

**Spring 2007
Industry Study**

**Final Report
*Health Care Industry***



The Industrial College of the Armed Forces

National Defense University

Fort McNair, Washington, D.C. 20319-5062

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2007		2. REPORT TYPE		3. DATES COVERED 00-00-2007 to 00-00-2007	
4. TITLE AND SUBTITLE 2007 Health Care Industry				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) The Industrial College of the Armed Forces,National Defense University,Fort McNair,Washington,DC,20319-5062				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 33	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

HEALTH CARE 2007

ABSTRACT: Although the overwhelming majority of Americans claim they are satisfied with the quality of health care they as individuals receive, many nevertheless believe the U.S. health care industry suffers from major problems. Reining in the growing costs of health care entitlements, ensuring access for the millions of Americans who are uninsured, slowing the increase of chronic illnesses, dealing with workforce shortages in key specialty areas, combating the spread of infectious diseases, and improving the effectiveness of the federal government's hospital and public health preparedness programs are major challenges facing our nation over the next 10 years. Policymakers must develop a strategy to deal with the issues of access and cost while maintaining America's excellence in research, innovation, medical education, and responsiveness (hallmarks of the U.S. health care system). Accessible, quality health care is essential for a productive workforce. Therefore, failing to solve the issues facing the industry will have strategic implications for the nation's security and economic prosperity.

Col Roosevelt Allen, U.S. Air Force
Col Michael Black, U. S. Air Force
CDR William Bray, U.S. Navy
LCol Douglas W. Butt, Canadian Forces
Mr. Bradley Calhoun, National Security Agency
Ms. Sylvia Curran, Department of State
Lt Col Roger Garay, U.S. Marine Corps
Ms. Sally Kelly, National Security Agency
COL Jeffrey C. Lieb, U.S. Army
Ms. Kimberly Litherland, U.S. Air Force
Col Marcia Meeks-Eure, U.S. Air Force
COL Ilichbek Nurajiev, Kyrgyzstan Army
Lt Col Darlene Roquemore, U.S. Air Force
Mr. Christian Schurman, Department of State
Mr. Daniel Slack, U.S. Navy
CDR Kristin Strong, U.S. Navy

COL Dorene Hurt, U.S. Army, Faculty
Dr. William Knowlton, Department of Defense, Faculty
Dr. Robert Book, Department of Defense, Faculty

PLACES VISITED

Domestic

George Washington University Medical Center, Washington, DC
Walter Reed Army Medical Center, Washington, DC
Armed Forces Retirement Home, Washington, DC
Washington Hospital Center, Washington, DC
La Clinica del Pueblo, Washington, DC
Howard University Hospital, Washington, DC
Johns Hopkins University Medical Center, Baltimore, MD
USNS Comfort, Hospital Ship, Baltimore, MD
U.S. Army Medical Research and Materiel Command, Fort Detrick, MD
Armed Forces Medical Intelligence Command, Fort Detrick, MD
Veterans Administration Medical Center, San Francisco, CA
American College of Traditional Chinese Medicine, San Francisco, CA
Siemens Medical Solutions, Oncology Care Systems, Concord, CA
Cardinal Health, Dixon, CA
U.S. Army Medical Center and School, Fort Sam Houston, TX
Brook Army Medical Center, San Antonio, TX
University of Texas Health Science Center at San Antonio, TX

International

U.S Embassy Tunis
Ministry of Public Health, Tunis, Tunisia
Hospital Charles Nicole, Tunis, Tunisia
Polyclinic La Marsa, Tunis, Tunisia
Military Medical Department and Hospital, Tunis, Tunisia
City of Medicines Medical Supplies Distribution Center, Tunis, Tunisia
U.S. Mission Geneva
United Nations AIDS (UNAIDS), Geneva, Switzerland
World Health Organization (WHO), Geneva, Switzerland
United Nations High Commissioner for Refugees (UNHCR), Geneva, Switzerland
Chelsea and Westminster Hospital, London, England
British United Provident Association (BUPA), London, England

Introduction

U.S. health care is a highly complex \$2 trillion industry absorbing approximately 16% of U.S. Gross Domestic Product (GDP) (Kaiser Family Foundation, 2007). It is an industry of strategic importance to the U.S. for two main reasons. First, a healthy American population is essential to ensure both a productive work force and a capable military. Second, the growing demand for and rising cost of health care is fueling rapidly escalating entitlement spending for an increasingly aging population. This is putting tremendous pressure on the federal budget, and managing this pressure in the next ten years may very well impact the government's ability to satisfy other vital discretionary spending requirements including those associated with national defense.

This paper will examine the U.S. health care industry by defining the industry, discussing the current role of government, assessing the current condition of the industry, identifying important trends and associated challenges, and concluding with policy recommendations. Key challenges to be discussed include expanding access to quality health care while controlling cost, slowing the obesity epidemic and the multiple chronic diseases associated with obesity through better preventive care, Medicare's viability once the baby boom generation begins to retire, and improving at every level government's ability to prepare the health care industry for a natural or man-made disaster.

Throughout, we will show how the U.S. health care system, despite major strengths, including providing quality care to the satisfaction of most Americans, is far too expensive and fails to provide adequate access and quality care to a significant portion of the population. Indeed, while many facets of U.S. health care are the envy of the world, the inability to provide a standard level of care for all Americans remains a disquieting fact of life in the wealthiest country in the world.

Industry Defined

The U.S. health care industry is one of the world's largest and fastest growing industries. According to the Bureau of Labor Statistics, in 2004 13.5 million American jobs and eight out of twenty of the fastest growing occupations were in health care (Bureau of Labor Statistics, 2007). In addition, spending on health care around the world has been increasing at a considerably faster rate than overall economic growth, especially in the U.S. While most countries have seen health care spending steadily increase as a percentage of their GDP, in the U.S. "...the share of GDP devoted to health care grew from 8.8% of GDP in 1980 to 15.2% of GDP in 2003" (Kaiser Foundation, 2007).

The U.S. health care industry includes public and private organizations integrating technology, science, medicine, and human capital to deliver medical and related services to the American public (Principal, 2006). "About 545,000 establishments make up the health care industry...76% ...are offices of physicians, dentists, or other health practitioners" (Bureau of Labor Statistics, 2007). The following major components provide both direct and complementary health/medical care.

Government Agencies: The Department of Health and Human Services (HHS) is the federal government's principal umbrella agency responsible for nearly every aspect of American health. The major agencies or components under the HHS umbrella include the Agency for Health Care Policy and Research (lead agency charged with supporting research designed to improve the quality of health care, reduce its cost, and broaden access to essential services), the Centers for Disease Control and Prevention, the Food & Drug Administration (responsible for safety and efficacy of drugs and medical equipment), the Centers for Medicare and Medicaid (administers Medicare, Medicaid and the State Children's Health Insurance Program), and the National Institutes of Health (primary agency for conducting and supporting medical research) (U.S. Department of Health & Human Services, 2007). In addition to HHS, both the Department of Defense (DoD) and the Department of Veterans Affairs provide health care and other benefits to military members (and their families) and veterans. States have their own departments of health and run public health programs. State and local governments play a regulatory role by licensing providers, clinics, laboratories, hospitals, and other care facilities (Florida Agency for Health Care Administration, 2007).

Providers: Providers include physicians, dentists, health care practitioners, registered nurses and public health system workers. Providers also include pharmacists, medical technicians, cytotechnologists, dietitians, radiology technicians and other allied health professionals. Physicians have a M.D. (Doctor of Medicine) degree or D.O. (Doctor of Osteopathy) degree and practice general or specialized medicine such as anesthesiology or oncology (IBISWorld, 2006, *Offices of Dentists in the U.S.*). Dentists have a D.M.D. (Doctor of Dental Medicine) degree, D.D.S. (Doctor of Dental Surgery) degree, or D.D.Sc. (Doctor of Dental Science) degree and practice general or specialized dentistry or dental surgery (IBISWorld, 2007, March 26). Health care practitioners include a wide variety of specialists including chiropractors, optometrists, speech therapists, and mental health specialists (IBISWorld, 2006). Registered nurses perform duties associated with treating and educating patients and the public about various medical conditions. With 2.4 million jobs, nursing constitutes the largest health care occupational field (Bureau of Labor Statistics, 2007).

Facilities: Health care facilities include hospitals, ambulatory health care services, medical and diagnostic laboratories, home health care services, out-patient care facilities, and long-term care facilities. Hospitals include licensed general medical, surgical or specialized (children's, women's, etc.) establishments providing diagnostic and medical treatment services. These establishments have an organized staff of health care practitioners to provide patient care services and provide other services such as anatomical pathology, diagnostic X-ray, clinical laboratory, operating room, and pharmacy services. Ambulance health care services transport patients by ground or air, along with medical care. Medical and diagnostic laboratories provide analytic or diagnostic services such as body fluid analysis and diagnostic imaging. Home health care services provide in-home nursing care or rehabilitation following a hospital stay to ongoing assistance with daily living activities. Long-term care facilities operate and maintain assisted living centers and nursing and retirement homes, as well as provide various health care services. Outpatient care centers provide general or specialized care not conducted in a hospital (IBISWorld, 2007, April 2).

Manufacturers, Distributors and Retailers: This component is comprised of medical equipment and supply manufacturing, pharmaceutical and medicine manufacturing, pharmacies and other health and personal care stores, and major medical supply distributors such as Cardinal Health. Medical equipment and supply manufacturing produce laboratory apparatus and furniture, surgical and medical instruments, dental equipment and supplies, orthodontic goods, etc (IBISWorld, *Medical Equipment and Supply*, 2006). Pharmaceutical and medicine manufacturing produces biological, medicinal, and pharmaceutical goods in various formats (ampoules, tablets, capsules, etc.) which are then distributed by pharmacies or hospitals. Pharmacies and other health and personal care stores are engaged in retail prescription or nonprescription drugs and medicines (IBISWorld, 2007, January 15).

