician's prescribing for blood analysis, administration of x-rays and computerized tomography scans, and performing other clinical tests. Medical and diagnostic laboratories provide the fewest number of jobs in the health care industry (Bureau of Labor Statistics, 2006).

Medical Equipment and Supply Manufacturers. This segment of the industry is made up of establishments primarily engaged in manufacturing medical equipment and supplies. Products include laboratory apparatus and furniture, surgical and medical instruments, surgical appliances and supplies, dental equipment and supplies, orthodontic goods, dentures, and orthodontic appliances. Participants in this industry supply to wholesalers as well as hospitals, private practices, and laboratories (IBISWorld, 2006). These items are then distributed to service providers and consumers via Medical Supply Wholesalers and Distributors.

Pharmaceutical Manufacturers and Retail Pharmacies. This segment of the industry is made up of management units primarily engaged in the manufacture of biological, medicinal, and pharmaceutical products in various formats, including ampoules, tablets, capsules, vials, ointments, powders, solutions, and suspensions (IBISWorld, 2006).

Medical Insurance Companies. This segment of the industry is composed of establishments primarily engaged in underwriting (i.e., assuming the risk and assigning premiums) annuities and

life insurance policies, disability income insurance policies, accidental death and dismemberment insurance policies, and health and medical insurance policies (IBISWorld, 2006).

Third-Party Administrators. This segment of the industry administers billing for some insurance companies, pays claims for self-insured employer plans and other insurance companies, handles the account portions of Health Savings Accounts, Health Reimbursement Accounts, and Flexible Spending Accounts, and coordinates with prescription drug vendors, re-insurers, and preferred provider networks (National Association of Health Underwriters, 2006).

The Role of Government

The healthcare industry is arguably the most regulated, financed, researched, legislated, and scrutinized industry in the economy of the United States. Government agencies at all levels regulate virtually all aspects of the industry to ensure that the delivery of products and services are conducted in accordance with cost, quality, and access goals.

The U.S. government is the largest provider and financier of healthcare in the world. In 2004, federal, state and local governments spent nearly a trillion dollars on the healthcare services and benefits for U.S. citizens at home and abroad. Budgets at the Centers for Medicare and Medicaid Services (CMS) exceeded \$309 billion to run the Medicare program (healthcare for federal retired and disabled individuals) and \$291 billion for the Medicaid program (healthcare for those below the poverty level, disabled, and other categories defined at the state level). In addition, the federal government provided over \$58 billion to provide healthcare to veterans and military beneficiaries within the Veterans' Administration and TRICARE programs (AEH, 2006). The Department of Health and Human Services (HHS) oversees healthcare through a number of other government agencies and departments play a role. The Surgeon General of the United States guides the government's United States Public Health Service (USPHS), which oversees and guides public health initiatives and campaigns to serve all Americans. USPHS provides research, determines policy, and extends services to communities and populations throughout the U.S. and is a major provider of immunizations and care for those below the poverty line. USPHS manages the Indian Health Service program.

Hospitals are the most visible symbol of healthcare to most American consumers. Hospital administrators are required to interpret, and be guided by, thousands of pages of rules and guidelines in order to comply with government regulations. As an example, Hospital Administrator David Bernd cites that "Medicare and Medicaid rules and instructions cover more than 130,000 pages...three times the size of the Internal Revenue Code and its federal tax regulations"(2003). The challenges imposed by the costs of government regulation have raised an important issue among policymakers, industry experts, and the public: should health care be treated as a human right and a public good, or as a commodity produced in the marketplace?

Government regulations play an important role in health care financing. The economic prosperity and survival of all health care product and service providers requires that they navigate regulations in order to forecast costs, reimbursement, and fees charged to private individuals and businesses. These regulations were justified by government and/or oversight bodies to ensuring parity in costs, quality, and access. Compliance with other regulations as

established by federal, state, and local governments, as well as with requirements of governance and accreditation, requires healthcare providers to ensure payment from both government and third-party payers.

The U.S. government funds and conducts military medical research, and partners with private industry to develop advances in medical and life sciences. Such developments have provided benefits for both U.S. citizens and the world. Through organizations such as the U.S. Army Medical Research and Materiel Command (USAMRMC), medical research is conducted to “find and fund the best research to eradicate diseases and support the war fighter for the benefit of the American public” (Harris, 2006). Arrays of other research activities are conducted by organizations within the federal government such as the National Institutes of Health (NIH), Centers for Disease Control (CDC), and the Laboratory of Infectious Diseases. The billions of federal dollars allocated to this research are directed to such areas as cancer, genomics, pandemics, obesity, and HIV/AIDS. These research areas have a direct impact on the health and welfare of the citizenry, but also provide secondary and tertiary effects which influence national security and ensure a robust U.S. economy as well.

Government legislation and oversight of health care is intended to promote better health and wellness for all U.S. citizens. Legislation and governance comes in the form of technical guidelines and regulations that must be followed by licensed and credentialed healthcare facilities. This control is administered through agencies like the Food and Drug Administration (FDA). The FDA is responsible for ensuring that pharmaceuticals and medical equipment are safe and effective for humans. Additionally, the FDA ensures that these items are handled and stored safely prior to consumer use (FDA 2006). The CDC maintains oversight and responsibility for prevention, detection, control and recovery from health threats, such as those from chemical, biological, or radiological threats, as well as from natural sources of disease (CDC, 2006).