Insurers: Private health insurance companies, offering plans primarily through U.S. employers, comprise the largest segment of health insurance in the U.S. Managed care plans, which started to gain popularity in the late 1980s as a way to save health care costs (Health Maintenance Organizations, Preferred Provider Organizations, and Point of Service plans), also provide health care coverage as an alternative to conventional plans ("Managed Care," 2007). The U.S. government and, to a lesser extent, State governments also function as insurers. The federal government acts as an insurer through the Medicare, Veterans Affairs (VA) and DoD (TRICARE) programs. Both the federal government and state governments act as insurers through the Medicaid program and the State Children's Health Insurance program (IBISWorld, 2007, March 23). Insurance companies provide malpractice insurance to providers and health facilities. Reinsurers provide insurance to insurance companies ("Reinsurance, 2007).

Complementary and Alternative Medicine: A growing component of the U.S. health care industry is Complementary and Alternative Medicine, an approximately \$15 billion a year business (Carroll, 2003). Complementary and Alternative Medicine includes a wide variety of treatments and therapies that are generally not supported by scientific, empirically based evidence, but have been of value to many Americans. An example is traditional Chinese medicine, in existence for nearly 5000 years and more available than ever to the average American. Increasing numbers of medical schools, accredited Naturopathic colleges, and independent and private institutions now offer courses in Complementary and Alternative medicine (Carroll, 2003). According to health practitioners, some patients choose to use Complementary and Alternative Medicine practices and treatments as a complement to standard western medicine.

Role of the Government

The government plays a major role in health care. The overall health of America is a strategic priority for both national security and economic well-being as it creates economic advantages for the country (Rowley, 2007). The government acts as a regulator, payer, provider, insurer, and researcher and developer.

Government as Regulator. Through legislation, the government regulates various aspects of the health care industry. The goal of government regulation is to ensure citizens have accessible, affordable, and quality health care. Regulators define standards and monitor industry adherence

to those standards and also provide licensing at the federal and state levels. Agencies, such as the Food and Drug Administration, provide regulatory guidance and oversight. The government reviews how agencies are staffed and whether they are appropriately resourced (Rowley, 2007). As mentioned earlier, state and local governments license providers and health facilities.

Government as Provider: The government provides health care to active duty military members and their dependents in DoD through military treatment facilities around the world. The Department of Veteran Affairs (VA) provides medical benefits to eligible veterans. Through the VA, the government provides health care to qualified veterans at VA hospitals and clinics around the country. Medical benefits include preventive and primary care, and a full range of outpatient and inpatient services. Not every veteran is eligible for VA medical coverage; a number of requirements must be met (nature of one's discharge from the military service, length of service, VA adjudicated disability, income level, and available VA resources) to qualify (U.S. Department of Veterans Affairs, 2007). The Indian Health Service delivers health care to native Americans and Alaska Natives (U.S. Department of Health and Human Services, 2007).

Government as Insurer/Payer: Medicare is a federally funded health insurance program for people age 65 and older, people under age 65 with certain disabilities, and people of all ages with End-Stage Renal Disease (permanent kidney failure requiring dialysis or a kidney transplant). Medicaid is a federal and state funded health insurance program that is administered by the states to certain low-income or uninsured individuals and families who fit into an eligibility group recognized by federal and state laws (U.S. Department of Health and Human Services, no date). Some states, such as Texas, have programs to cover uninsured children. The State Children's Health Insurance Program (SCHIP) covers children of families who earn too much to qualify for Medicaid but who cannot afford to purchase private insurance (Texas Health and Human Services Commission, 2007). The government also acts as a payer for health care for military personnel and their dependents, as well as the segment of the U.S. population enrolled in Medicare and Medicaid. Through the TRICARE program, the government insures members of the military and their families for free, and retirees if they choose to pay relatively small premiums. According to a TRICARE official, the program has various plans and options, including managed care and preferred provider options, a fee for service plan, and a special plan for guard and reserve members. TRICARE Plus provides primary care access at selected military treatment facilities. TRICARE for Life is designed for retired military members aged 65 and older, who have signed up for Medicare part B. Medicare is their primary insurance, while TRICARE for Life serves as their secondary payer insurance. Also available are supplementary benefit plans that cover pharmacy and dental care.

Government as Researcher and Developer: The government funds, conducts, or incentivizes research to promote advances in medical sciences which improve the quality of health care available while balancing cost and affordability. The National Institutes of Health (NIH) is the primary agency for conducting and supporting medical research to improve people's health and save lives. Scientists investigate causes, treatments, cures and ways to prevent common and rare diseases. NIH provides leadership and financial support to many research projects in the U.S. and around the globe (U.S. Department of Health and Human Services, National Institutes of Health, no date). The government also plays a key role in cancer research. The National Cancer Act of 1971 (Public Law 92-218) mandates the National Cancer Institute (NCI) report on

strategic priorities and implementation progress toward reducing cancer in America in a yearly report submitted with its annual budget (NCI, 2006). The Office of AIDS Research (OAR) promotes both domestic and international collaborative research efforts. Congress has granted this office broad authority to plan, coordinate, and evaluate all NIH AIDS research (Office of AIDS Research, 2006). In addition, the U.S. Army Medical Research and Materiel Command (USAMRMC) at Fort Detrick, Maryland is renowned for military medical research, including malaria research. According to USAMRMC officials, the organization's work benefits both the U.S. and global population. USAMRMC scientists do research on diseases that are rarely seen in the U.S., but might be prevalent in areas where the U.S. military might deploy. The government, through the "orphan products grants program," subsidizes the development of drugs to treat rare diseases that pharmaceutical companies would normally not find profitable to do on their own (U. S. Food and Drug Administration, 2007). According to officials, scientists and engineers working for the military medical system often develop items that are later available for civilian use, such as certain state of the art prosthetics and bandages with special coagulating agents.

Current Condition of the Industry

In assessing the current condition of the U.S. health care industry, a good framework for analysis is what is commonly referred to as the "iron triangle" of health care: Cost, Access, and Quality. In geometry, the angles of a triangle, no matter how large or small, always add up to 180 degrees. Naturally, attempts to reform industry shortcomings or make changes in one leg of the health care iron triangle always affect the other legs. For example, attempts to hold down costs will likely have an impact on quality, and efforts to expand access could drive up costs and put limits on quality at the top end. This is why making comprehensive reform is so challenging.

In many respects, the U.S. has one of the best health care systems in the world. According to the World Health Organization's (WHO) report *World Health Report, 2000*, the U.S. ranked first among 191 member states in overall health system responsiveness, a statistic that considers variables such as dignity, respect for persons, prompt attention, quality of basic facilities, choice of care provider, and access to social support networks during care (WHO, 2000, p. 147, 155). In the past fifty years alone, tremendous achievements in public health have occurred in such areas as infectious diseases, vaccinations, and water fluoridation (CDC, 2007). Life expectancy has steadily risen during this time frame as well, and by 2003 a man and a woman born in America could expect to live, on average, 77.4 years and 80.0 years, respectively (CDC, 2007, *Life Expectancy*). In recent years, educational campaigns and health lifestyle changes have resulted in reductions in cancers and cardiovascular diseases. Indeed, in 2006 cancer deaths decreased for the first time in seventy years (CDC, 2007).

The U.S. health care industry is also at the forefront of medical research and development, resulting in innovative surgical procedures, disease treatment regimes, and medical technology. Advanced medical technologies are abundant in the U.S., especially computed tomography (CT) scanners and magnetic resonance imaging (MRI) machines. American physicians and companies are making "huge advances...in the fields of cardiovascular care, cancer care, diagnostic imaging and testing, organ transplants, and minimally invasive surgery" (Plunkett Research, Ltd, 2006, section 20). The high quality of care available to Americans has

motivated patients from around the world to travel to the U.S. for treatment. The Mayo Clinic treats over 7,000 foreigners per year, while Johns Hopkins Medical Center treats more than 6,000 annually (Tanner, 2005, p. 18). And it should be noted that 25 of the last 37 recipients of the Nobel Prize for Medicine have been U.S. citizens (“United States Nobel Prize Winners,” 2006).

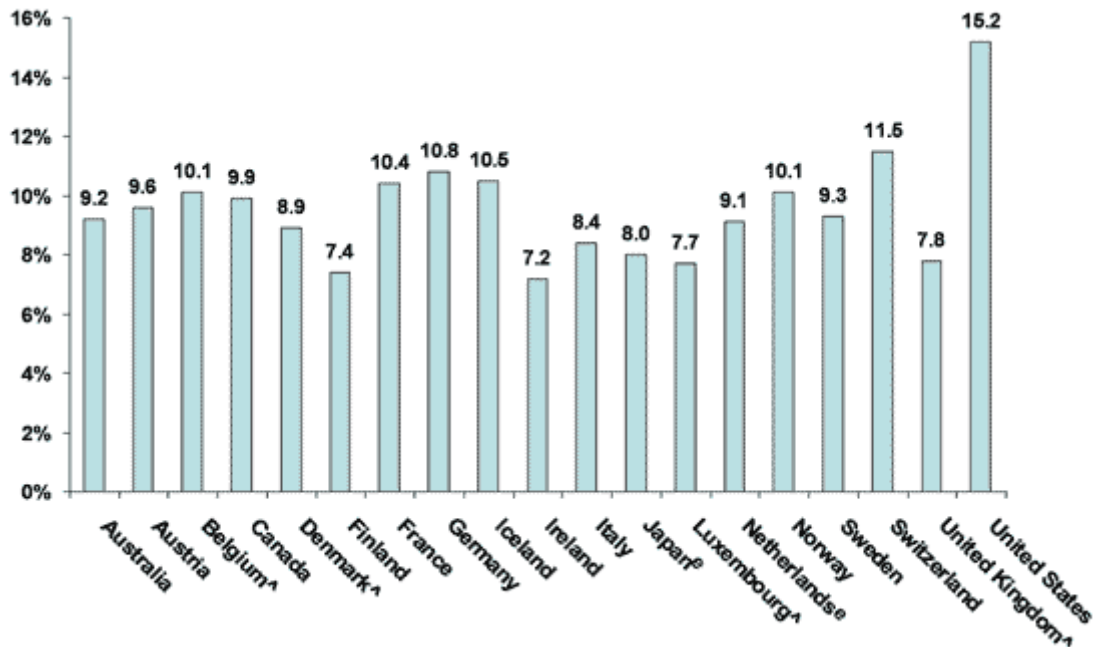
Finally, the U.S. is by far the world leader in drug research and development. From 1993 to 2003, the U.S. pharmaceutical industry produced 48% of the world’s innovative drugs, 52% of all biotech drugs, and 55% of drugs that treat rare diseases (Clemmitt, 2006, p. 294).

Yet, in many ways, the U.S. health care system is a study in contrasts. Despite the positives mentioned above, *World Health Report, 2000* also ranked the U.S. 37th in overall health system performance, a judgment based on such factors as adult and infant mortality rates and per capita health expenditure (WHO, 2000, p.155 and Clemmitt, 2006, p. 292). Given the fact that the U.S. spends more per capita on health care than any other nation, it should rank much higher on overall health system performance.

Cost of Care

By any measure, the U.S. has the most expensive health care system in the world. 2006 figures are still unavailable, but economists estimate U.S. health care expenditures were approximately \$2.17 trillion, a total exceeding 16% of GDP and equating to \$6,830 for every American, the highest per capita spending amount in the world (Clemmitt, 2006, pp. 289, 291). Economists also project health spending will grow at an annual rate of 7%, far exceeding the rate of overall economic growth, and reach totals of \$4 trillion and 19% of GDP by 2015 (Plunkett Research, Ltd, 2006, section 2). According to the data gathered by the Organization for Economic Cooperation and Development (OECD) (Figure 1), U.S. health spending as a share of GDP is far higher than in any other country (Kaiser Family Foundation, 2007).

FIGURE 1
Total Health Expenditures as a Share of GDP, U.S. and Selected Countries, 2003



Moreover, a study comparing long-term spending trends of the U.S. and remaining OECD countries between 1970 and 2002 revealed that the annual excess growth rate of health spending (the rate at which health spending exceeds the GDP growth rate) was 2.0% in the U.S. versus 1.1% in the OECD. While the U.S. rate from 1985-2002 remained at its 1970-1985 rate of 2.0%, the OECD average rate fell from 1.7% in 1970-1985 to .6% in 1985-2002. Global health experts assess the drop in the OECD rate is primarily due to the efforts of non-U.S. OECD countries to contain the costs of their national health systems rather than focusing on universal access to care, a primary policy objective during the earlier period (White, 2007, p. 154-160).

There are several key factors driving the sustained rise in U.S. health care costs:

Third-party Payer System: In 2004 private health insurance paid for 36% of total personal health care expenditures, the federal government paid 34%, state and local governments paid 11%, and consumers paid out-of-pocket for 15% of their total costs. In economic terms, the system has created a consumer base that is “price insensitive,” causing patients to make many health care decisions based primarily on quality and access rather than price (National Center for Health Statistics, 2006, p. 5).

Aging Population: The aging American population places upward pressure on health care costs. Americans aged 55 and older are the fastest-growing segment of the population, and, as previously mentioned, the life expectancy of Americans continues to increase (from 75.4 years in 1990 to 77.9 years in 2004). Therefore, over the next decade there will be a bulge of citizens entering a period of their lives in which they will require greater quantities of health care, and they will sustain the demand for this care for longer periods of time (NCHS, 2006, pg. 7). In the next decade there will be unprecedented numbers of Medicare-eligible recipients, dramatically increasing mandatory federal entitlement spending and placing an increasingly heavy strain on the federal budget for discretionary spending (Plunkett Research, Ltd, 2006, section 3).

Increasing Prevalence of Multiple Chronic Diseases and Obesity: Industry experts estimate over 125 million Americans are afflicted with one or more chronic diseases. Naturally, this causes an increasing number of health care visits, an increased demand for prescription drugs, and greater spending by private insurance companies, Medicare, and Medicaid (Anderson, 2003). For example, individuals with five or more chronic conditions average 15 physician visits and fill approximately 50 prescriptions per year (Stampfer, Hu, Manson, Rimm, and Willett, 2000, pp. 16-22). Moreover, there is a direct correlation between increased health care costs and obesity. According to a 2005 CDC study, “physical inactivity, overweight, and obesity were associated with 23% of health plan health care charges and 27% of national health care charges. Although charges associated with these risk factors were highest for the oldest group (aged 65 years and older) and for individuals with chronic conditions, nearly half of aggregate charges were generated from the group aged 40 to 64 years without chronic disease” (CDC, 2005). Estimates indicate the prevalence of type 2 diabetes alone will increase at a rate of 1.5 million new cases each year. By 2015, it is projected 36 million Americans will have type 2 diabetes (Rowley, 2007).

Advances in Medical Technology: Advances in medical technology are widely cited as significant drivers of increased health care cost. As doctors become more and more reliant on the use of high-tech diagnostic devices such as CT machines and MRI machines, utilization of cutting edge technology increases the overall cost of health care (Clemmitt, 2006, p. 294, 301).

Administrative Costs: Administrative costs associated with running insurance companies, hospitals and clinics, private practices, and other companies involved in the health care industry total between 24-26% of total health spending. Between 1970 and 1998 alone, the number of people holding administrative positions such as claims processors, billing clerks, and business managers grew by a factor of 24 (Clemmitt, 2006, p. 302-303, and Rowley, 2007). According to one insurance expert, the multi-payer system adds to administrative costs as providers and facilities need added numbers of knowledgeable administrative personnel to process the claims for numerous private and government insurance plans.

Quality of Care

The Institute of Medicine defines quality health care as “the degree to which health care services for individuals and populations increase the likelihood of desired outcomes and are consistent with current professional knowledge” (Agency for Health care Research and Quality, 2007). Patients quite understandably factor in convenience and comfort into their quality calculation, in addition to more critical factors such as the accuracy of the diagnosis and the efficacy of treatment (Federal Trade Commission and Department of Justice, 2004). A 2006 poll by the Kaiser Family Foundation highlights the often contradictory feelings Americans have about the quality of their health care. “The Kaiser Family Foundation found that while a majority proclaimed themselves dissatisfied with both the quality and the cost of health care in general, fully 89 percent said they were satisfied with the quality of care they themselves receive. Eighty-eight percent of those with health insurance rated their coverage good or excellent – the highest approval rating since the survey began 15 years ago” (Cohen & Levin, 2007, p. 46).

Nevertheless, a widely held viewpoint across the nation is that the quality of care for the average American is not nearly as good as it should be given how much money is spent on health care in the U.S. Indeed, given the per capita spending on health care, the U.S.' place on WHO's rankings for life expectancy at birth, obesity, and infant mortality, to name a few categories, should be much higher.

Quality is not standard for all Americans, and there are disparities due to race, socioeconomic class, ethnicity, and insurance status. According to a public health expert in San Antonio, Hispanics, Native Americans, and African Americans are more likely to be uninsured, and the uninsured generally do not receive adequate preventive medical care – PAP smears, mammograms, colonoscopies, etc. Uninsured patients often rely on emergency rooms for routine treatment, where follow up care is not readily available and quality necessarily suffers.

Access to Care

For the average working age American, good health insurance is the best guarantee of access to quality health care. Yet, according to the U.S. Census Bureau, in 2005 approximately 46 million Americans, or approximately 16 percent of the population, lacked health insurance. Yet, in a recent article in *Commentary Magazine*, Cohen and Levin state, “but that stark figure fails to convey the shifting face and varied make-up of the uninsured. On average, a family that loses its coverage will become insured again in about five months, and only one-sixth of the uninsured lack coverage for two years or more. In addition, about a fifth of the uninsured is not American citizens, and therefore could not readily benefit from proposed reforms. Roughly a third of the uninsured are eligible for public-assistance programs (especially Medicaid) but have not signed up, while another fifth (many of them young adults, under thirty-five) earn more than \$50,000 a year but choose not to buy coverage” (Cohen & Levin, 2007, p. 47).

As with the ‘quality’ leg of the triangle, there are disparities in access by race, ethnicity, and socioeconomic class. In 2004, former U.S. Surgeon General David Satcher said, “Access to care is a big factor. African Americans and Hispanics are much more likely to be uninsured and underinsured and underserved, and may not seek care as often as whites” (Payne, 2004, para. 8). Workforce shortages have a negative impact on both access and quality of care. According to health care experts, the shortage of health care professionals, especially in rural areas and inner cities as well as in some specialties, limits access, because patients are unable to find the health care they need close to home. An example of a profession experiencing a significant shortage is nursing (American Association of Colleges of Nursing [AACN], 2007). A 2003 report by the Joint Commission on Accreditation of Health care Organizations stated 24% of medical errors in U.S. hospitals resulted from an insufficient number of nurses being on duty (Plunkett Research Ltd, 2006, section 12).

Finally, many Americans currently insured are finding it harder to afford the rising policy deductibles or premiums, which have risen five times faster than wages in the past 10 years (Clemmitt, 2006, p. 289). Medicare-eligible patients indicate they have a difficult time finding doctors who will treat them, and many providers are frustrated with Medicare cuts and reimbursements (Hawryluk, 2002). According to the *Journal of the American Medical Association (JAMA)*, millions of Americans are unable to access medical care, because they are underinsured (Drummond & Fontanarosa, 2006).

Key Health Care Industry Trends

There are worsening trends in each of the following areas: the number of uninsured citizens, the prevalence of obesity and multiple chronic diseases, the availability of key specialties in the health care workforce, and the prevalence of infectious diseases. Two positive trends exist in the field of molecular/genetic medicine and the U.S. death rates from cancer.

Aging Population

Increased longevity is the natural result of improvements in health care. Indeed, advances in national health, pharmaceuticals, and diet have significantly improved the life expectancy of Americans in the last half century (Lapin, 2006). The undesirable effect on society of an aging population is the cost of providing health care to a significantly larger segment of the population who remain retired (past their earning years) for much longer than in the past. In 2005, 36.8 million Americans were over 65 years of age. It is estimated that by 2030, when the last of the baby boom generation reaches retirement, that number will reach 71.5 million, or nearly double the 2005 figure (Administration on Aging, 2007). This demographic change will have a profound impact on Medicare. In 2006, Medicare covered 43.2 million Americans at a cost of \$408 billion. By 2031 it is anticipated that 77 million Americans will be eligible for Medicare (U.S. Health & Human Services, 2007 Centers for Medicare/Medicaid Services, no date).

This trend is even more unsettling when one considers the fact that other segments of society are not growing nearly as fast as the segment above the age of 65. This demographic change represents what experts call the “rectangularization” of survival. In other words, “throughout most of human history, a society’s population formed a sort of pyramid: young children represented the largest portion - the base – and each successively older cohort represented a smaller and smaller group. In 1950, children under the age of five were eleven per cent of the U.S. population, adults aged forty-five to forty-nine were six percent, and those over eighty were one percent. Today, we have as many fifty-year-olds as five-year-olds. In thirty years, there will be as many people over eighty as there are under five” (Gawande, 2007, p. 53).