Government legislation has resulted in a number of other oversight bodies, programs, and policies which carry out the mandates of public and private healthcare service. Examples include the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the health care industries’ accreditation body for facilities that provides patient care and services. Other important legislative initiatives include the Health Insurance Portability and Accountability Act (HIPAA), which mandates new patient privacy, security, and electronic records rules designed to guarantee individual rights and reduce costs; the Occupational Safety and Health Administration (OSHA), which mandates facility safety; Emergency Medical Treatment and Active Labor Act (EMTALA), which mandates policies to govern emergency room operations; College of American Pathology (CAP), which defines clinical laboratory standards; American College of Radiology (ACR), which defines radiology standards; National Fire Protection Act (NFPA), which defines fire and egress standards; Freedom of Information Act (FOIA), which guarantees public access to non-personal information; Tax Equity and Fiscal Responsibility Act (TEFRA), which defines health care benefits; Employee Retirement Income Security Act (ERISA), which defines employee health care benefits upon termination of employment; Certificate of Need (CON), which defines the approval process to build and/or expand new healthcare facilities and/or services; Americans with Disabilities Act (ADA), which mandates disability guidelines; rate regulations by state, and workers’ compensation and state industrial guidelines. A number

of other governmental agencies exercise oversight over the corporate and business activities of healthcare. In addition, the Securities and Exchange Commission (SEC), the Internal Revenue Service (IRS), and the Federal Trade Commission (FTC) also all have significant roles in the oversight of the health care industry.

State of the Industry

Over the past five decades, the U.S. health care system has undergone significant change. The most recent restructuring involved moving from large employer-based, fee-for-service, unrestricted health care plans to a wider range of managed-care type plans. The United States also uses the Medicare and Medicaid programs to fund health care for senior citizens, the elderly, persons with low income, and other authorized beneficiaries. Each of these programs contained strategies to manage costs aimed at reducing increases in U.S. health care expenditures over the years. However, the cost control successes have not contained the current and projected rates of health care expenditures within the nation.

Today, the U.S. health care system is the largest and most expensive in the world (Economist, 2006). There have been tremendous increases in U.S. health care expenditures since 1980. For example, in 1980, the nation spent an estimated \$246 million on its GDP; today America spends about 16% of its GDP, or \$1.9 trillion; this amounts to \$6,280 per capita for every American each year. This figure is nearly double the OECD average on health (Economist, 2006). These expenditures represent a nearly seven-fold increase. In contrast, health care spending in 1997 in Canada, Germany, and Japan, represented about 7%, 8%, and 5% of GDP respectively. Additionally, the U.S. per capita health care spending exceeds all three of these countries, while Canada, Germany, and Japan spent \$2,095, \$2,339, and \$1,741 per capita in 1997. Federal government expenditures for health care are also projected to continue to rise. Government expenditures in 1960 were 1.3% of GDP; predictions are that expenditures may reach 7.8% of GDP by the year 2010. Thus, the nation spends more on healthcare than any other developed nation, regardless if measured by per capita spending or percentage of GDP.

Much of the tension that exists today in the U.S. health care delivery system involves the interplay between cost, quality, and access to care. These components are referred to as the Health Care Iron Triangle. Cost, quality, and access are posing significant challenges for the U.S. health care system, as described below. The U.S. government has a responsibility to balance the cost, quality, and access aspects of the Iron Triangle. There is an interrelated and interdependency amongst these three aspects to ensure that all Americans have affordable healthcare with high quality and high access.

Health Care Cost

The current state of health care indicates a significant shift in the type of health care expenditures; the shift is away from in-patient hospital care and physician services, and toward outpatient care, nursing home care, home health care, and an increased use of pharmaceuticals. This is a direct result of the aging baby-boomer generation. Americans are getting older and acquiring illnesses and diseases that will take significant resources to manage.

Rising health care costs reduce access to care, and impacts the consumer's ability to pay for care. Rising health care costs require employers to raise health care cost-sharing levels, reduce coverage, and/or drop health care insurance benefits. In some cases, when an employer places limits on health care coverage, the costs have to be borne by the patients in the form of higher co-payments. Rising costs affect retirees in the form of higher shares, increased catastrophic caps, and/or benefit reductions.

Studies have shown that the rising costs are attributable to health care administration requirements (i.e. personnel salaries and benefits, information technology, capital investments, etc.), prescription drug increases, as well as rising health care and medical malpractice insurance premiums. For every \$1 spent on health care, fifteen to thirty-one cents are spent on administrative costs (Rowley, 2006). Prescription drug prices also continue to rise. Factors leading to skyrocketing drug costs include increased lifestyle drug use (i.e. treatments for facial wrinkles, male baldness, and sexual dysfunction), chronic illness increases, and changes in drug company marketing (i.e. direct-to-consumer and physicians), administrative work associated with managing complex and complicated formularies, research and development, and managing multiple insurance companies. The increased costs of prescription drugs impact both consumers and payers.

Rising medical malpractice insurance premiums influence health care delivery costs. In 2001, physicians spent over \$6.3 billion to obtain malpractice coverage, and hospitals and nursing homes spent additional billions of dollars (HHS, 2002). Americans pay these costs through higher health insurance premiums, higher taxes, and higher out-of-pocket expenses.

Health Care Quality

Health care quality is measured by outcomes. Such measures include, but are not limited to, life expectancy at birth and infant mortality. While America has one of the most heralded health care systems in the world, employing the finest health care professionals and backed by an unparalleled infrastructure of industry, research and development, technology, and academic institutions, some have argued that the quality of health care, for many, is low. Health care quality impacts costs, patient's confidence and sense of well-being. There are a number of reasons why the quality of health care being provided under the current system is less than desirable. If you are among those that are uninsured or underinsured, you may not be receiving the medical services that you require. These patients are not likely to receive preventive care, which increases their risk of not receiving a timely diagnosis.

Physicians' medical liability insurance requirements impact health care quality. As a result, physicians are practicing more defensive medicine; they order unnecessary tests and prescribe preventive medicines in order to minimize lawsuit risk. Errors by physicians and other medical professionals, as well as inadequate execution of patient safety programs, have led to unnecessary injuries and deaths. Misread diagnostic tests and other errors have led to delayed or missed diagnoses and higher costs. According to the Agency for Health Care Research and Quality (2006), there is a lack of consistency in the rendering of medical services across the nation. They report that "[t]here are significant variations in the practice of medicine across the

United States, among regions, and even within communities – for example hospital discharge rates are 49 percent higher in the Northeast than they are in the West” (p.1). With the use of evidence-based medicine (EBM) and the electronic medical record (EMR), progress is being made. There is a trend toward reduced medical errors, improved patient safety, and less variance in the practice of medicine (Hieb, 2006). EBM is defined as a concept which uses the best scientific evidence in making decisions about the health care of individual patients. EBM and EMR have gained rapid acceptance and are being implemented throughout the U.S.

Access to Health Care

Having the opportunity to access the right care, at the right time, is important for all. The current health care system provides the best access to care for those with health insurance, or who can afford to pay for quality care on demand. Not all Americans have the same access to care. For the uninsured and the underinsured, access to care may be limited.

There are significant disparities in access to health care. Disparities occur when a group’s health status and access to health care is disproportionately affected by a number of factors- race, gender, genetics, culture, income, geography, country of origin, housing, and socioeconomics. Disparities are determined from the incidence, prevalence, and mortality rates of common illnesses; these rates are calculated and reported, based on standard racial and ethnic categories, in the U.S. Census. These rates have led to the association between race and health care risk (Tashiro, 2005).

Access to care may be impacted by an inability to find the appropriate medical professional when needed, or when a patient encounters health care service limitations. These issues are directly related to the medical liability crisis. The medical liability crisis is creating serious patient access problems across the U.S. According to the American Medical Association (AMA, 2005), “[p]hysicians are forced to limit services, retire early, or move to another state where liability premiums are stable- all of which seriously threaten access to care” (p.1). In 2002, HHS reported that the litigation crisis is making it more difficult for many Americans to find care, and threatening access for many more. Many Americans are unable to find the physicians that they need because physicians have begun to restrict their practices, moved to states with lower insurance premiums, or given up medicine entirely.

Industry Challenges

The U.S. health care industry faces several major challenges that have contributed to the current state of the industry. These challenges will continue to drive the industry in the next decade.

The Rising Health Care Costs for the Aging Population

One challenge impacting health care costs is the rapidly aging population. The first of the post-World War II “baby boomer” generation turns 65 at the end of this decade, and health care costs will continue to rise (Rowley, 2006). According to the Mayo Clinic Health Policy Center, the two *primary* factors driving the increase in health care costs are the expenses of an aging

population, and the higher use of health care by the elderly (Mayo Clinic, 2006). Estimates are that about 30% of the population will reach age 65 by the year 2030. Thus, Medicare costs will also increase, as Medicare becomes the primary health care insurance for those ages 65 and older (Greenspan, 2003).

Poor Lifestyle Choices

A second challenge contributing to the high cost of health care is that Americans are making poor lifestyle choices which have led to an increase in the incidence of chronic diseases. This has given rise to an obesity epidemic in the United States. The National Center for Health Statistics estimates that 30 percent of U.S. adults 20 years of age and older are obese. The percentage of young people who are overweight has more than tripled since 1980. Sixteen percent of children and teens, between the ages of 6-19, are considered overweight (CDC, 2006). This trend towards obesity drives the cost of health care by causing and/or contributing to a variety of chronic illnesses, including: hypertension, type 2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, and some cancers (CDC, 2006).

Availability of New Technologies

A third challenge is the availability of new technologies. Advances in treatments, therapies, surgeries, and drugs allow patients (some with chronic diseases) to be kept alive for longer periods of time. An extended life expectancy drives the cost of treatment. New technologies and intensive new treatments are expensive; frequently, the recipients are elderly or unemployed. As a result, Medicare and Medicaid costs will increase. In addition to these costs, deciding how to allocate these expensive therapies presents a difficult moral and ethical challenge for the health care industry.

An Expensive and Inefficient Delivery System

The United States has by far the most expensive health care system in the world, based on health expenditures per capita and on total expenditures as a percentage of GDP. According to OECD data (2005), U.S. per capita health care spending was about two-and-one-half times the OECD median, while health spending as a percentage of GDP was two times the median for the 29 member OECD countries. Yet, despite the massive spending on health care, the United States does not rank number one overall in the world. With regards to good health, the U.S. infant mortality rate of 7.0 deaths/1,000 live births was higher than the mean rate of 6.1 for OECD and the disability-adjusted life expectancy ranks 24th out of the 29 OECD countries (Jenson, 2006). The United States ranked the lowest of the OECD countries with fairness in financing, a measurement of the degree in which financial contributions to the health system is distributed fairly across the population.