Rising Uninsured Population

In real terms and as a percentage of the population, the number of uninsured Americans continues to rise. As depicted in Figure 2 below, the U.S. Census Bureau reports a record setting 46.6 million were uninsured in 2005. And as health care becomes more expensive, the percentage of Americans enrolled in an employer-sponsored insurance plan has been dropping (Center on Budget and Policy Priorities, 2006).

Figure 2 - Health Insurance Coverage, 2001-2005*

	Uninsured		Medicaid/ SCHIP	Employer- Sponsored Insurance	Individually- Sponsored Insurance	Medicare	Military Health Care
	# millions	%	%	%	%	%	%
2005	46.6	15.9	13.0	59.5	9.1	13.7	3.8
2004	45.3	15.6	13.0	59.8	9.3	13.6	3.7
2003	45.0	15.6	12.4	60.4	9.2	13.7	3.5
2002	43.6	15.2	11.6	61.3	9.3	13.4	3.5
2001	41.2	14.6	11.2	62.6	9.2	13.5	3.4
*Based on Current Population Surveys. Percentages do not sum to 100% because some people have more than one type of coverage.							

As mentioned previously, the profile of the uninsured varies. But the overall trend is not positive. Among the many explanations for the large number of uninsured Americans, three stand out. First, many Americans have shifted to low-wage jobs in which employers do not offer health care coverage or the plans offered are not affordable to the low-wage worker. Second, the steady increase in health care costs has outpaced the increase in household incomes making it difficult for self-employed individuals to afford coverage. Third, the workforce has seen a trend in alternate employment (temporary, part-time, etc.) where health care coverage is not provided (Plunkett Research, Ltd, 2006, section 9).

Obesity Epidemic

Obesity is increasing in many countries and has doubled in the U.S. in the last 20 years (Plunkett Research, Ltd, 2006, section 16). 40 million Americans are obese, with three million of these individuals being morbidly obese (50-100% or 100 pounds over their ideal body weight) (Collins, 2007). Obesity is the fastest-growing cause of illness and death in the U.S. 300,000 obesity-related deaths occur each year and more than 30 chronic illnesses/diseases stem from obesity (Greenblatt, 2003, p. 75, 89). Childhood obesity is also on the rise. It is estimated 20% of children will be obese by 2010 (GAO, 2006, p. 1). Finally, while the obesity rate for women has remained high but steady in recent years, a 2006 report issued by the CDC showed obesity continues to rise in men (Plunkett Research, Ltd, 2006, section 16).

Treating obesity-related illnesses costs Americans an estimated \$117 billion annually, or about \$400.00 per capita (Plunkett Research, Ltd, 2006, section 16). Treating childhood obesity is also very expensive, costing the U.S. \$127 million in 1999 as compared to \$35 million in 1979 (Collins, 2007). As health care costs continue to rise in the coming years, so will costs associated with treating obesity and its related illnesses (diabetes, heart disease, cancer, high blood pressure, etc.)

Shortages in the Health Care Workforce

In a 2001 survey of over 1,000 American hospitals conducted by the First Consulting Group, three U.S. health care occupations have vacancies over 10%: imaging/radiology technicians, pharmacists, and nurses. There is a 15% national vacancy rate for imaging technologists and technicians, with 21% of the responding hospitals indicating a 20% vacancy rate. The national vacancy rate for pharmacists is 12.7%, with several hospitals reporting vacancy rates over 20% as well (First Consulting Group, 2001). By 2020, it is predicted that in

the allied health professions, which constitute 60 percent of the health care workforce, there will be a shortage of 1.6 million to 2.5 million workers (Allied Health Professions Week Highlights Workforce Shortage Crisis,” 2006). A 2002 Pharmacy Manpower Project report predicts 157,000 unfilled pharmacy openings by 2002 (“Pharmacist Shortage Worsens Nationwide,” 2005).

The nursing shortage is the most discussed workforce shortage in the health care industry. The national vacancy rate for nurses is 13% with many hospitals reporting a shortage of 20% or higher (First Consulting Group, 2001). There was a shortage of as many as 400,000 nurses in 2006, and that shortage is projected to reach 800,000 by 2020. Nursing schools rejected 147,465 qualified applicants in 2005 because they were unable to find enough qualified nurses to teach the masters and doctorate level programs (Plunkett Research, Ltd, 2006, section 12).

More recently, the lack of geriatricians in America has become a growing concern for an increasingly aging population. Geriatricians specialize in understanding the aging process. Through good geriatric care, the elderly can often delay the need for very expensive assisted living care. “Medicine has been slow to confront the very changes that it has been responsible for – or to apply the knowledge we already have about how to make old age better. Despite a rapidly growing elderly population, the number of certified geriatricians fell by a third between 1998 and 2004” (Gawande, 2007, p. 53).

Emerging Infectious Diseases

The most common infectious diseases impacting the U.S. and the world are AIDS, West Nile virus, SARS, Avian flu, malaria, and tuberculosis. Many of these diseases are not new to the health care industry, as infectious diseases have always appeared, disappeared, and reappeared. However, because aspects of life have changed over time, some diseases flourish more easily and/or reappear with a vengeance (Steckelberg, 2006).

HIV/AIDS: The number of people infected with Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) continues to increase, partly because people with the disease are now able to live longer than before. Currently, there are an estimated 800,000 to 900,000 people living with HIV in the U.S., with approximately 40,000 new infections each year (CDC, HIV/AIDS Surveillance, 2007). Additionally, the number of people living with AIDS is higher than ever. At the end of 2005, the figure was over 476,000 as compared to approximately 384,000 in 2001 (CDC, HIV/AIDS Surveillance, 2007).

Malaria: Malaria is a leading cause of death and disease in many developing countries. According to information provided by the WHO, 350-500 million clinical episodes occur every year with 60% of the cases and 80-90% of the deaths reported in sub-Saharan Africa. In 2002, malaria was the fourth leading cause of death in children in developing countries. The U.S. eliminated malaria as a public health problem in the late 1940s, but several hundred cases surface each year. In 2002, the U.S. reported 1,137 malaria cases, eight of which were fatal. In developed countries such as the U.S., the harmful effects of malaria can combine with those of other diseases such as HIV/AIDS, malnutrition, and anemia (CDC, 2007).

Tuberculosis (TB): In the 1990s, WHO sponsored a world-wide effort to eradicate tuberculosis. This effort has shown some promising results, as WHO continues to report a steady drop in cases of TB around the world. But eradication remains elusive. In 2006, 13,767 TB cases were reported in the U.S., a 3.2% decline from 2005 (CDC, 2007). According to the CDC, “since the resurgence of TB in the United States during 1985--1992, the annual TB rate has decreased steadily. However, the rate of decrease has slowed. Furthermore, the proportion of TB cases among foreign-born persons has increased each year since 1993. If TB infections worldwide continue to increase, eliminating TB in the United States will be more and more difficult because most foreign-born persons in the United States who progress from latent TB infection to TB disease initially became infected abroad” (CDC, Trends in Tuberculosis, 2007).

The misuse of antibiotics and negligent medical practices have led to the rise of an extremely drug-resistant TB strain (XDR-TB) (Altman, 2007). This new strain is more deadly when it attacks individuals also infected with HIV, as the suppressed immune system increases the likelihood that the TB infection will progress to the disease. WHO states it is a grave health threat due to its potential explosiveness among the millions of HIV infected individuals in poor countries and for those individuals (not necessarily in poor countries) who have weakened immune systems (due to cancer treatments, etc.). In South Africa, 85% of the individuals infected with XDR-TB and HIV have died (Altman, 2007).

Advancing Molecular/Genetic Medicine

The employment of molecular biology and gene technology (biotech) has led to a better understanding of disease, creating a new branch of research known as molecular medicine. Molecular medicine strives to understand the molecules key to normal body functioning and the pathogenesis of disease, and with this knowledge strives to design tools and drugs for diagnosis, treatment, and prevention (Feinstein Institute of Medical Research, 2007). According to an article in Current Molecular Medicine magazine, “the increasing use of gene expression profiling offers great promise in clinical research into disease biology and its treatment...genomic technology and analysis allows simultaneous observation for thousands of genes that reveal the status of the body” (Yue. & Reisdorf, 2005, p. 11).

Pharmaceutical companies stand to benefit tremendously from the biotech revolution. In fact, a majority of research and development funding comes from partnerships between large pharmaceutical companies and small biotech firms. For example, within a year after the mapping of the human genome was complete, the number of drugs under development exploded from 500 to 10,000 (Oliver, 2003).

Cancer Continues to Decline

According to a National Cancer Institute report, “the number of new cancer cases per 100,000 persons per year declined on average 1.1 percent per year between 1992 and 1998.” This decline reflects, in part, a 2.9 percent yearly decrease in cancer for white males and a 3.1 percent yearly decrease for black males (National Cancer Institute, 2001). In addition, U.S. death rates for all cancers, and in particular the four most common cancers (prostate, breast, lung, and colon), continue to decline. Much of this success is due to the major advances in technology over the last few decades. Innovations in imaging technologies such as computed tomography (CT) scanning and chest radiography (X-Rays) now provide the opportunity to detect cancer at the

beginning stages (NCI, 2005). It also reflects the fact that Americans are making healthier lifestyle choices, as evidenced in the decline in smoking (National Cancer Institute, 2001).

According to the American Cancer Society, “between 2002 and 2003, the actual number of recorded cancer deaths decreased by 778 in men, but increased by 409 in women, resulting in a net decrease of 369, the first decrease in the total number of cancer deaths since national mortality record keeping was instituted in 1930. The death rate from all cancers combined has decreased by 1.5% per year since 1993 among men and by 0.8% per year since 1992 among women. The mortality rate has also continued to decrease for the three most common cancer sites in men (lung and bronchus, colon and rectum, and prostate) and for breast and colon and rectum cancers in women” (Jemal, 2007, para. 1).

What Does this Mean?