Patient Safety

Patient safety is a major challenge to the industry. It is estimated that about 195,000 patients died in the United States because of preventable, in-hospital medical errors in 2000, 2001 and 2002 (Medical News Today, 2004). These medical errors fall into six major categories: surgical events (e.g., surgery being performed on the wrong patient), product or device events (e.g., using contaminated drugs), patient protection events (e.g., an infant discharged to the wrong person), care

management events (e.g., medication error), environmental events (e.g., electric shock), and criminal events (e.g., sexual assault of a patient) (The Leapfrog Group, 2006).

Lack of Standardized, Medical Information

Currently, no industry wide standard exists to mandate inter-operability of the electronic medical record (EMR). Doctors, hospitals, insurance companies, and payers all use different electronic data standards and databases. This type of automated fragmentation prohibits interoperability, which sub-optimizes business processes between stakeholders, and ultimately drives up the cost of doing business. The inability to share data through total system connectivity across the healthcare industry, in real time or near real time, causes lost opportunities to significantly improve operations and generate cost savings.

Shortage of Medical Professionals

The health care industry is challenged by a shortage of critical skill workers. Notable among these is a shortage of Registered Nurses (RN). Just as the requirement for nurses is growing, the numbers of people entering the field is declining, with a projected 20 percent shortfall in 2020. A 2004 National Sample Survey of Registered Nurses estimated that 16.8 percent of the licensed RN population was no longer employed in the nursing field (HRSA, 2004). According to Government Accountability Office (GAO) testimony before Congress, job dissatisfaction is the primary reason cited for nurse retention problems (GAO, 2001). A 2001 Federation of Nurses and Health Professionals (FNHP) study revealed the following: over a two-year period, about half of the employed patient-care nurses surveyed considered leaving the career field for reasons other than retirement, and seventy-four percent of RNs that considered leaving the profession would stay in patient care longer if job conditions improved (FNHP, 2001). There are also shortages of Primary Care Physicians, largely due to the attraction of more lucrative and prestigious careers in specialty fields. This shortage is particularly acute in rural areas.

The Uninsured and Underinsured

Approximately 46 million Americans, or nearly 16 percent of the population, were without health insurance in 2004. This presents a challenge to the U.S. health care industry. The number of uninsured rose 800,000 between 2003 and 2004 and has increased by 6 million since 2000. The percentage of people with employment-based health insurance has dropped from 70 percent in 1987 to 59.8 percent in 2004 (NCHC, 2006).

The United States spends nearly \$100 billion per year to provide uninsured residents with health services (NCHC, 2006). Often the costs and consequences of these illnesses are multiplied because they are for preventable diseases, or diseases that could have been treated more efficiently with earlier diagnosis.

Hospitals provide about \$34 billion worth of uncompensated care per year, and another \$37 billion is paid by private and public payers for health services for the uninsured. An additional \$26 billion is paid out-of-pocket by those who lack coverage. The uninsured are about

fifty percent more likely to be hospitalized for an avoidable condition, with the average cost of an avoidable hospital stay estimated to be around \$3,300 (Institute of Medicine, 2003).

Trends and Outlook

An optimistic outlook suggests that the government will lead a dramatic and fundamental reform in health care over the next 20 years (Graig, 1999). The industry is responding to the challenges in each of the three major areas of the iron triangle: access, quality, and cost. The U.S. is projected to spend \$4.0T (20% of the GDP) by 2015 on health care, a rise from \$1.9T (16% of the GDP) in 2005 (Plunkett Research, 2006). This rising cost in health care is unsustainable, and its cost will put extreme pressure on the government and on all Americans to reverse this trend. The desired result is affordable health care that ensures quality and access for all. The impact of Medicare and Medicaid, aging population, uninsured, and health of the population, technology, and shortages of professionals will strongly influence the industry and will significantly impact our national security and the four instruments of our national power- diplomatic, informational, military, and economic.

Medicare and Medicaid

Total Medicare and Medicaid program outlays in 2005 reached \$513.2B (20% of the total federal budget) and the trust fund is projected to be depleted by 2018 (Zwillich, 2006). In addition, both Medicare and Medicaid accounted for 25% of all health care spending in 1965 and it will increase to 49% by 2014 (Plunkett Research, 2006). This will require astounding costs for all taxpayers and for the U.S. government. Can Americans continue to absorb this rise in cost and will they want to continue to pay for it in the years to come? Time and priorities will tell, and reform will most likely occur.

Aging Population

Americans are getting older with the first baby boomers (born 1946-1964), turning 60 in 2006. By 2003, over 77 million baby boomers will begin to reach the traditional retirement age of 65 in 2011 (Plunkett Research, 2006). This will have a huge impact on Medicare and it will put a greater strain on the budget and the cost of health care. This will lead to a further demand for access and good quality of health care. Statistics vary, but there is general agreement that from fifty (Brody, 2005) to eighty percent (Kussman, 2006) of the medical expenditures made for an individual's health care occur in the last six months of life. In addition, the cost of long-term health care will nearly triple from \$137B in 2000 to \$379B by 2050 (Defino, 2006). We will be facing an increasing trend of costs for health care and a need for balance between the forces of the iron triangle.

Uninsured

The increasing trend of uninsured will continue to rise, unless some form of governmental intervention occurs. The inability of millions of Americans to access the health care system for routine wellness, preventive, and general screening services will continue to lead to an overall deterioration of our nation's health. This will put further strain on access and the

cost of health care. Prevention, early intervention and treatment will curb the rising cost of health care.

Health of the Population

One of the most alarming trends is the increasing prevalence of preventable disease related to lifestyle choices. Poor eating habits, sedentary lifestyles, lack of regular exercise, and excessive smoking and alcohol drinking rates have contributed to a high rate of chronic diseases and obesity. The life expectancy rate has increased steadily, from 49 years at the turn of the century to over 79 years today (CRS, 2006). But the trend is reversing, with life expectancy expected to decline in the next five years, due largely to the rise in obesity (NIH, 2006). Unless action is taken, obesity and chronic diseases will continue to adversely affect the health of our population and significantly contribute to the cost and access of health care.

Technology

In the rapidly changing health care industry, technological advances have made many new procedures and methods of diagnosis and treatment possible. Advances in medical technology have improved the survival rates of trauma victims and the severely ill. Technology has allowed us to treat many maladies associated with poor health and old age, allowing us to continually expand life expectancy despite our generally less healthy lifestyles (Rowley, 2006). As artificial intelligence advances and nanotechnology becomes applicable in the medical arena, imagine nano-computers imbedded into human bodies in order to help process more information faster, even to the point where man and machine become indistinguishable (Merkle, 1996). These scenarios admittedly sound like science fiction, but with nanotechnology, this will become reality. As molecularly precise manufacturing techniques continue to become more refined, scientists and engineers will build cellular-level sensors and other tools for integration into human bodies. An example of such innovative devices is a “respirocyte,” an artificial red blood cell that holds a reservoir of oxygen. Such a device would permit a heart attack victim to continue breathing for an extra hour until medical treatment is available, despite a lack of blood circulation (Ramez, 2005). America will continue to lead the world in technology advancements, but it must balance the cost with the desired outcome of improved access and quality for all.

Shortages of Professionals

Another trend shows that widespread shortages of providers, pharmacists, allied health professionals, nurses, and American-educated foreign scientists will lead to access and quality of care issues for the industry. The Association of Academic Health Centers (March, 2003) predicted that we will have severe shortages of primary care physicians, especially in the rural areas of the country. In addition, they stated that the U.S. would have a shortfall of 157,000 pharmacists, 800,000 nurses, and over 15% vacancy rates for allied health professionals by 2020. Many American-educated foreign scientists no longer remain in the U.S. post-graduation. This leads to a brain drain in American research and development programs. Many of the brightest students are returning to China and India because they can now continue their research in well-established laboratories in their home country. Research and development in China and India

will increase due to the availability of these well-trained scientists, and with increasing infrastructure to support the industry.

Recommendations

The future trends in the health care industry lead to an unsustainable course, unless action is taken now. Health care must be affordable, with improvement in access and quality for all. The Declaration of Independence highlighted the key enduring principles for all Americans—Life, Liberty, and the Pursuit of Happiness. These enduring principles set the foundation for the basic rights and expectations of all U.S. citizens. Americans want and deserve a health care system that ensures access to both quality and affordable health care. The United States has an obligation, opportunity, and responsibility to provide a basic level of prevention based health care. In order to ensure the national security of the United States and to preserve its vital interests and enduring principles, we recommend three key policy recommendations. These recommendations are: develop a national health care strategy, integrate and implement science and technology, and promote wellness and healthy living.

National Health Care Strategy

Currently, the United States does not have a comprehensive and effective national health care strategy. The Federal government has the “power of the purse,” in that it pays for 60% of U.S. health care costs (Plunkett Research, 2006). As a result, it can direct change in the system with financial incentives and processes. Direction and strong leadership, characterized by courage, integrity, creativity, stewardship, and credibility, must come from the top - the President of the United States (POTUS). The President must leverage his power and direct the HHS to serve as the executive agent for a national health care strategy. In addition, POTUS should lead the nation in creating and establishing a health care strategy. The strategy should be based on the following provisions: universal health care coverage for basic preventive and catastrophic medical care, including a basic health care assessment for each individual; malpractice Tort reform; regulation reform; adequate numbers of health care professionals; integration and implementation of science and technology; and promotion of healthy living. The last two are so important that we will discuss them solely as the second and third policy recommendations.

The Federal government must create an affordable universal health care plan. This plan should provide basic coverage for preventive and catastrophic medical care. There are 46 million uninsured Americans. When they need health care, they primarily use costly emergency services without basic preventive medical care (Defino, 2006). This universal plan would lead to a healthier population through preventive medicine, and would reduce the long-term cost of health care. This prevention would include, at a minimum: age specific screening, mammograms, prostate exams, hypertension checks, diabetic screening, pap smears, ideal body mass index, height checks, vision checks, hearing exams, immunizations, and health risk assessments. In addition, the Federal government can institute tax policy changes that make health care more affordable by shaping and supporting the market. Such policies include insurance subsidies,

health savings and flexible savings accounts, decreased administrative bureaucracy, and increased patient cost sharing.

Federal legislation must restore order and discipline within the medical liability process. State laws can be preempted by the U.S. Congress because medical liability affects interstate commerce. “The U.S. Constitution would permit Congress to regulate them” (Cohen, 2006). Enacting effective federal reforms would create tremendous savings and benefits. The Congressional Budget Office (CBO) estimates that direct spending for health insurance programs would be reduced by \$14.9 billion over a 10-year period if certain medical liability reforms were enacted (AMA, 2005). CBO further estimates that state and local governments would save about \$8.5 billion over ten years, due to lower premiums for employee health care benefits and lower state spending for Medicaid.