Without a doubt, the decline in cancer, especially the decline in deaths from the disease, is good news. Once considered a scourge and a death sentence, this trend means that fewer Americans can expect to get cancer and fewer of those who do get cancer will die from it. This is a positive development for the overall health of the population and could result in a savings of millions of health care dollars. Another positive development that could lead to cost savings to society in the long run and an improvement in overall health is the increase in the use of molecular medicine. The ability to understand disease on the genetic level, potentially detect disease earlier, and design treatments and medications specifically for the individual portends a brave new world of better health. It is possible that through molecular medicine, we will be able to counteract and treat the epidemic in multiple chronic diseases.

However, before that day arrives, if it ever does, trends like increased obesity and multiple chronic diseases will result in more and more Americans becoming increasingly sicker and becoming sicker at a younger age. For example, due to the growth in childhood obesity, poor nutrition, and lack of exercise, younger people are developing Type 2 diabetes, which used to strike almost exclusively after age 45. Those who develop Type 2 diabetes by age 20 are five times more likely to develop end-stage renal disease and have a higher risk of death by middle age than those who develop the disease later in life (“Early Onset of Type 2 Diabetes Heightens Risk,” 2006). In addition, those who develop Type 2 diabetes by age 44 are 80 percent more likely to begin insulin therapy and have twice as great a chance of macrovascular complications (such as heart attacks) as those who develop the disease later in life (Hillier & Pedula, 2003).

Add to the growth in multiple chronic diseases the fact that the American population is aging and you have the perfect storm of a health care crisis. As already mentioned in this report, older people utilize more health care, and as people live longer, they utilize it for a longer period of time. Since Medicare pays for the health care of those over 65 and Medicaid pays for the long-term care of most elderly, our increasingly older and sicker population could bankrupt those programs if action is not taken. There will also be implications for the rest of the federal and state budgets as we make choices regarding what the nation will pay for. Added to the mix is the continuing workforce shortage in certain health care professions. Even when Americans have the insurance or means to pay for health care, they may not be able to find the specialists or allied health professionals for treatment.

The plight of the uninsured has implications for all Americans. When uninsured Americans are ill, they encounter more difficulties in obtaining care, make fewer doctor visits, and have difficulties accessing prescription drugs. Additionally, lack of access to a primary care physician limits an individual's access to referrals for specialty care (Health Policy Institute of Ohio, 2004, p. 8) By forgoing treatment, these individuals develop more severe illnesses or diseases, potentially pass these illnesses on to others, and more than likely die prematurely. Additionally, when uninsured Americans do become ill, many visit emergency rooms for treatment. Since they are unable to pay, the cost of emergency room care is passed on to the insured in the form of higher prices. All of this presents a great challenge to the nation.

Challenges of the Industry

As already outlined, a number of challenges confront the U.S. health care industry. Below are six major health care industry challenges for the U.S. and, in some instances, other nations as well.

Rapidly Increasing Health Care Costs

Rapidly rising health care costs have an impact on the federal budget, government sponsored health insurance programs, state sponsored health insurance programs, employers, individual Americans, and the military and veterans health care programs.

Implications for the Federal Budget: The U.S. spends more money on health care than any other country. Currently, health care costs far exceed those for overall economic growth. As mentioned earlier, it is estimated that the U.S. spent roughly 16% of GDP in 2006 on health care and this figure could grow to 19% in 2015. This results in federal monies being diverted from other critical areas of our nation's government: defense, homeland security, education, energy, transportation, etc. (Plunkett's Research Center, 2006, section 3). The faster-than-GDP growth of all health care costs will continue to drive up the costs of all federal (and state) funded health care programs and place a strain on the budget (Office of Management and Budget, 2007).

Implications for Medicare and Medicaid: With Americans living longer and the percentage of those over age 65 growing, Medicare costs will continue to increase rapidly in the years ahead. Medicaid is also experiencing severe difficulties in providing benefits due to the increasing costs of health care and the growth in number of enrollees. Additionally, Medicaid covers the cost of nursing home care for most seniors and those seriously disabled. Many states are finding it impossible to fully fund their programs and are looking for innovative solutions (Plunkett Research, Ltd, 2006, section 6).

Implications for Employers: Some employers are finding they can no longer afford the premiums for employer-sponsored health care plans. Their options are to cancel this benefit for current employees, pass along the higher premiums to their employees and retirees, only offer the health care plan to certain employees in the company, or pass the cost of the premiums onto consumers through the price of their goods and services. To make a profit in today's dynamic economy, many businesses see decreasing the cost burden of premiums as a necessary option to staying solvent (Plunkett Research, Ltd, 2006, section 6).

Implications for Individuals: Some individuals are finding it increasingly more difficult to afford health care coverage – whether they purchase their own individual policies (usually temporary workers, contractors, and employees in small firms who do not receive health coverage as an employment benefit) or pay high premiums on the coverage provided by their employers. Thus, many of these individuals are electing no coverage at all and are joining the millions of uninsured Americans.

Implications for DoD/VA: As a patient transfers from the DoD's Military Health System (MHS) to the VA health system, following discharge from active duty with a service connected disability, there are disconnects between the two bureaucracies that adversely affect the veteran's care, at least in the short term. In addition, as discretionary federal budget outlays are affected by increasing entitlement outlays, both DoD and VA apportionment of funding to their health care systems could be negatively affected (Mosquera, 2007).

Cost of Care in Other Countries: Finding ways to cope with the rising cost of health care or to balance the iron triangle is not an exclusively U.S. problem. It is universal. According to health care experts in the United Kingdom, for example, to save money, health care officials in some areas have decided that the National Health Service will not cover certain procedures, medications and treatments.

Access to Quality Health Care

As mentioned earlier, one major challenge confronting the U.S. is the lack of access to a basic standard of quality health care for all Americans. Access is limited for the uninsured and underinsured as well as to some, regardless of income and insurance status, because they are racial or ethnic minorities. In addition, according to the Health Policy Institute of Ohio, access to primary care clinicians, specialists, and diagnostic facilities in inner cities and rural areas is scarce (Health Policy Institute of Ohio, 2004, p. 11).

Like controlling costs, maintaining access to quality health care is a challenge shared by other countries. For example, according to one U.S. care expert, Canada helps to manage costs by limiting immediate treatment for some conditions, such as certain surgeries. He claimed that this policy decision has led to extended waits for some treatments. As already stated, local health care officials in the UK have the power to disallow payment for certain treatments. This limits access for those patients and, since this is a local decision, results in geographic disparities.

Increasing Prevalence of Multiple Chronic Illnesses and Obesity

This report has previously discussed this problem. And, like cost and access issues, obesity is also not a strictly American problem. Globalization, reduced physical activity, and changes to traditional diets have exported obesity to other nations, such as China. China, which once had one of the leanest populations, is fast catching up with the West regarding the prevalence of obesity (Wu, 2006). In Mexico, 60% of men and 64% of women are overweight or obese. Obesity rates in Britain and Australia are 21% and 20%, respectively. France is at 9.6% and Japan at 2.9%. While these last two countries have low rates, they have increased over the last several years. WHO estimates that 300 million people worldwide are obese and 750 million are overweight (22 million of which are children under age 5) (WHO, 2000).

Workforce Shortages

As described earlier, the workforce shortage in certain health professions poses a challenge for the U.S. and contributes to the problem of access.

Infectious Diseases

Many infectious diseases do not pose the same threat to the U.S. as they do to other countries. Nevertheless, according to health care experts, due to globalization, a pandemic flu or other infectious disease would know no barriers and could rapidly spread from continent to continent.

In the U.S., due to the numbers of people infected and the growing numbers projected, the burden placed on health care to treat HIV/AIDS will rise due to the long-term effects of the medications used to treat the co-infected (those with HIV/AIDS and at least one other disease). For instance, liver disease from Hepatitis C is the leading non-AIDS cause of death in co-infected individuals. In developing countries where the HIV/AIDS rate is high, the disease can have a severe impact upon society. The “gradual accumulation of losses and diminution of resources” impedes economic growth and social services (Joint United Nations Programme on HIV/AIDS [UNAIDS], no date). Additionally, HIV/AIDS degrades political and security institutions. In nations with a high infection rate among police and military forces, the ability and capacity to maintain security is severely compromised.

Industry Preparedness for Surge

America’s public health and health-care delivery systems are central to our nation’s ability to respond to a large natural or man-made disaster. However, both the federal and local governments lack adequate hospital and public health preparedness programs. A recent study by the Trust for America’s Health (TFAH) found half of all states would run out of hospital beds within two weeks of a moderately severe pandemic flu outbreak and “cause a surge in demand for critical medicines and equipment, such as antivirals, ventilators, and protective masks” (Levi, Segal, Gadola, Juliano, & Speulda, 2006, p. 22). TFAH also identified the national shortage of nurses as a significant issue with respect to surge capacity. The authors of a May 2004 report detailing the lessons learned by New York General Hospital while dealing with the 2003 SARS outbreak reinforces this point, noting “our biggest challenge during the outbreak was insufficient personnel... We required additional nurses, unit managers, infection control personnel, housekeeping staff, ward clerks, supply stocking and inventory staff... (and) physicians... The SARS outbreak affected every hospital department” (Loutfy, et al, May 2004).

Policy Recommendations and Conclusion

The problems facing the U.S. health care industry are complex and not given to simple solutions. Nevertheless, U.S. policymakers are rapidly facing critical decisions on some of the key challenges identified in this paper. Our recommendations are as follows:

Controlling Costs and Expanding Access: This is perhaps the greatest challenge facing the U.S. health care industry in the first quarter of the 21st century. The U.S. has a mature employer-based

health insurance system with which many Americans remain satisfied. Therefore, abandoning this system for a universal government payer system is impractical and unrealistic. What is needed, however, is a government-payer alternative that the chronically and even temporarily uninsured can opt into to ensure uninterrupted access of primary medical and dental care to all Americans. A change of this magnitude will be expensive and require tremendous political will. It will be incumbent upon policymakers to work with Congress, the various interest groups and stake holders and build that will. This should include a campaign of strategic communications that will not only help garner support, but will manage expectations of what this system will entail. The American public will have to prioritize what they want in a health care system, balancing the competing interests of coverage and cost.