The Federal government must do a comprehensive overhaul of the regulatory system and streamline it to support a new national health care strategy. Government does have an active role in regulating the health care industry in its effort to curb the rising costs of health care, to ensure access, quality, and correct health care market failure. The American Private Physicians Association (2000) states that health care is the most regulated industry in America...the Mayo Foundation estimates that over 132,000 pages of regulations for government health care programs have been created...8 feet in height. The comprehensive overhaul should be headed by an appointed commission that is focused on affordable cost with improved access and quality for all. The money saved from efficiencies gained can lead to gains in access and quality.

The Federal government must ensure an adequate number of professionals to provide medical care for its citizens. The future trend of shortages for nurses, pharmacists, technicians, and primary care providers paints a bleak picture. These shortages will lead to problems with access and quality. The government must promote professional incentives, educational opportunities, and placement in areas of need for these types of professionals in order to ensure adequate numbers and to improve access and the quality of health care.

Implement and Integrate Science and Technology

The implementation and integration of science and technology into the nation's health care delivery is crucial to create nation-wide standards. The combination of EBM with a fully integrated EMR, that is interoperable with all elements of the health care system, will lead to a reduction of health care disparities, ensure quality, and provide cost-effective health care. In addition, we must integrate and leverage the gains in nanotechnology and genomics.

The use of EBM with outpatient Disease Management Programs has been extensive and has led to cost-effective health care with a reduction of the variance of practices. Smoking, obesity, and diabetes account for over one million deaths annually in the United States and over 270 billion dollars in direct and indirect medical costs (Health and Human Services, 2006). Physician champions leading multidisciplinary teams have implemented effective EBM programs targeting obesity, asthma, diabetes, hypertension, chronic pain, and high cholesterol. Results have shown reductions in hospital admissions, cost savings, and have documented a decrease in the progression of the respective diseases. Additionally, the Leapfrog Group (2005)

identified patient safety practices (leaps) accompanied by EBM to benefit patients and to provide cost-effective health care in the medical arena. These safety practices included EMR physician ordering and EBM hospital referrals. The results showed a reduction in medical errors, adverse drug effects, length of stays (LOS), morbidity, mortality, and more cost-effective utilization of medication. Full implementation of EMR and EBM would save an estimated \$11.5B annually.

Implementation of a fully integrated nationwide EMR will transform the health care industry. Key to the success of this system is full integration with interoperability across the health care industry. EMR will give medical professionals, health care organizations, pharmacies, and insurance companies up-to-date information relative to the patients they see. This information includes a complete medical record, lab tests, digital radiographs, and medications available to the health care professionals. In addition, EMR allows health care practitioners to lower costs and reduce medical errors that result from handwritten and transcribed patient records.

The combination of EMR and EBM has shown promising results. Hieb (2005) stated that the benefit of this combination led to improved reporting, decreased health care costs, reduced medical errors, improved patient satisfaction, and improved competitive advantage. This fusion has led to physicians developing case management protocols, decision support sets, provider order sets, and workflows that provide quality medical care. In addition, the high administrative cost of health care (26%) has been reduced. The RAND Corporation (2005) has shown that an implementation goal of having EMR in 90% of hospitals and doctors offices will require an annual cost of \$8B for 15 years. Furthermore, the combination with EBM will lead to annual efficiency savings of more than \$77B after an accumulated benefit of \$500B in 15 years. The investment by both Federal government and industry will definitely pay off, and lead to additional health care savings.

Nanotechnology and genomics offer our society tremendous opportunities to improve quality of life through its technological advancements. We must balance the cost of the research and development with its benefits, required ethical regulations, and its integration in the population. The opportunity to live longer and healthier with an improvement in our quality of life appeals to all Americans and will revolutionize medicine.

Promote Wellness and Healthy Living

The promotion of an effective wellness policy is an effective cost containment strategy for rising health care cost. The government has a responsibility to continue to promote personal fitness to counter childhood obesity and chronic disease. A key to promoting healthy living is by *changing the culture of the health care community* from focusing primarily on illness to that focused more on prevention and wellness. Programs that include EBM, prevention, education, incentives, proper nutritional diet, adequate exercise, school physical activity, and individual responsibility are key tenets to improving wellness. Wellness can also improve employees' health, boost morale, and reduce health care expenditures. A national wellness education initiative, along with Health Risk Assessments (personal health status) and vast improvements in wellness opportunities, are initiatives that could help the nation move forward in reducing health care costs. Furthermore, financial incentives or tax credits for healthy patients, with desired

outcomes, will lead to a healthier population and provide incentives for patients to take an active part in their health plan.

Conclusion

The first “baby boomer” will turn age 65 in 2011, just five years from now, and by the year 2016, will be 70 years old. How much will that patient pay for health care, and what will be the quality of that care? Will there be timely access to the specific interventions that he/she needs? The intersection of matters of costs, quality, and access will be prime determinants as to the nature of the health care system that will be available.

This paper examined U.S. health care industry trends. Despite the trillions of dollars spent on the U.S. health care industry, there are major systemic problems. For many Americans, the health care industry is a disorganized and complicated system that is not accessible or affordable, and of low quality. With increasing technological change, Americans will come to expect even more out of the health care delivery system. However, continued spiraling health care costs are not sustainable.

This paper has deliberately focused on the health care of the United States. However, many of the issues and concerns are not unique to the United States. Many other countries share the same dilemma as that of the United States.

What are the lessons learned? There are at least two major conclusions: There is an urgent need to develop a better strategy for health care spending, a national health care strategy; and there is a need to design a health care delivery system that provides some basic level of health care, including catastrophic coverage, for everyone.

It should be noted that this paper does not advocate for a single-payer health care system. While such a system may seem attractive, we believe that developing such a system would pose a significant challenge that would require considerable time and effort, as well as a vigorous and energetic debate among the many constituencies that make up the United States. Such a debate could take place by the year 2016. This paper takes the position that a more pragmatic approach is to provide recommendations that can be implemented within the framework of the current health care system.

What will it take to overhaul the current health care system? Certainly, the political will must be present. A number of Presidential Administrations have attempted to reform the health care system. Most notably, the Clinton Administration sought a major reengineering of the entire health care system, without success. Their failure to succeed was partly attributable to a lack of political will to confront major sectors of the health care industry. The American public, too, has given mixed signals as to whether it really wants to provide coverage for all, including the uninsured and underserved.

In addition to political will, an overhaul of the health care system will require a change in how each consumer views his/her responsibility for making positive health care decisions. Nutrition, diet, and exercise decisions are largely in the hands of the consumer, although environmental factors challenge the decision-making process for many. Proximity to healthier foods, walking trails, and other resources will make the decisions easier for some consumers than others. Consumers will need to develop a level of health literacy, to become engaged partners with their health caregivers; to develop knowledge and insight to make better health care decisions.

Since the terrorists' attacks of September 11, 2001, the nation has been absorbed in preparing for a crisis of a different nature. The 2004 Tsunami and Hurricane Katrina have again shifted the public's attention and focus back to the government's role in the prevention and treatment of natural disasters. Concerns about the public health response to the next disaster have pushed health care issues to the front of the national agenda. As the nation prepares to respond to what may be a pandemic, a window of opportunity has opened. America, with a sense of urgency and purpose, must ask itself the tough and deliberate questions about the health care delivery. These recommendations must be implemented in a unified effort to ensure that health care in the United States is affordable, accessible, and of high quality.

The High Cost of Dying: Health Care at the End of Life

Joseph Illar, Commander, U.S. Navy

Introduction

End of life care is a significant driver of health care costs, often provided without much clear benefit in terms of significantly prolonged life or the harder-to-measure quality of life. By examining and addressing this phenomenon, I believe we could identify ways of receiving more benefit from our health care expenditures. We could also mitigate the looming crisis of providing medical care for the "baby boomer" generation and our offspring, whom many believe will be the first American generation to experience a decline in overall life expectancy relative to their parents (NIH, 2005).

Description

Statistics about cost of the last months of life versus total health care spending vary, but there is general agreement that from fifty percent (Brody, 2005) to eighty percent (Kussman, 2006) of the medical expenditures made for an individual over their entire lifetime occur in the last six months of life. For the average American who reaches the average life expectancy of 78 years (WHO), as much as eighty percent of lifetime medical expenditures are provided over 0.7% of his or her life. Although the issue of end of life health care is morally and ethically complex, this expenditure profile does not appear to be cost effective.

According to a 1984 study, six percent of Medicare recipients 65 years of age and older who died in 1978 accounted for 28% of all Medicare program costs. In the same year, 77% of a patient's Medicare expenditures occurred in the last year of life, 52% of in the last two months, and 40% in the last month, with inpatient expenses accounting for 70% of the total costs (Luce and Rubenfeld, 2002). Health care is a driving determinant in the national budget, and the "entitlement" portion of the budget currently accounts for over 60 % of the total, leaving little funding for "discretionary" spending for vital national priorities like national defense, infrastructure, and education. Addressing the growing health care cost is a critical component of resolving our budget crisis, and examination of the preponderance of spending at the end of life is a key aspect of this task.

Analysis

Many factors that contribute to this phenomenon have been proposed. One that seems particularly well founded is the availability of technologically advanced, capable, and very expensive treatments. Technology has allowed us to treat many maladies associated with poor health and old age, allowing us to continually expand life expectancy despite our generally less healthy lifestyles (Rowley, 2006). Daniel Callahan of the Hastings institute, in explaining his misgivings about this trend, said "...the pharmaceutical and medical manufacturing industries are endlessly adept at developing new technologies, hardly any of them curative and most of them expensive" (Callahan, 1999). Another factor is the expectations of patients, their families, and society at large. We are increasingly out of touch with the natural fact that aging eventually leads to death. This is, in part, because we are increasingly enamored of technology, and with the notion that a doctor can "fix us" whatever the problem. Factors that contribute to this increase include vaccines, availability of antibiotics, advanced medical technologies, and better and more reliable access to nutrition.

A review of the literature relating to this phenomenon reveals three broad categories of proposed solutions to reversing the trend and reducing end of life costs. These are: (1) To ration end of life care through evidence/outcome based medicine, (2) To educate patients and their families regarding likely outcomes of treatments with the aim of inducing them to voluntarily forgo expensive therapies and treatments that are unlikely to significantly increase duration and/or quality of life, and (3) To delay of the onset of disease through better health management throughout a patient's lifetime.