Raising taxes will likely be unavoidable to help fund this proposal as well as the entitlement programs that already exist. However, since the working age cohort is decreasing as a percentage of the population, raising taxes alone will unlikely do the trick. It may also call for cuts in other government programs. For example, 100 percent medical coverage should not be an entitlement for non-wounded active duty military members. Co-pays could decrease expenditures in the military health system by helping decrease use and by helping to cover costs. Increased taxes on items that contribute to health problems – alcohol, tobacco, and some foods, could help to raise revenue for the government-payer system while attempting to discourage unhealthy behavior. Another proposal that could help generate revenue is a national lottery, an idea which previously has been opposed in some quarters. However, if a healthy America truly is a strategic objective, as we believe it is, the country as a whole needs to bear this burden. In the long run, allowing all Americans access to good primary and preventive care should reduce both the abuse of emergency rooms for routine care and the incidences of multiple chronic diseases that become so expensive to treat.

Reining in private costs of health care should be a priority. As mentioned earlier, according to an OMB report, the fact that health care costs are growing faster than GDP is a major reason for the rising cost of health care entitlements. One reason that those costs are growing is because the third-party payer system is divorced from market forces. Increasing co-pays and other methods, where consumers feel the real effects of costs could help make service more competitive and help bring down costs down.

It must be noted, however, given the realities of life in America, there likely will always be a significant portion of residents without health care coverage, no matter what solution is adopted. It is estimated that 12–20 million illegal immigrants live in the United States, and they would not be covered by the government-payer system although they would still access health care. This issue must be addressed in discussions of both immigration and health care reform.

The Aging Population: Several proposals will help the U.S. deal with this demographic change. First, Medicare rules need to be changed to remain a viable program as the baby boom generation retires. While politically difficult, Medicare eligibility should be raised from the age of 65 to at least 68, and possibly even 70 for those being born today. The eligibility age can be gradually adjusted upward over time, but with the average life expectancy of Americans approaching 80 there is no compelling reason why it must stay at 65. Moreover, as with supporting a single-payer alternative, Americans will have to pay higher taxes to keep Medicare

viable. There should be means testing for Medicare eligibility. Seniors with private insurance, or who can otherwise afford it, should use other means to pay for their health care. In addition, as it is unlikely the U.S. will have an adequate number of trained geriatricians in the near future, primary care doctors need to be trained in basic geriatrics. Geriatric care is critical to keeping the elderly in a less expensive independent living status as long as possible.

Multiple Chronic Illnesses and Obesity: Policies aimed at the young are the best way to stem the tide of obesity. Candy and soda machines must be removed from schools, and school cafeterias must only serve healthy, low-fat meals. Gym classes must be required through 12th grade, with health and fitness standards made a part of “No Child Left Behind” or whatever existing national educational initiative that provides federal funds for local schools. Children spend most of their time away from school, so there should be a strategic communications campaign, aimed at children and adults, promoting healthy lifestyle choices and warning of the problems that ensue when the wrong choices are made. Enlist community groups, including faith-based ones, to organize and offer their facilities for sports and exercise activities for people of all ages.

A government-payer alternative will not guarantee healthy living. For example, Alaskan Natives and Native Americans have health care through a government-payer system (Indian Health Service). Nevertheless, extreme degrees of obesity are common and increasing among those groups, as well as there is a growing prevalence of diabetes (Wilson, Gilliland, Moore, and Acton, 2007). The key to fighting chronic illnesses and obesity is for Americans to assume greater responsibility for their health and adopt a healthier, more active lifestyle. As mentioned above, a government strategic communications campaign that promotes health literacy and healthier choices would be essential in reaching this goal.

Health Care Workforce Shortages: The U.S. is making up some of its nursing shortage by importing nurses and nursing students from lesser developed nations, such as the Philippines. This is a reasonable short term solution, but in the context of global health the U.S. must be careful not to be seen as a country that ‘poaches’ health care talent from poor countries at those countries’ expense. We can expand the search for health care professionals to other nations where there is a surplus, but we also need to do more to mine home grown talent. With shortages in other specialties, the government needs to find creative incentives to ensure more Americans seek out those career fields. For example, more scholarship funding could be made available for undermanned specialties. Also, state universities could be offered targeted tax breaks to pay higher salaries to nursing school faculty. Hospitals can recruit from high schools in underserved areas, providing scholarships for those youngsters’ training and education. This also will help improve the problems of rural, inner city, and minority access to health care by recruiting more from those communities. Increasing the pay for certain health professions will also help attract more candidates. One way to increase nursing salaries, while combating the workforce shortage in that profession, is to recruit more men. Sadly, professions that are viewed as “for women” pay less (Cheney, 2007). A strategic communications campaign by hospitals, the American Nursing Association, or nursing schools should point out that military nurses are often men.

Infectious Diseases: While infectious diseases such as malaria and tuberculosis do not currently pose a great risk to Americans living at home, the U.S. is not insulated from the larger global health challenges presented by these and other diseases. This is why the U.S. must work with

other nations to contain and treat pandemic flu and other infectious diseases in the nations where they occur. The U.S. must continue to be an active and concerned partner to developing nations, especially in sub-Saharan Africa, where infectious diseases are serious public health problems. President Bush's Emergency Plan for AIDS Relief (Emergency Plan/PEPFAR) is a good example. At \$15 billion, PEPFAR is the largest commitment ever by any nation for an international health initiative dedicated to a single disease. The U.S. must also continue to fund international organizations as well provide training and assistance to lesser developed nations to ensure that those nations develop a health care infrastructure able to cope with the full spectrum of health issues and not just a single disease. Moreover, since global health is important to the global economy, it is in the U.S.'s economic and security interests to help battle infectious diseases wherever they are found.

Industry Preparedness for Surge: While the many aspects of health care surge capacity represent significant preparedness challenges, better training and more realistic exercises can help compensate for a limited surge capacity by improving staff efficiency and expertise. Regrettably, emergency planning, training and exercises are major challenges for hospitals and public health departments. TFAH's 2006 'Ready or Not?' report identifies gaps in 'plans on paper' versus the reality of preparedness, summarizing a related concern as follows: "there is limited, non-systematic testing and exercising of emergency health plans, and inconsistent mechanisms for incorporating lessons learned into future planning" (Levi, et al, 2006, p. 3). Therefore, this is another area where government needs to be more involved in helping hospitals train and exercise disaster preparedness. As the lead agencies dedicated to ensuring the U.S. health care industry is adequately prepared for crisis, the Department of Health and Human Services and the Department of Homeland Security must ensure hospitals and other critical health care facilities and services have their capacity needs fulfilled, wherever practical.

In conclusion, the U.S. health care industry has major strengths and weaknesses. It currently works well for the majority of Americans. Nevertheless, it is far too costly. And it needs reform and improvement in several areas to meet the challenges we have identified and continue serving Americans well in the coming decades. To be sure, improving health care access while dealing with rising health care costs will not be solved with minor reforms that tinker on the margins. A study of health care in other countries shows that they too wrestle with issues of access, quality, and cost. This fact underscores that efforts to reform our system will not be easy. Nevertheless, if our priority is to ensure a basic standard of health care to all Americans, then we must start immediately to put in place the policies needed to achieve that goal.

References

- Administration on Aging. (2007). *Statistics on the Aging Population*. Retrieved March 27, 2007, from <http://www.aoa.gov/prof/Statistics/statistics.asp>
- Agency for Health care Research and Quality. (2006). *Electronic Medical/Health Records*. Retrieved March 24, 2007, from http://healthit.ahrq.gov/portal/server.pt?open=512&objID=653&&PageID=5664&mode=2&in_hi_userid=3882&cached=true
- Agency for Health care Research and Quality. (2007). National Quality Measures Clearinghouse. Washington, DC: Author. Retrieved May 20, 2007, from http://www.qualitymeasures.ahrq.gov/resources/measures_use.aspx
- Allied health professions week highlights workforce shortage crisis. (2006, November 12). Medical News Today. Retrieved May 20, 2007, from <http://www.medicalnewstoday.com/medicalnews.php?newsid=56473>
- Altman, L. K., M.D. (2007, March 20). Rise of a deadly TB reveals a global system in crisis. *New York Times*. (Late Edition (east Coast)). p. F. 1. Retrieved May 9, 2007, from National Newspapers (5) database. (Document ID: 1238206421).
- American Association of Colleges of Nursing (2007, March). *Nursing shortage fact sheet*. Retrieved April 18, 2007, from <http://www.aacn.nche.edu/Media/FactSheets/NursingShortage.htm>
- Anderson, G., M.D. (December 16, 2003). *Foresight Seminar*. Johns Hopkins Bloomberg School of Public Health.
- Anderson, G., Horvath J., Knickman, J., Colby D., Schear S., and Jung, M. (2002, December). *Chronic conditions: Making the case for ongoing care*. Johns Hopkins University. Retrieved April 25, 2007, from <http://www.rwjf.org/files/research/chronicbook2002.pdf>
- Anderson, G., & Hussey, P.S. (2001). Comparing Health System Performance in OECD Countries. *Health Affairs*, 20(3), 219-232.
- Aspden, P., Wolcott, J., Bootman, J. L., & Cronenwott. (Eds). (2007). *Preventing Medication Errors: Quality Chasm Series*. Washington D.C.: National Academies Press. Retrieved April 26, 2007, from http://www.nap.edu/catalog.php?record_id=11623.
- Bush, G. W. (2006, January 31). State of the Union Address. Retrieved March 27, 2007, from <http://www.whitehouse.gov/news/releases/2006/01/20060131-10.html>
- Cannon, M. F., & Tanner, M. D. (2005). *Healthy competition: what's holding back health care and how to free it*. Washington, DC: Cato Institute.