Limiting Care

The first common category of proposed solutions rests on the fact that "nobody gets out of here alive." Eventually, everybody dies, and the efforts made to forestall that death become less effective as time goes on, either because of the general deterioration associated with aging in an elderly person, or because of the effects of an incurable disease or catastrophic injury in a person of any age. Nevertheless, the health care system tends to treat these maladies as it would any other illness or injury. According to Melinda Buntin and Haiden Huskamp (2002), "[m]ost of the health care system is organized around providing acute care services to patients who will fully recover from their illnesses and injuries. Health insurance is designed to protect

policyholders from the expenses associated with these types of illnesses” (Buntin & Huskamp, 2002).

This school of thought proposes that the intensity of the treatment should be dependent upon the likelihood of a successful outcome; in this case return to full health or a marked improvement in life expectancy or quality of life for the patient. For those patients unlikely to recover, palliative hospice or home care is prescribed as a cheaper, and ultimately more humane, treatment. This approach is logical, and there are examples of it in use today, most notably in organ transplant priority lists, voluntary do not resuscitate (DNR) orders, and living will arrangements. There appears to be a strong case for its wider adoption. However, there are ethical and practical problems associated with this method of rationing health care. The ability to predict death is problematic. Moreover, in many instances those who were not predicted to benefit from treatments actually do. (Luce & Rebenfield, 2002). And while prognostic models are being developed and improved, they are rarely used in clinical practice (Drought & Koenig, 2002).

Education and Choice

This solution set addresses the problem of a society that has become increasingly resistant to the notion that death is a natural and unavoidable part of life. The argument is that through education and support, more patients would voluntarily choose to forego expensive end of life treatments in favor of excellent, but cheaper, palliative care intended to ease their eventual death. Callahan, writing for the Journal of the American Medical Association (JAMA), endorses that “[w]e must accept old age and death as part of the course of human life and settle for the more modest goal of a decent average life expectancy of, say, 80 years and a good quality of life before that point” (Callahan, 1999).

While this approach would almost certainly save health care costs, it is difficult to quantify how much. There are also detractors. Drought and Koenig, in the study “*Choice*” in *End of Life Decision Making*, concluded that “(a) prognostication at end of life is problematic and resisted; (b) shared decision making is illusory, patients often resist advance care planning and hold other values more important than autonomy, and system characteristics are more determinative of end of life care than patient preferences; and (c) the incommensurability of medical and lay knowledge and values and the multifaceted and processual nature of patient and family decision making are at odds with the current end of life approach toward advance care planning” (Drought & Koenig, 2002).

Health Maintenance

The third category of proposed solutions to the high cost of end of life care is the notion of delaying the onset of disease through better health management throughout a patient’s lifetime. By spending more on health care and education promoting healthy life styles throughout the life of a patient, and by improving access to preventative health maintenance care to at-risk and underserved populations, the onset of calamitous and expensive diseases could be delayed until much later in life. This approach does share the aspect of the second approach above, in that eventually the diseases associated with old age would take place, and palliative care would

replace intervention in those cases. This would be an easier decision to make, proponents argue, because all of the body's systems would begin to fail at approximately the same time, through "normal wear and tear" vice chronic disease. This would lead to a brief period of illness (a few weeks) followed by death, vice long periods of expensive and painful treatments of questionable value that only delay the onset of death by a year or so.

William R. Brody, President of Johns Hopkins University, describes this affect as "the dynamic hockey stick" (2005). If a graph of lifetime health care expenditures is graphed over time, there is a sharp inflection point near the end at which costs rise rapidly. This would resemble the blade of a hockey stick, and it would describe accurately the spending trend that is the basis of this paper. By pushing this inflection point out as far as possible, Brody points out that the area under the curve will be smaller, and thus less spending will be required (2005).

The most significant drawback to this approach is the difficulty associated with convincing the public to change their habits. Despite a significant body of evidence that obesity and smoking account for a huge amount of death and disease, smoking remains a serious public health problem, and obesity is taking center stage as a full-blown public health crisis.

The other major disadvantage to this approach is that it entails providing preventative health care to the impoverished, working poor, and young populations, which tend to be under-insured. Solving this problem is a long-standing and nagging challenge, but in order to improve life-long health maintenance, it must be addressed.

Recommendation

I propose that reducing the cost of "end of life" health care can be accomplished using a combination of rationing care, managing expectations, and improving health care throughout life by means of prevention. However, I believe it is the latter solution that holds the greatest promise. By spending more of a patient's lifetime healthcare "budget" earlier in life for education and prevention of smoking and drug addiction, alcoholism, and obesity, we can delay the onset of many debilitating illness, and allow more people the opportunity to die of true "old age", vice dying of debilitating, and largely preventable, chronic illnesses. By intervening before chronic disease is manifest, the portion of end of life spending will surely be reduced, thereby reducing the overall health care burden.

I acknowledge the difficulty of this proposal. It will take a major shift in societal values to modify the behavior of patients, and a major overhaul of our health care provision system to allow for more, and more evenly distributed, health care spending prior to illness. However, this approach would likely yield savings in end of life and geriatric health care, and, very importantly, it would also produce savings across other categories of spending that have not been addressed in this paper, including pharmaceuticals, long term care, hospitalization, and surgical procedures for preventable maladies. Much like an automobile, the machine of the human body will run longer, and be cheaper to maintain, if good, proactive maintenance is performed over the life of the owner.

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