- Carroll, R. T. (2003). *The skeptic's dictionary: a collection of strange beliefs, amusing deceptions, and dangerous delusions* (1st ed.). New York: Wiley.
- Center on Budget and Policy Priorities. (2006, August 29). *The numbers of uninsured Americans is at an all-time high*. Retrieved May 6, 2007, from <http://www.cbpp.org./8-29-06health.htm>
- Centers for Disease Control and Prevention. (2002). *Hepatitis C virus and HIV coinfection*. Retrieved April 20, 2007, from http://www.cdc.gov/idu/hepatitis/hepc_and_hiv_co.htm
- Centers for Disease Control and Prevention. (2004, September 13). *The impact of Malaria, a leading cause of death worldwide*. Malaria. Impact. Retrieved May 8, 2007, from <http://www.cdc.gov/malaria/impact/>
- Centers for Disease Control and Prevention. (2007). *HIV/AIDS surveillance by race/ethnicity through 2005* [Powerpoint presentation]. Retrieved April 19, 2007, from www.cdc.gov/hiv/topics/surveillance/reserouces/slides/race-ethnicity/index.htm
- Centers for Disease Control and Prevention. (2007, March 23). Trends in tuberculosis incidence – United States, 2006. *Morbidity and Mortality Weekly Report (MMWR)*, 56(11), 245-250. Retrieved May 9, 2007, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5611a2.htm>
- Centers for Disease Control and Prevention. (no date). *Chronic Disease Overview*. Retrieved April 25, 2007, from <http://www.cdc.gov/nccdphp/overview.htm>
- Centers for Disease Control and Prevention. (no date). *HIV/AIDS update*. Retrieved April 19, 2007, from <http://www.cdc.gov/nchstp/od/news/At-a-Glance.pdf>
- Centers for Disease Control and Prevention. (no date). Life expectancy at birth, 65, and 85 years of age, sex, and race. [Table] In *Trends in Health and Aging*. Retrieved May 6, 2007, from http://209.217.72.34/aging/ReportFolders/ReportFolders.aspx?IF_ActivePathName=P/Life%20Expectancy
- Cheney, A. (2007, May 16). Unequal pay. Message posted to Chicago Tribune blog for letters to the editor, archived at http://newsblogs.chicagotribune.com/new_opinion_letters/2007/05/unequal_pay.html
- Clemmitt, M. (2006). Rising health costs. *CQ Researcher*, 16(13), 289-312.
- Cohen, E., & Levin, Y. (2007, February). Health care in three acts. *Commentary Magazine*. Retrieved February 25, 2007, from <http://www.commentarymagazine.com/cm/main/viewArticle.aip?id=10826>

- Collins, Anne. (2007, March). *Obesity Statistics*. Retrieved March 31, 2007, from <http://www.annecollins.com/obesity/statistics-obesity.htm>
- Drummond, R. & Fontanarosa, P. (2006, May 10). Theme issue on access to health care. *Journal of the American Medical Association*, 295(18). Retrieved May 20, 2007, from <http://jama.ama-assn.org/cgi/content/full/295/18/2182>
- Early Onset of Type 2 Diabetes Heightens Risk. (2006, July 26). *CBC News*. Retrieved May 21, 2007, from <http://cbc.ca/health/story/2006/07/26/diabetes-youth.html>
- Federal Trade Commission and Department of Justice. (2004, July). Executive Summary. In *Improving Health Care: A Dose of Competition* (p. 1-29). Retrieved May 5, 2007, from http://www.ftc.gov/reports/health_care/health_care_rptexecsum.pdf
- Fierro, M.P. (2006, Spring). Cost of Chronic Diseases: What are states facing. *Trends Alert (Council of State Governments)*. Retrieved April 20, 2007, from http://www.healthystates.csg.org/NR/rdonlyres/E42141D1-4D47-4119-BFF4-A2E7FE81C698/0/Trends_Alert.pdf
- Finn, P. (2007, May 4-6). Fears of TB pandemic mounts. *The Wall Street Journal*, p. 8.
- First Consulting Group. (2001, Fall). *The health care workforce shortages and its implications for America's hospitals*. [PowerPoint Presentation]. Retrieved May 8, 2007, from <http://www.aha.org/aha/content/2001/pdf/FcgWorkforceReport.pdf>
- Florida Agency for Health Care Administration. (2007). *Licensing and certification*. Retrieved May 15, 2007, from http://www.ahca.myflorida.com/licensing_cert.shtml
- Garrett, Laurie (2007, January/February). The challenge of global health. *Foreign Affairs*, 86(1). Retrieved April 24, 2007, from <http://www.foreignaffairs.org/20070101faessay86103/laurie-garrett/the-challenge-of-global-health.html>
- Gawande, Atul. (2007, April 30). The Way We Age Now. *The New Yorker*, 50-59.
- General Accounting Office (GAO). (2006, December 6). *Childhood obesity: Factors affecting physical activity*. (Testimony before Congress-GAO-07-260R). Retrieved February 7, 2007, from <http://www.gao.gov/new.items/d07260r.pdf>
- Graig, L. (1999). Health of nations: An international perspective on U.S. health care reform. *Congressional Quarterly Inc.*, (3), 1-221.
- Greb, A., MS, CGC. (2003, Fall). Fifty years of DNA: From double helix to genomic medicine. *Updates in Genetic Medicine*, 1(1). Retrieved May 4, 2007, from http://www.genetics.wayne.edu/News/GC_newsletter%20vol1a.pdf

- Greenblatt, A. (2003, January 31). Obesity epidemic. *CQ Researcher*, 13, 73-104. Retrieved February 4, 2007, from CQ Researcher Online, <http://library.cqpress.com/cqresearcher/cqresre2003013100>
- Harris, G. (2006, July 21). Report finds a heavy toll from medication errors. *The New York Times*. Retrieved April 17, 2007, from <http://www.nytimes.com/2006/07/21/health/21drugerrors.html?ex=1311134400&en=8f34018d05534d7aei=5088partner=rssnytemc=rss>
- Hawryluk, Markian (2002, September 9). Medicare pay cuts, access problems linked. *AMEDNEWS.COM*. Retrieved April 20, 2007, from <http://www.ama-assn.org/amednews/2002/09/09/gvsc0909.htm>
- Health Policy Institute of Ohio (2004, November). *Understanding health disparities*. Retrieved March 31, 2007, from <http://www.healthpolicyohio.org/pdf/healthdisparities.pdf>
- Hillier, T. & Pedula, K. (2003). Complications in young adults with early-onset Type 2 diabetes. *Diabetes Care* 26. Retrieved May 21, 2007, from <http://care.diabetesjournal.org/cgi/content/abstract/26/11/2999>
- Hoover's, Inc. (2007). *Long-Term care facilities overview*. Retrieved May 18, 2007, from http://www.hoovers.com/industry/long-term-care-facilities/--HICID__1382--/free-ind-factsheet.xhtml
- IBISWORLD Inc. (2006, July 26). *Medical equipment and supply manufacturing in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=880&chid=1>
- IBISWORLD Inc. (2006, August 1). *Offices of all other health practitioners in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1563&chid=1>
- IBISWORLD Inc. (2006, October 17). *Offices of Physicians in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1553&chid=1>
- IBISWORLD Inc. (2007, January 9). *Ambulance services in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1581&chid=1>
- IBISWORLD Inc. (2007, January 15). *Pharmacies and drug stores in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1054&chid=1>
- IBISWORLD Inc. (2007, January 16). *Medical and diagnostic laboratories in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1575&chid=1>
- IBISWORLD Inc. (2007, February 5). *Pharmaceutical and medicine manufacturing in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=486&chid=1>

- IBISWORLD Inc. (2007, March 23). *Direct life, health and medical insurance carriers in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1322&chid=1>
- IBISWORLD Inc. (2007, March 26). *General medical and surgical hospitals in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1587&chid=1>
- IBISWORLD Inc. (2007, March 26). *Offices of dentist in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1557&chid=1>
- IBISWORLD Inc. (2007, April 2). *Other outpatient care centers in the U.S.* Retrieved April 18, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1569&chid=1>
- IBISWORLD Inc. (2007, May 13). *Home health care services in the U.S.* Retrieved on May 16, 2007, from <http://www.ibisworld.com/industry/retail.aspx?indid=1579&chid=1>
- International Business Machines Corporation. (2004). Health care. In *Global Innovation Outlook* (p. 20-37). Retrieved March 30, 2007 from [http://domino.research.ibm.com/comm/www_innovate.nsf/images/gio/\\$FILE/IBM_GIO_2004.pdf](http://domino.research.ibm.com/comm/www_innovate.nsf/images/gio/$FILE/IBM_GIO_2004.pdf)
- Jemal, A., Siegel, R., Ward, E., Murray, T., Xu J., & Thun, M.J. (2007, January-February). Cancer Statistics, 2007. *CA: A Cancer Journal for Clinicians*, 57(1), 43-66. Retrieved May 16, 2007 from http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=Retrieve&dopt=AbstractPlus&list_uids=17237035&query_hl=2&itool=pubmed_docsum
- Joint United Nations Programme on HIV/AIDS (no date). *Economic impact*. Retrieved May 14, 2007, from http://www.unaids.org/en/Issues/Impact_HIV/default.asp
- Kaiser Family Foundation (2007). *Snapshots: health care costs*. Retrieved May 5, 2007, from <http://www.kff.org/insurance/snapshot/chcm010307oth.cfm>
- Lapin, Pauline. (2006, March 22). Overview: Medicare and prevention. (United States. Centers for Medicare and Medicaid Services). *Health Care Financing Review*. Retrieved March 28, 2007, from <http://goliath.ecnext.com/premium/0199/0199-5645132.html#abstract>
- Levi, J., Segal, L., Gadola, E., Juliano, C., & Speulda, N. (2006, December). Ready or Not? Protecting the Public's health from Diseases, Disasters, and Bioterrorism 2006. *Trust For America's Health*. Retrieved March 14, 2007, from <http://healthyamericans.org/reports/bioterror06/BioTerrorReport2006.pdf>
- Loutfy, M., Wallington T., Rutledge T., Mederski B., Rose K., Kwolek S., et al. (2004). *Hospital Preparedness and SARS*. Centers for Disease Control and Prevention. Retrieved April 2, 2007, from <http://www.cdc.gov/ncidod/EID/vol10no5/03-0717.htm>

- Managed Care. (2007). *Wikipedia*. Retrieved May 19, 2007, from http://en.wikipedia.org/wiki/Managed_care#Point_of_Service_.26POS.
- Mayo Clinic Staff. (2005, July 21). *Infectious diseases: how they spread, how to stop them*. Retrieved May 8, 2007, from <http://www.mayoclinic.com/health/infectious-diseases/ID00004>
- McLaughlin, J. (Executive Producer). (2006, April 22). The McLaughlin Group [Television broadcast]. Washington, D.C.: Federal News Service.
- Mosquera, M. (2007, March 9). DoD data delays slow VA medical care to soldiers. *Government Health IT*. Retrieved April 25, 2007 from <http://www.govhealthit.com/article97889-03-09-07-Web>
- National Cancer Institute. (2001). Annual report shows overall decline in U.S. cancer incidence and death rates; feature focuses on cancers with recent increasing trends. Retrieved May 21, 2007, from <http://www.cancer.gov/newscenter/reportnation>
- National Cancer Institute. (2005, December). *Cancer trends progress report: 2005 update*. Retrieved April 25, 2007, from <http://progressreport.cancer.gov/>
- National Cancer Institute. (2006, October). *The Nation's Investment in Cancer: A Plan and Budget Proposal for 2008*. Retrieved May 3, 2007, from http://plan.cancer.gov/pdf/nci_2008_plan.pdf
- National Center for Health Statistics (NCHS) (2006). Health, United States, 2006 with chartbook, on trends. Retrieved April 17, 2007, from <http://www.cdc.gov/nchs/data/hus/hus06.pdf>
- Office of AIDS Research (OAR). (2002, February 26). *About OAR*. Retrieved May 3, 2007, from http://www.oar.nih.gov/about/about_oar.htm
- Office of Management and Budget. (2007). The entitlement crisis that isn't. Washington, DC: Author. Retrieved May 21, 2007, from <http://www.ombwatch.org/article/articleview/3822/>
- Oliver, R. W. (2003). *The biotech age: the business of biotech and how to profit from it*. New York: McGraw-Hill.
- Payne, J. (2004, December 21). Dying for Basic Care. *The Washington Post*. Retrieved May 15, 2007 from <http://www.washingtonpost.com/wp-dyn/articles/A13690-2004Dec20.html>
- Pharmacist shortage worsens nationwide. (2005, November 7). MSNBC.com. Retrieved May 20, 2007, from <http://www.msnbc.msn.com/id/9956386/>

Plunkett Research, Ltd. (2006, October 4). *Health Care Industry Trends*. Retrieved various dates in April 2007 from
<http://www.plunkettresearchonline.com/Trends/Default.aspx?Industry=7>

Principal, B. (2006, December 1). Career overview: health care industry. *The Stanford Daily*. Retrieved April 18, 2007, from
[http://daily.stanford.edu/article/2006/12/1/careerOverviewHealth careIndustry](http://daily.stanford.edu/article/2006/12/1/careerOverviewHealth%20careIndustry)

Reinsurance. (2007). Wikipedia. Retrieved May 19, 2007, from
<http://en.wikipedia.org/wiki/Reinsurance>

Rowley, B., RAdm. (2007, March). *Provocative questions; profound insights*. [Slide presentation]. Presented to ICAF Health Care Industry Study, March 2, 2007. Retrieved from The Institute for Alternative Futures.

Spotswood, S. (2003, December). VA care liaisons ease DoD transition. *U.S. Medicine*. Retrieved April 25, 2007, from
<http://www.usmedicine.com/article.cfm?articleID=778&issueID=57>

Stampfer, M.J., M.D., Hu, F.B., M.D., Manson, J.E., M.D., Rimm, E.B., Sc.D., & Willett, W.C., M.D. (2000, July 6). Primary prevention of coronary heart disease in women through diet and lifestyle. *New England Journal of Medicine*, 343 (1), 16-22. Retrieved May 10, 2007, from
http://content.nejm.org/cgi/content/abstract/343/1/16?andorexacttitleabs=and&search_tab=articles&tocsectionid=Original+Articles&tocsectionid=Special+Reports&tocsectionid=Special+Articles&tocsectionid=Videos+in+Clinical+Medicine&tocsectionid=Clinical+PracticeAORBClinical+Therapeutics&tocsectionid=Review+ArticlesAORBClinical+PracticeAORBClinical+Implications+of+Basic+ResearchAORBMolecular+MedicineAORBClinical+TherapeuticsAORBVideos+in+Clinical+Medicine&tocsectionid=EditorialsAORBPerspectiveAORBOutlookAORBBehind+the+Research&tocsectionid=Sounding+BoardAORBClinical+Debate&tocsectionid=Clinical+Implications+of+Basic+Research&tocsectionid=Health+Policy+ReportsAORBHealth+Policy+2001AORBQuality+of+Health+Care&searchtitle=Articles&sortspec=Score+desc+PUBDATE_SORTDATE+desc&excludetag=TWEEK_element&hits=20&where=fulltext&andorexactfulltext=and&fyear=1996&fmonth=Nov&sendit=GO&searchterm=Hu+FB+chronic+disease&searchid=1&FIRSTINDEX=0&resourcetype=HWCIT

Stanford University Medical Center (2006, October 18). Stanford Q&A: Douglas Owens on HIV/AIDS. *Business Wire*. Retrieved April 20, 2007, from
<http://www.allbusiness.com/SERVICES/BUSINESS-SERVICES/3944522-1.HTML>

Steckelberg, J., M.D. (2006, July 17). Are infectious diseases on the rise? [Editor's note]. *MayoClinic.Com*. Retrieved May 8, 2007, from
<http://www.mayoclinic.com/health/infectious-disease/ID00015>

- Texas Health and Human Services Commission. (2007). Children's health insurance program. Retrieved May 15, 2007, from <http://www.hhsc.state.tx.us/chip/index.html>
- The Feinstein Institute of Medical Research. (2007). Molecular Medicine Website. Retrieved April 26, 2007, from <http://www.molmed.org/about.html>
- The Routine HIV/AIDS Screening Coverage Act of 2007, H.R. 822, 110th Cong. (2007). Retrieved April 23, 2007, from www.washingtonwatch.com/bills/show/110_HR_822.html
- The test of TB; progress is being made in fighting tuberculosis even as new, harder-to-treat strains arise. (2007, March 24). *Los Angeles Times* [HOME EDITION], p. A. 20. Retrieved May 9, 2007, from Los Angeles Times Database. (Document ID: 1242064561).
- Turner, Mark. (2003, November 27). Jump in New HIV Cases Leads to Calls for Urgent Action to Fight AIDS in US. *Financial Times London (UK)*. Retrieved April 19, 2007, from Research Library Database (ProQuest <http://proquest.umi.com/pqdweb?did+46575743&Fmt=3&clientid=3921&RQT=309&VName=PQD>)
- United States Census Bureau. (2006). *Population Finder*. American FactFinder. Retrieved April 25, 2007, from http://factfinder.census.gov/servlet/SAFFPopulation?_event=&geo_id=01000US&_geoContext=01000US&_street=&_county=&_cityTown=&_state=&_zip=&_lang=en&_sse=on&_ActiveGeoDiv=&_useEV=&_pctxt=fph&_pgsl=010&_submenuId=population_0&_ds_name=null&_ci_nbr=null&_qr_name=null&_reg=null%3Anull&_keyword=&_industry
- United States Department of Health and Human Services, Agency for Health care Research and Quality. (2003, July). *National Health care Disparities Report*. Retrieved May 13, 2007, from <http://www.ahrq.gov/qual/nhdr03/nhdr2003.pdf>
- United States Department of Health and Human Services. (2007). Indian Health Service. Washington, DC: Author. Retrieved May 19, 2007, from <http://www.ihs.gov>
- United States Department of Health & Human Services. (2007). *Trustees Report & Trust Funds*. Centers for Medicare & Medicaid Services (CMS). Retrieved May 6, 2007, from <http://www.cms.hhs.gov/ReportsTrustFunds/>
- United States Department of Health & Human Services. (no date). *General Overview*. Retrieved May 2, 2007, from: <http://www.hhs.gov/about/index.html>
- United States Department of Health & Human Services. (no date). *Medicare/Medicaid Overview*. Retrieved May 3, 2007, from: <http://www.cms.hhs.gov/MedicaidGenInfo/>

- United States Department of Health & Human Services, National Institutes of Health. (no date). *About NIH*. Retrieved May 3, 2007, from <http://www.nih.gov/about/>
- United States Department of Labor, Bureau of Labor Statistics. (2007). *Career Guide to Industries, 2006-07 edition, health care*. Retrieved May 8, 2007, from <http://www.bls.gov/oco/cg/cgs035.htm>
- United States Department of Veterans Affairs. (2007, January 16). *VA health care eligibility & enrollment*. Retrieved May 3, 2007, from <http://www.va.gov/healtheligibility/>
- United States Food and Drug Administration. (2007). Office of Orphan Products Development. Washington, DC: Author. Retrieved May 22, 2007, from <http://www.fda.gov/orphan/>
- United States Nobel Prize Winners. (2006). *Jinfo.org*. Retrieved May 20, 2007, from http://www.jinfo.org/US_Nobel_Prizes.html
- Universal Health Care Action Network. (no date). *Support the health care access resolution*. Retrieved May 6, 2007, from <http://www.uhcan.org/HCAR/>
- Weise, Elizabeth (2005, May 17). Medical errors still claiming many lives. *USA Today*. Retrieved April 4, 2007, from http://www.usatoday.com/news/health/2005-05-17-medical-errors_x.htm.
- White, C. (2007). Health care spending growth: How different is the United States from the rest of the OECD? *Health Affairs* (26)(1), 154-161.
- Wilson, C., Gilliland, S., Moore, K., & Acton, K. (2007, January 1). The Epidemic of obesity among American Indian and Alaska Native adults with diabetes. Centers for Disease Control. Retrieved May 21, 2007, from http://www.cdc.gov/pcd/issues/2007/jan/06_0025.htm
- World Health Organization (WHO). (2000). Health system attainment and performance in all member states, ranked by eight measures, estimate for 1997 [Table]. In *World Health Report 2000* (p. 152-155). Retrieved on April 17, 2007, from http://www.who.int/whr/2000/en/annex01_en.pdf
- World Health Organization (WHO). (2000). Statistical annex explanatory notes. In *World Health Report 2000* (p. 144-151). Retrieved on April 17, 2007, from http://www.who.int/whr/2000/en/annex_notes_en.pdf
- Wu, Y. (2006). Overweight and obesity in China. *BMJ*, 333, 362-363. Retrieved May 21, 2007, from <http://www.bmj.com/cgi/content/full/333/7564/362>
- Yue, L. & Reisdorf, W. (2005). Pathway and Ontology Analysis: Emerging approaches connecting transcriptome data and clinical endpoints. [Electronic Version]. *Current Molecular Medicine*, 5, 11-21



ICAF